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JUVENES PRO MEDICINA

Basic Science I

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Hyperglycemic condition modulates the immunomodulatory properties of mycotoxin deoxynivalenol in the colon

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Introduction: The intestines are the key organ responsible for generating immune responses and providing protection against harmful environmental factors. Food contamination with mycotoxins, such as deoxynivalenol (DON), represents a serious public health threat, as these toxins disrupt the intestinal barrier and induce local inflammation in the colon. Although the mechanisms of DON action are well-described, the influence of the metabolic microenvironment on its immunomodulatory properties has not been fully characterized. Therefore, it is crucial to determine how elevated glucose levels affect intestinal immune responses to mycotoxin exposure.

Purpose: The aim of this study was to investigate how high-glucose conditions modulate the immunomodulatory effects of DON in human enterocytes.

Material and Methods: As an in vitro model, Caco-2 cells differentiated to human enterocytes were used. Cells were differentiated for 7 days and then exposed to DON in the concentration range of 0.1-7.5 µM for 24 hours. Then, the expression of cytokines was evaluated with RT-qPCR and the ELISA method. The experiments were conducted in triplicate. One-way ANOVA with Bonferroni correction was used for statistical analysis ($p<0.05$).

Results: The results showed that high glucose condition might significantly potentiate the immune response in human enterocytes exposed to mycotoxin DON.

Conclusions: The results indicate that glucose levels are a significant factor modifying the well-known effect of DON in colon cells. These data suggest that metabolic status may influence individual sensitivity to mycotoxins present in food and highlight the need to consider metabolic-toxicological interactions to better understand intestinal pathophysiology under exposure to environmental contaminants.

JUVENES PRO-MEDICINA
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Hypoxia, HIF-1, and Metabolic Dysregulation: Exploring the Pathways to Insulin Resistance in Obstructive Sleep Apnea

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Introduction: Obstructive sleep apnea (OSA) is a prevalent disorder associated with intermittent hypoxia, disrupted sleep architecture, and metabolic dysfunction, contributing to increased cardiovascular risk. Hypoxia-inducible factor 1 (HIF-1) and its downstream targets, glucose transporter 1 (GLUT1) and insulin receptor (INSR), play a crucial role in cellular adaptation to hypoxia and glucose metabolism.

Purpose: This study investigated the expression of HIF-1 subunits, GLUT1, and INSR at the genetic and protein levels in individuals with OSA and their associations with insulin resistance markers, including the homeostasis model assessment of insulin resistance (HOMA-IR).

Material and Methods: 89 participants underwent overnight polysomnography (PSG) and were classified into two groups based on their apnea-hypopnea index (AHI): OSA (AHI≥5, n=47) and control (AHI< 5, n=42) groups. Morning blood samples were analyzed for HIF-1α, HIF-1β, GLUT1, and INSR gene expression levels, as well as serum protein levels, insulin, and glucose concentrations. HOMA-IR was calculated as a marker of insulin resistance. This study was supported by the Ministry of Science and Higher Education under the “Diamond Grant” program (grant no. 0067/DIA/2018/47).

Results: The OSA group exhibited significantly lower expression levels of HIF-1α and GLUT1 ($p = 0.046$ and $p = 0.007$, respectively) and a decreased protein level of INSR ($p < 0.001$) compared to the control group. No statistically significant correlations were observed between gene expression levels and their respective protein products. The OSA group also demonstrated elevated serum insulin and glucose concentrations alongside increased HOMA-IR values ($p < 0.001$ for all). Additionally, in the OSA group, AHI was positively correlated with insulin ($R=0.303$, $p=0.041$), glucose ($R=0.327$, $p=0.026$), and HOMA-IR ($R=0.378$, $p=0.01$). Significant associations between the expression of HIF-1α, HIF-1β, INSR, and GLUT1 were observed in both groups, except for the relationship between HIF-1α and INSR ($p=0.089$), which was absent in the OSA group.

Conclusions: OSA is associated with reduced HIF-1α and GLUT1 expression, decreased INSR protein levels, and elevated markers of insulin resistance. These findings suggest a potential role for HIF-1 signaling in metabolic dysfunction in OSA and highlight the need for further research into targeted therapeutic strategies.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Continuous positive airway pressure treatment has an impact on the dynamics of relative leukocyte telomere length in patients with Obstructive Sleep Apnea

Dominik Jarecki, Julia Jaromirska

Presenting author: Dominik Jarecki

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Introduction: Obstructive sleep apnea (OSA) is associated with intermittent hypoxia, oxidative stress, and systemic inflammation, which may contribute to accelerated biological aging.

Purpose: Relative leukocyte telomere length (rLTL) has been proposed as a biomarker of cellular aging; however, its relationship with OSA severity and the effects of continuous positive airway pressure (CPAP) therapy remain unclear.

Material and Methods: The study cohort comprised 286 participants who underwent polysomnography (PSG). Based on the apnea–hypopnea index (AHI), individuals were stratified into a control group (AHI<5, n=72) and an OSA group (AHI≥5, n=214). A subset of patients from the OSA group initiated continuous positive airway pressure (CPAP) therapy. Peripheral blood samples were collected in the morning following PSG and during two follow-up visits in patients undergoing CPAP treatment—the first at 3–6 months after therapy initiation and the second after more than 1 year. rLTL was assessed using quantitative real-time polymerase chain reaction. This research project was funded by the state budget, allocated by the Minister of Science under the program “Perły Nauki II”,project no. PN/02/0095/2023. The total project value was PLN 239,996.90.

Results: No significant differences in rLTL were observed between the OSA and control groups (p=0.852). After 3–6 months of CPAP therapy, a significant decrease in rLTL was detected (p=0.043), whereas prolonged treatment exceeding one year was associated with an increase in rLTL (p=0.044). In the OSA group, rLTL showed a positive correlation with disease severity (R=0.173, p= 0.011). Additionally, significant correlations were identified between rLTL and selected PSG parameters, including arousal index (R=0.158, p = 0.024), AHI nREM (R=0.153, p=0.028), and total number of desaturation events (R=0.185, p=0.024). These associations were no longer observed in patients undergoing CPAP therapy, irrespective of treatment duration.

Conclusions: rLTL is associated with OSA severity and selected PSG parameters, supporting its potential role as a biomarker of disease burden. CPAP therapy appears to modulate rLTL dynamics over time, with differential short- and long-term effects, and abolishes associations between rLTL and sleep-related parameters. These findings suggest that effective OSA treatment may impact biological aging processes.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

An investigation into the role of the serotonin system in intestinal inflammation in mice

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Introduction: Inflammatory bowel diseases (IBD) is a chronic condition of the gastrointestinal (GI) tract characterized by recurrent inflammation. Serotonin (5-hydroxytryptamine; 5-HT) plays a role in maintaining intestinal homeostasis, including its contribution to the immune response. It has been shown that IBD is associated with alterations in the level of a variety of components of the 5-HT system, and these changes may correlate with the severity of the disease. However, the exact mechanisms underlying the involvement of 5-HT in the pathogenesis of IBD are still elusive.

Purpose: To determine the expression pattern of components of the 5-HT system in the GI tract during intestinal inflammation in vitro and in mice.

Material and Methods: The study was conducted in vivo using C57BL/6 mice and in vitro with RAW264.7 murine macrophage cell line. Inflammation in vivo was induced by administering 3% w/v dextran sodium sulfate (DSS) in drinking water to mice for 5 consecutive days followed by 2 days of water without DSS. In in vitro conditions inflammation was induced by treating cells with 1 µg/ml LPS for 24 hours. In addition, the cells were treated with the 1 µM of 5-HT receptor 2B (5-HTR2B) agonist (BW-723C86) and antagonist (LY266097). Colonic tissue and cell samples were collected at the end of each experiment. After isolating RNA and performing reverse transcription, the expression of genes associated with 5-HT system and inflammation was determined by real-time qPCR. Statistical analysis included Shapiro-Wilk test and one-way ANOVA.

Results: No expression of the Htr2c, Htr6 or Htr7 genes was detected in control group and mice with DSS-induced colitis, whereas Htr3a expression was detected only in the control group suggesting a downregulation of these gene by DSS treatment. Furthermore, a decrease in the expression of Htr4 and Slc6a4 was observed in the DSS-treated group as compared to control, while Htr2b expression was similar in both groups. Moreover, in the DSS group, elevated levels of IL10 and reduced expression of IL1b and Tnf were observed compared to the control. Analysis of expression pattern in RAW264.7 cell line showed an increase in expression of Htr2b and Slc6a4 in LPS-treated group compared to untreated control, while the expression of Htr2c, Htr3a, Htr4, Htr6, Htr7 genes was not detected in either experimental group. LPS induced a surge in the expression of IL1b, IL10, and Tnf. In the group treated with 1 µM 5-HTR2B agonist, no significant change in IL1b or IL10 expression was observed compared to the LPS-treated group. In contrast, the group treated with 1 µM 5-HTR2B antagonist showed a significant increase in IL1b expression, while IL10 remained unchanged.

Conclusions: The results suggest model-dependent regulation of the 5-HT system and its role in inflammation. Additionally, 5-HTR2B agonist had no significant effect on the inflammatory response, whereas the antagonist exhibited a mild proinflammatory effect.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Preserving naïve phenotype and enhancing cytotoxic function of CAR-T cell through optimalization of ex vivo expansion conditions

Kamil Filiks, Katarzyna Wasiak, Marta Stachowiak, Dagmara Grot, Amelia Kierasińska-Kałka, Łukasz Markiewicz

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Introduction: Chimeric antigen receptor T cell (CAR-T) therapy has become a promising tool in haematological malignancies treatment. Despite its effectiveness, CAR-T is associated with numerous limitations. Most crucial are low persistence and exhaustion caused by overactivation. Lymphocytes characterised by less exhausted and less differentiated phenotype have grater anticancer functions. Therefore, a lot of scientists seeking the improvement in optimalization of CAR-T cell ex vivo expansion conditions. Most common protocols use IL-2 or IL-7 and IL-15 during CAR-T cell expansion. However, it has been noted that IL-2 leads to more differentiated and exhausted cells and IL-7+IL-15 provide slower expansion rate, whereas IL-21 preserves naïve phenotype of cultured T cells. These and other factors provide reasons to conduct studies on the optimalization of CAR-T cells ex vivo expansion.

Purpose: Comparison of the effects of IL-2, IL-7, IL-15, and IL-21 stimulation on the phenotype of CAR-T cells. Aimed at identifying the optimal culture protocol to enhance the functionality and durability of the therapeutic product.

Material and Methods: CD3+ T cells were obtained from leukocyte concentrates by centrifugation on a Ficoll gradient and CD3+ cells selection using MicroBeads CD3+. Isolated cells were activated and cultured in complete medium supplemented with proper cytokine condition: IL-2; IL-7+IL-15; IL-15+IL-21; IL-7+IL-15+IL-21. 24h after activation T cells were subjected to lentiviral transduction for 48h. T cell phenotype was assessed on day 9 by flow cytometry. To analyse T cells phenotype 4 panels were used: activation (CD25, CD69, CD3); exhaustion (TIM-3, PD-1, CD3), memory (CD45RA, CCR7, CD3) and CAR expression (CD4, CD8, linker). On day 9 cytotoxicity test against U87-MG-EGFRvIII and U87-MG were conducted. Cytotoxicity was assessed by coculture T cells with target cells in effector to target ratio 5:1 for 24h, then LDH release was measured.

Results: Flow cytometry analysis provided information about T cell phenotype. According to the obtained data, a slight improvement in maintaining naïve and memory phenotype as well as a decrease in the exhaustion markers was observed in medium supplemented with IL-21 compared to other mediums. Furthermore, the addition of IL-21 improves the cytotoxic effect of CAR-T cells against U87_MG_EGFRvIII cells in vitro. Although no statistically significant differences were observed in memory/exhaustion markers, IL-21 supplementation tended to preserve a less exhausted phenotype while enhancing CAR-T cytotoxicity in vitro.

Conclusions: This study provided comprehensive approach to optimizing CAR-T cell ex vivo expansion. Addition of IL-21 can act beneficial to CAR-T cell culture, support less differentiated and less exhausted phenotype with enhanced cytotoxic function. However, further analyses, including in vivo studies, are needed to confirm the results mentioned above.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

EZH2 inhibition suppress proneural-to-mesenchymal transition in glioblastoma stem cells

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Introduction: Proneural-to-mesenchymal transition (PMT) represents a key phenotypic reprogramming in glioblastoma (GBM), characterized by loss of proneural identity, acquisition of mesenchymal traits, and and enhanced invasiveness and proliferative potential This transition is strongly implicated in therapeutic resistance. The histone methyltransferase EZH2 has been shown to enhance STAT3 signaling, a central regulator of PMT, suggesting a potential role for EZH2 in driving this process.

Purpose: This study aimed to investigate the contribution of EZH2 to TGF-β1-induced PMT and stem-like properties in glioblastoma stem-like cells (GSCs) derived from U251 and T98G cell lines.

Material and Methods: Human GSCs were cultured as 3D neurospheres in ultra-low attachment conditions using DMEM/F12 medium supplemented with B27 (2%), EGF (20 ng/mL), and FGFb (20 ng/mL). PMT was induced with recombinant TGF-β1 (10 ng/mL). EZH2 activity was targeted using the inhibitor EPZ6438 (5 µM) or the degrader MS1943 (4 µM). Gene and protein expression levels of EZH2, stemness markers (CD133, SOX2), PMT regulators (STAT3 and NF-κB), proneural markers (OLIG2, PDGFRA), and mesenchymal markers (CD44, YKL-40) were assessed by qRT-PCR and Western blotting. Functional assays included wound healing and Matrigel invasion assays for migration and invasiveness, as well as neurosphere formation assays to evaluate self-renewal. Findings were further supported by bioinformatic analyses of TCGA and CGGA transcriptomic datasets examining associations between EZH2 expression and mesenchymal gene signatures in GBM.

Results: TGF-β1 stimulation induced a robust mesenchymal shift, evidenced by upregulation of CD44, YKL-40, STAT3, and NF-κB, alongside downregulation of OLIG2 and PDGFRA. Pharmacological inhibition or degradation of EZH2 attenuated these changes, restoring proneural marker expression while suppressing mesenchymal and PMT-associated signaling. Functionally, EZH2 targeting significantly reduced GSC migration, invasion, and sphere-forming capacity, indicating impaired self-renewal and stemness. Consistent with these experimental findings, transcriptomic analyses of TCGA and CGGA datasets demonstrated a positive association between EZH2 expression and mesenchymal gene signatures in GBM.

Conclusions: Targeting EZH2, either through enzymatic inhibition or protein degradation, effectively suppresses TGF-β1-driven PMT, stemness, and invasive behavior in GBM stem-like cells. These findings highlight EZH2 as a promising therapeutic target to counteract GBM progression and treatment resistance. Funding: UMED Grants 2024, no. 564/1-000-00/564-20-078.

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Survival modeling of mortality using cox regression and machine learning approaches

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Introduction: Mortality in OSA remains a major concern, underscoring the need for accurate prognostic models, as traditional Cox methods have limited ability to capture complex non-linear relationships.

Purpose: This study aimed to develop and compare survival models for predicting all-cause mortality in patients with OSA, with particular focus on machine learning-based approaches.

Material and Methods: We analyzed a retrospective cohort of 4,368 consecutive patients referred for full-night attended polysomnography. Patients were followed for up to 20 years, during which 1,017 deaths (23.28%) were recorded. Clinical, demographic, and polysomnographic variables, including OSA severity, oxygen desaturation metrics, and comorbidities, were obtained from standardized medical records and national registry data.Three survival models were developed and compared. A multivariable Cox proportional hazards model was used as the reference approach, estimating the effect of each predictor on mortality risk under the assumption of proportional hazards. A Random Survival Forest (RSF) — an ensemble of survival trees capable of capturing non-linear relationships and interactions between variables. Discrimination was assessed by the concordance index (C-index) with 95% bootstrap confidence intervals. Calibration over time was evaluated using the time-dependent Brier Score at prespecified horizons (1, 5, 10, and 17 years) and the Integrated Brier Score (IBS) across the full follow-up period. Time-dependent AUC [AUC(t)] was additionally computed to characterize discriminative performance at individual time points.

Results: The time-varying Cox model achieved a C-index of 0.785 (95% CI 0.770–0.799). The RSF model achieved a C-index of 0.820 (95% CI 0.795–0.847) on the held-out test set, with an Integrated Brier Score of 0.088 and time-point Brier Scores of 0.022, 0.066, 0.114, and 0.125 at 1, 5, 10, and 17 years, respectively. Among all evaluated approaches, the XGBoost survival model demonstrated the highest discriminative performance, with a C- index of 0.829 (95% CI 0.802–0.854). Key predictors of mortality included age, male sex, BMI, OSA severity, oxygen desaturation measures, diabetes, smoking, and cardiovascular comorbidities.

Conclusions: Machine learning–based survival models, particularly RSF model, outperform traditional Cox approaches in predicting all-cause mortality in OSA and may improve risk stratification and prognostic assessment. The RSF model demonstrated strong and well-calibrated performance across the full follow-up horizon, providing the basis for an individualized, interpretable survival prediction framework. Based on these findings, we are currently developing a web-based clinical risk calculator derived from the RSF model, intended to support individualized mortality risk assessment in patients with OSA.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

The effect of kisspeptin-10 on the secretion of proinflammatory cytokines by human cardiac fibroblasts

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Introduction: Kisspeptin is a peptide hormone that plays a crucial role in regulating various physiological processes through its interaction with the G-protein coupled receptor 54 (GPR54). Recent studies have identified the presence of the KiSS-1/GPR54 system in myocardium, suggesting its potential role in the heart function regulation. It was noted that kisspeptin-10 (KiSS-10) has a profibrotic activity and elevates collagen content in human cardiac fibroblasts (in vitro) and mouse hearts (in vivo). It is known that key inducers of cardiac fibrosis also include inflammation. Interleukin 1β (IL-1β), interleukin 6 (IL-6) and tumor necrosis factor alpha (TNF-α) are potent pro-inflammatory factors, that may contribute to cardiac fibrosis and inflammation of the myocardium. However, available scientific evidence presents ambiguous influence of kisspeptin on proinflammatory cytokines secretion. Moreover, there is currently a lack of data on kisspeptin's impact on cytokine production in human cardiac fibroblasts.

Purpose: Profibrotic role of kisspeptin within the hearts suggests that this hormone can also affect other pathological processes involved in cardiac fibrosis as inflammation. However there is a lack of data regarding kisspeptin influence on proinflammatory cytokines in the heart. Therefore, the aim of the study was to determine, whether kisspeptin influences IL-1β, IL-6 and TNF-α levels in human cardiac fibroblasts culture.

Material and Methods: The experiments were performed on an immortalized human cardiac fibroblast cell line. The cells were treated with KiSS-10 in various concentrations (10-10 mol/L, 10-8 mol/L and 10-6 mol/L). Cytokines levels (IL-1β, IL-6, TNF-α) in the media samples were measured on Day 5 using ELISA kits. Results were compared with untreated control. Data are presented as mean and standard deviation (mean ± SD). The Shapiro-Wilk test was used to confirm the normality of the data distribution. The homogeneity of variance was estimated using Levene's test. The results did not meet the assumptions for parametric analysis. Therefore, the Kruskal–Wallis test, followed by multiple pairwise comparisons of mean ranks for all groups was used to determine the differences between groups.

Results: The results showed that kisspeptin-10 significantly increased the levels of IL-1β, IL-6 and TNF-α in cell culture medium in a dose-dependent manner. KiSS-10 at concentration of 10-10 mol/L did not significantly increase cytokines secretion. However, KiSS-10 at concentrations of 10-8 mol/L and 10-6 mol/L significantly elevated the levels of IL-1β ($p<0.001$ and $p<0.0001$, respectively), IL-6 ($p<0.001$ and $p<0.0001$, respectively) and TNF-α ($p<0.05$ and $p<0.0001$, respectively), compared to the untreated control.

Conclusions: This study shows that kisspeptin increases proinflammatory cytokine levels in the human cardiac fibroblasts culture and therefore may amplify inflammatory response in the myocardium.

JUVENES PRO MEDICINA
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In vitro activity of nitroxoline against Candida isolated from the urinary tract

Małgorzata Nowak, Filip Bielec, Małgorzata Brauncajs, Dorota Pastuszak-Lewandoska, Adrian Bekier

Presenting author: Małgorzata Nowak

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Introduction: The rise in the number of resistant fungi went unnoticed in the face of the emergence of resistant bacteria. It is only in recent years that greater attention has been paid to the global significance of growing resistance to antifungal drugs, particularly in the context of the rising number of infections caused by resistant fungal strains and the limited number of available classes of antifungals. Urinary tract infections (UTIs) caused by fluconazole-resistant yeasts are of particular concern. Candiduria is usually asymptomatic and the indication for antifungal therapy remains debated. The relatively low rates of fungal eradication, together with the potential for spontaneous resolution in the absence of treatment, argue against routine antifungal therapy. However, treatment may be justified in certain cases, as it can reduce the risk of progression to invasive infection and may be necessary in patients with symptomatic candiduria. Due to the growing resistance of Candida species to fluconazole, amphotericin B deoxycholate is rapidly becoming the drug of last resort, as the limited renal clearance of echinocandins leads to subtherapeutic concentrations which may promote the selection of non-resistant yeast populations.

Purpose: The purpose was to determine whether yeasts of the species such as Candida albicans, Candida tropicalis, Candida parapsilosis and Candida dubliniensis isolated from the urinary tract are susceptible to nitroxoline in an in vitro test.

Material and Methods: The determination of nitroxoline susceptibility and its comparison with the activity of fluconazole and amphotericin B were performed using the microdilution method according to EUCAST recommendations. MIC values were assessed for all tested antimicrobial agents. Additionally, MIC_{50} and MIC_{90} values were determined for nitroxoline.

Results: In this study, the nitroxoline MIC (minimum inhibitory concentration) for most isolates was at least four dilutions below the current EUCAST cut-off point for bacterial urinary tract infections (≤16 mg/L), indicating high antifungal activity.

Conclusions: In summary, this study demonstrated excellent in vitro activity of nitroxoline against urinary tract yeasts, particularly Candida albicans, which is the most common cause of fungal urinary tract infections, and for which the majority of tested strains were resistant to fluconazole. The results support the potential use of repurposed antimicrobial agents with antifungal activity, such as nitroxoline, in managing drug-resistant candiduria.

JUVENES PRO MEDICINA

Basic Science II

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Anatomical Variability of the Temporalis Muscle Tendon and Its Relevance in Craniofacial Reconstruction

Marta Szałkiewicz

Presenting author: Marta Szałkiewicz

Work supervisor: PhD Piotr Karauda, PhD Michał Juszczak

Affiliations: Medical University of Lodz

Introduction: The temporalis muscle is traditionally described in anatomical literature as a single, fan-shaped structure with relatively uniform architecture. Clinically, it constitutes an essential component of the masticatory apparatus and is widely used in reconstructive procedures within the craniofacial region, including the treatment of facial nerve palsy. Despite its broad clinical application, the anatomy of the tendinous portion of the temporalis muscle and its interindividual variability remain insufficiently understood, and existing descriptions often oversimplify its true morphology.

Purpose: The aim of this study was to perform a detailed analysis of the superficial part of the temporalis muscle, with particular emphasis on the relationship between the muscular belly and the tendinous part, as well as the anatomy of the tendon itself. The study focused on the assessment of the dimensions, proportions, and variability of the tendinous part along with the evaluation of potential clinical implications of the findings, especially in the context of maxillofacial and reconstructive surgery.

Material and Methods: The study was conducted on 40 temporalis muscle dissections (25 males, 15 females), including 22 left and 18 right sides. Standard anatomical dissection techniques were used to precisely isolate the superficial portion of the muscle and its tendinous component. Measurements of length and proportions of individual muscle parts were performed, with particular emphasis on the anterior portion and the total length of the tendinous segment. Statistical analysis was carried out using Student's T-test. A review of current literature was performed to correlate the findings with contemporary clinical applications.

Results: The results demonstrated that the temporalis muscle exhibits a more complex anatomy than suggested by classical anatomical descriptions. It was found that the tendinous portion occupies a larger proportion of the overall muscle surface than depicted in anatomical atlases. Statistical analysis revealed significant side-to-side differences in females, particularly in the length of the anterior portion and the total length of the tendinous component. In females, the tendinous portion on the right side was larger than on the left, indicating side-related asymmetry. The observed variability involved the dimensions and proportions of the muscular and tendinous parts.

Conclusions: The findings suggest that the simplified anatomical model of the temporalis muscle may require reconsideration, particularly regarding its tendinous component. The greater extent and variability of this part may have clinical implications and should be considered in planning craniofacial procedures. Special caution may be warranted during reconstructive surgeries and in the management of facial nerve palsy, especially in cases involving tendon mobilization or elongation. In females, additional preoperative imaging may be considered due to greater variability, which may influence both the surgical approach and outcomes.

JUVENES PRO-MEDICINA
06-09/05/2026 Łódź, Poland

The Impact of Post-infarct Heart Failure, High-fat Diet, and Hypertension on Heart Muscle Remodeling, Oxidative Stress, and Neutrophil Activity in Rats.

Paweł Jańczak, Marcel Kempiński, Kamil Krautz, Katarzyna Czarzasta, Małgorzata Wojciechowska

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Introduction: Post-infarct heart failure (post-MI HF), hypertension, and obesity remain serious global healthcare challenges. Although they arise from different etiologies, they are characterized by concurrent oxidative stress and neutrophil activity, which ultimately lead to cardiac remodeling.

Purpose: We investigated how MI, hypertension, and obesity-driven metabolic, ischemic, or hemodynamic stress influence oxidative stress and neutrophil activity in cardiac remodeling.

Material and Methods: In our experiment, we used Sprague-Dawley rats divided into four groups based on diet (normal-fat diet (NFD) versus high-fat diet (HFD)) and the surgical procedure performed at 8 weeks of nutrition (sham operation vs. coronary artery ligation to induce MI). Rat plasma was collected four weeks after the surgery, when the rats developed post-MI HF. We also used plasma from 12-week-old male spontaneously hypertensive rats (SHR/Clzd).We assessed Malondialdehyde (MDA), myeloperoxidase (MPO), and Creatine Kinase (CKMB) as biomarkers for oxidative stress, neutrophil activation, and myocardial damage using specific ELISA kits.We compared NFD vs. HFD, NFD vs.SHR vs. NFD, NFDvs. NFD-MI, HFDvs. HFD-MI, SHR vs. NFD-MI, and NFD-MI vs. HFD-MI.

Results: Statistical analysis showed that HFD rats had significantly higher CKMB ($p=0.02$) compared to NFD, but lower MDA ($p<0.0001$) compared to NFD controls. SHR rats showed no statistically significant difference in any biomarker compared to NFD, although they exhibited significantly lower CK-MB levels compared to the NFD-MI group. The HFD-MI group, compared to the NFD-MI group, had significantly higher levels of MPO ($p=0.02$) and MDA ($p=0.02$). Other markers were not statistically significant.

Conclusions: A high-fat diet worsens post-infarction oxidative stress and neutrophil activation, as shown by elevated MDA and MPO levels in the HFD-MI model. Obesity may cause persistent inflammation that increases these markers. The unexpected increase in MDA levels in NFD compared to HFD could be due to compensatory antioxidant upregulation in the obese group; this was not observed in the NFD-MI versus HFD-MI comparison. MI groups exhibited higher CKMB levels than other groups, which is notable because it is generally associated with acute rather than chronic heart failure. This suggests delayed, ongoing myocyte or muscle loss. These findings indicate that the interaction between obesity and ischemia significantly amplifies the inflammatory response and lipid peroxidation during the progression of heart failure.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Exploring RNA-binding potential of newly discovered hormone – cholesin

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Introduction: Cholesin (CHLSN) is a recently identified gut-derived hormone secreted by enterocytes in response to dietary cholesterol absorption. By binding to the G protein coupled receptor 146 (GPR146) on hepatocytes, it contributes to the regulation of cholesterol homeostasis. Emerging evidence suggests that cholesin may exert additional functions beyond classical endocrine signaling. Its newly identified WKF domain has been proposed as a RNA-binding motif. This discovery indicates possible involvement of cholesin in RNA-associated processes.

Purpose: To investigate the RNA-binding potential of human cholesin, identify candidate RNA interactions partners, and to characterize predicted protein-RNA interactions through computational modelling.

Material and Methods: Subcellular localization of cholesin was assessed using immunofluorescence in HEK293 and LOVO cellular models. Candidate RNAs, including U17 and ACA10, were selected based on catRAPID predictions and literature search. For the purpose of 3D RNA structure prediction RNAComposer was used. Docking of full-length cholesin and protein fragments with selected RNA, including poly(A) as a single-stranded RNA control, was performed using NPDock. Visualization and analysis of the predicted interactions were performed using PyMOL and MOE software.

Results: Immunofluorescence analysis revealed nucleolar localization of cholesin. Computational analysis of protein-RNA interactions indicated that cholesin forms stable complexes with structured RNAs. Predicted binding sites were localized in the N-terminal region and near the WKF domain. The observed interaction patterns were comparable to those described for yeast Rbp95 – an ortholog of cholesin.

Conclusions: Our results indicate that cholesin may have previously unrecognized RNA-binding properties in humans. The identification of RNA-binding domains, nucleolar localization, and in silico predicted RNA interactions collectively suggest that cholesin could engage in nucleolar RNA-associated processes. The observed consistency between our model and interaction patterns described in yeast supports the possibility of conserved mechanisms across species. Together, these findings point to a potential dual role for cholesin beyond its function in cholesterol homeostasis.

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Survival-oriented clustering using obstructive sleep apnea and polysomnographic variables

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Introduction: Obstructive sleep apnea (OSA) is linked to excess all-cause mortality, but severity classification based on the apnea–hypopnea index (AHI) alone incompletely captures systemic risk. We aimed to identify mortality-risk phenotypes by integrating demographics, comorbidities and polysomnography with time-to-event outcomes.

Purpose: The aim of this study was to identify clinically meaningful mortality-risk phenotypes using survival-oriented clustering based on obstructive sleep apnea (OSA) and polysomnographic variables, integrated with demographic and cardiometabolic factors. Additionally, we sought to evaluate the prognostic performance of these data-driven clusters in comparison with conventional multivariable Cox modeling.

Material and Methods: We analyzed 4,368 consecutive adult patients referred for full-night attended polysomnography. Participants were followed for 8–20 years; 1,017 individuals (23.28%) died and 3,351 (76.72%) were alive at the end of follow-up. All-cause mortality and cause-of-death categories were obtained from national registry data. Exclusion criteria were age <18 years and BMI <18 kg/m². We applied two complementary approaches: (1) conditional inference survival trees to define data-driven risk groups and (2) a multivariable Cox model to compute individual risk scores and stratify patients by quantiles. Discrimination was assessed by concordance index (C-index); group separation by Kaplan–Meier curves and log-rank tests.

Results: Both approaches produced clearly separated survival strata with increasing age, nocturnal hypoxaemia and cardiometabolic burden. The Cox model showed strong discrimination (C-index 0.785; 95% CI 0.770–0.799) and stepwise worsening survival across higher-risk groups. Survival trees identified a parsimonious 3-group risk structure, with the highest risk in older patients with worse oxygenation and greater cardiovascular comorbidity. A 4-group solution further divided intermediate risk, uncovering a cardiovascular-burden phenotype despite similar OSA severity.

Conclusions: Survival-oriented clustering based on polysomnographic and clinical variables identifies distinct mortality-risk phenotypes beyond conventional AHI-based classification. Risk stratification is driven primarily by nocturnal hypoxemia, age, and cardiometabolic burden rather than OSA severity alone. This approach may improve individualized risk assessment and support phenotype-driven management strategies.

JUVENES PRO-MEDICINA
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TGF-β–Mediated Glial-to-Mesenchymal Transition in Human Müller Cells: A Preliminary In Vitro Model of Proliferative Vitreoretinopathy

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Introduction: Proliferative vitreoretinopathy (PVR) represents the predominant cause of surgical failure following rhegmatogenous retinal detachment repair, characterized by the formation of contractile, fibrotic epiretinal membranes. While epithelial-to-mesenchymal transition (EMT) of retinal pigment epithelial cells is established as a central mechanism in PVR pathogenesis, the contribution of Müller glial (MG) cells remains insufficiently characterized. Emerging evidence suggests that MG cells possess the capacity to undergo glial-to-mesenchymal transition (GMT), a phenotypic reprogramming process potentially instrumental in fibrotic membrane formation.

Purpose: This preliminary investigation aimed to elucidate the effects of transforming growth factor-β (TGF-β) on GMT in human Müller cells and to develop a foundational in vitro model recapitulating key cellular and molecular features of PVR.

Material and Methods: Human Müller glial cells (MIO-M1 line) were exposed to TGF-β at concentrations of 5 ng/mL and 10 ng/mL for 24, 48, and 72 hours. Morphological alterations were monitored via light microscopy. Cellular proliferation and viability were quantified using the XTT assay, while migratory capacity was assessed through a wound healing assay. Quantitative real-time PCR (qRT-PCR) was employed to evaluate the expression of glial markers (GLUL, SOX9), mesenchymal markers (ACTA2/α-SMA, TAGLN), the transcription factor SNAI1, and extracellular matrix-associated gene FN1.

Results: TGF-β elicited pronounced, time-dependent morphological changes in Müller cells, with elongation and spindle-shaped, fibroblast-like phenotypes becoming increasingly evident at 48 and 72 hours. Wound healing assays demonstrated a significant augmentation in migratory capacity, whereas XTT analyses confirmed that TGF-β did not compromise cell viability at any time point. qRT-PCR revealed a coordinated downregulation of glial-specific markers concomitant with upregulation of mesenchymal and extracellular matrix-associated genes, with the most robust effects observed at 10 ng/mL and at later exposure intervals. These results underscore the utility of this experimental paradigm as a preliminary in vitro model of PVR.

Conclusions: TGF-β induces temporally regulated glial-to-mesenchymal transition in human Müller cells without impairing viability or proliferation. This preliminary in vitro system recapitulates essential cellular and molecular hallmarks of PVR and provides a platform for mechanistic studies on GMT, fibrotic membrane formation and for the evaluation of potential anti-fibrotic therapeutic strategies.

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JUVENES PRO MEDICINA
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When Cre Is Not Neutral: Villin-Driven Recombination Alters Intestinal Structure and Function

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Introduction: The intestinal epithelium is a highly dynamic tissue essential for maintaining barrier integrity and immune homeostasis. The Cre-loxP system, widely used for tissue-specific genetic manipulation, relies on promoters such as villin to drive recombinase expression selectively in intestinal epithelial cells. However, the biological impact of Cre expression itself remains insufficiently characterized.

Purpose: In this study, we investigated the effects of villin-driven Cre recombinase expression on intestinal morphology and function in mice.

Material and Methods: The study was performed in 12-week-old female mice expressing villin-Cre, with age- and sex-matched C57Bl6 mice used as controls (n=5 per group). Mice were subjected to functional tests such as whole gastrointestinal transit and bead expulsion, and further to histological and immunobiological analyses.

Results: Histological analysis revealed notable alterations in gut architecture in villin-Cre–expressing mice compared to controls. These changes included a marked depletion of goblet cells, a concurrent increase in mucin-containing cells, and a significant increase in inflammatory cell infiltration within the lamina propria, suggesting a shift in epithelial cell differentiation and mucus production dynamics. These findings indicate that Cre expression under the villin promoter may perturb epithelial homeostasis and immune interactions in the gut.

Functional assessment demonstrated accelerated intestinal transit in villin-Cre mice ($p<0.01$), reflecting altered gut motility. This enhanced expulsion rate may be linked to the observed inflammatory milieu and epithelial remodeling.

Conclusions: Collectively, our results demonstrate that villin-driven Cre recombinase expression is not phenotypically neutral and can significantly influence both intestinal structure and function. These findings highlight the importance of including appropriate Cre-only controls in experimental designs and warrant careful interpretation of data derived from Cre-expressing mouse models in gastrointestinal research.

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JUVENES PRO-MEDICINA
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Modulation of Rosmarinic Acid Biosynthesis by LED in Dracocephalum ruyschiana Shoots Cultured in Temporary Immersion Bioreactors

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Introduction: Dracocephalum ruyschiana L. (Lamiaceae) is a perennial species traditionally used in Eastern European and Central Asian medicine. Its aerial parts have been applied in the treatment of rheumatoid arthritis, laryngitis, and gastric ulcers. The pharmacological properties of this plant are largely attributed to its polyphenolic compounds and essential oils.

Purpose: The present study aimed to evaluate the effects of LED light of different wavelengths, used as an abiotic stress factor, on phenolic metabolism and the biosynthesis of rosmarinic acid (RA) in shoots of D. ruyschiana.

Material and Methods: Shoots were cultured for three weeks in liquid Murashige and Skoog (MS) medium supplemented with 0.5 mg/L 6-benzylaminopurine, 0.2 mg/L indole-3-acetic acid, and 0.5 mM putrescine, using RITA and Plantform bioreactor systems. The cultures Ywere subjected to four LED light treatments: blue (430 nm), red (670 nm), a red-to-blue ratio of 70:30, and white light (430–670) nm. For phytochemical analysis, lyophilized plant material was extracted with methanol-water (8:2, v/v). Qualitative analysis of polyphenolic constituents by UPLC-DAD/ESI-MS led to the identification of nine phenolic compounds:phenolic acids (rosmarinic acid, methyl rosmarinate, chlorogenic acid, dicaffeoylquinic acid), and flavonoid derivatives of acacetin and apigenin. Quantitative determination of RA, the predominant metabolite in the analyzed extracts was carried out using an Agilent Technologies 1290 Infinity HPLC system, RA content was expressed as mg/g dry weight (DW).

Results: LED wavelength significantly influenced rosmarinic acid (RA) accumulation in D. ruyschiana cultures. The highest RA content (12.3 mg/g DW) was recorded in shoots cultivated under blue LED light in the RITA bioreactor, corresponding to a production level of 60 mg/L - over six-fold higher than in the control. Blue light was also the most effective treatment in the Plantform system; however, its productivity was approximately two-fold lower compared to the RITA bioreactor.

Conclusions: These findings indicate that blue light effectively enhances RA biosynthesis in D. ruyschiana shoot cultures.

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Analysis of calcium and phosphorus ion release from experimental dental resin-based composite modified with hydroxyapatite

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Introduction: The release of calcium (Ca^{2+}) and phosphate (PO_4^{3-}) ions from restorative materials may promote remineralization and reduce the risk of secondary caries. Hydroxyapatite (HA), $Ca_{10}(PO_4)_6(OH)_2$, is a promising bioactive filler for resin-based composites (RBCs) due to its well-established ion-releasing potential.

Purpose: The aim of this study was to evaluate Ca^{2+} and P ion release from experimental RBCs modified with micro- (mHA, 2.5 µm), nano- (nHA, <200 nm), and hybrid (hHA, equal parts of mHA and nHA) hydroxyapatite at concentrations of 2.5, 5.0, and 7.5 wt.%.

Material and Methods: Eight groups of experimental RBCs were prepared with a BisGMA/UDMA/TEGDMA/HEMA resin matrix (35/35/20/10 wt.%) and 45 wt.% silanized silica filler. Ion release was assessed using both a Ca^{2+}-selective electrode and inductively coupled plasma optical emission spectrometry (ICP-OES; Ca at 393.366 nm, P at 177.495 nm). An unmodified composite served as control. Cylindrical specimens were immersed in 0.9% NaCl solution for 7, 14, 21 and 28 days for Ca2+ selective electrode and for 1 week, 4 weeks, and 90 days for ICP-OES. Additionally, SEM-EDS analysis of surface morphology and elemental composition was performed.

Results: ICP-OES demonstrated detectable Ca^{2+} release from all HA-modified groups at all time points, generally exceeding the control at 1 week (range: 0.55–0.78 mg/L vs. 0.51 mg/L in control). After 90 days, materials modified with 5 wt.% mHA showed the greatest Ca^{2+} release (mean 3.42 mg/L), surpassing the control (0.66 mg/L). Phosphate ion release was below the limit of quantification (LOQ = 0.005 mg/L) in the control and in groups with ≤2.5 wt.% HA at most time points. Materials modified with ≥5 wt.% HA released measurable phosphate, with 5 wt.% mHA demonstrating the highest release at 4 weeks and 90 days. SEM-EDS confirmed the presence of Ca and P on the surface of all HA-modified materials, with signal intensity increasing with HA concentration, while the control showed no detectable Ca or P. Ion-selective electrode measurements were limited, most likely by interference from Na^+ ions in the saline medium and potential contamination of the incubation environment, which complicated interpretation of those results.

Conclusions: Experimental RBCs modified with 5 wt.% mHA demonstrate measurable release of both calcium and phosphate ions over a period of 90 days, indicating bioactive potential. Modification with 5 wt.% HA appears optimal, balancing ion release with previously reported mechanical performance. These findings support further investigation of HA-modified composites as candidates for bioactive restorative applications. Methodological refinements, e.g. including the use of deionised water or artificial saliva with rigorous environmental controls are recommended for future studies.

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Immunohistochemical assessment of CCL21 and LEFTY2 in eutopic endometrium of women with endometriosis

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Introduction: Endometriosis (EM) is a chronic inflammatory disease in which molecular alterations within the eutopic endometrium may promote ectopic lesion development. Transcriptomic data suggest increased CCL21 and decreased LEFTY2 expression in women with EM. CCL21 is a chemokine involved in recruitment and activation of immune cells, whereas LEFTY2 is a TGF β family member implicated in regulation of implantation related signalling and endometrial receptivity. However, the corresponding protein level expression patterns of these molecules in eutopic endometrium remain poorly characterized.

Purpose: To compare protein expression and localization of CCL21 and LEFTY2 in eutopic endometrium of reproductive age women with and without laparoscopically confirmed EM (EEM vs EH).

Material and Methods: In this study, archival FFPE samples of eutopic endometrium were analysed in the EEM and EH group. Antibody concentration and incubation conditions were first optimised on whole section slides, but tissue microarrays were used for the final study. Representative areas were selected by a pathologist. Sections (3 µm) were deparaffinized, rehydrated, subjected to antigen retrieval and incubated with primary antibodies against CCL21 and LEFTY2, followed typical immunohistochemical protocol. Appropriate positive and negative controls were included to verify specificity. Protein expression and localization are assessed semi quantitatively using the ImmunoReactive Score, combining staining intensity and percentage of positive cells, by two independent blinded observers, with digital image analysis planned to quantify the percentage of positive area and refine subcellular localization.

Results: Pilot immunohistochemical evaluation (n = 2) confirmed specific CCL21 and LEFTY2 staining with clear signal in positive controls and absence of staining in negative controls. In EEM samples, CCL21 showed more intense staining than in EH samples, particularly within stromal areas rich in immune cells, suggesting enhanced local immune activation. LEFTY2 expression appeared weaker in EEM samples, with predominantly cytoplasmic glandular staining, whereas EH samples displayed stronger LEFTY2 signal in glandular epithelium. Early evaluation of the tissue microarrays confirmed the same CCL21 and LEFTY2 staining patterns as in the initial whole section slides, supporting the reliability of these preliminary findings.

Conclusions: This study demonstrates the feasibility of immunohistochemical assessment of CCL21 and LEFTY2 in eutopic endometrium. Preliminary findings suggest stronger CCL21 and weaker LEFTY2 expression in women with endometriosis compared with controls, indicating potentially altered immune and regulatory signalling in eutopic endometrium.

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Transcriptomic profiling reveals subtype-specific molecular signatures in endometriosis.

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Introduction: Endometriosis affects approximately 10% of women of reproductive age and manifests in three clinically distinct subtypes: deep infiltrating endometriosis (DIE), ovarian endometriosis (OE), and peritoneal endometriosis (PE). Despite marked differences in clinical presentation, pain phenotype, and malignant potential, the molecular basis of this heterogeneity remains incompletely understood. Single-dataset transcriptomic studies are limited by small sample sizes and conflicting results across cohorts, highlighting the need for integrated multi-dataset approaches capable of identifying reproducible, cross-study molecular signatures.

Purpose: This study aimed to apply network meta-analysis (NMA) to integrate transcriptomic data from multiple independent GEO datasets and characterize subtype-specific molecular signatures across all pairwise comparisons of endometriosis subtypes and eutopic endometrium (EH) with cross-dataset reproducibility.

Material and Methods: Gene expression data were retrieved from the Gene Expression Omnibus (GEO) based on predefined inclusion criteria. Nine datasets underwent dataset-specific preprocessing and normalization. Differential expression analysis was performed using limma or edgeR as appropriate, followed by NMA using the netmeta framework with random-effects models. Functional enrichment was performed using fgsea (MSigDB Hallmark gene sets), clusterProfiler (Gene Ontology Biological Process, KEGG), and enrichR (Reactome, MSigDB). Top candidate biomarkers were selected based on reproducibility criteria: significant in ≥3 contrasts, inter-study heterogeneity $I^2<0.5$, and represented in ≥8 studies.

Results: Nine GEO datasets met inclusion criteria, comprising samples from women with DIE (n=97), OE (n=92), PE (n=79), and healthy controls (n=202). NMA yielded 1,995 DEGs for OE vs. eutopic endometrium (EH), 715 for DIE vs. EH, and 201 for PE vs. EH. Each subtype displayed a distinct molecular profile. DIE was characterized by a myofibroblast-like, pro-invasive signature with enrichment of inflammatory and ECM remodeling pathways, providing a molecular basis for its pain phenotype and tissue infiltration. OE showed an oncogenic transcriptomic profile consistent with its risk of malignant transformation. PE was predominantly immunological, reflecting its peritoneal inflammatory environment. All three subtypes shared myofibroblastic activation and reduced proliferative turnover relative to eutopic endometrium. Top reproducible biomarkers — identified across ≥3 contrasts with low inter-study heterogeneity — included CAVIN1, SLMAP, EBF2, FOXL2NB, and JAML.

Conclusions: Network meta-analysis of nine transcriptomic datasets identifies reproducible, biologically coherent molecular signatures distinguishing endometriosis subtypes. DIE, OE, and PE differ fundamentally at the transcriptomic level, with distinct pathway activation patterns reflecting their clinical phenotypes. These findings provide a foundation for subtype-specific biomarker development and precision therapeutic strategies in endometriosis.

JUVENES PRO MEDICINA

Surgery and Transplantology

8th of May 2026

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JUVENES PRO MEDICINA
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Usefullness of intraoperative indocyanine green (ICG) imaging for the detection of the parathyroid glands during total thyroidectomy

Amelia Wojnicka

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Introduction: Thyroidectomy is a procedure performed as a result of several indications e.g. thyroid cancer or toxic nodular goiter. Notably, it involves a risk of an unintentional damage or excision of parathyroid glands. To prevent possible hypoparathyroidism several devices were invented to visualize parathyroid glands (PGs). This study investigates the use of indocyanine green imaging for intraoperative identification and preservation of PGs.

Purpose: The aim of this analysis was to evaluate whether the use of ICG enhances visulatization of the PGs, thereby improving early parathyroid function following thyroidectomy. Postoperative PTH and total Ca levels, as well as their qualitative classification, were used to define parathyroid function. Since the available data did not include a direct variable confirming accidental parathyroidectomy, the analysis of the clinical outcome was based on mentioned biochemical markers.

Material and Methods: The analysis consisted of the results from 160 patients after total thyroidectomy and total thyroidectomy with lymphadenectomy, 111 underwent surgery without ICG and 49 with ICG visualization. During surgery, after ICG injection, fluorescence imaging of PGs was obtained using the SPY-PHI Stryker Fluorescence Imaging System and the PinPoint camera system. The main biochemical endpoints were postoperative low PTH (below 1.60 pmol/L), postoperative low total calcium (below 2.20 mmol/L), and a composite endpoint defined as concurrent low PTH and low calcium. Continuous postoperative PTH and calcium values were analyzed as secondary endpoints.

Results: In the group of total thyroid procedures with and without lymphadenectomy, after adjusting for age, sex, diagnosis, type of surgery (TT vs. TT+LND), and primary PTH, the use of ICG was associated with a higher risk of low PTH (aOR 3.01; 95% CI 1.38–6.59; p=0.0058). In a corresponding model for continuous postoperative PTH, a ratio of 0.60 was obtained (95% CI 0.42–0.87; p=0.0074), indicating lower postoperative PTH in the ICG group even after adjustment. No difference was found for the value of low total Ca in the same group (aOR 0.73; 95% CI 0.33–1.62; p=0.4440).

Conclusions: The presented data did not indicate, that the use of ICG in the cohort of total thyroidectomy resulted in an improvement in early postoperative parathyroid functions assessed biochemically.

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Postoperative complications following surgical excision of cutaneous lesions: a single-center retrospective study.

Anna Zielińska

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Introduction: Surgical excision remains the gold standard for the diagnosis and treatment of many cutaneous lesions in both dermatology and plastic surgery. Because these procedures are routine and mostly handled in an outpatient setting, there is a tendency to view them as risk-free. However, postoperative complications such as surgical site infection, hematoma, wound dehiscence, delayed healing, or unfavourable scar formation may occur. Thus, evaluation of complication rates and identification of associated risk factors may contribute to improved surgical practice and patient management.

Purpose: This study aimed to assess the incidence and nature of postoperative complications following surgical excision of cutaneous lesions and to identify clinical factors associated with their occurrence.

Material and Methods: A retrospective analysis of medical records was performed for patients who underwent surgical excision of cutaneous lesions between 2023 and 2025 at a surgical clinic located in Central Poland. Demographic data, lesion characteristics, anatomical location, and postoperative outcomes were reviewed. Recorded complications included surgical site infection, hematoma, wound dehiscence, delayed wound healing, and hypertrophic or unfavourable scar formation. Each excision was performed by the same physician in the same clinical setting. All patient data were anonymised upon statistical analysis.

Results: A total of 64 patients underwent surgical excision of 194 cutaneous lesions during the study period. Patient age ranged from 8 to 91 years. The majority of patients were female (56 patients, 87.5%). Histopathological examination was performed for 58 excised lesions. Postoperative complications were observed in approximately 3% of cases. The most frequently reported complication was hematoma formation, commonly occurring in patients with arterial hypertension. Impeded healing was more frequent in distal parts of the body, in patients who smoked and in those with comorbidities such as atherosclerosis and diabetes mellitus. Most complications were mild and resolved with conservative treatment without the need for additional surgical intervention.

Conclusions: Observed complications were minor and manageable with appropriate postoperative care. Identifying and spreading awareness of patient-related risk factors may help surgeons optimise surgical technique and postoperative management, thereby improving both functional and aesthetic outcomes. Moreover, these findings highlight the need for healthcare professionals to recognise that any intervention in the human body may result in complications, and that no procedure is entirely risk-free.

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Arnica montana in perioperative healing: evidence-based evaluation of its role in facial plastic surgery

Anna Zielińska

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Introduction: Despite advancements in minimally invasive techniques, postoperative ecchymosis and edema remain significant challenges in aesthetic plastic surgery, often impacting the patient's perceived recovery quality. Arnica montana has gained popularity in clinical practice due to its anti-inflammatory properties, primarily attributed to sesquiterpene lactones like helenalin. Helenalin is thought to inhibit the NF−κB signaling pathway, thereby modulating the inflammatory cascade at a molecular level. However, there is still an ongoing debate among surgeons regarding the most effective delivery route, with practice patterns varying between systemic oral supplementation and localized topical application.

Purpose: The study focused on evaluating the clinical impact of Arnica montana on the healing process after plastic surgery. It aimed to compare the efficacy of a pre-emptive oral granule protocol against postoperative topical gel application in reducing the severity and duration of bruising and swelling.

Material and Methods: A retrospective analysis was performed on patient records from a private plastic surgery facility in Central Poland. The study included patients who underwent facial procedures, predominantly blepharoplasty. Three distinct groups were compared: Group I (Oral): Patients following a specific protocol of 5 granules (30CH) every 8 hours, starting 24 hours prior to the procedure.Group II (Topical): Patients applying Arnica-based gel three times daily starting on the first postoperative day. Group III (Control): Patients receiving standard postoperative care without Arnica supplementation. Healing was monitored on postoperative days (POD) 1, 3, and 7. Assessment included photographic documentation and a standardized physician-rated scale for ecchymosis and edema.

Results: Patients in the oral Arnica group (Group I) demonstrated a notably faster resolution of skin discoloration compared to the control group ($p<0.05$). Clinical observations suggested that starting the oral protocol 24 hours before surgery limited the initial extent of ecchymosis more effectively than the reactive use of topical gel in Group II. While patients in Group II reported a cooling, symptomatic relief of swelling, the topical application did not significantly shorten the total time of hematoma resorption. No hypersensitivity reactions or adverse events related to Arnica were observed in any group.

Conclusions: The findings suggest that oral Arnica montana is a valuable adjunct in the perioperative management of plastic surgery patients. A pre-emptive 24-hour oral protocol appears superior to topical application in accelerating the clearance of postoperative bruising. Integrating this low-cost, safe intervention into surgical practice can improve early postoperative outcomes and enhance patient satisfaction during the recovery period.

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Clinical Severity and Histopathological Correlation in Congenital Blepharoptosis: Clinical Analysis of Three Surgically Treated Cases

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Presenting author: Ekaterine Abashidze

Work supervisor: dr hab. n. med. Aleksandra Iljin

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Introduction: Congenital blepharoptosis (CBP) is the most common developmental disorder of the upper eyelid. It occurs in approximately 1 in 842 live births. The condition probably results from dysgenesis of the levator palpebrae superioris muscle (LPS) and may lead to visual field limitation, amblyopia, and other ophthalmic abnormalities. LPS shortening remains the main surgical method for achieving good, permanent postoperative results in CBP patients.

Purpose: The aim of this study was to analyze the correlation between the clinical severity of CBP and histopathological changes of the LPS based on three surgically treated patients.

Material and Methods: Analysis of three samples of LPS complex and tarsus obtained from three patients operated on for CBP (mild, moderate and severe forms), who underwent Mustarde's modified technique with the shortening of the LPS complex. Clinical estimation included examination and measurements, as well as ophthalmological evaluation. Histopathological samples were studied under light and electron microscopy after surgery.

Results: Histopathological findings corresponded with the clinical severity of CBP. Decreased number and varying diameter of LPS fibers and fibrous tissue hyperplasia in the endo- and perimysium were found in light microscopy. Electron microscopic examination demonstrated: collagen fiber proliferation within LPS (mild CBP), together with abnormal distribution of LPS fibers, tubular system alterations and mitochondrial changes (moderate CBP) and also decreased mitochondrial density and homogeneous muscle fiber areas in severe CBP.

Clinical studies using Mustarde's modified method report very good postoperative outcomes in 100% of mild cases, 89.5% of moderate cases, and 85.7% of severe cases, confirming the effectiveness of this surgical technique. Functional and aesthetic improvement of the eyelid position was achieved in these patients.

Conclusions: Histopathological alterations in the three presented cases demonstrated a correlation between the clinical severity of CBP and progressive changes in the LPS muscle.

Early diagnosis and timely surgical correction are crucial to prevent complications associated with delayed treatment as well as long-term visual impairment.

Increased awareness among clinicians is essential to ensure early identification and optimal surgical management of CBP.

JUVENES PRO MEDICINA
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Training surface matters: expert-rated suture quality and learner-reported experience across five practice materials in a two-center randomized controlled study

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Introduction: Suturing is one of the most advanced procedural skills that medical students can participate in during their time in the operating room as part of their clinical training, but clinical exposure in early medical education is often limited. Simulation-based training plays a crucial role in introducing and then later consolidating these foundational skills. A wide variety of materials are employed in simulation-based training. These materials differ in terms of texture, elasticity, resistance to needle passage, realism, comfort, usability, cost of use, hygiene considerations, and ethical implications.

Purpose: To evaluate how different suturing practice materials influence trainee-reported learning experience and expert-rated suture quality, and to determine whether initial training material affects subsequent performance.

Material and Methods: Therefore, we have evaluated five most commonly available suturing practice materials: banana, orange, chicken, porcine, and silicone We aimed to: (1) compare student-reported outcomes of perceived realism, learning, confidence, and comfort, (2) assess expert-rated technical quality of simple interrupted and vertical mattress sutures placed on each material, (3) determine whether the initial training material has an influence on further performance when all participants later practice on a silicone model. Participants were 1st year medical students without prior formal suturing training.

Results: Across complementary endpoints, material choice in Round 1 mattered. The silicone and porcine models were rated the highest. Trainees perceived large differences in comfort and realism, and surgeons observed material-dependent differences in technical quality, particularly for vertical mattress sutures and wound-edge approximation domains. However, once practice was standardized to silicone in Round 2, final expert performance was no longer significantly stratified by the initial material, while paired analyses supported overall skill improvement between rounds.

Conclusions: Future suturing training programs can begin with simple, low-cost materials to introduce basic techniques and hand coordination. As learners gain experience, training should gradually transition to more realistic models, which better simulate tissue handling and help refine precision, confidence, and clinically relevant suturing skills before real patient exposure.

JUVENES PRO MEDICINA
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Validating Software-Based Hearing Tests Against Clinical Audiometry

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Introduction: Hearing loss affects more than 1.5 billion individuals globally and represents a major public health concern. Recently, consumer-oriented software-based hearing tests have become widely accessible through smartphones and wearable devices. However, their diagnostic accuracy compared with standard clinical audiometry remains unclear.

Purpose: To compare hearing threshold measurements obtained from software-based hearing test applications with conventional clinical audiometry and to assess user experience with these digital tools.

Material and Methods: A cross-sectional validation study was conducted at a tertiary otolaryngology center. Forty-six adult volunteers underwent hearing assessment using three modalities: (1) the reference Siemens SD-25 Audiometer, (2) the Apple Health Hearing Test performed with AirPods Pro (2nd generation), and (3) the MiMi Hearing Test. Hearing thresholds were compared using paired t-tests, mean absolute error (MAE), and Pearson correlation coefficients. Participants also completed a questionnaire evaluating usability and perceived reliability of each method.

Results: The Apple-based hearing test demonstrated strong agreement with the reference audiometer, with clinically negligible differences at frequencies between 2,000 and 8,000 Hz (non-significant differences ≤ 0.8 dB). However, it underestimated hearing thresholds at lower frequencies (250–500 Hz), with deviations reaching −6.1 dB ($p < 0.001$). In contrast, the MiMi application consistently overestimated mean hearing thresholds across most tested frequencies, with significant deviations of 5.2–7.9 dB at 500–2,000 Hz ($p < 0.001$). MAE analysis confirmed greater accuracy for the Apple test (2.15 dB) compared with the MiMi test (5.47 dB). In user evaluations, the clinical audiometer was rated highest for reliability, followed by the Apple application and then the MiMi application. Regarding convenience, participants ranked the Apple test highest, followed by MiMi, with the audiometer rated least convenient.

Conclusions: Software-based hearing assessments show potential as accessible screening tools, particularly the Apple-based application, which demonstrated closer agreement with clinical audiometry at mid-to-high frequencies. Nevertheless, discrepancies at lower frequencies and reduced accuracy in some applications highlight the need for cautious interpretation. While digital hearing tests may enhance accessibility and convenience, standard audiometry remains the reference method for definitive diagnosis.

JUVENES PRO MEDICINA
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Accuracy Analysis of Optical Biopsy of Colorectal Polyps

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Introduction: Colorectal cancer remains a leading cause of global mortality, necessitating accurate optical biopsy for effective screening and resection planning. Colorectal polyps are cancer precursors whose malignancy risk is assessed using advanced morphological (Paris) and pit-pattern (Kudo) classifications. This study evaluates the diagnostic concordance of real-time endoscopic assessment compared with histopathology in 114 patients with lesions ≥ 10 mm.

Purpose: To identify factors associated with accurate optical diagnosis of colorectal polyps ≥10 mm.

Material and Methods: Retrospective analysis included 114 patients (2019–2024). Real-time optical diagnoses, guided by the Paris and Kudo classifications, were compared against definitive histopathological findings to assess diagnostic concordance across diverse pathological categories.

Results: The overall concordance rate was 71.05%. Significant predictors of accuracy included age, ($p=0.0406$), Kudo classification, ($p=0.0011$), and dysplasia status ($p<0.0001$). Kudo IV lesions showed the highest concordance rate of 84.6%. This was followed by the Kudo IIIs category, with a concordance rate of 70.6%. Neoplastic diagnoses (cancer and adenomas) achieved high accuracy (84–88%), whereas hyperplastic or inflammatory assessments yielded 0% concordance. Both low-grade and high-grade dysplasia demonstrated markedly higher concordance compared with non-dysplastic lesions. Specifically, low-grade dysplasia and high-grade dysplasia demonstrated concordance rates of 83.3% and 82.4%, respectively, compared with only 10.5% in non-dysplastic lesions. The median age differed between concordant and discordant groups (67 vs. 63 years), with a small-to-moderate effect size ($r = 0.245$).

Conclusions: The observed 71.05% accuracy rate, while lower than expert benchmarks due to technical limitations and high discordance in non-neoplastic categories, reinforces the clinical necessity of routine histopathological verification for all lesions ≥ 10 mm. This gap in diagnostic reliability underscores that optical biopsy should serve as a tool for risk stratification and resection planning rather than a replacement for definitive microscopic analysis. The findings indicate that optical diagnosis is most reliable when lesions demonstrate clear neoplastic architecture and dysplastic features during endoscopic evaluation. Consequently, future integration of artificial intelligence (AI) and computer-aided diagnosis (CADx) is essential to standardize assessment and elevate accuracy in routine clinical practice to match expert levels.

JUVENES PRO-MEDICINA
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Quantitative Analysis of Kinematic and Thermodynamic Constraints in Guided Implant Surgery: A Clinical Survey and Biomechanical Proposal

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Introduction: Implant surgery faces two major physical challenges: restricted spatial ergonomics and irrigation blockage. The thickness of an implant surgical guide, combined with the handpiece width and drill length, introduces a potential spatial collision that compromises operator ergonomics and tool manoeuvrability within the limited space, especially in the posterior regions of the maxilla and mandible. Simultaneously, the tight tolerances of closed-sleeve systems restrict the flow rate of irrigation fluid. When these spatial limitations hinder operational control or when the visible obstruction of cooling raises concerns of thermal bone necrosis, clinicians frequently opt to remove the guide and convert to free-hand placement, negating the entire guide design and manufacturing process.

Purpose: To evaluate how physical interference and irrigation restrictions correlate with clinical failure modes. The study aims to quantify how often spatial deficits and coolant obstruction force clinicians to intraoperatively abandon guides, proposing a biomechanical design solution.

Material and Methods: A quantitative survey was distributed to practicing implantologists (n= 33, with 23 actively using guides) to evaluate posterior vertical clearance and sleeve cooling restrictions. Evaluated parameters included sleeve architecture preferences, primary mechanical limitations, structural failures, and the frequency of intraoperative conversion to free-hand surgery due to spatial deficits.

Results: Survey data provided verification for the two constraints. The risk of bone overheating (lack of irrigation) was the primary concern for 65.2% of clinicians, while 52.2% highlighted geometric handpiece collisions. To mitigate these challenges, majority of clinicians (55.6%) reject standard closed-sleeve systems, preferring open-sleeve (38.9%) or sleeve-less (16.7%). Despite their adaptations, constraints remain so severe that 87.0% of clinicians, regardless of experience, report having to intraoperatively remove the guide and convert to free-hand surgery due to posterior spatial limits. Furthermore, 34.8% reported at least one mechanical failure (e.g., guide fracture or sleeve dislodgement) in the last 12 months.

Conclusions: The high frequency of forced conversion to free-hand surgery during the procedure demonstrates that standard surgical guides often exceed the dimensional and thermodynamic limits of the patient's oral cavity. While clinicians switch to open-sleeve designs to improve cooling and spatial access, this adaptation inherently weakens the device, which is reflected in the mechanical failure rate. To resolve these clinical barriers, surgical guide engineering should pivot toward FEA-driven topology optimisation. Replacing bulky designs with fenestrated or lattice-based sleeves can eliminate excessive guide material and allow for enough irrigation. That way, the structural and thermal deficits identified by clinicians can be directly addressed, without sacrificing mechanical stability.

JUVENES PRO MEDICINA

Psychiatry and Psychology

7th of May 2026

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JUVENES PRO-MEDICINA
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Tryptophan-Serotonin-Melatonin Pathway and It Contribution to Mood and Cognitive Changes During Sleep Deprivation

Aleksandra Wojtera[1]

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Introduction: Sleep deprivation (DS) is a sleep reduction, arising from voluntary or external factors. While acute DS can transiently alleviate depressive symptoms, it negatively affects cognitive functions. The underlying neurochemical mechanisms are not fully understood, but may involve the serotoninergic and melatoninergic pathways, sharing the precursor tryptophan (TP).

Purpose: The study aimed to evaluate the effects of a single night of DS on the peripheral concentrations of serotonin (5-HT), TP and melatonin (MLT), and their associations with cognitive performance and mood.

Material and Methods: Polysomnography (PSG) and actigraphy-confirmed DS were performed in 80 healthy participants. Blood samples, Montgomery-Åsberg Depression Rating Scale (MADRS) and Bimanual Eye-Hand Coordination Test (BEHCT) were collected before and after PSG or DS. Peripheral levels of TP, 5-HT, and MLT were measured via ELISA. Responders (RE) were defined as individuals with post-DS MADRS<8 or with overnight mood improvement; others were classified as Non-responders (NR). Approved by the local bioethics committee (RNN/302/20/KE). Funded by the Ministry of Education and Science (Poland) SKN/SP/629918/2025.

Results: In the whole sample, TP (44.9 [30.4–68.2] vs. 30.8 [19.9–56.9] µmol/L; p=0.024) and MLT (457.0 [391.7–511.2] vs. 423.6 [392.7–464.2] pg/mL; p=0.043) significantly decreased post-DS, while 5-HT did not change significantly (p=0.120). Among NR, 5-HT increased (63.8 [30.7–86.7] vs. 76.6 [53.8–120.3] ng/mL; p=0.043) and MLT decreased (459.3 ± 73.2 vs. 423.6 ± 57.1 pg/mL; p=0.024); TP showed a nonsignificant downward trend (p=0.055). No significant changes were found in RE. A positive correlation was observed between 5-HT and MLT and BEHCT errors in the full group (R=0.25; p=0.028 and R=0.28; p=0.018). In RE, TP negatively correlated with BEHCT errors (R=–0.32; p=0.029), while MLT showed a positive correlation (R=0.41; p=0.005). No associations were observed in NR.

Conclusions: One night of DS reduces circulating TP and MLT, disrupting the circadian rhythm, with no overall change in 5-HT. Only in NR, 5-HT increased while MLT decreased significantly. The results imply that mood improvement after DS is not directly tied to TP–5-HT–MLT alterations, suggesting involvement of alternate pathways. Conversely, cognitive deficits post-DS associate with elevated MLT and 5-HT, and may reflect neurochemical dysregulation affecting vigilance.

JUVENES PRO MEDICINA
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Analysis of cognitive functions in patients with anti-AQP4 IgG positive NMOSD treated with satralizumab

Dawid Delebis

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Introduction: Neuromyelitis optica spectrum disorder (NMOSD) is a rare autoimmune condition leading to inflammation and demyelination of the central nervous system. For decades, NMOSD has been referred to as a subtype of multiple sclerosis (MS). However, with the discovery of a specific type of antibody and the creation of diagnostic criteria, it is known that they are different entities. People affected by NMOSD are likely to have motor deficits. Little is know up to date about possible cognitive impairment.

Purpose: The goal of our study is to assess the cognitive impairment profile in seropositive patients with NMOSD with anti-AQP4 IgG.

Material and Methods: We have examined cognitive functions in 6 patients with seropositive NMOSD. They underwent cognitive function testing using the Polish version of Montreal Cognitive Assessment (MoCA). Every domain of the MoCA test has been analysed independently. All the patients are females.The median age of our group is 55. All the patients are treated with satralizumab. They presented from 2 to 5.5 in the Expanded Disability Status Scale (EDSS). 2 of 6 patients use a wheel-chair to facilitate mobility.

Results: 2 of 6 patients received < 3/5 points for spatio-visual section. 3 of 6 received <3/5 points for delayed recall. 3 of 6 patients received 0/1 for fluency. The rest of the sections were not outstanding (almost all patients received >80%). 3 of 6 received <26 points in MoCA overall.

Conclusions: Our group of the patients with NMOSD presented a similar profile of cognitive alteration described in the literature. Our findings confirm that people affected by NMOSD are likely to have cognitive impairment.

We observed a tendency for spatio-viasual abilities to deteriorate. A further investigation in this field is required to confirm our conclusions in the population of patients with NMOSD.

JUVENES PRO MEDICINA
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Personal Resources and Burnout Among Academic Teachers, Administrative Staff, and Students of the Medical University of Łódź and the University of Łódź

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Introduction: Burnout is a significant problem in the academic environment, affecting psychological well-being, the quality of performed duties, and the effectiveness of both professional and educational functioning. Particular attention has been paid to personal resources, which may serve a protective role against long-term stress and burden associated with studying or working. The most frequently examined personal resources include self-efficacy, dispositional optimism and coping strategies.

Purpose: The aim of our study was to examine the relationship between personal resources and burnout among academic teachers, administrative staff, and students of the Medical University of Lodz and the University of Lodz. Our study investigated to determine whether selected personal resources, such as self-efficacy, dispositional optimism and coping strategies are associated with the level of burnout.

Material and Methods: The study included 108 participants representing three groups: academic teachers, administrative staff, and students. The following research instruments were used to measure the analyzed variables: Link Burnout Questionnaire (LBQ-24), General Self-Efficacy Scale (GSES-10), Life Orientation Test-Revised (LOT-R), and (COPE-60). Statistical analysis included the Kruskal–Wallis test and Spearman's rank correlation coefficients.

Results: Significant negative relationships were found between self-efficacy, dispositional optimism, and the level of burnout. Higher self-efficacy was associated with lower levels of psychophysical exhaustion, a sense of ineffectiveness, disappointment, and the overall burnout index. Dispositional optimism showed significant negative associations with all the analyzed dimensions of burnout. Positive reappraisal and growth was negatively correlated with selected dimensions of burnout.

Conclusions: The findings indicate that self-efficacy and, in particular, dispositional optimism may play an important protective role against burnout. The results highlight the importance of personal resources in burnout prevention and in supporting the well-being of individuals functioning in the academic environment.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

ADHD and ASD in Medical Students: Stigma and Accommodations in Polish Medical Universities

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Introduction: Neurodivergent students, including those with attention-deficit/hyperactivity disorder (ADHD) and autism spectrum disorder (ASD), are gradually becoming more prevalent in medical education. However, the demanding and rigid nature of training may enhance stigma, limit disclosure, and limit access to accommodations which adversely affects academic performance, general welfare and perceived inclusion.

Purpose: This study examines the relationships between stigma, disclosure, and access to support among medical students with ADHD and ASD.

Material and Methods: A cross-sectional online survey of students from multiple Polish medical institutions was conducted using convenience sampling. Participants were recruited via student social media groups. Eligible participants were students enrolled in Doctor of Medicine (MD) programs across all years of study. Data collected included demographics (age, gender), diagnosis status (neurodivergent/neurotypical), and mental health exposure (assessed/suspected). Stigma was measured using Likert-scale items, summarized into a composite score, and categorized into high vs. low/no stigma groups. Outcomes included self-reported academic performance (three-point scale) and awareness of accommodations. Associations between variables were analyzed using chi-square tests, with $p<0.05$ considered statistically significant.

Results: Preliminary descriptive analysis of n=74 indicates that most neurodivergent students reported an impact on academic performance (16/17, 94.1%). The majority were unaware of available accommodations (16/17, 94.1%) and found the process difficult to navigate (15/17, 88.2%). While about half felt comfortable discussing their condition with peers (9/17, 52.9%), most perceived stereotyping by others (13/17, 76.5%) and avoided seeking accommodations due to fear of judgment (12/17, 70.6%). All reported pressure to appear neurotypical (17/17, 100%), and most believed disclosure could negatively affect career opportunities (15/17, 88.2%). Among neurotypical students, attitudes were overall neutral. More respondents were comfortable being treated by a physician with ADHD (42/57, 73.7%) than ASD (31/57, 54.4%). Most disagreed that ADHD or ASD would limit ability to work in high-pressure or patient-facing specialties. Notably, 29.8% (17/57) suspected undiagnosed neurodivergence, while 98.2% (56/57) had not undergone formal assessment.

Conclusions: Initial findings indicate that neurodivergent medical students face academic and social challenges, deteriorated by lack of awareness and access to accommodations. Stigma, fear of judgment, and career concerns may reduce use of support. Despite the neurotypical attitudes being neutral to supportive, knowledge gaps exist, emphasizing the need for improved awareness, accessibility, and stigma reduction.

JUVENES PRO-MEDICINA
06-09/05/2026 Łódź, Poland

ADHD and Energy Drinks: A High-Risk Correlation in Medical Students

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Introduction: Despite the prevalence of ADHD among university students, there is limited data on how this diagnosis influences the intake of legal stimulants like energy drinks. Given the demanding nature of medical studies, understanding the relationship between ADHD and ED use is crucial. This research explores the differences in consumption habits between diagnosed students and their neurotypical peers.

Purpose: The aim of this study was to compare energy drink consumption patterns, motivation for use, and the prevalence of adverse effects between medical students with a diagnosis of ADHD and their neurotypical peers.

Material and Methods: We analyzed data from 1089 medical students in Poland to assess the impact of an ADHD diagnosis on energy drink usage. The survey evaluated consumption patterns and the prevalence of adverse reactions. Comparative analysis between the ADHD-diagnosed group and the control group was conducted using Chi-square tests to identify statistically significant differences.

Results: Of 1089 participants, 11.9% (n=129) reported an ADHD diagnosis. A significant association was found between ADHD and consumption frequency ($\chi2(5)=29.88, p<0.0001$), with the ADHD cohort consuming EDs at least weekly more often than their non-ADHD peers (67.4% vs. 46.5%). Motivations also differed significantly ($\chi2(8)=22.15, p=0.004$); students with ADHD were nearly twice as likely to cite 'improving concentration and focus' as their primary reason (20.2% vs. 11.0%). The ADHD group also reported a higher incidence of adverse effects, including insomnia ($p = 0.02$) and anxiety/irritability ($p = 0.01$).

Conclusions: The study confirms that a diagnosis of ADHD is associated with riskier patterns of stimulant consumption. The increased prevalence of anxiety and insomnia in this group highlights the need for better pharmacological management and psychological support for neurodivergent medical students to prevent the negative consequences of excessive energy drink intake.

Physiotherapy

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Evaluation of the effects of cardiac rehabilitation on heart function in patients after acute coronary syndrome

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Introduction: Cardiovascular diseases (CVD) are currently the leading cause of death worldwide, accounting for approximately 2.2 million deaths annually among women and 1.9 million among men. Ischemic heart disease is responsible for 38% of deaths in women and 44% in men within this group. Furthermore, acute myocardial infarction is a primary cause of the development of heart failure. Cardiac rehabilitation can assist patients in improving exercise capacity, decreasing the number of rehospitalizations, reducing certain risk factors for recurrent infarction, and improving quality of life.

Echocardiography is a non-invasive imaging modality that utilizes ultrasound to assess the anatomical structure and function of the heart in real time. It serves as an essential diagnostic tool for evaluating the location and extent of myocardial damage during ACS (Acute Coronary Syndrome), as well as for monitoring treatment efficacy from both short- and long-term perspectives. Given its wide availability and safety, it should also be utilized to assess the outcomes of cardiac rehabilitation.

Purpose: The objective of the study is to evaluate the impact of cardiac rehabilitation on left ventricular ejection fraction (LVEF) as assessed by echocardiography. Additionally, the patient's functional improvement will be measured using the 6-minute walk test (6MWT)

Material and Methods: The study was conducted on 22 patients (6 women, 16 men) following acute coronary syndrome (ACS). The age of the patients ranged from 45 to 78 years. All participants underwent stage II inpatient cardiac rehabilitation according to their assigned model (C-D) at the University Clinical Hospital No. 2 in Łódź.

The initial LVEF assessment was performed via echocardiography on the day of the ACS event, while the final assessment was conducted on the day of the patient's discharge from the rehabilitation ward.

The 6MWT (6-Minute Walk Test) was performed by a physiotherapist on the first day of rehabilitation and on the day of discharge.

Results: Cardiac rehabilitation led to a significant increase in left ventricular ejection fraction (LVEF) and a significant improvement in 6-minute walk test (6MWT) performance.

Conclusions: Patients after cardiac rehabilitation achieved significant functional improvement, as measured by the 6-minute walk test (6MWT), and showed a significant increase in left ventricular ejection fraction (LVEF).

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Does fetal heart defect affect the activity of pregnant women?

Ludwika Mucha

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Introduction: Physical activity of pregnant women is an important element of health prevention and supporting the proper course of pregnancy, but it still remains an area burdened with numerous myths and uncertainty. A particularly sensitive issue that is rarely addressed in the literature and clinical practice is the activity of pregnant women diagnosed with a fetal heart defect. This topic remained a taboo for years, due to concerns about the safety of the mother and child, as well as the limited number of scientific studies. Currently, however, there is a growing interest in this issue and a systematic increase in publications that attempt to determine safe and beneficial forms of activity in this particular group of patients

Purpose: The aim of the study is to assess the intensity of individual activities of pregnant women focusing on finding a correlation between the physical activity of pregnant women and fetal heart defects.

Material and Methods: A group of 250 pregnant women - patients of the Department of Prenatal Cardiology of the Medical University of Lodz - participated in the study. The study used an original questionnaire on physical activity, analysis of medical records and the International Pregnancy Physical Activity Questionnaire - PPAQ. The patients were assigned to two groups: research group B-45 - women whose fetus had a heart defect and control group K-205 - women with a healthy fetus. The inclusion criterion for the study was informed and voluntary consent to participate in scientific research, and the exclusion criterion was incorrect or incomplete completion of the questionnaires. The statistical analysis used the elements of descriptive statistics - mean, standard deviation, median, mode, maximum, minimum. The Wilcoxon test for independent samples and the chi-square test of independence were used to assess the significance of differences between the analyzed groups. The significance level adopted was $\alpha=0.05$. MS Excel 2024 and the Statistica Ultimate statistical package were used.

Results: The average age in the study group of 250 women was - 31.2 ± 5.2, the average week of pregnancy - 29.1 ± 5.1. In the research group, the mean age was 30.2 ± 5.8, the mean gestational week was 28.6 ± 6.1, and in the control group, the mean age was 31.4 ± 5.1, the mean gestational week was 29.2 ± 4.9. There is a significant statistical difference between knowledge about physical activity and performing physical exercises during pregnancy ($p=0.02$). When asked about their knowledge about the possibilities of physical activity, women answered: YES - in group B - 8.5%, K - 38.87%; NO/AVERAGE - in group B-9.71%, K-42.92% and the statistical significance regarding opinions and knowledge about physical activity appears at ($p=0.01$). During pregnancy, a tendency to limit physical activity was observed in group B - 16.14%, K - 66.37%, while knowledge about physical activity and the risk of pregnancy is at the level ($p=0.05$).

Conclusions: The respondents present a low level of knowledge and awareness of physical activity. A greater tendency to quit exercising was observed among women whose fetus was diagnosed with congenital heart defect. At the same time, the phenomenon of women clearly limiting their physical activity after receiving information about pregnancy is disturbing. In the future, further stages of the research project are planned, which will be combined with activities promoting healthy physical activity among pregnant women.

JUVENES PRO MEDICINA
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Urinary Incontinence - Assessment of Women's Awareness and Level of Knowledge

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Introduction: Urinary incontinence constitutes a significant public health issue, affecting not only the somatic condition of patients but also their psychological and social functioning, as well as their overall quality of life. Despite the high prevalence of this disorder, women's knowledge regarding risk factors, prevention, and available therapeutic options remains insufficient.

Purpose: The primary aim of the study was to assess women's level of knowledge and awareness regarding urinary incontinence (UI), as well as to determine their perception of risk factors, its impact on quality of life, and their willingness to seek professional help.

Material and Methods: The study included 230 women aged over 37 years, recruited during educational workshops, health promotion events, and meetings organized at medical facilities. The level of knowledge was assessed using an original author-designed questionnaire that included questions on awareness of urinary incontinence, knowledge of risk factors, and methods of prevention and therapeutic management. The study also evaluated the participants' subjective perception of the impact of UI on their social, psychological, and sexual life, as well as the extent to which this issue remains taboo. Inclusion criteria comprised informed and voluntary consent to participate in the study, while exclusion criteria included incomplete or incorrectly completed questionnaires. The study was conducted between April 1, 2025 and October 30, 2025. Statistical analysis included elements of descriptive statistics, namely mean, standard deviation, median, mode, maximum, and minimum values. MS Excel and Statistica software were used for the analysis.

Results: The mean age of the participants was 69 ± 8.75 years. The youngest respondent was 37 years old, while the oldest was 89 years old. The median age was 70 years. Episodes of urinary incontinence were reported by as many as 66.23% of the women. Analysis of information sources showed that 44.59% of respondents sought knowledge from professional sources, whereas 31.17% were not interested in the subject of UI and made no attempt to expand their knowledge. The vast majority of participants (88.31%) declared that they were aware of what urinary incontinence is. Assessment of symptom severity based on the RUIS scale demonstrated that 24.68% of women experienced mild urinary incontinence. At the same time, as many as 82.68% of the respondents declared that, if UI symptoms occurred, they would seek help from a specialist, which suggests a relatively high openness to therapeutic intervention.

Conclusions: The study demonstrated that women's general awareness of urinary incontinence is at a fairly good level; however, detailed knowledge, including familiarity with terminology, the psychosocial impact of urinary incontinence, and available therapeutic management options, remains insufficient. The findings indicate the need to intensify educational efforts in the field of urinary incontinence prevention and treatment, as well as to break the taboo associated with this condition.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

A new approach to upper limb dexterity assessment: insights from the NeuroSnare application and the Nine Hole Peg Test

Mateusz Depta, Hanna Sęk

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Introduction: Upper limb dexterity assessment is a crucial element in the examination of neurological patients and in monitoring rehabilitation progress. Traditionally, it relies on standard clinical tools such as the Nine Hole Peg Test (9HPT). However, the development of mobile technologies enables the creation of novel digital tools that increasingly complement conventional methods, allowing for a more objective evaluation of fine motor skills.

Purpose: To assess the usefulness of an original mobile application, NeuroSnare, by analyzing the relationship between the 9HPT execution time and digital parameters (Max BPM and CV) reflecting upper limb dexterity.

Material and Methods: The study included a group of 30 healthy volunteers (N=30) aged 19 to 25 years, with no neurological conditions affecting upper limb motor functions. The research protocol consisted of the standardized 9HPT and motor tasks performed using the original NeuroSnare smartphone application. The application recorded the maximum sustained tapping rate (Max Sustained BPM) and rhythmic stability (Coefficient of Variation – CV). The best (shortest) time from the 9HPT, the highest BPM score, and the median CV were used for the analysis. Spearman's rank correlation coefficient was applied, with $p<0.05$ considered statistically significant.

Results: Statistical analysis revealed a significant, moderate negative correlation between the best time in the 9HPT and the Max Sustained BPM parameter in the NeuroSnare application ($r = -0.41$ for the dominant hand; $r = -0.48$ for the non-dominant hand). This indicates that individuals capable of faster manipulation of small objects achieved higher tapping rates on the screen. Conversely, the assessment of the relationship between the 9HPT execution time and rhythmic stability (CV) showed no significant correlation ($r = 0.09$ for the dominant hand; $r = 0.23$ for the non-dominant hand).

Conclusions: The NeuroSnare application has the potential to be a useful objective tool for assessing upper limb dexterity. Further research involving a larger number of healthy individuals and neurological patients is necessary to confirm its applicability.

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Beyond Traditional Therapy: Digital Labyrinths for Enhancing Fine Motor Skills in the Very Early Post-Stroke Rehabilitation

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Introduction: Despite highly effective treatment strategies in the acute phase, ischemic stroke still remains a leading cause of adult disability. While post-stroke physiotherapy relies primarily on therapist-conducted exercises, the development of modern technologies introduces digital gamification into rehabilitation. Integrating these technologies creates an opportunity for a safe, intelligently personalized digital environment that brings additional benefits for improving motor functions immediately after a stroke compared to standard therapy.

Purpose: To evaluate the impact of upper limb exercises using a custom tablet application on motor speed and dexterity in patients after ischemic stroke in the very early stages of rehabilitation.

Material and Methods: 30 patients (aged 40-90) after ischemic stroke in the very early stages of rehabilitation were divided into a study group (n=15) and a control group (n=15). The research was conducted at the Department of Neurology and Stroke, Medical University of Lodz. Inclusion criteria: Lovett scale ≥ 2 on the affected side, and rehabilitation ordered and started within 24 h of stroke onset. Both groups received standard physiotherapy. Additionally, the study group used a custom tablet app, while controls performed traditional ball exercises. Evaluations (9-Hole Peg Test [9HPT], 10-ball test, survey) occurred before therapy and after 6 days.

Results: In the 9HPT, the study group improved execution time on both the affected (36.43±58.81 s to 33.41±34.36 s, p=0.009) and unaffected sides (27.78±25.42 s to 24.46±26.41 s, p=0.023). Controls improved only on the affected side (37.04±31.75 s to 31.33±36.18 s, p=0.006). In the 10-ball test, the study group improved on the affected side for putting in (19.53±17.05 s to 17.89±18.46 s, p=0.005) and taking out (19.62±22.98 s to 19.51±15.97 s, p=0.023) balls, and taking out on the unaffected side (14.19±6.10 s to 13.60±4.17 s, p=0.015). Controls improved only in putting in balls on the affected side (16.23±17.97 s to 13.18±17.71 s, p=0.004). Between-group dexterity differences were not statistically significant. Subjectively, the study group reported dexterity improvement on the affected side (median 60% to 70%), while controls improved on the unaffected side. Between-group subjective differences were non-significant. Tablet labyrinth execution times decreased systematically over 6 days (e.g., hard level: 181.2 s to 133.9 s).

Conclusions: Both tablet-based and traditional exercises effectively improve manual dexterity early post-stroke. While objective tests showed no significant differences between methods, tablet users reported greater subjective improvement on the affected side. The continuous decrease in task completion time indicates rapid task learning. Custom apps are a viable, engaging supplement to hospital therapy.

JUVENES PRO MEDICINA
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Assessment of diaphragm mobility in cardiac patients, the effect of breathing exercises using the Buteyko method on diaphragm mobility and function, and quality of life in patients with cardiac diseases

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Introduction: Long-term occurrence of cardiovascular diseases and their treatment can cause dysfunctions in the diaphragm. The authors reviewed the literature supported by their own observations and noted that various cardiac diseases and their treatment, including surgery, have many effects on the quality of diaphragm work. The paper examines how standard rehabilitation procedures supplemented with exercises using the Buteyko method improve the mobility of the diaphragm.

Purpose: The aim was to compare diaphragm mobility by means of rehabilitative ultrasound imaging in cardiac patients treated conservatively who were subjected to Buteyko exercises.

Material and Methods: The study was conducted at the Subdivision of Cardiac Rehabilitation of the Department of Internal Medicine, Rehabilitation and Physical Medicine of the Medical University of Lodz. 30 patients qualified for cardiac rehabilitation at the Department of Internal Medicine, Rehabilitation and Physical Medicine of the Medical University of Lodz were examined. The inclusion criteria were diagnosed coronary artery disease, heart failure, condition after percutaneous coronary angioplasty, coronary artery bypass grafting, implantation of cardiac support devices, heart valve replacement. The tests were carried out twice, before and after the rehabilitation process, they included assessment of diaphragm mobility using ultrasound, resting spirometry examination.

Results: Mobility of the right side of the diaphragm during resting and forced deep breathing was higher after the 14-day rehabilitation camp compared to the results before rehabilitation. A particularly marked improvement was observed during calm breathing, which may indicate a beneficial effect of breathing exercises on the breathing pattern of patients.

Conclusions: The obtained results confirm the hypothesis that cardiac rehabilitation supplemented with exercises using the Buteyko method may have a positive effect on diaphragm mobility in cardiac patients. An additional one can observe that in some patients a single result may worsen. It seems reasonable to continue the research to study patients with impaired outcomes.

JUVENES PRO-MEDICINA
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Assessment of the Impact of Diaphragmatic Breathing Exercises on Blood Pressure in Cardiac Patients – A Pilot Study

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Introduction: The function of the diaphragm influences the autonomic nervous system by increasing parasympathetic activity, which may lead to beneficial changes in hemodynamic parameters, including blood pressure values and cardiac function.

Purpose: The aim of this study was to assess the effect of a 15-minute session of diaphragmatic breathing exercises on blood pressure, heart rate, oxygen saturation, and respiratory rate.

Material and Methods: The study included patients participating in cardiac rehabilitation after myocardial infarction treated with percutaneous coronary intervention with stent implantation (PCI), coronary artery bypass grafting (CABG), mitral valve surgery and implantation of a cardiac assist device. Before the measurements, patients remained in a semi-recumbent position for 5 minutes in order to stabilize circulatory parameters. Afterwards, three measurements of blood pressure were taken using a manual sphygmomanometer. Heart rate was measured at the radial artery, oxygen saturation by using a pulse oximeter and respiratory rate was assessed by counting breaths per minute. Breathing exercises consisted of a controlled inhalation through the nose with abdominal expansion, followed by exhalation through the mouth with abdominal retraction toward the examination table. The session included three sets of five repetitions each. After completing the exercise session, three additional measurements of blood pressure, heart rate, oxygen saturation, and respiratory rate were performed using the same procedures as before the exercises. Statistical analysis was performed using the Student's t-test in Excel Google Sheets.

Results: intervention was approximately 117 mmHg, and after the intervention it decreased to 112 mmHg. The mean diastolic blood pressure was 66.8 mmHg before the intervention and 64.1 mmHg afterward. The mean heart rate decreased from approximately 64.7 beats per minute before the intervention to 62.1 beats per minute after the intervention. The mean oxygen saturation increased from approximately 95.2% before the intervention to 95.9% after the intervention. The mean respiratory rate decreased from approximately 20 breaths per minute before the intervention to 16 breaths per minute after the intervention. The results were statistically significant.

Conclusions: 1. A 15-minute session of diaphragmatic breathing exercises has a beneficial effect on blood pressure, reducing systolic and diastolic blood pressure as well as heart rate. 2. An increase in arterial oxygen saturation and a decrease in respiratory rate were observed, indicating improved breathing efficiency and stabilization of the cardiorespiratory system. 3. Diaphragmatic breathing exercises may represent a safe and simple adjunct to comprehensive therapy for patients with cardiovascular diseases.

JUVENES PRO MEDICINA

Pediatrics

7th of May 2026

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JUVENES PRO MEDICINA
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Congenital Predisposition to Carcinogenesis among Children Diagnosed with Secondary Malignancies

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Introduction: Secondary cancers are diagnosed extremely rarely in childhood and constitute an important clinical indication for genetic testing towards predisposition to malignancies.

Purpose: This study aimed to investigate the incidence of pathogenic germline genomic aberrations predisposing to malignancies in pediatric patients who developed at least two neoplasms under the age of 18 years.

Material and Methods: The study consisted of 45 children (23 girls and 22 boys; < 18 years) recruited in all the 16 Polish Pediatric Oncohematology Centres from Poland between January 2023 and March 2026. All patients were diagnosed with at least two cancers, and 4 patients developed three malignant tumors. Genetic testing included next-generation targeted sequencing (NGS) testing using the custom cancer predisposition gene panel, followed by whole exome sequencing, and microarray. Variant interpretation was performed according to ACMG classification.

Results: The median age of diagnosis of the first, the second, and the third malignancy was 5 (IQR: 2-8), 12 (IQR: 5-14), and of the third 16 (IQR: 11-18) years, respectively. The first cancers were leukemias (n=13, 28%), brain tumors (n=8, 18%), sympathetic neuroblastic tumors (n=9, 20%), lymphomas (n=4, 9%), Wilms tumors (n=3, 7%), and retinoblastomas (n=3, 7%). Among secondary malignancies, leukemia was also the most frequently observed (n=15, 33%), followed by brain tumors (n=7, 15%), sarcomas (n=5, 11%), sympathetic neuroblastic tumors (n=4, 9%), and lymphomas (n=3, 7%). Genetic predisposition to cancer was identified in 16 (35%) patients. Two patients were diagnosed with Li-Fraumeni syndrome, 6 patients carried constitutional aberrations involving DNA repair genes (PMS2, ATM, RAD21, CHEK2). In 15 (33 %) patients we found candidate gene variants potentially associated with their phenotype.

Conclusions: The probability of carrying pathogenic constitutional variants predisposing to malignancies was high in children diagnosed with secondary cancers. Genetic defects involved frequently but not exclusively DNA repair genes.

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The Relationship between Kidney Size an Blood Pressure Values in Children with Autosomal Dominant Polycystic Kidney Disease

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Introduction: Autosomal dominant polycystic kidney disease (ADPKD) is one of the most common inherited kidney disorders in children. Understanding how kidney enlargement relates to blood pressure may improve early risk management in this population.

Purpose: To assess the relationship between kidney size and blood pressure (BP) in children with autosomal dominant polycystic kidney disease (ADPKD).

Material and Methods: Our retrospective cross-sectional study included 139 children with ADPKD (median age 9.9±5.3 years; 52% boys). PKD1 mutations were identified in 50 patients (36%) and PKD2 in 7 (5%); in 82 patients (59%) diagnosis was based on clinical criteria and familiar history. We analyzed antropometric data, BP and kidney size parameters assessed by ultrasound (USG) and magnetic resonance imaging (MRI). Hypertension was diagnosed using office BP and ambulatory blood pressure monitoring (ABPM).

Results: Median kidney length (KL) SDS measured by USG was 1.25 [0.43–2.49], and kidney volume (KV) SDS was 1.94 [0.99–3.22]. Corresponding MRI values were 1.58 [0.44–2.70] for KL and 2.63 [1.83–4.01] for KV. KL above the 97.5th percentile was observed in approximately 32.5% of patients in both modalities. Enlarged KV was more frequent, affecting 47.5% of patients in USG and 61.5% in MRI. Patients with PKD2 mutations presented milder disease (0–5 cysts per kidney) compared with other genetic backgrounds, who more often developed >10 cysts per kidney (p=0.027). Mean KL assessed by USG was greater in patients with PKD1/PKD2 mutations than in those without molecular confirmation (104.0 [91.6–121.0] vs 97.5 [82.3–112.3] mm; p=0.042). Hypertension was diagnosed in 28.5% of patients, with no differences between genetic groups. Kidney size parameters were significantly associated with BP. Patients with increased KV (>97.5th percentile) had significantly higher 24-hour MAP compared with those with normal KV (median 89.2 [85.6–93.8] vs 82.5 [78.9–86.7] mmHg; p<0.001). KL showed weak-to-moderate correlations with 24-hour mean arterial pressure (MAP), stronger for MRI than for USG (R=0.37, p=0.019 vs R=0.29, p=0.011). The strongest association was observed for KV SDS measured by USG (R=0.61, p=0.0045), while KV assessed by MRI also correlated with MAP (R=0.35, p=0.0087).

Conclusions: Kidney size is significantly associated with BP in children with ADPKD irrespective of kidney size assessment method. KV correlates with BP better than KL, with USG-derived KV showing the strongest association.

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Do Teens Know What They Eat? Health Awareness of Vegan Diets among Polish Adolescents

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Introduction: In recent years, the popularity of plant-based diets has increased, driven by health, ethical, and environmental considerations. Veganism is considered the most restrictive form of a plant-based diet, as it involves the complete exclusion of all animal-derived products. Adolescence is a period of particular vulnerability to nutritional deficiencies; therefore, an improperly balanced vegan diet may be associated with the risk of deficiencies in vitamin B12, iron, calcium, vitamin D, and omega-3 fatty acids.

Purpose: The aim of this study is to evaluate the level of knowledge of adolescents aged 15-18 regarding the vegan diet and its potential health effects.

Material and Methods: The study was conducted in the first quarter of 2026 using an author-designed online questionnaire (CAWI method), consisting of 39 questions. The survey included questions regarding demographic data, health status, dietary habits, knowledge about the vegan diet, and sources of information on nutrition. The study group consisted of 152 participants (n = 152) (75% females, a mean age of respondents of 16.9 ± 1.1 years. Three groups were distinguished: teenage vegans (n = 40; 26.31%), adolescents following a traditional diet (n = 92; 60.53%), and adolescents following diets other than vegan or traditional (n = 20; 13.16%). Statistical analysis (Statistica 13.3 PL, MS Excel) was performed using the Chi-square test, Mann–Whitney test, and Kruskal–Wallis test ($p < 0.05$).

Results: Most respondents correctly identified the definition of a vegan diet (87.5% of vegans; 94.6% of adolescents following a traditional diet; 95.0% of adolescents following other diets). A lower level of awareness regarding the potential health consequences of long-term vegan diets was observed among vegans compared to the other groups ($p<0,05$). The mean test score was 5,95 ± 2,30 among vegans and 7,81 ± 2,17 among adolescents following diets other than vegan. Vitamin D_3 supplementation was reported by 28 vegans (70.0%), most commonly at a dose of 2000 IU per day (16 participants). Additionally, 26 vegans had recently tested their vitamin D_3 levels, with 5 showing deficiency. Only 9 vegan adolescents (22.5%) had consulted a physician or dietitian regarding their diet.

Conclusions: Knowledge of the potential health risks of long-term vegan diets was limited, particularly among vegan adolescents. Despite common vitamin D_3 supplementation, few participants consulted healthcare professionals. The results highlight that focusing solely on the positive aspects of the diet may lead to overlooking potential health risks, emphasizing the need to enhance nutritional education among adolescents.

JUVENES PRO MEDICINA
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Stability of Neural Network–Derived Insulin Resistance Estimates in Children With Type 1 Diabetes After 6 Months of Hybrid Closed-Loop Therapy

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Introduction: A hyperinsulinemic-euglycemic clamp is an accurate method for direct measurement of insulin resistance in children with type 1 diabetes (T1DM), but its clinical use is limited due to its invasive and time-consuming nature. To address these limitations, the Artificial Neural Network-based Insulin Resistance Calculator (NIRCa) was developed using data derived from clamp studies on pediatric patients, providing a non-invasive machine learning method to estimate the glucose disposal rate (GDR) using clinical variables.

Purpose: The aim of this study was to evaluate the stability and reliability of GDR estimates generated by NIRCa calculator in pediatric patients with T1DM following 6 months of therapy with the MiniMed 780G advanced hybrid closed-loop (AHCL) system. We hypothesized that insulin resistance would not change significantly over this period. Therefore, comparable GDR estimates before and after AHCL initiation would support the stability of the model.

Material and Methods: The study was conducted in 33 children with T1DM (mean age: 10.87 years; mean diabetes duration: 4.40 years). GDR values were estimated using the Artificial Neural Network (ANN) model based on the following clinical variables: sex, Tanner stage, HDL, total cholesterol, daily insulin dose per body weight, HbA1c, BMI SDS and presence of arterial hypertension. Estimates were made at two time points: baseline (before AHCL initiation) and after 6 months of therapy with AHCL. Normality of the GDR estimates was assessed using the Shapiro-Wilk test. Baseline and 6-month estimates were compared using the Wilcoxon signed-rank test, results are presented as mean (median; 25-75 percentile). Spearman rank correlation between baseline and 6-month estimates was also calculated.

Results: GDR estimates were not normally distributed (Shapiro–Wilk test, p=0.01). Wilcoxon signed-rank test revealed no significant difference between the baseline and 6-month GDR estimates (p=0.33). At baseline, estimated GDR was 9.27 mg/(kg×min) (8.91; 7.49–11.12). After 6 months estimated GDR was 9.24 mg/(kg×min) (8.99; 6.82–10.72). Absolute change of estimated GDR was 1.30 mg/(kg×min) (0.93; 0.68-1.71), that corresponds to 15.92% (12.84%; 6.08%-15.75%). The Spearman rank correlation between estimates was 0.77 (p=0.001).

Conclusions: The NIRCa ANN model provides consistent estimates of insulin resistance in pediatric patients with T1DM after a 6-month period following AHCL initiation. These findings suggest that the tool may be useful for monitoring insulin sensitivity in clinical practice, although further validation in larger cohorts is warranted. Further studies are needed to validate NIRCa GDR estimates with clamp measurements in patients using AHCL systems.

JUVENES PRO MEDICINA
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Analysis of interventional treatment of the venous malformations of the hand.

Michał Kwasigroch

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Introduction: Venous malformations (VMs) are congenital abnormalities found among children, resulting from aberrant development of the venous system. Structurally, they consist of irregular, dilated vascular channels lined with flattened endothelial cells and are typically associated with slow-moving venous blood flow. Congenital VMs of the hand and wrist is the fourth most common lesion location. Clinically, they can appear as superficial skin lesions or as soft, non-pulsatile masses beneath the skin. Symptoms may include swelling, localized pain, disfigurement, cramping, and impaired movement. In addition to these physical manifestations, aesthetic concerns are frequently reported. Management options include surgical excision, laser treatment, and intralesional sclerotherapy.

Purpose: This study aims to present the adopted management approach and to discuss the outcomes of surgical treatment and sclerotherapy of VM.

Material and Methods: The study group comprised of 36 children aged 0–18 years who were hospitalized between December 2020 and October 2025 at the University Pediatric Center in Łódź and who underwent treatment for VMs. 27 of 36 patients answered the survey, 9 patients underwent surgical treatment only, 7 received sclerotherapy alone, and 11 were treated with sclerotherapy following surgical intervention. Data was obtained from medical records and the electronic hospital system. The study group was defined based on lesion location, malformation type and additional treatment modalities. A parent-reported survey was used to assess pain, sensory disturbances, movement impairment, contracture, cosmetic outcomes, and swelling before treatment and at 4 months post-treatment, using a 5-point scale.

Results: Improvement in cosmetic outcomes differed significantly between groups, surgery-only group demonstrating a distinct effect compared to the other treatment modalities, no significant difference was observed between sclerotherapy alone and combined therapy. Within-group analysis revealed a significant improvement in cosmetic outcomes, and in the surgery-only group ($p = 0.012$). No other statistically significant resulats were identified. Interpretation of several parameters was limited due to insufficient data. Trends toward swelling were observed in the sclerotherapy group ($p = 0.054$) and in the combined treatment group ($p = 0.057$). In the surgery-only group and the combined treatment group, pain reduction trend was noted ($p = 0.054$ and $p = 0.089$).

Conclusions: Surgery alone resulted in significant cosmetic improvement, however, the small sample size inherent to this rare condition limited the statistical analysis of other parameters. These findings suggest a clinical benefit that warrants further investigation in larger studies to overcome the limitations associated with small patients cohort.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Parental Knowledge and Determinants of Meningococcal Vaccination Uptake in Children: A Cross-Sectional Study

Natalia Szcześniak

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Introduction: Invasive meningococcal disease (IMD) is a severe bacterial infection caused by Neisseria meningitidis, transmitted via respiratory droplets. Although rare, it progresses rapidly and may be fatal within hours. It most commonly presents as meningitis or septicemia and may lead to serious complications, including limb amputation and neurological deficits. Infants are the most vulnerable group. Vaccination is the most effective preventive measure; however, in Poland it is recommended but not mandatory and requires out-of-pocket payment.

Purpose: To assess parents' knowledge of IMD and meningococcal vaccination, identify sources of information, and determine factors influencing vaccination decisions.

Material and Methods: A cross-sectional study was conducted among 221 parents. Data were collected using an anonymous questionnaire distributed by the researcher in a primary care clinic, two kindergartens, and one nursery in Częstochowa (Poland). The survey included questions on demographics, knowledge of invasive meningococcal disease and meningococcal vaccination, sources of information, and factors influencing parental decision-making. Data were analyzed using descriptive statistics.

Results: Most respondents were female (80.1%), aged 25-44 years, with higher education (68.3%). Although 78.3% correctly identified droplet transmission, only 25.3% recognized meningococci as bacteria.

Overall, 38.5% of children had been vaccinated against meningococci, 50.7% had not, and 11.3% of parents did not remember whether their child had been vaccinated. Despite 90.0% of respondents knowing that vaccination is recommended but not mandatory, knowledge gaps were observed regarding disease etiology and risk groups. Among parents of infants under 1 year of age, only 36.7% correctly identified their children as the most at risk of invasive meningococcal disease, while 63.3% were unaware of this.

Physicians were the most common source of information about vaccination (71.5%). Among parents who received a vaccination recommendation (n = 125), 57.6% vaccinated their children, most often citing protection against invasive meningococcal disease (61.1%), while 42.4% did not vaccinate, mainly due to concerns about adverse effects (71.7%). Among parents who did not receive a recommendation (n = 52), 11.5% vaccinated their children, primarily to protect their child (83.3%), whereas 88.5% did not vaccinate, most commonly due to lack of recommendation.

Conclusions: Parental knowledge of IMD is incomplete. Vaccination decisions are strongly influenced by physician recommendation, highlighting the need for improved education and broader access to vaccination.

Orthopedics
Original Research

8th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Can AI Outperform Orthopedic Surgeons? Evaluating ChatGPT's Performance on Poland's National Specialization Exam

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Introduction: Artificial intelligence, particularly large language models such as ChatGPT, has demonstrated rapidly expanding capabilities in medical knowledge processing and clinical reasoning simulation. Its potential applications in medical education and decision support have generated both enthusiasm and concern. A critical question remains whether such systems can meet the standards of high-stakes national medical examinations.

Purpose: To evaluate the performance of ChatGPT-4 on the Polish National Medical Specialization Examination (PES) in orthopedics and traumatology and to assess the impact of different prompting strategies on its accuracy.

Material and Methods: ChatGPT-4 was tested on five consecutive PES examinations conducted between Autumn 2023 and Spring 2025. Each exam consisted of 150 single-best-answer multiple-choice questions. Three prompting strategies were applied: Professor (detailed, expert-level), Specialist (concise, clinically focused), and Resident (basic, general medical reasoning). Model responses were compared with official answer keys. Questions were categorized by topic (e.g., traumatology, arthroplasty, spine) and type (standard, radiology, case-based, combination). Accuracy rates and error distributions were analyzed.

Results: The overall mean accuracy across all prompting strategies was 81% (range: 68.33%–85.83%), exceeding the average score of human examinees (57.64%). Resident-style prompts yielded the most consistent performance and occasionally the highest scores. The model demonstrated strong results across most domains; however, the highest error rates were observed in knee-related questions (66.67%) and radiology-based questions (50%). Errors were broadly consistent across prompting strategies. Standard multiple-choice questions constituted the majority of the dataset and were associated with relatively lower error rates compared to radiology and combination-type questions.

Conclusions: ChatGPT-4 is capable of achieving scores at or above the passing threshold of a national orthopedic specialization exam, particularly when optimized prompting strategies are used. Despite this high performance in knowledge-based assessments, significant limitations remain, especially in areas requiring image interpretation and practical clinical reasoning. These findings support the role of AI as a supplementary educational tool rather than a substitute for clinical expertise.

JUVENES PRO MEDICINA
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Is the Pectineus Muscle Innervated Solely by the Femoral Nerve? A Reappraisal with Implications for Hip Surgery

Alexander Stolarczyk

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Introduction: Pain in the anterior part of the groin after hip joint surgery and the inability to achieve full analgesia with standard regional nerve blocks remain clinical challenges. Furthermore, the growing popularity of the direct anterior approach to the hip joint requires a precise understanding of the local anatomy to avoid iatrogenic damage. These clinical problems may result from the variable innervation of the pectineus muscle, which is typically described as innervated solely by the femoral nerve.

Purpose: The goal of this study is to create a clinically oriented classification of the innervation patterns of the pectineus muscle. This classification will provide an anatomical framework to increase the efficacy and safety of regional hip analgesia and anterior surgical approaches

Material and Methods: Forty-two lower limbs from formalin-fixed adult cadavers (24 females, 18 males; mean age 74 years) were dissected. The femoral nerve (FN) and obturator nerve (ON) were exposed, and all macroscopic branches entering the pectineus muscle were recorded. Innervation was classified into clinical types (FN-only, ON-only, dual FN–ON) and anatomical types based on the exact number of contributing branches. Statistical analysis was performed to evaluate side- and sex-related differences.

Results: The pectineus muscle was present in all 42 limbs (100%). Clinically, only 66.7% of limbs exhibited the "traditional" FN-only innervation. Notably, 33.3% of the cases demonstrated ON involvement: 23.8% showed dual FN–ON innervation, and 9.5% relied exclusively on the ON (ON-only). Anatomically, the number of FN branches supplying the muscle varied highly from zero to three, while ON branches varied from zero to two. No significant differences were found regarding side or sex.

Conclusions: The assumption that the pectineus muscle is solely innervated by the femoral nerve is incorrect for one-third of the population. A significant amount of innervation originating from the obturator nerve explains why hip analgesia is incomplete after an isolated femoral nerve block. Recognizing these highly variable innervation patterns is crucial for orthopedic surgeons to minimize the risk of iatrogenic nerve damage and neuropathy after hip joint surgery via an anterior approach.

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Assessing the Risk of Gluteus Medius Injury in Direct Lateral and Anterior Hip Approaches: An Anatomical Study and Clinical Analysis of 30 Lateral Approach Cases

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Introduction: Gluteus medius integrity determines gait stability following total hip arthroplasty (THA). Conventional lateral approaches (DLA) involve muscle splitting or tenotomy, leading to iatrogenic trauma, fatty degeneration, and Trendelenburg gait. Current evidence confirms that transgluteal incisions disrupt muscular architecture and damage superior gluteal nerve branches. To minimize these complications, we present technical considerations for a modified DLA. Simultaneously, using anatomical specimens, we compared the risk of retractor-induced damage to the gluteus medius between the DLA and the Direct Anterior Approach (DAA), widely considered the least traumatizing to the gluteus medius in THA.

Purpose: To compare the risk of retractor-induced damage to the gluteus medius in a modified DLA versus the DAA-widely considered the least traumatizing to the abductor complex through anatomical validation and clinical observation.

Material and Methods: 1. Anatomical Phase: Based on intraoperative observations, an original study was conducted on anatomical specimens. Its objective was to perform a precise comparative analysis of retractor positioning in the DAA and DLA approaches during femoral neck exposure, acetabular preparation, and femoral neck access while reaming the femoral canal. 2. Clinical Phase: 30 patients underwent THA via a modified DLA. The technique emphasized precise, visually controlled retractor placement to monitor tension exerted on the gluteus medius.

Results: Anatomical validation demonstrated that in DAA, the retractor exposing the femoral neck and providing canal access exerts uncontrolled pressure on the gluteus medius belly, which remains hidden. In DLA, the same retractor remains under constant visual control. Both approaches utilize corresponding retractor positions. However, DLA acetabular exposure does not require a retractor to displace the gluteus medius, whereas in DAA, such retraction may be mandatory. The modified DLA allowed us to define critical moments of retractor-related injury risk: 1. Lateral femoral neck exposure: During joint capsule excision and femoral neck osteotomy (oscillating saw use poses additional risk). 2. Femoral canal preparation: The retractor may damage the muscle when retracting the tendon away from the greater trochanter (aggravated by external rotation) and when displacing the muscle belly to prevent skin injury from the broach.

Conclusions: 1. Direct lateral approach without detaching or splitting the gluteus medius provides excellent intra-articular visualization.2. DLA allows full visual control over retractor pressure on the muscle, significantly mitigating injury risk. 3. Anatomically, DAA poses an equivalent risk of retractor-induced damage; however, unlike DLA, it lacks direct visual feedback, rendering potentially damaging pressure uncontrolled.

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Anatomical Variations of the Pectineus Muscle and Their Relevance in Surgical Approaches

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Introduction: The pectineus muscle (PM) belongs to the medial compartment of the upper thigh. Its variable morphology and other surrounding structures can correspond to different clinical presentations of certain cases. Moreover this variability also impacts the actions taken during a surgical approach in this region, thus it is important for surgeons to be familiar with the possible anatomical variants.

Purpose: The aim of this study was to create a classification of the PM based on its proximal and distal attachments, number of heads and muscle structure. This research expands the knowledge about different morphological types of the PM. In developmental dysplasia of the hip, Weinstein or Ludloff approaches are commonly used in operative treatment. In both of them, the PM lies in the way of access to the hip joint, therefore being familiar with the possible types of this muscle improves the course of the surgery.

Material and Methods: 50 lower limbs, from 25 cadavers, fixed in 10% formalin were examined. The mean age of death was 74 (range 57-84). The group consisted of 26 women and 14 men, of whom all belonged to the Central European population. Lower limbs with presence of surgical intervention in the dissected area were excluded. All dissections of the hip and thigh area were carried out according to a pre-established protocol.

Results: The PM was present in 50 of the limbs, which makes up 100% of the cases. Attention was also given to the MTJ, a point where the body of the muscle transforms into an inserting ligament. Three morphological types were noted during the dissection: Type 1: consisted of a single, rectangular head and was present in 64% of the total cases; Type 2: consisted of two separate heads parrarel to each other and had a prevalence of 26%; Type 3: with an occurance of 10% was characterised by a double headed PM with a singular insertion, through which the first perforating vein and artery passed in 100% of the Type 3 cases.

Conclusions: The PM is highly variable in its distal and proximal attachments, as well as in the muscle's build. Three types were distinguished, each having an impact on the function of this muscle in hip and lower limb movements. Hence, the morphology of the PM also affects the anatomical build of the surrounding structures, being aware of the possible morphological types is notable when planning a procedure that involves an approach along the PM course.

JUVENES PRO MEDICINA
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Does implant design influence gait and patient-reported outcomes after total knee arthroplasty? A prospective IMU-based study

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Introduction: Total knee arthroplasty (TKA) effectively improves pain and function in patients with advanced knee osteoarthritis. However, it remains unclear whether contemporary implant designs translate into measurable differences in routine gait performance.

Purpose: To compare gait performance and patient-reported outcomes between medial congruent and posterior-stabilized TKA designs during the first postoperative year.

Material and Methods: This prospective observational study included a consecutive series of 93 patients undergoing primary TKA for osteoarthritis (posterior-stabilized, n = 56; medial congruent, n = 37). All surgeries were performed at the level III academic hospital by the same experienced surgical team using standard midline incision and medial parapatellar arthrotomy. All patients followed the same rehabilitation protocol.

Spatiotemporal gait analysis was performed using a waist-mounted inertial measurement unit (Baiobit, Rivelo, BTS Bioengineering, Italy) during self-selected level walking preoperatively and at 12 months postoperatively. Primary outcomes were gait speed and double support time; cadence was analyzed exploratorily. Patient-reported outcomes included KOOS total and FJS-12. Statistical significance was set at $p < 0.05$.

Results: Baseline characteristics were comparable between groups (all $p > 0.05$). Both groups improved significantly over time (all $p < 0.05$). Gait speed increased from 0.77 ± 0.18 to 0.93 ± 0.12 m/s in the posterior-stabilized group and from 0.81 ± 0.16 to 0.96 ± 0.14 m/s in the medial congruent group. Double support time decreased from 41.6 ± 7.8% to 25.2 ± 4.4% and from 38.6 ± 8.4% to 23.7 ± 3.9%, respectively. At 12 months, between-group differences in gait speed and double support time were not significant (both $p > 0.05$). KOOS total and FJS-12 were comparable between groups at 12 months.

Conclusions: Medial congruent and posterior-stabilized designs demonstrated similar early functional recovery after TKA. In this real-world walking assessment, implant subtype did not appear to meaningfully influence gait performance or patient-reported outcomes during the first postoperative year.

Oncology

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JUVENES PRO MEDICINA
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Evaluation of the cytotoxic effects of the ACAT inhibitor CI-967 in combination with cisplatin on HCC-1143 breast cancer cells

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Introduction: Triple-negative breast cancer (TNBC) remains a clinical challenge due to its aggressive nature and limited targeted treatment options. Recent studies highlight the role of cholesterol metabolism, particularly the enzyme acyl-CoA:cholesterol acyltransferase (ACAT), in promoting tumor progression and chemoresistance.

Purpose: This study aims to evaluate whether inhibition of ACAT by CI-967 can enhance the cytotoxic efficacy of cisplatin, a standard chemotherapeutic agent, in the HCC-1143 TNBC cell model.

Material and Methods: HCC-1143 cells were cultured in vitro and treated with varying concentrations of the ACAT inhibitor CI-967 (1–90 µM), cisplatin (1–80 µM), or a combination of both agents. Cell viability was assessed after 72 hours using the MTT assay. The nature of the interaction between the two drugs (synergistic, additive, or antagonistic) was analyzed using SynergyFinder+ software.

Results: Both CI-967 and cisplatin independently reduced the viability of HCC-1143 cells in a dose-dependent manner. However, co-administration of CI-967 and cisplatin resulted in a significantly greater reduction in cell survival compared to either drug alone. The combination treatment yielded a Combination Sensitivity Score (CSS) of 47.4, indicating a strong overall inhibitory effect. The HSA model revealed a positive mean score of 4.14. Detailed synergy mapping identified significant synergistic hotspots (HSA score > 10) at low-dose ranges (specifically 5–10 µM CI-967 combined with 5 µM cisplatin). In these regions, the combination significantly outperformed the most effective single agent.

Conclusions: The findings suggest that inhibition of ACAT by CI-967 can significantly enhance the cytotoxic effects of cisplatin in HCC-1143 triple-negative breast cancer cells. The observed synergistic interaction, particularly at specific low-dose combinations, indicates that co-treatment with CI-967 and cisplatin may represent a promising strategy to improve therapeutic outcomes. These results warrant further investigation into the mechanistic basis of this synergy, as well as in vivo validation to assess the clinical relevance of combining ACAT inhibition with standard chemotherapy in TNBC treatment.

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The Role of Serum Concentrations of TGF-β, NRP2, and MDK in Predicting Poor Mobilization in Patients with Multiple Myeloma

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Introduction: Autologous hematopoietic stem cell transplantation (AHSCT) remains the backbone of treatment for multiple myeloma (MM). Stem cell mobilization—the process of collecting a patient's hematopoietic stem cells prior to AHSCT—is a critical bottleneck that shapes both patient eligibility and procedural outcomes.

Purpose: This study aimed to evaluate the predictive value of transforming growth factor beta (TGF-β), neuropilin-2 (NRP2), and midkine (MDK) serum concentrations for poor mobilization (PM) in patients with MM eligible for AHSCT.

Material and Methods: In this prospective study, patients with newly diagnosed MM were enrolled between May 2020 and March 2026. Patients received 3-drug or daratumumab-based induction regimens. Patients were mobilized with G-CSF or chemotherapy. Serum samples were collected prior to the mobilization procedure (T1). Additionally, in a subset of patients receiving daratumumab-based regimens or those mobilized with chemotherapeutic agents, blood samples were collected at a second time point (T2) post-mobilization to assess changes in TGF-β, NRP2, and MDK serum concentrations. Protein concentrations were quantified using commercial ELISA kits. Poor mobilization (PM) was defined as a stem cell yield of $<2.5 \times 10^6$ cells/kg of body weight or the necessity for plerixafor rescue.

Results: Seventy-six patients were included in the analysis, of whom 36 (including 8 mobilized with chemotherapeutics) were evaluated at both time points. The median age was 60 years (interquartile range [IQR], 53–65), and 53% of the cohort was male. Forty-four (56%) patients received a daratumumab-based induction regimen, and 8 (10%) patients were mobilized with chemotherapeutics. Twenty-seven patients met the criteria for PM, of whom 80% required plerixafor rescue. Serum concentrations of the investigated proteins did not differ between the adequate and poor mobilization groups: TGF-β (median: 1,352 mg/mL [IQR: 1,070–1,622] vs. 1,227 mg/mL [IQR: 916–1,484]; p = 0.3), NRP2 (29 ng/mL [IQR: 11–106] vs. 32 ng/mL [IQR: 6–81]; p = 0.7), and MDK (1 ng/mL [IQR: 0–2] vs. 2 ng/mL [IQR: 0–10]; p = 0.15). However, in univariable logistic regression, MDK showed predictive potential (OR = 1.07; 95% CI: 1.00–1.07; p = 0.018) and at an optimal cutoff of ≥1.71 ng/mL (OR = 4.71; 95% CI: 1.65–14.4; p = 0.005) achieved a sensitivity of 52% and a specificity of 81%. This effect was higher in a multivariable model adjusted for age (OR = 6; 95% CI: 2–20; p = 0.005), which achieved an AUC of 0.724 (95% CI: 0.604–0.843), a sensitivity of 60%, and a specificity of 74%. Significant changes between timepoints were observed for TGF-β (mean ln ± SD: 7.13 ± 0.34 vs. 6.92 ± 0.57; p = 0.031) and MDK (mean ln ± SD: 0.54 ± 2.13 vs. 0.84 ± 1.90; p = 0.051). A moderate negative correlation was observed between changes in TGF-β and the number of collected hematopoietic stem cells (r = -0.55; 95% CI: -0.74 to -0.27; p < 0.001).

Conclusions: Serum MDK concentration is a potential predictor of poor mobilization, and both MDK and TGF-β appear to be involved in the mobilization process.

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Effects of Selected Fatty Acids on the Viability of PANC-1 Pancreatic Ductal Carcinoma Cells – an in vitro study

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Introduction: Pancreatic ductal adenocarcinoma (PDAC) is a highly aggressive and lethal malignancy, characterized by significant therapeutic resistance, and profound metabolic plasticity. Lipid metabolism is altered in PDAC, playing a complex role in its progression. Short-chain fatty acids (SCFAs), typically produced by gut microbiota, generally demonstrate notable anti-inflammatory and anticancer properties. Long-chain fatty acids (LCFAs) promote tumor development and impair immunity. Understanding these processes is crucial for developing innovative therapies.

Purpose: To evaluate in vitro the effects of selected SCFAs (sodium acetate [NaA], sodium butyrate [NaB]) and LCFAs (sodium stearate [NaS], sodium palmitate [NaP]), both individually and in combination, on the viability of the human PDAC cell line PANC-1.

Material and Methods: PANC-1 cells were cultured and treated with varying concentrations of NaA (1–400 mM), NaB (0.1–50 mM), NaS (1–200 µM), and NaP (1–200 µM) for 6, 12, and 24 hours. A physiological mixture of NaB (0.5 µM), NaS (50 µM), and NaP (150 µM), mimicking peripheral blood ratios, was tested for 6 hours. Cell viability was measured using the MTT assay. Statistical differences were determined using the Kruskal-Wallis test followed by Dunn's multiple comparisons test.

Results: The tested fatty acids showed time- and concentration-dependent effects. NaA significantly increased viability at higher concentrations (50–400 mM) at 6h, shifting toward lower concentrations (10–100 mM) by 24h. NaB also stimulated PANC-1 viability at higher concentrations (25–50 mM) initially, though this effect diminished by 24h. NaP caused a mild but significant increase in viability at lower concentrations (10–50 µM), whereas NaS (50–200 µM) reduced viability to ~70-80% of the control. With the combined mixture (NaB+NaS+NaP), a significant decrease in cell survival (~80%) was observed.

Conclusions: The selected fatty acids exerted distinct, structure-dependent effects on PANC-1 cells. Contrary to expected anticancer effects, high concentrations of SCFAs (NaA, NaB) and NaP stimulated PANC-1 metabolic activity, likely reflecting PDAC's remarkable metabolic plasticity and ability to utilize alternative energy substrates. Conversely, NaS demonstrated potent cytotoxicity, dominating the cellular response even in the presence of other fatty acids. These findings highlight the nuanced role of lipid metabolism in pancreatic cancer and suggest that targeting specific LCFA pathways, particularly involving NaS, may offer a promising avenue for novel therapeutic strategies.

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Clinical validation of an artificial intelligence–based algorithm for assessment of therapeutic response in breast cancer after neoadjuvant chemotherapy

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Introduction: Neoadjuvant therapy (NAT) is a cornerstone of breast cancer treatment, particularly in HER2-positive (HER2+) and triple-negative (TNBC) disease and is increasingly used in selected patients with early-stage hormone receptor-positive/HER2-negative tumors (HR+/HER2-). Pathologic response to NAT, commonly assessed using pathologic complete response (pCR) and residual cancer burden (RCB), provides important prognostic information and guides subsequent therapeutic decisions. However, histopathologic evaluation may be labor-intensive and subject to interobserver variability. Recent advances in digital pathology and artificial intelligence (AI) enable the extraction of complex morphological features from histopathological whole-slide images (WSIs), creating an opportunity for more objective and standardized prediction of treatment response.

Purpose: To validate an AI model for predicting response to NAT from pretreatment biopsy WSIs and to assess its association with clinicopathological features.

Material and Methods: This retrospective study includes consecutive patients with breast cancer treated with neoadjuvant chemotherapy between 2023 and 2025 at the Clinical Hospital of the Medical University of Lodz. The cohort from the Medical University of Lodz was included as part of a larger, international retrospective clinical validation study of NAT-treated patients. Lodz WSIs from core needle biopsies were retrieved and digitized using the Pannoramic 1000 WSI scanner. The AI model first extracts morphological features from WSIs, and then uses them in combination with basic clinical data (molecular subtype, stage, age) to predict pCR. Model performance was evaluated using area under the receiver operating characteristic curve (AUC) and odds ratios (OR) with 95% confidence intervals, along with subgroup analyses for TNBC, HER2+, and HR+/HER2- tumors. Patients from all institutions were pooled for analyses. We used multivariable logistic regression to assess the independent association between the AI score and pCR after adjusting for clinical covariates.

Results: The evaluation cohort included 563 patients. Pathologic complete response (pCR) was observed in 226 (40.1%) patients. The AI model was predictive of pCR with a pooled AUC of 0.72 (95% CI: 0.65-0.80) and OR of 2.26 (1.46-3.51, $p<0.01$). The AI score was independently predictive of pCR after adjusting for molecular subtype, staging, patient's age and tumor grade with an adjusted OR of 1.54 (1.27-1.88, $p<0.01$). Subgroup analyses showed consistent model performance in all molecular subtypes, with an AUC of 0.68 (0.60-0.75) for TNBC, 0.63 (0.49-0.78) for HER2-positive, and 0.69 (0.58-0.80) for HR+/HER2- tumors.

Conclusions: AI analysis of pretreatment WSIs is a promising approach for predicting response to neoadjuvant therapy in breast cancer. Validation in the UMED Lodz cohort may help define the clinical utility of this strategy and support the future integration of AI-assisted tools into personalized treatment planning.

JUVENES PRO MEDICINA
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Overcoming oxaliplatin resistance in breast cancer: potential inhibitors and mechanistic insights

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Introduction: Breast cancer remains a leading cause of cancer-related mortality among women, underscoring the urgent need for more effective therapeutic strategies. The clinical efficacy of oxaliplatin (Ox), a platinum-based chemotherapeutic agent, is frequently limited by the development of drug resistance, associated with reduced apoptosis, enhanced DNA repair capacity, increased drug efflux (ABC transporter activity) and activation of pro-survival signalling pathways.

Purpose: This study aimed to investigate the potential of the synthetic uracil analogue U-359 as a sensitising agent in combination with oxaliplatin in breast cancer cells, including an oxaliplatin-resistant cell line. An additional objective was to elucidate the underlying mechanisms responsible for oxaliplatin resistance.

Material and Methods: Breast cancer cell lines, including an oxaliplatin-resistant model, were treated with oxaliplatin alone and in combination with the uracil analogue U-359. Cytotoxicity, apoptosis (caspase activation, cleaved PARP1 levels), DNA damage, and cell migration capacity were assessed. The expression and activity of drug resistance-related proteins, including ABC transporters and NF-κB, were also analysed.

Results: The uracil analogue significantly enhanced oxaliplatin-induced apoptosis, as evidenced by increased caspase activation and elevated levels of cleaved PARP1. Combined treatment resulted in increased DNA damage and a marked reduction in cell migration capacity. Additionally, U-359 modulated key drug resistance-related proteins, including ABC transporters and NF-κB, counteracting their upregulation observed following oxaliplatin treatment alone. The synergistic effects were more pronounced in the oxaliplatin-resistant cell model, indicating an enhanced ability of U-359 to overcome established resistance mechanisms.

Conclusions: U-359 represents a promising adjuvant to oxaliplatin therapy, offering a potential strategy to overcome drug resistance, enhance apoptotic responses, and limit metastatic behaviour in breast cancer. Mechanistically, oxaliplatin resistance appears to be mediated primarily by upregulation of ABC transporters and activation of the NF-κB pathway, both of which can be effectively counteracted by U-359.

JUVENES PRO-MEDICINA
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Low eosinophil-to-lymphocyte ratio is associated with inferior overall survival in patients with mantle cell lymphoma treated with immunochemotherapy and autologous hematopoietic stem cell transplantation

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Introduction: Mantle cell lymphoma (MCL) remains a clinically heterogeneous disease with variable outcomes despite advances in treatment strategies. Established prognostic indices, such as the Mantle Cell Lymphoma International Prognostic Index (MIPI), do not fully capture the complexity of disease biology. Easily accessible biomarkers reflecting the host immune status may provide additional prognostic value.

Purpose: The aim of this study was to evaluate the prognostic significance of the eosinophil-to-lymphocyte ratio (ELR) at diagnosis in patients with MCL undergoing contemporary treatment approaches, including autologous stem cell transplantation (auto-SCT).

Material and Methods: We conducted a single-center retrospective analysis of treatment outcomes in patients diagnosed with MCL. Baseline laboratory parameters at diagnosis, including ELR, were analyzed alongside established prognostic markers, including MIPI.

Results: A total of 63 patients were identified, including 10 women and 53 men, with a mean age of 57.4 ± 7.7 years. According to the Lugano classification, most patients presented with advanced disease: stage IV in 37 patients (58.7%), stage III in 13 (20.6%), stage II in 10 (15.9%), and stage I in 3 (4.8%). The majority of patients received first-line alternating immunochemotherapy with R-CHOP (rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone) and R-DHAP (rituximab, dexamethasone, cytarabine, and cisplatin) (48 patients, 76.2%). Twelve patients (19.0%) were treated with R-CHOP alone, while 3 patients (4.8%) received R-bendamustine. Consolidation with high-dose chemotherapy followed by auto-SCT was performed in 41 patients (65.1%). The median overall survival (OS) for the entire cohort was 109.5 months (95% CI: 51.9–128.3). In the auto-SCT group, median OS was not reached, whereas in patients who did not undergo auto-SCT, median OS was 36 months (95% CI: 15.0–79.5) (HR 0.26, 95% CI: 0.11–0.61, p = 0.0002). Among patients who underwent auto-SCT, a low ELR (below the median) at diagnosis was associated with inferior OS (HR 5.92, 95% CI: 1.10–31.8, p = 0.038) in univariable Cox regression analysis. This effect remained significant in multivariable analysis adjusted for established prognostic factors.

Conclusions: The ELR, a simple and readily available parameter assessed at diagnosis, provides clinically meaningful prognostic information in MCL patients treated with auto-SCT, with low ELR identifying those at risk of inferior long-term outcomes.

JUVENES PRO MEDICINA

Neurology and Neurosurgery Original Research

8th of May 2026

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JUVENES PRO MEDICINA
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Preoperative Brain Atrophy as a Predictor of Motor Outcomes After STN Deep Brain Stimulation in Parkinson's Disease

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Introduction: Brain atrophy is common in Parkinson's disease (PD) and contributes to motor and cognitive decline. However, the predictive value of neuroimaging-based volumetric measures for motor outcomes following deep brain stimulation (DBS) remains unclear.

Purpose: This study examines whether preoperative volumetric assessment can predict motor outcomes after subthalamic nucleus (STN) DBS in PD.

Material and Methods: Preoperative T1-weighted 3D MP-RAGE MRI scans were analyzed to measure subcortical, ventricular, and cortical volumes using Brainlab software. Motor outcomes were assessed by changes in the Movement Disorder Society - Unified Parkinson's Disease Rating Scale part III (MDS-UPDRS-III) scores pre- and postoperatively in 39 participants. Stepwise logistic regression was performed to determine associations between brain volumes and DBS response.

Results: Smaller substantia nigra compacta volume (0.81 [IQR 0.74-0.85] vs 0.72 [IQR 0.69-0.73]), larger ventricular system (26.1 [IQR 21.4-30.05] vs 34.1 [IQR 28.6-40.87]), and lower atrophy ratio (41.76 [IQR 37.59-50.71] vs 29.63 [IQR 25.9-36.55]) were significantly associated with reduced motor improvement following STN-DBS. The predictive model based on these values demonstrated excellent performance (AUC 0.95, 95% CI: 0.87–1; $p < 0.01$) in forecasting poorer DBS treatment outcomes as measured by the MDS-UPDRS-III scale.

Conclusions: Our findings highlight the impact of enlargement of ventricular system and brain atrophy, particularly of the substantia nigra, on motor outcomes after STN-DBS. The association between atrophy measures and executive dysfunction suggests that subclinical dementia may underlie poor DBS response. Future studies should further explore the role of neurodegeneration in DBS response to optimize patient selection and electrode targeting.

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From Depth to Insight: Next-Generation DIA Proteomics in PACS2 Syndrome

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Introduction: In proteomics, the wide dynamic range of protein abundance limits the detectability of low-abundance proteins in complex tissue samples a critical constraint in rare disease research, where biologically meaningful changes may be subtle. PACS2 syndrome, a developmental epileptic encephalopathy caused by the pathogenic E209K variant of the PACS2 gene, presents primarily with neurological symptoms, yet the broad peripheral expression of PACS2 suggests that molecular alterations may extend beyond the central nervous system. The PACS2 E209K/WT murine model therefore provides an informative system for evaluating whether newer data-independent acquisition (DIA) platforms can resolve tissue-specific molecular disturbances that remain undetected on earlier-generation instruments.

Purpose: We aimed to compare the analytical performance of the Orbitrap Fusion (OF) and Orbitrap Astral (OA) platforms in multi-tissue proteomic profiling of this model.

Material and Methods: Liver, cerebellum and hippocampus were collected from PACS2 E209K/WT knock-in and wild-type animals. Following protein isolation and digestion, peptides were analysed by LC–MS/MS in DIA mode. On the OF platform, 1 µg of peptides was separated over a 140-minute gradient; on the OA platform, a 10-fold lower input (100 ng) was separated over a 13-minute gradient. Data were processed using Spectronaut 18.

Results: The OA platform consistently outperformed OF across all tissues, increasing proteome depth by approximately 50–150%. In the hippocampus, protein identifications rose from 4.4k (OF) to 9.4k (OA), representing a greater-than-twofold gain with one-tenth the sample input and a tenfold shorter gradient. Beyond coverage, OA detected substantially more differentially expressed proteins in several tissues, in some cases revealing disease-associated molecular alterations that were not captured by the earlier-generation instrument.

Conclusions: Next-generation DIA proteomics markedly expands tissue proteome coverage and improves detection of differential proteins at lower sample input and shorter acquisition times. In the context of rare disease research, these technical gains translate into biological insight: increased analytical sensitivity enables detection of subtle, tissue-specific molecular effects in PACS2 syndrome that would otherwise remain below the detection threshold. These findings suggest that platform generation is a material factor in the mechanistic interpretation of proteomic data from rare-disease models.

Acknowledgements. We thank the technical staff of the Experimental Medicine Centre (Medical University of Bialystok, Poland) for maintaining the PACS2 E209K/WT colony, with special acknowledgement of Małgorzata Mackiewicz for her exceptional commitment.

JUVENES PRO MEDICINA
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Occult Neurotrauma: A Multivariate Analysis of Clinical and Radiological Predictors in Paediatric E-Scooter Accidents

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Introduction: The unique kinematics of paediatric electric scooter (e-scooter) accidents often involve a high-energy oblique impact, where the head is the primary point of ground contact. This mechanism generates significant linear and angular accelerations, predisposing young riders to complex cranial vault and skull base fractures. A critical challenge for the neurosurgeon is the 'GCS Paradox', where the paediatric brain's resilience often masks underlying intracranial haemorrhage (ICH) and traumatic brain injury (TBI) during initial assessment.

Purpose: To evaluate the predictive relationship between patient demographics, helmet use, specific fracture morphology (suture diastasis), and the incidence and severity of TBI and ICH.

Material and Methods: A retrospective analysis of descriptive data and imaging studies was conducted on 250 Emergency Department presentations and 57 patients admitted to a tertiary Neurotrauma Centre. Statistical analysis utilised $\chi 2$, T-tests and multivariate logistic regression, evaluating Emergency Severity Index (ESI), Rotterdam CT Scores, and Glasgow Outcome Scale-Extended (GOSE).

Results: A profound 'GCS Paradox' was observed: while 78.6% of neurosurgical patients presented with GCS 15, 81.8% of them had confirmed TBI. Helmet use was a critical protective factor, significantly reducing the odds of unconsciousness (OR=0.14, 95%CI: 0.03–0.84, p=0.017) and TBI (OR=0.07, 95%CI: 0.07–0.57, p=0.005). Cranial fractures occurred in 62.0% of non-helmeted admitted patients, primarily affecting the temporal (68.7%) and parietal (33.3%) bones. A significant neuroanatomical correlation was identified: fractures causing cranial suture diastasis were highly predictive of ICH (p=0.031). Haemorrhage most frequently affected the temporal region (36.4%), followed by the frontal region (31.8%). Helmet use provided significant protection against cranial vault fractures (OR 0.11, 95%CI: 0.01–0.99, p=0.023), but not maxillofacial trauma (p=0.917). Notably, non-helmeted riders suffered more contrecoup injuries (28.6% vs 0%), suggesting higher energy transfer to the neural parenchyma. Outcomes were generally positive, with 94.3% achieving total recovery (GOSE 8).

Conclusions: Initial GCS scores are an insufficient screening tool for paediatric e-scooter trauma. Immediate neuroimaging is highly recommended regardless of the patient GCS-score. A detailed assessment of fracture patterns, specifically those involving cranial suture diastasis, is vital for predicting haemorrhage risk. While helmets do not significantly reduce maxillofacial trauma, they are highly effective in preserving cranial vault integrity and shifting the injury profile toward lower-acuity management.

JUVENES PRO MEDICINA
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Various Surgical Approaches to Orbital Tumors: Challenges in Intraconal and Extraconal Lesions

Katarzyna Pogorzelska, Wiktoria Żakowicz

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Introduction: Orbital tumors are rare lesions that pose significant challenges due to the complex anatomy of the orbit and the proximity of critical neurovascular structures. They may be located either intraconally or extraconally and their anatomical position plays a key role in determining the surgical approach. In addition, lesions may adhere to surrounding structures, further complicating surgical resection and increasing the risk of complications. Therefore, endoscopic, external and combined techniques are currently used in the surgical management of selected orbital tumors, enabling access to the orbit from different anatomical directions and facilitating comprehensive exposure.

Purpose: The aim of this study was to present our experience with endoscopic, external and combined approaches in the management of intraconal and extraconal orbital tumors, with particular emphasis on technical challenges, feasibility and surgical outcomes.

Material and Methods: We performed a retrospective analysis of 5 patients with orbital tumors treated surgically at our institution. Tumors were located in intraconal and extraconal compartments, predominantly in the medial and retrobulbar regions. Surgical management included endoscopic endonasal, transconjunctival, transpalpebral and combined approaches. We analyzed clinical and surgical data, including extent of resection, postoperative course and complications.

Results: Complete tumor resection was achieved in 4 patients, while partial resection was required in 1 case due to strong adhesions to surrounding orbital structures, limiting safe dissection. No major intraoperative or postoperative complications were observed. Minor postoperative findings included eyelid edema and diplopia, which are commonly observed and typically transient. All patients were discharged in good general and neurological condition. Reduction of proptosis and subjective improvement in visual function were observed in selected cases. Tumor regrowth requiring reoperation occurred in 1 patient. Various surgical approaches were successfully applied in both intraconal and extraconal lesions, providing adequate exposure of different orbital regions.

Conclusions: Surgical management of orbital tumors remains challenging and requires an individualized approach. Endoscopic, external and combined techniques enable effective access to both intraconal and extraconal lesions, including anatomically complex regions. However, despite the availability of multiple surgical approaches, tumor adhesion to surrounding structures may limit the extent of safe resection and represents an important surgical constraint.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Prevalence and clinical characteristics of the wearing-off phenomenon in multiple sclerosis patients treated with ocrelizumab and ofatumumab

Natalia Krupińska

Presenting author: Natalia Krupińska

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Introduction: Multiple sclerosis is a neuroinflammatory disease of the central nervous system that leads to demyelination and neuronal damage, affecting more than 2.8 million people worldwide. Common clinical manifestations include vision problems, sensory or motor deficits and clumsiness. Among disease-modifying therapies are anti-CD20 antibodies such as ocrelizumab and ofatumumab. The wearing-off effect refers to symptoms such as fatigue, cognitive impairment and sensory disturbances occurring toward the end of treatment cycles.

Purpose: Evaluation of the prevalence, clinical features and potential risk factors of the wearing-off phenomenon in patients with relapsing-remitting or primary progressive multiple sclerosis receiving ocrelizumab or ofatumumab.

Material and Methods: The observational retrospective study included 92 patients treated with ofatumumab or ocrelizumab in the Neurology Department at Barlicki Hospital in Lodz within the Polish Drug Program B.29 for multiple sclerosis. The analyzed data were obtained from original patient-completed questionnaires and medical records. Statistical analysis was performed using Statistica 13.3. The Shapiro-Wilk test was used to assess data distribution. Comparisons were performed using the Mann-Whitney U test and categorical variables were analyzed using the Chi-squared test or Fisher's exact test. A p-value <0.05 was considered statistically significant.

Results: 68 (74%) respondents were female and 24 (26%) male. Their mean age was 34 years (range: 19 - 72 years). 19 (20%) patients were treated with ocrelizumab and 73 (80%) with ofatumumab. 37 of 87 patients who answered the question about wearing-off symptoms reported experiencing the wearing-off effect (42%). It was more common during ofatumumab treatment than ocrelizumab (58% vs 39%), but the difference was not statistically significant ($p = 0.2$). The wearing-off effect occurred more frequently in women than in men (49% vs 22%) and this difference was statistically significant (OR = 3.3, 95% CI = 1.09 - 10.0, $p = 0.045$). The most frequently reported symptoms were fatigue (89%), walking difficulties (40%), mood disturbances (30%), and sensory symptoms (30%). 16 of 21 patients who answered the question about how many days before the next dose the symptoms occur (76%) reported that symptoms occurred up to 7 days before the planned dose. The wearing-off effect was associated with disease duration ($p = 0.023$). No statistically significant association was found with BMI ($p = 0.62$), treatment duration ($p = 0.9$) or disease control ($p = 0.806$).

Conclusions: The wearing-off phenomenon occurred in more than 40% of patients treated with ofatumumab or ocrelizumab and was more frequent in women and in those with longer disease duration. Further research is needed to confirm these findings. However, our preliminary results may provide additional insight into this phenomenon and help improve the management of wearing-off symptoms in patients with multiple sclerosis.

Nephrology

Original Research

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Diagnostic impact of renal electron microscopy in the era of modern immunopathology: a single-center cohort study.

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Introduction: Renal biopsy (RBx) is the gold standard for diagnosing glomerular diseases (GD), requiring integrated assessment of light microscopy (LM), immunofluorescence (IF) and electron microscopy (EM). LM and IF provide structural and immunopathological data, while EM enables evaluation of ultrastructural features - immune deposits and membrane and podocyte changes.

Purpose: We aimed to determine how EM modifies the LM/IF-based diagnosis and to identify in which nephropathies and clinical settings diagnostic reclassification occurs most frequently.

Material and Methods: We retrospectively analyzed reports from all adult native RBx performed 2011–2023 at a single nephropathology center. Only diagnostically representative RBx with complete LM, IF and EM were included. Clinical data comprised age, sex, date of RBx,and referral indication. Among 1807 RBx, EM was performed in 1092 (60.4%) cases. Of these, 24 (2.2%) were nondiagnostic on LM/IF and 3 (0.3%) on EM; 1065 RBx were included in final analysis. In 878 (82.4%) RBx EM confirmed diagnosis (ConfD); in 56 (5.3%) it provided a complementary data to inconclusive LM/IF (IncD), and in 131 (12.3%) changed diagnosis (ModD).

Results: IncD were less frequently associated with acute clinical presentation (16.1 vs 30.5%, p=0.022) and nephrotic syndrome (23.2 vs 42.0%, p=0.005) and more frequently with nephritic syndrome (46.4 vs 30.8%, p=0.017) than CD. ModD were obtained from older patients (57.5 vs 53.0 years, p=0.029) than ConfD, with no other differences. There were no differences regarding sex, serum creatinine, eGFRCKD-EPI and course of renal insufficiency between any groups. Comparing LM/IF reports of ModD and ConfD groups, ModD had higher rates of focal segmental glomerulosclerosis (FSGS, 23.7 vs 16.0%, p=0.028), normal renal morphology (9.9 vs 2.2%, p<0.001), non-IgA mesangioproliferative glomerulonephritis (non-IgA MesPGN, 7.6 vs 1.3%, p<0.001), acute tubulointerstitial nephritis (ATIN, 6.1 vs 1.4%, p<0.001), hypertensive nephropathy (HN, 5.3 vs 1.6%, p=0.005) and sclerotic kidney (4.6 vs 1.5%, p=0.015), and lower rates of IgAN (5.3 vs 22.0%, p<0.001), crescentic GN (3.1 vs 9.3%, p=0.023), lupus nephritis (LN,0 vs 6.61%, p=0.004) and amyloidosis (0 vs 5.6%, p=0.007). After EM evaluation, ModD had higher rates of HN (13.7 vs 2.2%, p<0.001), non-IgA MesPGN (10.7 vs 1.3%, p<0.001), membranous nephropathy (MN, 9.9 vs 8.4%, p=0.044), and unclassified GD (7.6 vs 0.5%, p<0.001) than ConfD. IncD had higher rates of normal morphology (16.1 vs 2.2%, p<0.001) and HN (12.5 vs 1.6%, p<0.001) than ConfD.

Conclusions: EM is an essential component of native RBx evaluation and frequently alters final diagnoses, particularly in older patients and those with nephrotic syndrome. HN and non IgA MesPGN were most often missed/misidentified based on LM/IF alone, whereas IgAN, crescentic GN, LN, and amyloidosis were usually confirmed in ME. FSGS, ATIN and sclerotic kidney were the most revised after EM, implying overdiagnosis by LM/IF alone, while MN was underdiagnosed without ME.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Assessment of the prevalence of frailty syndrome in kidney transplant recipients and identification of risk factors

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Introduction: Frailty syndrome is an increasingly recognized complication in kidney transplant recipients (KTxR), associated with worse post-transplant outcomes. No standardized guidelines exist for selecting frailty assessment tools in this population, leaving the choice to clinicians.

Purpose: To assess frailty prevalence in KTxR using multiple validated frailty scales, compare them, and identify functional, laboratory, and body composition correlates of frailty.

Material and Methods: We assessed adult KTxR with preserved graft function (eGFR>10 ml/min/1,73m2) for frailty (GFI, FFP, EFS, VES-13 scales), functional performance, anthropometrics, body composition, laboratory parameters and patient-reported outcomes (nutritional status, sleep quality, physical activity, medication adherence).

Results: We enrolled 87 KTxR (53M), with median age 58 [48,0-67,0] years, mean age 56.6±13.1 years and mean eGFR 49.0±15.6 ml/min/1.73m², mean KTx vintage 96 months, median 62.5 months [32-130].

Depending on the scale used, frailty or vulnerability was identified in 22.4% (FFP) to 40.7% (VES-13) of patients. Frail patients had significantly lower hemoglobin (14.4/13.2 g/dl; p=0.005), hematocrit (43.5/40.3%; p=0.011), and RBC count (4.80/4.39 mln/µl; p=0.004). Gait speed correlated with all frailty scales (R=0.31–0.43; p≤0.004), handgrip strength showed the strongest associations (R up to -0.52; p<0.001). Physical activity (GPPAQ; R up to -0.34; p<0.004), sleep quality (PSQI; R up to 0.34; p=0.002), and nutritional status (SNAQ; R up to -0.30; p=0.007) were associated with frailty burden across all scales; appetite (SNAQ) correlated with EFS and VES-13 (R=-0.28; p=0.026). No significant differences in frailty scores were observed between tacrolimus and cyclosporine recipients, calcineurin inhibitor levels did not correlate with any frailty measure.

Conclusions: Frailty affects 22–41% of KTxR depending on the assessment tool, highlighting the need for guideline standardization. Functional performance - particularly handgrip strength and gait speed - emerged as the strongest correlate of frailty, while anaemia represented a clinically relevant associated finding. Immunosuppressive regimen did not appear to influence frailty status.

JUVENES PRO MEDICINA
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Impact of body composition on nephrolithiasis prevalence: Insights from semi-automatic CT tissue segmentation - the pilot study

Mateusz Koza

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Introduction: Nephrolithiasis is one of the most frequent diseases of the urinary tract with a prevalence of approximately 10% globally. It is associated with numerous risk factors i.a: age, gender, genetics and metabolic disturbances including obesity and dietary habits. However, the specific impact of body composition distribution, particularly the relationship between visceral fat and muscle mass, remains insufficiently explored. This is crucial considering that visceral adipose tissue (VAT) is a metabolically active endocrine organ promoting systemic inflammation and insulin resistance.

Purpose: To evaluate the association between VAT, subcutaneous adipose tissue (SAT), skeletal muscle (SM) volumes and the prevalence of nephrolithiasis based on semi automatic tissue segmentation of non-contrast abdominal Computed Tomography (CT).

Material and Methods: This retrospective study included 392 patients examined with abdominal CT at the Norbert Barlicki University Teaching Hospital No. 1 in Łódź between 2016 to 2025. Semi-automatic segmentation was performed at the L2-L3 vertebral level using a region of interest encompassing 17 consecutive slices (thickness 2.5 mm) to quantify VAT, SAT and SM. Muscle quality was assessed. Segmentation was performed using TotalSegmentator model implemented in 3D Slicer (version 5.8.1). VAT/SM and SAT/SM ratios were subsequently calculated.

Statistical analysis included descriptive statistics, the Shapiro–Wilk test for normality assessment, and the Mann–Whitney U test for group comparisons, as well as logistic regression analysis. Models were adjusted for age, sex, and tissue ratios. Absolute volume measures were excluded from regression models due to collinearity. Quartiles were defined based on the study population distribution.

Results: 196 patients (112 M; 84 F; mean age 56.76) with nephrolithiasis and 196 (92 M; 104 F; mean age 55.04) without stones. Initial comparative analysis showed no significant differences in age, gender and body composition parameters between the groups (all $p > 0.05$). In backward stepwise selection, the logistic regression model identified the VAT/SM ratio as a significant independent predictor of nephrolithiasis (OR = 1.34; 95% CI: 1.03-1.74; $p = 0.027$). Sex-stratified analysis revealed increased odds of nephrolithiasis with patients in the highest quartiles compared to lowest quartile (Q3: OR = 4.47, $p = 0.003$; Q4: OR = 4.18, $p = 0.008$) in males. There was no significant predictive value for tested variables in females. The overall model reached sensitivity of 55.1% and a specificity of 62.1% with an area under the curve (AUC) of 0.5915.

Conclusions: Body composition is associated with sex-specific nephrolithiasis occurrence. A higher VAT/SM ratio is a risk factor for kidney stones in men. The VAT/SM ratio assessed using semi-automatic segmentation on routine abdominal CT scans may serve as a potential adjunctive predictor of nephrolithiasis development.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Listen, Don't Speak: A Simple Rule for Accurate Blood Pressure Measurement

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Introduction: Blood pressure is usually recommended to be measured in silence. However, in real life clinics, patients often talk or listen to the doctor during measurement. Does this actually affect measurement accuracy?

Purpose: We tested whether answering questions or just listening changes blood pressure compared to silent measurement.

Material and Methods: We studied 50 patients with treated hypertension (interim analysis; target n=100) in a nephrology clinic at the Medical University of Łódź, Poland. BP was measured 7 times per patient using an automated oscillometric device (Omron M10 IT): one calibration measurement followed by two blocks of three randomized conditions: 1. silence, 2. listening to a standardized text about hypertension, 3. answering medical history questions. Silence was always first in each block; conditions 2 and 3 were randomized using computer-generated random numbers. Data were analyzed using repeated measures ANOVA with Greenhouse-Geisser correction and Tukey's post hoc test.

Results: Mean SBP was 132.1 ± 24.1 mmHg in silence, 133.0 ± 25.0 mmHg while listening, and 138.2 ± 25.2 mmHg while answering.

Overall, SBP differed significantly between conditions ($F(1.862, 91.23) = 18.05$, $p<0.0001$, $\eta^2=0.27$).

Post hoc analysis revealed:

Silence vs. listening: mean difference 1.40 mmHg (95% CI -3.61 to 0.81), p=0.2849 (not significant)

ü Silence vs. answering: mean difference 6.12 mmHg (95% CI -8.92 to -3.32), p<0.0001 (significant)

ü Listening vs. answering: mean difference 4.72 mmHg (95% CI -7.41 to -2.03), p=0.0003 (significant)

DBP showed similar patterns ($F(1.535, 75.24) = 15.03$, $p<0.0001$, $\eta^2=0.25$) with significant elevation during answering compared to silence (mean difference 4.57 mmHg, 95% CI -6.99 to -2.14, p=0.0001) and listening (mean difference 3.31 mmHg, 95% CI -5.57 to -1.05, p=0.0025). No significant difference was found between silence and listening for DBP (p>0.05).

Conclusions: Patients should not answer questions during BP measurement- it raises systolic BP by approximately 6 mmHg and diastolic BP by approximately 4.6 mmHg. However, listening to the doctor seems safe and does not falsely elevate BP. This finding may help adapt clinic routines to allow patient education without losing accuracy.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Peripheral neuropathy is associated with chronic kidney disease in people with diabetes: a cross-sectional study

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Introduction: Diabetic microvascular complications frequently coexist and may share common mechanisms such as endothelial dysfunction, oxidative stress, and microvascular ischemia. Chronic kidney disease (CKD) is typically assessed by reduced estimated glomerular filtration rate (eGFR) and/or albuminuria, whereas peripheral neuropathy reflects damage to nerve fibers. The relationship between peripheral neuropathy and ckd remains insufficiently clarified.

Purpose: To investigate the association between peripheral neuropathy and early kidney dysfunction in people with diabetes.

Material and Methods: This cross-sectional study included 846 adults with diabetes attending a diabetes clinic. Peripheral neuropathy was assessed using the Michigan Neuropathy Screening Instrument (MNSI), with abnormal results defined as ≥4 points in the questionnaire and ≥2 points in the physical examination. CKD was evaluated using eGFR (CKD-EPI equation) and urinary albumin-to-creatinine ratio (UACR). CKD was defined as eGFR <60 mL/min/1.73 m² and/or UACR ≥30 mg/g lasting for at least 3 months. Multivariable logistic regression analysis was used to assess the independent association between neuropathy and CKD, adjusting for age, sex, diabetes duration, body mass index, and hypertension.

Results: The mean age of participants was 62.4 ± 11.1 years, and the median duration of diabetes was 12 years. Peripheral neuropathy was present in 27.8% of people, while CKD was identified in 32.6%. People with neuropathy had significantly lower eGFR (71.2 ± 18.5 vs 83.6 ± 16.9 mL/min/1.73 m², $p < 0.001$) and a higher prevalence of albuminuria (38.5% vs 21.7%, $p < 0.001$). The prevalence of CKD increased with higher MNSI scores. Peripheral neuropathy was independently associated with early kidney dysfunction (OR 1.92, 95% CI 1.41–2.63, $p < 0.001$).

Conclusions: Peripheral neuropathy is independently associated with CKD in people with diabetes and may serve as a clinical marker of generalized microvascular injury affecting both neural and renal tissues.

JUVENES PRO MEDICINA

Internal Medicine

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Dietary intervention reduces CGM-derived glucose rate-of-change in healthy young women: a pilot sequential-intervention study.

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Introduction: Continuous glucose monitoring (CGM) provides granular insights into glucose dynamics, including the rate of change (RoC). While physiological reference ranges for RoC (±2 mg/dL/min) have recently been proposed for healthy individuals, it remains unclear whether lifestyle interventions can meaningfully shift these distributions within the normative range.

Purpose: The purpose of this study was to examine how a low–glycemic index (LGI) diet and structured physical activity (PA) alter CGM-derived RoC distributions and traditional glycemic variability (GV) indices in healthy young women.

Material and Methods: This prospective interventional cohort study included 30 healthy female medical students (mean age 23.5±2.3 years; HbA1c 5.15±0.23%). Participants underwent biochemical screening and baseline body composition analysis prior to enrollment. The study consisted of three sequential 14-day phases: habitual lifestyle (baseline), introduction of structured physical activity (3 sessions per week), and implementation of an individually tailored low–glycemic index (LGI) diet consisting of five meals per day consumed every three hours. The number of participants who completed the proper number of trainings and followed low glycemic index diet was 16. Glycemic metrics were continuously monitored using a CGM system (Abbott FreeStyle Libre 2). Physical activity parameters were recorded with a Polar Vantage accelerometer. CGM data were analyzed for glycemic variability indices and rate-of-change (RoC) distributions over 15-minute intervals. Linear mixed models and paired t-tests with Bonferroni-Hochberg FDR correction were used for statistical comparisons.

Results: The LGI diet led to significant reductions in several GV indices, though only the High Blood Glucose Index (HBGI) and Mean Amplitude of Glucose Excursions (MAGE) remained significant after FDR correction. In contrast, RoC distributions showed consistent and significant shifts across the normative range (±2 mg/dL/min) during the LGI diet intervention. These shifts were absent during nighttime, suggesting dominating effect of meals on glucose RoC in healthy volounteers. Structured PA reduced hyperglycemic exposure (TAR >180 mg/dL) but did not substantially alter RoC distributions.

Conclusions: Glycemic variability is affected differently by diet and PA. Glucose RoC might be a useful measure of compliance to dietary interventions, even in healthy adults.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Assessment of cardiovascular risk and symptom prevalence in patients with MCTD and OS – a comparative analysis.

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Introduction: Overlap syndrome (OS) is a group of autoimmune conditions that meet the diagnostic criteria of at least two connective tissue diseases and is usually associated with the presence of typical serological markers. Mixed connective tissue disease (MCTD) is a separate entity that presents with symptoms of other autoimmune conditions, with the presence of anti-U1-RNP antibodies. It is estimated that MCTD affects only 3 people per 100,000 inhabitants, which confirms its niche nature within the general population. Studies suggest that the risk of mortality from cardiovascular diseases (CVD) is higher in MCTD, however only a few studies assessed the CVD risk in OS.

Purpose: We aimed to compare the characteristics in patients with MCTD and with overlap syndromes, especially in terms of CVD risk.

Material and Methods: The study consisted of 10 patients (MCTD, n = 5 and overlap syndromes, n = 5). Data was collected prospectively. To assess CVD risk, USG Doppler examination was used to measure intima media thickness (IMT). Moreover, laboratory tests were performed, along with ABI index measurements. Muscle involvement was measured using Manual Muscle Testing 8 (MMT8) test. Data regarding the course of the disease was gathered by the interview and dedicated questionnaires [Fatigue Severity Scale (FSS), Health Assessment Questionnaire, Numeric Rating Scale]

Results: Hands swelling (80% vs. 40%), headache (80% vs. 40%), heart palpitations (80% vs. 40%) were more common in MCTD group, while dysphagia (0% vs 40%), erythema (20 vs 60%), skin ulcerations (40% vs 60%), teleangectasia (20% vs 60%), and skin sclerosis (40% vs 60%) were less frequent among MCTD than overlap patients. The IMT of carotid common artery (CCA) was significantly larger in OS group (0.43mm vs 0.8mm, $p<0.015$), although more patients with MCTD were diagnosed with a presence of atherosclerotic plaques in CCA (40% vs 20%). The average ABI index scores were comparable for both groups. The same number of patients was diagnosed with a presence of Raynaud phenomenon (100%) and interstitial lung disease (40%). The prevalence of hypertension (40%) and arrhythmia (40%) was identical in both groups. Notably, pericarditis occurred exclusively in the MCTD cohort (20% vs. 0%). MCTD group presented higher values of inflammatory markers, NT-pro BNP as well as more frequent haematologic involvement as compared to the OS group. On the contrary, muscle strength assessed with the MMT-8 test was comparable in both groups (74,8 vs 78,25), while the degree of fatigue was higher in the OS group (46,2 vs 28,2, $p<0.08$).

Conclusions: The disease phenotype differs between MCTD and other overlap syndromes. Intima media thickness was found to be significantly increased in OS patients, yet atherogenesis was more prevalent in MCTD. Our results indicate the need to identify factors promoting the formation of atherogenic plaques in patients with connective tissue diseases. Identifying biomarkers of CVD risk in those rare diseases could pave the way for early CVD prevention.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Fibrotic airway remodeling in T2-low asthma: mechanisms and translational modeling of non-T2 inflammation

Krystian Czolpinski, Agnieszka Tarasik, Bartosz Hanczaruk, Adrian Janucik

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Introduction: Airway remodeling and fibrosis are key determinants of persistent airflow limitation and disease progression in chronic inflammatory airway disorders, including asthma. Structural alterations such as subepithelial fibrosis, excessive extracellular matrix deposition, airway smooth muscle hypertrophy, and epithelial barrier dysfunction reflect dysregulated tissue repair processes driven by persistent inflammation. Emerging evidence suggests that both non-type 2 (T2) and T2-low inflammatory environments may preferentially promote profibrotic signaling and remodeling-dominant disease phenotypes, which are often poorly responsive to standard corticosteroid therapy. Despite their clinical importance, the mechanisms underlying airway remodeling and fibrosis in T2-low and non-T2 inflammatory endotypes remain poorly understood, partly due to the limited availability of translational experimental models.

Purpose: Here, we aimed to validate the utility of house dust mite (HDM)-induced experimental asthma models for characterizing airway remodeling-related changes in T2-low and non-T2 airway inflammation.

Material and Methods: C57BL/6 mice were intranasally challenged with HDM extract at doses of 10 or 100 µg for short-term (2 weeks) or long-term (12 weeks) to induce distinct inflammatory phenotypes. Lung tissues were analyzed using histological and immunohistochemical stainings, transcriptomic profiling, flow cytometry, and targeted protein analyses.

Results: Our results confirmed hallmark features of asthmatic airway inflammation, namely enhanced immune cell infiltration, increased collagen deposition, and mucus cell hyperplasia. Distinct inflammatory patterns were observed depending on the time of exposure. More specifically, the 2-week model was characterized by an increased frequency of IL-4+ and IL-10+ T cells, whereas the 12-week model showed a marked increase in IL-17+ T cells. Transcriptomic analysis revealed dysregulation of extracellular matrix-related genes, including collagens (Col), matrix metalloproteinases (MMPs), and their tissue inhibitors (TIMPs). Immunohistochemical analyses demonstrated increased subepithelial deposition of Col3a1 and Col4a1 across all models, while Col1a1 was elevated predominantly in the short-term models. Notably, increased levels of MMP-8 and MMP-9 in bronchoalveolar lavage fluid were observed exclusively in the 12-week model. Additionally, differential activation of cell death pathways, including apoptosis and necroptosis, was detected depending on the inflammatory endotype.

Conclusions: In conclusion, HDM dose and exposure duration shape distinct airway inflammation endotypes and airway remodeling patterns. These findings might improve the understanding of mechanisms underlying airway remodeling in T2-low and non-T2 asthma, thereby highlighting the utility of HDM-induced models for studying these processes.

JUVENES PRO MEDICINA
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REM, Apneas and Body Temperature in Nocturnal Thermoregulation of Obstructive Sleep Apnea

Weronika Bielska, Karol Pierzchała, Zuzanna Boczar

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Introduction: Obstructive sleep apnea (OSA) is a common respiratory disorder characterized by recurrent upper airway obstruction, intermittent hypoxia, and sleep disruption. It is also associated with chronic autonomic activation, which may influence nocturnal thermoregulation. Core body temperature (CBT) is one of the most widely used parameters for assessing thermoregulation and plays a crucial role in the processes of falling asleep, maintaining sleep and waking. CBT regulation varies across sleep stages, with REM sleep being particularly sensitive to autonomic modulation.

Purpose: The main objective of the study was to identify the associations between nocturnal thermoregulatory parameters, OSA severity and sleep quality. Another focus of the study was

to evaluate the impact of sleep stage-dependent respiratory events, including REM-related

central apneas, on nocturnal thermal profiles.

Material and Methods: Forty four patients evaluated for OSA underwent overnight polysomnography with continuous body temperature monitoring using CaleraResearch thermometers. Core temperautre, skin temperature and heat flux were analyzed in relation to sleep-disordered breathing indices, thermoregulation, and sleep quality. After data collection, correlation analyses and group comparisons with post-hoc testing were performed.

Results: Higher mean nocturnal CBT correlated with OSA severity (AHI $r = 0.30$, ODI $r = 0.34$,$p < 0.05$), while lower minimum/mean CBT was linked to more central apneas in REM ($r = -0.39$ to -0.51, $p < 0.01$). CBT at 02:00-04:00 also correlated with AHI ($r = 0.36$, $p < 0.05$). Early-night CBT related to REM snoring and airflow limitation, whereas slower cooling was associated with shorter sleep time but fewer REM snoring events and mixed apneas. Severe OSA showed greater thermal instability, and low sleep efficiency was linked to higher CBT.

Conclusions: Nocturnal thermoregulation is closely associated with OSA severity and sleep quality, with distinct patterns of core body temperature changes observed across different types of respiratory events. REM-related central apneas appear to be particularly linked to altered thermal regulation. These findings suggest that autonomic dysregulation in OSA may significantly influence nocturnal temperature profiles and could represent an additional physiological marker of disease severity.

JUVENES PRO MEDICINA
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Association of obstructive sleep apnea with pulmonary mortality: a competing-risk analysis

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Introduction: Obstructive sleep apnea (OSA) is a prevalent disease associated with an increased risk of developing other respiratory disorders and higher mortality. While overall mortality in OSA has been well documented, the contribution of pulmonary causes of death remains unclear, particularly in the context of competing risks.

Purpose: This study aimed to assess the association between OSA and pulmonary mortality and to identify additional clinical factors related to this outcome using competing-risk survival models.

Material and Methods: This observational cohort study included 4,368 patients with and without OSA followed for pulmonary mortality. Pulmonary death was defined using cause-of-death data, while non-pulmonary death was treated as a competing event. Associations were evaluated using cause-specific Cox proportional hazards regression and Fine–Gray competing-risk models. Multivariable analyses were adjusted for demographic and clinical covariates, including age, sex, atrial fibrillation, hypertension, smoking status, metabolic treatment, hyperthyroidism and sleep-related parameters.

Results: During follow-up, 101 pulmonary deaths were recorded; the most frequent causes were chronic obstructive pulmonary disease (n=54) and pneumonia (n=36). OSA was not independently associated with pulmonary mortality in either Cox (HR 1.26; 95% CI 0.71–2.22; p=0.43) or Fine-Gray models (sHR 1.05; 95% CI 0.58–1.92; p=0.87); the largest hazards in both frameworks were observed for current smoking (HR 3.91; sHR 3.52), very severe headache (HR 3.87; sHR 3.33) and greater nocturnal hypoxemia (SpO2<90% sleep time: HR 3.57; sHR 2.79), with past smoking history (at least 10 years) also increasing risk (HR 2.41; sHR 2.34).

Conclusions: In this cohort, OSA was not independently associated with pulmonary mortality after accounting for competing non-pulmonary deaths. Pulmonary mortality was primarily associated with smoking exposure and markers of nocturnal hypoxemia, highlighting the importance of comprehensive risk stratification beyond OSA diagnosis alone.

JUVENES PRO MEDICINA
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Association of MASLD Severity with HFpEF and Atrial Fibrillation: A FIB-4-Based Analysis

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Introduction: Metabolic-dysfunction associated steatotic liver disease (MASLD), previously termed non-alcoholic fatty liver disease (NAFLD), is the liver manifestation of metabolic syndrome. Studies have linked MASLD to higher occurrences of cardiovascular disease, including heart failure with preserved ejection fraction (HFpEF) and atrial fibrillation (AF); however the impact of MASLD severity on these conditions remains unclear. Hence, understanding this may improve risk stratification and early identification of high-risk patients.

The Fibrosis-4 (FIB-4) index is a simple tool for estimating liver fibrosis, utilizing widely available parameters: age, AST, ALT and platelet count, and has demonstrated good performance in MASLD despite its simplicity.

Purpose: This study aims to evaluate the association between MASLD severity, categorized by FIB-4 risk groups, and the presence of HFpEF and AF.

Material and Methods: Patients with newly or previously diagnosed MASLD hospitalized between Feb 2025 and Jan 2026 were enrolled. MASLD was defined according to current multisociety consensus. Patients with EF <50%, decompensated liver cirrhosis, or major comorbidities were excluded.

FIB-4 was calculated and patients were stratified into low (<1.3), intermediate (1.3-2.67), and high (>2.67) risk groups. HFpEF was defined as left ventricular EF (≥50%) with evidence of diastolic dysfunction, including reduced e' velocity, elevated E/e' ratio, increased pulmonary artery systolic pressure or increased tricuspid regurgitation velocity. AF was defined as a prior diagnosis or detection on 24-hour Holter ECG. The association between FIB-4 risk categories and HFpEF probability was assessed using logistic regression analysis. Due to complete separation in the distribution of AF across FIB-4 categories, the association between FIB-4 and AF was evaluated using Fisher's exact test. A p-value <0.05 was considered statistically significant.

Results: A total of 63 patients were included (mean age 59.5±15.7 years, 37 [58.7%] male). Patients were stratified into low-(n=28), intermediate-(n=27), and high-risk (n=8) groups.

Compared with the low-risk group, intermediate FIB-4 risk was significantly associated with HFpEF (OR 4.67, 95% CI [1.50, 16.13], p=0.0074), while high-risk FIB-4 showed a similar but non-significant association (OR 4.00, 95% [CI 0.77, 30.73], p=0.103). AF was observed exclusively in patients with intermediate/high-risk group, with no cases in the low-risk group (Fisher's exact test, p= 0.0005).

Conclusions: MASLD severity, assessed by FIB-4, was associated with HFpEF and AF. AF occurred only in patients with elevated FIB-4 risk. Although the high-risk group did not reach statistical significance, a similar effect size was observed, likely reflecting limited sample size. These findings suggest that FIB-4 may serve as a simple tool for HFpEF and AF risk stratification in patients with MASLD; however, the small sample size, cross-sectional design, and homogeneous study population limit generalizability.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Dietary and Supplementation Patterns in Multiple Sclerosis Patients Undergoing immunomodulatory treatment: The Need for Standardized Recommendations

Julia Matysiak, Małgorzata Siger, Miłosz Caban

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Introduction: Multiple Sclerosis (MS) is a chronic inflammatory disorder, which affects the central nervous system. The population of MS patients is now widely treated with immunomodulatory drugs, is getting older and has an increasingly common co-occurrence of other diseases, including other autoimmune diseases. Currently there are no formal recommendations regarding dietary habits and vitamin supplementation in patients with MS being chronically treated with immunomodulatory disease modifying therapy (DMT).

Purpose: The study seeks to assess current situation concerning vitamin and supplement intake, as well as eating habits in MS patients treated with DMT.

Material and Methods: To achieve the goal, we interviewed 168 patients with a percentage of women being 70.23% (n=118) and men 29.76% (n=50). The original author-developed survey was answered anonymously by MS patients treated in NFZ B.29 program. The average age of patients in the study group was 44,0 ± 13,3. Statistical analysis was performed using descriptive and parametric methods. All data processing and evaluations were conducted within the Microsoft Excel environment.

Results: Concerning dietary patterns, 58.6% patients followed an unrestricted diet. The most common dietary habits were an easily digestible diet (28.4%) and the Mediterranean diet (11.2%). 50% of women and 74% of men do not use any specific diet, whereas 32% of women and 20% of men report an easily digestible diet. 63% of participants under the age of 40 did not follow any specific dietary regimen,21% reported adherence to easily digestible , 9% Mediterranean , 9% low-calorie and 9% low-sodium diets. Patients aged 40 and older primarily followed an easily digestible diet (34%) or a Mediterranean diet (13%), while 56% did not adhere to any specialized nutritional pattern. Only 6.5% of patients reported adhering to fasting protocols. Supplementation was notably frequent, with 84.6% of participants taking at least one supplement. The leading dietary supplements were Vitamin D3 (82.1%), Vitamins B (34.3%), and Omega-3 fatty acids (30.2%). Women use significantly more supplements than men (2.58 and 1.82 supplements per person respectively). The highest intensity of supplementation was observed in the 30–39 age group, where 21.1% of participants reported using even 6 or more products. In contrast, younger subjects (under 30) primarily utilized between 1 and 3 supplements. 62,3% of participants aged 50 and older followed a regimen of 1–3 supplements, while 24.6% in this cohort reported taking 4 to 5 different preparations.

Conclusions: As a unique population of chronically ill individuals on immunomodulatory treatment, MS patients should follow a structured physician-led dietary recommendations regarding supplement use.

JUVENES PRO MEDICINA

Immunology and Rheumatology Original Research

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

IgG4-Related Disease: Patient Characteristics and Diagnostic Criteria Effectiveness.

Alicja Wielogórska

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Introduction: Immunoglobulin G4-related disease (IgG4-RD) is a rare systemic fibroinflammatory disorder affecting various organs, particularly the pancreas, biliary duct, salivary and lacrimal glands, kidneys, lymph nodes, and retroperitoneum. Its ethology remains unclear. The disease is characterized by organ enlargement, impaired function, progressive fibrosis, and dense lymphoplasmacytic infiltrates. Clinical manifestations vary based on the affected organ. Diagnosis relies on clinical presentation and integrated serologic, radiologic, and histopathologic findings, without the need for specific diagnostic criteria. Currently, three classification criteria systems are used in clinical practice.

Purpose: The aim of this study was to characterize a cohort of patients referred to the clinic with suspected IgG4-related disease and to evaluate the utility of the available classification criteria.

Material and Methods: A retrospective analysis was conducted on patients diagnosed at the Rheumatology Clinic, University of Łódź, from 2017 to 2026, because of suspected IgG4-related disease.

Results: A total of 20 patients were included in the study (10 women and 10 men, aged 59.95+/-13.31 years). The organs most frequently affected by fibrosis included: lymph nodes (65% of cases), submandibular salivary glands (35%), lungs (30%), kidneys (25%), parotid glands (25%), pancreas, and bile ducts (20%). Common clinical presentations were lymphadenopathy, weight loss, eosinophilia, and hypergammaglobulinemia. The median IgG4 level was 3139.55 mg/l [163.6-23228.0], with an upper limit of 860 mg/l. Only 3 patients had normal IgG4 levels, indicating that elevated levels are not essential for diagnosis. Fourteen biopsies were performed, with 60% showing lymphoplasmacytic infiltrate. In 50% of patients hospitalized due to suspected IgG4-dependent disease, such a diagnosis was finally made, in another 4 (20%) still under observation, in the remaining 6 cases (30%) a different diagnosis was finally made, including Castleman's disease, indolent lymphoma and Sjogren's syndrome. Based on the final diagnoses of the patients, excluding patients remaining in follow-up, the sensitivity of the EULAR/ACR criteria was determined to be 67% and specificity 83%. Similarly, the sensitivity and specificity of the Okazaki 2011 and 2020 criteria were 100% and 50%, and 83% and 83%, respectively.

Conclusions: IgG4-related diseases represent a challenging condition to diagnose due to their ambiguous clinical presentation. This is due to the difficulties in diagnosis. Based on the analysis of the cohort of patients treated at the Rheumatology Clinic, the most clinically useful classification criteria appear to be the Okazaki criteria from 2020.

JUVENES PRO-MEDICINA
06-09/05/2026 Łódź, Poland

The influence of novel anti-Pseudomonas vaccine preparation on the secretory activity of murine macrophages

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Introduction: Proper modulation of macrophage secretory functions is essential for managing effective innate and adaptive immune responses. Pseudovac is a polyvalent vaccine against Pseudomonas aeruginosa that can be used prophylactically as well as in life-threatening conditions. However, there are still gaps in our understanding of its specific impact on the functional polarization of macrophages. Understanding how this preparation modulates the cytokine profile and oxidative bursts is essential to determine its role in an effective immune response while preventing excessive inflammatory responses.

Purpose: The aim of this study was to assess the impact of the vaccine on the secretory activity of mouse macrophages. We concentrated on the generation of inflammatory cytokines, nitric oxide (NO), and reactive oxygen species (ROS) under various conditions.

Material and Methods: The study was conducted using oil-induced peritoneal macrophages harvested from CBA mouse donors that received the vaccine twice via subcutaneous injection. The generation of ROS was quantified using luminol- and lucigenin-enhanced chemiluminescence following zymosan stimulation. NO levels were measured in 24-hour cell culture supernatants (unstimulated, LPS-restimulated, or vaccine-restimulated) using a colorimetric assay based on the Griess reaction, while cytokine levels were assessed using ELISA assay.

Results: Our findings demonstrate that macrophages from vaccine-pretreated donors exhibit a significantly increased oxidative burst upon zymosan stimulation, particularly observed in the luminol-enhanced assay, which suggests an augmented priming of the cells' innate responses. In contrast, Pseudovac pretreatment caused a suppressive effect on NO production following LPS-exposure compared to the control group. Notably, direct in vitro restimulation with the vaccine triggered strong and comparable NO release in both experimental groups, indicating that while the preparation itself is a potent activator, it simultaneously modulates the cellular response to endotoxins. Furthermore, vaccine-exposed macrophages released IL-6 and TNFα more potently in basal conditions, while, when restimulated with LPS, produced less TNFα. Finally, these cells secreted significantly more IL-10 compared to the control group, especially after re-exposure to the vaccine.

Conclusions: Altogether, these results imply that tested vaccine effectively primes macrophages for an enhanced oxidative burst while reducing the potentially harmful effects in response to LPS. Moreover, increased IL-10 production suggests a transition into anti-inflammatory phenotype. Our current findings bring some new insights into the regulatory role of Pseudovac in regulating the inflammatory response, suggesting its potential utility in therapeutic strategies aimed at balancing macrophage-mediated immunity.

JUVENES PRO MEDICINA
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Predictive Model of Response to Biological Therapy in Severe Asthma Based on Clinical Parameters, Biomarkers, and Comorbidities: A Retrospective Study.

Dominik Przychodniak

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Introduction: Asthma is a chronic inflammatory disease of the airways. In patients with severe asthma, biological therapies targeting specific inflammatory pathways have become an important treatment option. However, predictors of response to biologic treatment remain insufficiently defined.

Purpose: The aim of this study was to evaluate the significance of selected laboratory, clinical, and lung funtion parameters, as well as comorbidities, in predicting the response to biological therapy of severe asthma.

Material and Methods: This retrospective observational study was based on the analysis of medical records of patients with severe asthma undergoing biological therapy with mepolizumab, benralizumab, dupilumab or tezepelumab. Clinical and laboratory data were collected at two time points: at treatment initiation (baseline) and at a first follow-up visit at week 24 . The analyzed parameters included eosinophil count, total IgE levels, peak expiratory flow (PEF), forced expiratory volume in one second (FEV_1), pseudo-Tiffeneau index (FEV_1/FVC), and history of previous biological treatment, if applicable. Comorbidities including diabetes mellitus, arterial hypertension (AH), heart failure (HF), gastroesophageal reflux disease (GERD), obesity, obstructive sleep apnea (OSA), ischemic heart disease (IHD), and depressive disorder, were recorded. Treatment effectiveness was assessed using the Asthma Control Questionnaire (ACQ) and the treatment response was defined as an ACQ score <1.5 at the follow-up visit.

Results: The analysis included 135 patients, including 89 women (66%) and 46 men (34%), with a median age of 60 years (IQR 51-70), with severe asthma receiving biological therapy . Changes in clinical and laboratory parameters before and after treatment were evaluated. The mean ACQ score at baseline was 3.41, decreasing to 1.41 at follow-up, with a mean GETE score of 1.36. In univariable logistic regression analysis, arterial hypertension and heart failure were significantly negatively associated with treatment response ($\beta = -1.653$, $p < 0.001$ and $\beta = -1.609$, $p = 0.039$, respectively). In contrast, the presence of GERD and higher baseline FEV_1 values were positively associated with treatment response ($\beta = 1.351$, $p = 0.035$ and $\beta = 1.929$, $p = 0.063$, respectively). Multivariable analysis indicated that obesity may represent an independent predictor of response to biological therapy ($p < 0.001$).

Conclusions: Biological therapy was associated with significant improvement in asthma control across the studied population. Selected clinical parameters and comorbidities may influence treatment response. In particular, arterial hypertension, heart failure, and GERD may serve as potential predictors of therapeutic outcomes. These findings may contribute to future optimization of biological therapy in severe asthma, although further prospective studies are required to confirm these observations.

JUVENES PRO MEDICINA
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Testosterone shapes lymphocyte-astrocytes-OPCs interactions to support remyelination in Neuromyelitis Optica Spectrum Disorder

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Introduction: Neuromyelitis Optica Spectrum Disorder (NMOSD) is an autoimmune disease characterized by complement-driven astrocyte injury and subsequent inflammatory demyelination. The disorder disproportionately affects women (with ratios as high as 9:1), raising the possibility that sex hormones influence its development. Despite this, the role of testosterone in NMOSD pathogenesis and immune-mediated astrocyte injury has not been studied. However, the role of testosterone in NMOSD pathogenesis and immune-mediated astrocyte injury remains poorly understood.

Purpose: This study investigated whether testosterone has immunomodulatory and remyelination-promoting effects using in vitro NMOSD models.

Material and Methods: Peripheral lymphocytes from 8 NMOSD patients were treated with testosterone (1 or 10 µM) with or without the androgen receptor antagonist flutamide (10 µM). Gene expression of pro- and anti-inflammatory cytokines—including IL-6, IL-1β, TNF-α, IL-10, TGF-β, — was measured by qPCR. NMO-IgG was purified using Protein A chromatography. Primary astrocytes and oligodendrocyte progenitor cells (OPCs) were isolated from neonatal C57BL/6 mice. Astrocytes were exposed to NMO-IgG and complement (normal human serum), and cell injury was assessed using XTT viability and LDH release. A Transwell co-culture system was used to evaluate the impact of injured astrocytes on OPC differentiation by immunofluorescence.

Results: Testosterone significantly reduced the expression of pro-inflammatory cytokines (IL-6, TNF-α). These effects were partially reversed by flutamide, confirming androgen receptor involvement. In the astrocyte injury model, NMO-IgG combined with complement decreased cell viability and increased LDH release. Although testosterone did not directly protect astrocytes from injury, it modulated cytokines expression by increasing TGF-β1 and LIF and decreasing IL-6, TNF-α, and CCL2 levels.

Conclusions: These findings indicate that testosterone modulates immune responses in NMOSD, supporting a potential role for testosterone in promoting remyelination and influencing disease pathophysiology. Funding: ITS Grants 2024, no. 503/1-156-07/503-90-303.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Does Biological Treatment Matter in SARS-CoV-2 Infection? – Results of a Retrospective Study on the Impact of COVID-19 on the Intensification of Asthma Treatment Depending on Biological Therapy

Wojciech Jankowski

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Introduction: The COVID-19 pandemic significantly affected clinical practice across all medical specialties. Particular concern was raised regarding patients with moderate-to-severe asthma, especially those receiving biological therapies. It remains unclear whether SARS-CoV-2 infection contributes to worsening asthma control, increased exacerbation risk, or the need for treatment intensification.

Purpose: The aim of the study was to compare asthma control parameters and spirometric outcomes in patients with moderate and severe asthma with respect to SARS-CoV-2 infection history and the use of biological therapy during the COVID-19 pandemic.

Material and Methods: This retrospective observational study analyzed medical records from follow-up visits of patients with asthma exacerbations between 20 March 2020 and 1 July 2023, corresponding to the official pandemic period in Poland. Clinical and spirometric data were collected and patients were categorized into three groups based on SARS-CoV-2 infection history and biological treatment status. Parameters analyzed included inhaled budesonide dose and spirometric parameteres measured at baseline and during follow-up visits.

Results: Clinical and spirometric data from 139 patients were analyzed. No statistically significant differences were observed in inhaled GCS dose between the groups before or after the pandemic period ($p = 0.312$ and $p = 0.077$, respectively). In contrast, significant differences between the study groups were identified for baseline FEV1 values ($p < 0.001$) as well as for FEV1 measurements obtained at the first and second follow-up visits ($p < 0.001$ for both). Post-hoc pairwise comparisons indicated that these differences were primarily associated with patients receiving biological therapy after SARS-CoV-2 infection compared with the other groups.

Conclusions: Significant differences in lung function parameters were observed. Patients treated with biological therapy following COVID-19 infection demonstrated lower FEV1 values compared with other groups, suggesting that biological therapy may influence lung function outcomes in asthma patients after SARS-CoV-2 infection. Further prospective studies are needed to clarify the role of biological treatment in maintaining lung function and asthma control in this population.

JUVENES PRO MEDICINA

Human Science in Medicine

7th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Mental Health Determinants and Support Barriers Among International Medical Students in Poland: A Cross-Sectional Study

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Introduction: International students in Poland face mental health challenges from language barriers, geopolitical stress and systemic gaps, requiring more accessible and inclusive support.

Purpose: This study aims to assess the mental health of international students in Poland, find key contributing factors, and evaluate its impact on academic performance, social functioning, and overall wellbeing.

Material and Methods: This cross-sectional study was conducted under the sociology department at the Medical University of Łódź in Łódź, Poland. Data was collected with a structured online questionnaire consisting of 42 questions with 142 anonymous responses collected between January 30th, 2024 and February 27th, 2024. Eligibility criteria required participants to be enrolled in years 2-6. Informed consent was implied through survey completion. Data was collected and analyzed using Microsoft Excel.

Results: The results of the study revealed that 34% of international students in Poland experienced a decline in mental health most of the time. Additionally, 35% reported that, compared to the beginning of their first year, the frequency with which they experienced symptoms of mental health decline fluctuated, the most common being tiredness and anxiety. The three main contributing factors include: academic pressure (54%), social isolation (44%), and financial problems (38%). This negatively impacted grade averages for approximately 32% of students, with 97% facing stress in preparing for tests and exams. Social contact decreased in more than half of the participants and involvement in extracurricular activities fell by 40% with physical health worsened by the same. Moreover, the survey showed that 13% do not discuss the emotional distress they feel with anyone and 27% have not considered seeing a therapist, though 59% would prefer to see one separate from university. This clearly identifies the improvements needed to support students mentally and provides guidance as to how.

Conclusions: This survey examined the mental health of international medical students in Poland. Students experienced moderate strain due to academic pressure, social isolation from family, and financial difficulties. Common symptoms included tiredness, and anxiety, which, often worsened during exams. The students rely heavily on family and friends for emotional and financial support, yet many have considered professional help. Overall, the findings highlight the need for better mental health support for international students.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Assessment of Public Awareness Regarding Melatonin, Sleep, and Immunity

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Introduction: Sleep and circadian rhythms play an essential role in maintaining physiological homeostasis and proper immune system function. Melatonin, a hormone produced mainly by the pineal gland, regulates the sleep–wake cycle and circadian rhythm and exhibits antioxidant, anti-inflammatory, and immunomodulatory properties. Despite increasing scientific evidence linking sleep and immunity, public awareness of these mechanisms and sleep hygiene practices remains limited.

Purpose: The aim of this study was to assess the level of public knowledge regarding melatonin, sleep, and their role in immune system functioning, as well as selected sleep hygiene behaviors.

Material and Methods: A cross-sectional study was conducted among 311 respondents using an original anonymous questionnaire consisting of 36 closed-ended questions distributed online via Microsoft Forms. The questionnaire assessed demographic data, knowledge about melatonin and circadian rhythm, sleep habits, and awareness of the relationship between sleep and immunity. The obtained data were subjected to descriptive analysis.

Results: Most participants demonstrated general awareness of the relationship between sleep and immune function. Sleep deprivation was recognized as detrimental to immunity by 84.6% of respondents, and 72% correctly identified melatonin as a regulator of circadian rhythm. However, only 42.8% correctly indicated the pineal gland as its main site of production, and 65.6% were unaware of its anti-inflammatory and antioxidant properties. Despite declared knowledge of sleep hygiene, many respondents reported frequent use of electronic devices before bedtime and insufficient sleep.

Conclusions: Although general awareness of the role of sleep in immune health is relatively high, significant gaps remain in detailed knowledge about melatonin. The discrepancy between declared knowledge and everyday sleep behaviors indicates a need for further educational interventions.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Trust in Artificial Intelligence in Medicine – A Non-Medical Perspective

Ida Szataniak, Julia Bednarek, Magdalena Kronenberg, Tomasz Męcik-Kronenberg MD, PhD

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Introduction: Artificial intelligence (AI) is increasingly being integrated into healthcare, offering new possibilities in diagnostics, treatment planning, and patient care. However, its successful implementation depends not only on technological advancement but also on public trust, particularly among individuals outside the medical field. This study explores how non-medical populations perceive AI in medicine and identifies key factors shaping their acceptance or skepticism toward its use.

Purpose: The aim of this study was to determine the level of trust among people outside the medical community toward artificial intelligence (AI) in health care and to identify factors influencing the acceptance or rejection of this technology.

Material and Methods: The study included 817 respondents with no professional or academic ties to medicine. A diagnostic survey method was used, employing a questionnaire consisting of 33 closed and multiple-choice questions. The questions addressed knowledge, experience, opinions, and concerns regarding the use of AI in diagnostics and treatment. Data were collected both in paper form and online between March and June 2025.

Results: A large proportion of respondents perceive AI as a tool supporting physicians (45.2%), rather than an independent decision maker. The most commonly indicated areas of application were radiology, diagnostics, and therapy personalization. The level of trust in AI was rated as moderate, with 63.1% of respondents expressing a neutral attitude. Key factors for building trust included audits, system certification, collaboration between AI and physicians, and decision transparency. The vast majority of respondents (92.6%) expect patients' right to be informed about AI usage, while 65.7% emphasize the irreplaceable role of physician empathy. The main concerns involved diagnostic errors (84%), lack of physician oversight (69.6%), and difficulties assigning legal responsibility (65.4%).

Conclusions: People outside the medical community accept the presence of AI in medicine, but only as a tool supporting the physician. Conditions for acceptance include transparency, legal regulations, education for both patients and doctors, and maintaining the doctor-patient relationship.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Exploring factors influencing prescribing behaviours among medical doctors: towards a "prescribing propensity" construct

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Introduction: Over the past decades, modern medicine has evolved into evidence-based medicine (EBM). Evidence-based clinical decision-making requires consideration of the patient's clinical state and circumstances, research evidence, and the patient's preferences and likely actions. Within this model, clinical expertise primarily serves to interpret and integrate these elements. Clinical guidelines, based on EBM, serve as structured tools to support doctors in selecting the optimal therapeutic strategy. Theoretically, if clinical decisions are made in adherence to guidelines, a single patient with given clinical circumstances and preferences would be expected to receive the same treatment from different doctors. However, daily clinical practice suggests that additional physician-specific factors may influence prescribing decisions. These influences can be conceptualized as an individual doctors' "prescribing propensity".

Purpose: To explore factors influencing prescribing behaviours among Polish doctors and to examine whether the findings support the conceptualisation of "prescribing propensity" as a distinct construct.

Material and Methods: Data were collected through in-depth interviews between March 2025 and March 2026. Purposive sampling was used to recruit psychiatrists and general practitioners across different characteristics. Written informed consent was obtained. All interviews were conducted individually, audio-recorded and transcribed. Thematic analysis was conducted, involving coding transcripts and grouping codes into broader thematic categories. Thematic saturation was reached after the first 10 interviews as no new or relevant information emerged.

Results: Doctors differed in overall prescribing behaviours, broadly reflecting a continuum from pharmacotherapy-based treatment to a stronger preference for non-pharmacological interventions. Identified factors influencing prescribing behaviours could be grouped into four main categories: physician-, patient-, environmental-, and healthcare system-related factors. Research evidence and patients' clinical condition, preferences, and requests aligned with the EBM domains. However, additional factors beyond the EBM model were observed, including doctors' clinical experience, personal beliefs, professional intuition, environmental influences such as pharmaceutical marketing, clinical habits, and local prescribing culture.

Conclusions: The findings of this study indicate that, although elements of the EBM model are present in doctors' prescribing behaviours, clinical decisions are also shaped by additional factors beyond the traditional model, supporting the conceptualisation of "prescribing propensity" as a potentially useful construct. Further mixed-methods research is needed to refine the conceptual framework, develop measures of prescribing propensity, and evaluate their construct validity.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Smartphone-Based Hearing Testing Versus Clinical Audiometry: A Comparative Study in Ear, Nose, and Throat Practice

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Introduction: Hearing loss affects millions worldwide, yet access to timely audiometric testing remains limited. Mobile applications offer the potential for convenient, low-cost screening and monitoring outside the clinic.

Purpose: This study evaluates the Mimi Hearing Test app, focusing on its diagnostic accuracy, reliability and overall user experience compared with the clinical standard.

Material and Methods: Thirty adult patients from an otolaryngology clinic participated in this comparative study. Each underwent two assessments, a traditional pure-tone audiogram performed by an audiologist and a digital hearing test using the Mimi Hearing Test app. Participants then completed a questionnaire rating the apps usability, clarity of results and suitability for at-home use.

Results: The study found a strong concordance between the Pure Tone Average values obtained from the Mimi Hearing Test app and those from clinical audiometry, especially in participants with normal or moderate hearing loss. Discrepancies were noted in cases of profound and asymmetric hearing loss, where the app sometimes underestimated hearing thresholds. Patient feedback was generally positive with a significant interest in regular at-home monitoring. Neutral or negative impressions were more common among older participants, highlighting the need for age-sensitive design and user support with digital health tools.

Conclusions: The Mimi Hearing Test app demonstrates strong potential as a screening and monitoring tool for individuals with mild-to-moderate hearing impairment. While it is not a substitute for formal clinical audiometry testing in complex cases, it serves as an effective complementary tool that can raise patient awareness, encourage self-monitoring and support earlier interventions in hearing health.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Discrepancies Between Self-Reported and Measured Anthropometric Data: Implications for Radiation Protection in Nuclear Medicine

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Introduction: One of the fundamental principles of radiation safety is 'ALARA' – 'As Low As Reasonably Achievable'. In clinical practice, this doctrine emphasizes the attainment of an optimal dose, defined as the lowest radiation level compatible with high-quality diagnostic imaging, rather than a mere reduction in exposure. In nuclear medicine, anthropometric parameters such as height and weight are critical, with the latter being the primary determinant of the administered activity of radiopharmaceuticals. Therefore, ensuring the highest diagnostic image quality while maintaining the lowest possible radiation exposure is essential.

Purpose: The objective of this study is to evaluate the discrepancies between patient-reported anthropometric data and clinically measured height and weight, while assessing how variations in these parameters influence the injected radiation activity levels, thereby impacting nuclear imaging outcomes and the long-term risk of stochastic effects.

Material and Methods: In the initial stage of the study, self-reported anthropometric data were collected via pre-procedural interviews with over 100 patients. This was followed by a second stage in which objective measurements of participants' weight and height were obtained. In the final stage, statistical analysis was performed to assess the discrepancies between declared and measured data, and to evaluate the resulting differences in calculated radiation activity levels based on these parameters. The clinical procedures included in the analysis were myocardial perfusion scintigraphy and bone scintigraphy.

Results: Statistically significant discrepancies were observed between the patients' declared and actual physical measurements. The results revealed specific patterns in self-reported data: participants tended to underestimate their body weight while overestimating their height. Such inaccuracies may lead to the administration of lower-than-optimal activity levels, potentially resulting in poorer diagnostic image quality.

Conclusions: These discrepancies may lead to sub-optimal adjustment of imaging parameters, affecting not only the initial injected radiation activity but potentially necessitating repeat procedures. Such avoidable increases in cumulative exposure may elevate the long-term risk of health complications due to the stochastic effects of radiation.

JUVENES PRO MEDICINA

Gynecology and Obstetrics Original Research

8th of May 2026

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JUVENES PRO-MEDICINA
06-09/05/2026 Łódź, Poland

Chromogranin A in the Pathophysiology of Endometriosis: A Pilot In Vivo Mouse Study of Endometrial Implants

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Introduction: Endometriosis is a chronic gynecological disease characterized by the presence of endometrial tissue outside the uterine cavity. The condition is associated with chronic pain, reduced quality of life, and an increased risk of infertility. It is estimated that up to 40–50% of women experiencing infertility are affected by endometriosis. The mechanisms leading to infertility include pelvic adhesions, chronic inflammation, reduced oocyte quality, and decreased endometrial receptivity. Previous studies, including those conducted at the Department of Histology and Embryology of the Medical University of Warsaw (MUW), suggest that alterations in the expression of chromogranin A (CgA) - a neuroendocrine cell marker and prohormone - may play an important role in the complex etiopathogenesis of this disease.

Purpose: To investigate the dynamics of CgA expression in developing endometrial implants using an in vivo mouse model of endometriosis.

Material and Methods: To investigate the molecular mechanisms involved in the implantation of endometrial tissue at ectopic sites, an in vivo mouse model of endometriosis was employed. This model enabled controlled observation of the development of endometrial lesions in ectopic locations and allowed to assess the dynamics of CgA expression in implants, which is difficult to evaluate in clinical studies in women. Based on the approval of the local Ethical Committee, endometriosis was surgically induced in six female mice by transplantation of endometrial tissue into the peritoneal cavity. Ectopic lesions and eutopic endometrium (control) were collected after 1 and 8 weeks to compare early and mature lesions. The collected material was subjected to hematoxylin-eosin staining, morphological evaluation, and immunohistochemical analysis of CgA expression. The study was funded by a MUW Student Mini-Grant (25/M/MG/N/24).

Results: In this pilot study, we demonstrated for the first time the presence of CgA expression in endometrial implants in an in vivo model. Both ectopic and eutopic endometrium exhibited CgA expression, predominantly in the surface epithelium. Notably, a significant increase in the number of CgA-positive cells was observed in ectopic lesions after 8 weeks compared with lesions collected after 1 week and with eutopic endometrium. CgA expression was also detected in stromal cells of the implants, suggesting a potential role of this glycoprotein in shaping the microenvironment of endometriotic lesions.

Conclusions: These findings provide the first evidence of CgA expression in endometrial implants in an in vivo model and indicate its potential association with the progression of ectopic lesions. The obtained data justify further studies on the role of CgA in the pathophysiology of endometriosis and its possible utility as a biomarker, for example of disease activity.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Epidemiology of Breast Cancer Among Women in Poland: Incidence, Mortality and Years of Life Lost.

Weronika Sterniczuk

Presenting author: Weronika Sterniczuk

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Introduction: Breast cancer is the most commonly diagnosed malignancy among women in Poland as well as a major public health concern. During recent decades, increasing morbidity has been associated with population aging, lifestyle changes and improved detection. Epidemiological analyses are essential for evaluating disease burden and guiding health policy.

Purpose: The aim of this study was to analyze trends in breast cancer incidence, mortality and years of life lost in Poland between 2001 and 2023.

Material and Methods: Data was obtained from the National Cancer Registry. Information on breast cancer cases and deaths (ICD-10: C50) among women in Poland between 2001 and 2023 were included. Both absolute numbers and age-standardized incidence and mortality rates (SDR) were analyzed. Disease burden was assessed using standard expected years of life lost (SEYLL, SEYLLp, SEYLLd) according to the Murray and Lopez methodology, based on GBD 2010 life tables. Statistical analyses were performed using Statistica and the Joinpoint Regression Program. Time trends were evaluated using joinpoint regression, calculating annual percentage change (APC) and average annual percentage change (AAPC) with 95% confidence intervals. Statistical significance was set at $p<0.005$.

Results: During the analyzed period (2001-2023), the incidence of breast cancer among women increased from 13,045 to 21,716 new cases. The age-standardized incidence rate (SDR) rose from 76.77 to 103.83. The number of deaths increased from 4,825 to 6,757, while the mortality SDR showed a slight increase, from 30.48 to 31.53. The time trend in incidence, based on the standardized rate (SDR), showed a consistent upward pattern, with an annual increase of 1.49% ($p<0.05$). The mortality trend, also based on SDR, showed two distinct phases: between 2011 and 2018, it increased by 2.01% annually ($p<0.05$), whereas from 2018 onward, a decreasing trend was observed at a rate of 1.61% per year ($p<0.05$). Over the study period, both SEYLL and SEYLLp increased, while SEYLLd decreased. In 2023, each woman who died suffering from breast cancer lost, on average, 18.83 years of life. The time trend for SEYLL showed three significant changes: an increase in 2010-2018 and 2021-2023, by 1.74& and 2.23% respectively, and in the years 2018-2021, a downward trend of 3.35%. SEYLLp showed a steady increase of 0.81% annually, whereas SEYLLd demonstrated a downward trend of 1.14% per year.

Conclusions: Breast cancer remains the most common malignancy among women in Poland and continues to pose a significant public health issue. Despite relatively stable mortality and a decrease in SEYLLd, the increasing incidence and total years of life lost indicate a growing overall disease burden. These findings highlight the need for continued improvement in prevention, early detection and effective treatment.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Fetal echocardiography examination in small-for-gestational-age (SGA) fetuses in a tertiary center

Łucja Hanna Biały

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Introduction: Estimating fetal weight is a crucial part of prenatal examination, especially in 3rd trimester of pregnancy. To this day there are not many articles concerning fetal echocardiography examination in small-for-gestational-age (SGA) fetuses.

Purpose: The goal of this study was to determine if small-for-gestational-age (SGA) fetuses, with later birthweight of less than 2500g, have any mutual functional cardiovascular anomalies seen in 3rd trimester of pregnancy in fetal echocardiography.

Material and Methods: Retrospective study was based on 869 newborns who were examined during their fetal life in 3rd trimester of pregnancy in our fetal cardiology center. All fetuses were classified as “normal heart anatomy” and fetuses with diagnosed FGR, extracardiac malformations were excluded. The database from years 2020-2025 was used. Statistical analysis was made using Microsoft Excel 2024.

Results: 869 fetuses were divided into two groups: NHA-SGA (study group): 34 fetuses with birthweight of <2500 g and NHA-AGA (control group): 835 with “normal” birth weight (2510-4000 g). In the NHA-SGA group most seen functional abnormalities included myocardial hypertrophy 18% (6/34), tricuspid insufficiency 9% (3/34), pericardial effusion 9% (3/34), compared to the NHA-AGA group where the myocardial hypertrophy concerned 9% (72/835) od fetuses, tricuspid insufficiency 14% (121/835) and pericardial effusion 6% (51/835). However, there were no statistical difference between the NHA-SGA and NHA-AGA groups in the prevalence of those cardiovascular abnormalities ($p > 0.05$). The number of fetuses without any functional abnormalities were compared and in the NHA-SGA group it was 56% (19/34), in the NHA-AGA group 46% (382/835), ($p > 0.05$) Perinatal period was also compared between groups and in the NHA-SGA group 70% fetuses (24/34) were born via CS and in the NHA-AGA it was 54% (451/835), ($p > 0.05$). There was a statistically relevant difference observed in the Apgar Score with NHA-SGA median of 9 and NHA-AGA median of 10 ($p < 0.004$, Mann-Whitney test).

Conclusions: Small-for-gestational-age fetuses with normal heart anatomy and no extracardiac anomalies and no umbilical artery problems may present with cardiovascular functional abnormalities in fetal echocardiography examination in 3rd trimester of pregnancy, similar to the ones seen in appropriate-for-gestational-age (AGA) fetuses.

JUVENES PRO MEDICINA

Dermatology Original Research

8th of May 2026

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Broad vs selective type 2 cytokine blockade: a 52-week comparison of dupilumab and tralokinumab in atopic dermatitis.

Aleksandra Przybylak, Krystian Kwaśniewski, Agata Ciosek, Natalia Bień, Karol Miler

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Introduction: Atopic dermatitis (AD) is a chronic, relapsing inflammatory skin disease characterized by pruritus, xerosis and eczematous lesions, imposing a substantial physical and psychological burden. Without adequate treatment, AD may lead to infections, sleep disturbances and impaired quality of life. Advances in understanding type 2 inflammation have enabled the development of targeted biologic therapies. Among them, tralokinumab, a selective interleukin (IL)-13 inhibitor and dupilumab, which blocks the IL-4 receptor α and inhibits both IL-4 and IL-13 signaling, represent key therapeutic options available within drug program B.124 for moderate-to-severe AD.

Purpose: To retrospectively compare the long-term efficacy, safety, tolerability and adverse event profiles of tralokinumab and dupilumab in patients with AD.

Material and Methods: A three-year retrospective analysis included patients with AD treated with either dupilumab or tralokinumab. Data included age, sex, diagnosis (ICD-10), comorbidities and disease severity assessed using the Eczema Area and Severity Index (EASI) and Dermatology Life Quality Index (DLQI) at baseline (W0) and at W16, W28, W40 and W52. Safety was evaluated based on laboratory abnormalities and adverse events. Statistical analysis included the Friedman test and the Mann–Whitney U test for intergroup comparisons, with significance set at $p < 0.05$ with spline regression to assess overall differences.

Results: Since early 2023, 41 patients received tralokinumab (39% female, 61% male), while 65 patients were treated with dupilumab (52% female, 48% male). Both therapies showed high efficacy. At week 16, mean EASI decreased from 26.48 (±9.13) to 4.2 (±5.42) with tralokinumab and from 29.07 (±12.52) to 6.28 (±6.16) with dupilumab. By week 52, EASI reduction reached 91% (ΔEASI= 24.83 ±9.22) and 94% (ΔEASI = 25.83 ±12.38), respectively. Quality of life improved markedly, with DLQI scores decreasing from 16.1 (±4.53) to 2.6 (±2.84) (tralokinumab) and from 17.99 (±10,02) to 0.63 (±1.41) (dupilumab). These improvements were statistically significant over time for both treatments ($p<0.0001$). Despite differences in mechanism of action, no significant intergroup differences were observed in long-term efficacy with difference of EASI ($p=0.287$) and DLQI ($p=0.786$) at W52 or safety ($p>0.05$). The most commonly reported adverse event was conjunctivitis, more frequent with dupilumab (18%) than tralokinumab (9%). Dropout rate was 7.9% in tralokinumab group vs 35.1%.

Conclusions: Both tralokinumab and dupilumab are effective and well-tolerated treatments for moderate-to-severe AD, providing substantial and sustained clinical improvement. While tralokinumab was associated with a more rapid initial response, long-term outcomes were comparable between therapies and lower rate of resignation. These findings support an individualized treatment approach, guided by patient characteristics, therapeutic response dynamics and preferences.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Gaps in care: access to multidisciplinary management in patients with dystrophic epidermolysis bullosa: a questionnaire-based study.

Aleksandra Walendzik, Katarzyna Majchrzak

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Introduction: Epidermolysis bullosa (EB) is a rare group of inherited disorders marked by extreme skin fragility, recurrent blistering, and chronic wounds. Dystrophic epidermolysis bullosa (DEB) is one of the most severe forms, often complicated by gastrointestinal, musculoskeletal, and oncological involvement. The burden of disease is lifelong and profound, requiring coordinated, multidisciplinary care. Despite this, access to specialized services remains limited, leaving many patients without adequate support.

Purpose: To evaluate the real-world experiences of patients with DEB and their caregivers, focusing on access to healthcare, coordination of care, availability of specialist services, and unmet medical needs.

Material and Methods: A cross-sectional, anonymous questionnaire-based study was conducted among patients with DEB and their caregivers. Data were collected via an online survey (Google Forms). The questionnaire covered clinical characteristics, disease burden, access to coordinated care, availability of specialist services, and patient-reported needs. Quality of life was assessed using DLQI and FDLQI scales.

Results: The results reveal a striking gap between disease severity and access to appropriate care. Although 94.1% of patients presented symptoms at birth, only 11.8% had access to healthcare professionals experienced in EB. Care organization was insufficient: 70.6% of respondents reported lacking a clear treatment and follow-up plan, and overall coordination of care was low (mean 2.23/5). Access to EB-experienced specialists was rated very poorly (mean 1.3/5), with 82.4% of patients traveling over 100 km to receive appropriate care. Limited awareness among healthcare professionals further compounded the burden—52.9% of patients reported always, and 29.4% frequently, having to explain their condition themselves. Despite a high prevalence of complications, specialist care remained inadequate. While 88.2% reported gastrointestinal symptoms, only 17.6% were under regular gastroenterological care. Similarly, 64.7% lacked access to EB-experienced dental care and routine skin cancer surveillance. The impact on quality of life was substantial, with mean DLQI of 15.6 ± 9.8 and FDLQI of 19.83 ± 7.18, reflecting a severe burden on both patients and their families.

Conclusions: Patients with DEB face not only a severe disease but also significant barriers to appropriate care. This study highlights critical gaps in access, coordination, and specialist support. Addressing these deficiencies is essential to improve outcomes and quality of life, and underscores the urgent need for structured, multidisciplinary care pathways in this vulnerable population.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

New insights into the efficacy and safety of methotrexate use in pediatric atopic dermatitis

Jakub Basa

Presenting author: Jakub Basa

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Introduction: Atopic dermatitis (AD) is a complex, chronically relapsing inflammatory dermatosis that requires individualized management. Standard treatment is based on appropriate skin care combined with anti-inflammatory therapy. In patients who are refractory to topical treatment, systemic immunosuppressive therapy should be considered. Among these, methotrexate—used off-label—has emerged as a promising therapeutic option.

Purpose: The aim of the study was to assess efficacy, safety and tolerability of methotrexate in children and adolescents with moderate-to-severe AD.

Material and Methods: Data were collected from medical records of 65 patients (2-18 years old; 35 females, 30 males) who met the eligibility criteria and received methotrexate therapy between June 2021 and June 2024. Efficacy was evaluated using the Eczema Area and Severity Index (EASI), Body Surface Area (BSA), SCORing Atopic Dermatitis (SCORAD), and Dermatology Life Quality Index (DLQI) at weeks 0, 2, 4, 8, and 16. Variables analyzed included sex, age, comorbidities, prior treatments, and adverse events. Safety was assessed based on laboratory parameter deviations and reported adverse events.

Results: After 16 weeks of therapy, statistically significant improvements were observed across all clinical measures. The most notable changes included: EASI (23.23 ± 9.36 vs. 4.97 ± 5.06; $p < 0.00001$; 78.61% improvement), SCORAD (62.36 ± 11.84 vs. 27.10 ± 15.97; $p < 0.00001$; 56.54% improvement), and BSA (32.60 ± 14.33 vs. 9.53 ± 8.23; $p < 0.00001$; 70.77% improvement). DLQI scores also significantly decreased (14.68 ± 7.40 vs. 6.83 ± 5.70; $p < 0.00001$; 53.47% reduction). The most commonly reported adverse events were upper respiratory tract infections (51.92%) and gastrointestinal symptoms (31.73%).

Conclusions: The results of this study highlight the efficacy of methotrexate in the management of moderate-to-severe AD in the pediatric population, with a favorable safety profile. These findings support consideration of methotrexate in treatment guidelines for children. However, further long-term studies are needed to evaluate the durability of response and long-term safety.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Between awareness and misconceptions: sexually transmitted infections among Polish secondary school students

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Introduction: Sexually transmitted infections (STIs) have become an increasing public health concern in Poland, with reported cases rising by over 300% since 2020. Despite the availability of effective prevention methods, young people remain particularly vulnerable. Early, well-designed sexual health education plays a key role in reducing risk and promoting responsible behaviors. Understanding students' knowledge and attitudes is essential for identifying gaps and improving educational strategies.

Purpose: To assess the level of knowledge and attitudes toward STIs among secondary school students in Poland and to evaluate the need for more effective sexual health education.

Material and Methods: A cross-sectional study was conducted using an anonymous, voluntary questionnaire completed by 101 secondary school students. The survey included single- and multiple-choice questions, as well as selected open-ended items, covering STI transmission, symptoms, prevention, and sources of information.

Results: Most respondents correctly identified major routes of STI transmission, including vaginal (97%) and oral/anal intercourse (76%). However, misconceptions were still present, with 20% incorrectly indicating public restrooms as a source of infection. While basic prevention methods were generally recognized, nearly 30% of participants believed that hormonal contraception provides protection against STIs.Risky behaviors were also observed. Among sexually active respondents, over 30% reported rarely or never using condoms, and fewer than 10% had ever undergone STI testing. Knowledge of HPV was moderate: 74% were aware of the vaccine, 60% recognized its link to cancer, and 54% knew that males are also at risk. Although 43% had been vaccinated, over 80% considered vaccination important, and the vast majority declared willingness to receive it if free of charge. Importantly, 94% of students rated school-based sexual education as insufficient. Teachers were the least preferred source of discussion, with only 19% perceived as approachable and non-judgmental.

Conclusions: Although the overall level of knowledge was relatively high, significant misconceptions and risky behaviors persist. At the same time, students show a strong willingness to learn, highlighting a clear gap between educational needs and current provision. These findings emphasize the urgent need for comprehensive, student-centered sexual education programs that not only provide knowledge but also address attitudes and communication barriers.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Awareness of skin cancer risk and photoprotection behaviors related to solar UV radiation among adults in Poland

Julia Zych, Ida Szataniak, Natalia Szcześniak, Kacper Packi

Presenting author: Julia Zych

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Introduction: Solar ultraviolet (UV) radiation is a major modifiable risk factor for skin cancer, photoaging and other dermatologic conditions. Population knowledge about UV risks and photoprotection determines preventive behavior, yet awareness gaps -especially regarding UV spectrum and therapeutic UVB use -may limit effective prevention.

Purpose: To evaluate knowledge, attitudes and photoprotective behaviors related to solar UV exposure in Polish adults, with emphasis on dermatologic risk perception and understanding of the different UV ranges including clinical (UVB radiation) applications.

Material and Methods: Cross-sectional, anonymous online survey conducted in Poland. The 27-item questionnaire (demographics, knowledge of UV health effects, attitudes, past sunburns, tanning bed use, sunscreen and protective behaviors, and questions on UVA/UVB/UVC and therapeutic UVB) was completed by 600 adult respondents.

Results: General awareness of dermatologic harms was high: 90.2% recognized that excessive sun exposure increases skin-cancer risk; 89.7% that prolonged exposure accelerates skin ageing; 80.0% knew sunlight enables cutaneous vitamin D synthesis; 78.8% identified solarium exposure as more dangerous than natural sun. Attitudinal data showed 74.7% expressing some level of concern that sun is harmful (38.0% 'definitely yes', 36.7% 'rather yes'); 65.2% feared personal risk of skin cancer (28.7% 'definitely yes', 36.5% 'rather yes'). However, knowledge gaps were notable: only 20.5% correctly indicated that UVA penetrates deepest into the skin, and 55.3% answered 'I don't know' regarding UVB used in dermatologic therapy. Awareness of certain systemic/less obvious UV effects (e.g., blood-pressure modulation) was low (17.3%).

Conclusions: Although awareness of the harmful dermatologic effects of excessive UV exposure is relatively high, significant knowledge gaps remain regarding the different biological effects of UV radiation and its therapeutic applications. Public education should emphasize that ultraviolet radiation has a dual role in dermatology: excessive or uncontrolled exposure increases the risk of skin cancer and photoaging, whereas controlled and medically supervised doses-such as therapeutic UVB phototherapy-can be beneficial in the treatment of several skin diseases. Therefore, improving public understanding of the dose-dependent and spectrum-dependent effects of UV radiation is essential to promote balanced attitudes toward sun exposure and appropriate preventive behaviors.

JUVENES PRO MEDICINA
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Comparing Care Pathways and Outcomes in Alopecia Management: A Cross-Sectional Study of Trichological and Dermatological Consultations.

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Introduction: Alopecia encompasses a heterogeneous group of disorders characterized by hair loss of varying etiologies and clinical courses, including androgenetic alopecia, alopecia areata, and scarring alopecia. In parallel with the growing prevalence of hair disorders, interest in trichological services has increased, reflecting the expanding availability of non-medical consultations. However, how these parallel care pathways influence management and outcomes remains insufficiently understood.

Purpose: To evaluate care pathways and experiences in alopecia management and to compare selected aspects of trichological and dermatological consultations, including perceived effectiveness, satisfaction, and trust.

Material and Methods: A cross-sectional anonymous survey was conducted among individuals with current or past hair loss. The questionnaire included items on sociodemographic characteristics, type and duration of alopecia, consultation pathways, and self-reported outcomes. Satisfaction and trust were assessed using Likert-type scales. Statistical analysis included descriptive statistics and the Wilcoxon signed-rank test, with significance set at $p < 0.05$.

Results: A total of 70 individuals with diagnosed alopecia were included. The most common diagnoses were androgenetic alopecia (n = 30, 42.9%) and alopecia areata (n = 22, 31.4%). Dermatological consultation was reported by 90.0% (n = 63) of respondents, while 57.1% (n = 40) consulted a trichologist; 54.3% (n = 38) reported using both services. Care pathways were often complex, with 45.7% of respondents consulting four or more providers. Delayed access to dermatological care was observed in 30.2% (n = 19), defined as waiting more than one year from symptom onset to the first dermatological consultation. Prior to consultation, 22.9% of respondents were unaware that trichologists are not required to have formal medical training. Additionally, over 60% reported that treatments or procedures proposed during trichological consultations were not fully explained. Reported outcomes differed between consultation types. Following trichological consultations, the most common outcome was no improvement (47.5%), whereas dermatological care was more frequently associated with partial or marked improvement. Satisfaction scores were significantly higher after dermatological consultations compared to trichological consultations ($p < 0.001$).

Conclusions: Alopecia management is often characterized by fragmented and prolonged care pathways involving both medical and non-medical providers. Limited awareness of the scope of trichological practice and insufficient communication during consultations may contribute to delays and suboptimal outcomes. These findings underscore the importance of early dermatological evaluation and highlight the need for clearer patient education regarding appropriate care pathways.

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In vitro Evaluation of Anti-Tyrosinase, Anti-Elastase, Antioxidant, and Antimicrobial Activities of Plectranthus venteri Transformed Hairy Root Extracts for Potential Dermatological Applications

Martyna Muskała, Maciej Kowalski, Tomasz Kowalczyk, Patricia Rijo, Wirginia Kukuła-Koch, Przemysław Sitarek

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Introduction: Skin aging, pigmentary disorders, and skin infections are associated with oxidative stress, excessive activity of enzymes degrading the extracellular matrix and disturbances in the skin microbiological balance. One such naturally derived compound is the plant Plectranthus venteri from the Lamiaceae family, which has potential multifunctional effects. The use of in vitro cultures of transformed P. venteri hairy roots resulted in increased production of secondary metabolites.

Purpose: The aim of this study was to evaluate the in vitro anti-tyrosinase, anti-elastase, antioxidant and antimicrobial activity of extracts obtained from transformed hairy roots of Plectranthus venteri.

Material and Methods: Phytochemical profiling of the extracts was performed using HPLC-ESI-QTOF-MS/MS analysis. Two extracts were analysed: aqueous-methanolic (PM) and acetonic (PA). Anti-tyrosinase activity was determined using L-tyrosine as a substrate, while anti-elastase activity was evaluated using N-succinyl-Ala-Ala-Ala-p-nitroanilide (SANA). Antioxidant activity was assessed using the DPPH radical scavenging assay. Antimicrobial activity was evaluated by the microdilution method against Gram-positive bacteria (Staphylococcus aureus, Enterococcus faecalis), Gram-negative bacteria (Escherichia coli, Pseudomonas aeruginosa) and yeasts (Candida albicans, Saccharomyces cerevisiae). Minimum inhibitory concentrations (MIC) and minimum bactericidal/fungicidal concentrations (MBC/MFC) were determined.

Results: HPLC-ESI-QTOF-MS/MS analysis showed the presence of rosmarinic acid, citric acid, cirsimaritin, isopropylmalonic acid, esculetin, verbascoside, isoverbascoside, ylopyranosyl-verbascoside, chrysin in transformed roots extracts. PA extract showed higher antityrosinase activity (31.25 ± 2.73%) than PM (17.65 ± 4.91%). Similarly, PA showed slightly stronger antielastase activity (25.93 ± 3.11%) compared to PM (22.65 ± 0.10%). In contrast, PM extract showed greater antioxidant potential (63.16 ± 4.92%) than PA (32.84 ± 3.28%). In antimicrobial tests, PA showed significant activity against S. aureus, E. faecalis, and C. albicans (MIC 19.5–39.1 µg/ml), while PM was active against E. faecalis (MIC 78.1 µg/ml). Both extracts showed moderate activity against Gram-negative bacteria and S. cerevisiae.

Conclusions: The obtained results show that extracts from transformed hairy roots of Plectranthus venteri exhibit multifunctional biological activity relevant to dermatological applications. Their combined antioxidant, enzyme-inhibitory and antimicrobial properties indicate promising potential as natural ingredients in anti-aging, depigmenting and antimicrobial dermocosmetic formulations.

JUVENES PRO MEDICINA
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Awareness of Sexually Transmitted Infections among Students of Poznan University of Medical Sciences

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Introduction: Sexually transmitted infections (STIs) remain a significant global public health problem and pose an important challenge for healthcare systems. Previous research indicates that gaps in STI-related knowledge may persist even among university students enrolled in health-related programs.

Purpose: This study aimed to comprehensively assess the levels of knowledge, attitudes, and selected preventive behaviors related to STIs among students at Poznan University of Medical Sciences, with particular attention to differences across fields of study and e

Material and Methods: A cross-sectional study was conducted using an original, anonymous online questionnaire comprising 34 questions covering socio-demographic data, sexual history, preventive practices, and STI-related knowledge. Knowledge was assessed using single and multiple-choice questions with a maximum score of 19 points. Statistical analyses were performed using Mann–Whitney U, Kruskal-Wallis, and Spearman correlation tests.

Results: A total of 106 students participated in the study (70.8% female, 28.3% male, 0.9% other). Among them, 56 (52.9%) were students in medicine or dentistry, and 50 (47.1%) were in other health-related programs. Students of medicine and dentistry achieved significantly higher scores than the other group ($p<0.001$). Higher STI-related knowledge scores were associated with both a higher year of study and attendance at STI-related classes ($p<0.001$). STI knowledge scores were associated with HPV vaccination status ($p<0.001$) and self-reported contraceptive use ($p\approx0.0012$). No significant association was found between STI knowledge and sex or sexual orientation. 90.6% of all respondents correctly indicated HPV as a vaccine-preventable STI, while only 62.3% recognized that vaccination against hepatitis B also contributes to the prevention of sexually transmitted infections. Most respondents felt unprepared to educate patients about STIs, with 60.4% of students reporting that their university programs were insufficient.

Conclusions: The findings reveal significant gaps in STI-related knowledge and, critically, in perceived preparedness for patient education among future healthcare professionals. These results highlight the urgent need to strengthen and standardize sexual health education within medical and health-related curricula, with a focus not only on theoretical knowledge but also on practical competencies in patient communication and prevention strategies.

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Mind the gap: differences in STI knowledge and attitudes between medical and non-medical populations.

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Introduction: Sexually transmitted infections (STIs) remain a major global public health challenge, with effective prevention and early diagnosis closely linked to health literacy. While individuals with medical education receive structured training in sexual health, the general population often relies on informal or unverified sources, which may contribute to misinformation, delayed diagnosis, and ongoing transmission. At the same time, stigma surrounding STIs continues to affect healthcare-seeking behavior.

Purpose: To quantitatively assess and compare STI-related health literacy, awareness of modern prophylactic strategies, and psychosocial attitudes between individuals with and without a medical educational background.

Material and Methods: A proprietary, anonymous cross-sectional online survey was conducted among 211 participants. Respondents were divided into a medical group (n=90) and a non-medical group (n=121). The questionnaire assessed general STI knowledge, understanding of key clinical concepts, awareness of pharmacological prophylaxis (PrEP, PEP), and psychological barriers to seeking care. Statistical analysis included Pearson's chi-square test, odds ratios (OR) with 95% confidence intervals, and the Mann–Whitney U test, with significance set at $p < 0.05$.

Results: Significant disparities in STI-related knowledge were observed between groups. Awareness of pre-exposure prophylaxis (PrEP) was reported by 75.6% of medical participants compared to only 22.3% of non-medical respondents (OR = 10.76; $p < 0.001$). Similarly, post-exposure prophylaxis (PEP) was recognized by 84.4% of the medical group versus 18.2% of the non-medical group (OR = 24.43; $p < 0.001$). Knowledge of the "serological window" was also markedly higher in the medical group (85.6% vs. 13.2%; OR = 38.87; $p < 0.001$). Despite these differences, both groups showed relatively high support for HPV vaccination (92.2% vs. 68.6%; $p <0.001$). Notably, no significant differences were observed in self-reported shame associated with seeking medical consultation for suspected STIs ($p = 0.134$), suggesting that stigma persists regardless of educational background.

Conclusions: A substantial gap in STI-related health literacy exists between medical and non-medical populations, particularly regarding modern prophylactic strategies and key clinical concepts. These findings highlight the need for targeted, evidence-based educational interventions aimed at the general population. Importantly, as stigma and psychological barriers remain prevalent across both groups, efforts to normalize and destigmatize sexual healthcare are essential to improve early diagnosis and reduce STI transmission.

JUVENES PRO MEDICINA
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Dermocosmetics and the therapeutic misconception. How can an unregulated market delay clinical diagnosis?

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Introduction: Dermocosmetics occupy a unique space between cosmetics and pharmaceuticals, yet their definition remains largely driven by marketing rather than regulation. By suggesting medical-like efficacy, the term may foster misconceptions among consumers and blur the boundary between skincare and treatment. As a result, dermocosmetics are increasingly used for self-management, potentially delaying timely dermatological consultation.

Purpose: To evaluate the level of knowledge about dermocosmetics in the general population and to identify factors influencing their use, including sources of information, the impact of marketing, and their potential role in delaying medical consultation.

Material and Methods: A cross-sectional, anonymous online survey was conducted among 217 participants (182 women, 35 men) aged ≥16 years. The questionnaire covered sociodemographic data, skin type and dermatological conditions, knowledge of dermocosmetics, and consumer behaviours. Both single- and multiple-choice questions were used to assess knowledge, attitudes, and practices. Data were analyzed using R statistical software (version 4.5.1; R Core Team, 2025) and RStudio (version 2025.10.0; Posit Team, 2025).

Results: Overall, 59.9% (n=130) of respondents correctly defined dermocosmetics. Participants with a medical background more often recognized that dermocosmetics cannot replace medicinal products (69% vs. 45%), highlighting knowledge gaps across groups. Individuals with skin diseases were more likely to rely on dermocosmetics instead of seeking dermatological care (OR=2.05, p=0.028). Perceived effectiveness was strongly shaped by context: 63.1% (n=137) trusted products sold in pharmacies more, while 25.8% (n=56) associated higher prices with greater efficacy. Although 62% reported understanding ingredient lists, 38% were unable to accurately assess their dermatological relevance. Physicians were the most trusted source of information (median 4.01/5), whereas influencers (2.16/5) and advertisements (1.71/5) ranked lowest ($p<0.001$, $r=0.81$).

Conclusions: Dermocosmetics are widely used yet frequently misunderstood, with marketing-driven perceptions shaping both trust and behavior. Their use as a substitute for medical care may contribute to delayed diagnosis and suboptimal disease management. Enhancing public education and improving transparency in how dermocosmetics are presented could help bridge the gap between perception and clinical reality.

JUVENES PRO MEDICINA

Cardiology and Cardiosurgery Original Research

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JUVENES PRO MEDICINA
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Association between resting energy expenditure and blood pressure among students of the Medical University of Lodz in Poland

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Introduction: Persistent increased systolic (SBP) and diastolic blood pressure (DBP) values lead to hypertension and increased risks of cardiovascular-renal disease, thus increasing disability and mortality. A study from 2004 determined the association between resting energy expenditure (REE) and SBP and DBP values in Nigerians and African Americans, independent of body size. People with similar levels of body mass index (BMI) and higher REE were at increased risk of hypertension compared to those with lower REE. Another study confirmed this association in a young population from Bangladesh. At the same time, there are few studies on hypertension in young adults in Poland. Most of the studies on hypertension examine older Poles, as the risk of hypertension grows with age. However, a nationwide Polish WOBASZ I study found that many Poles aged ≥ 19 suffer from hypertension. Ten years later WOBASZ II study registered a 12% increase in hypertension prevalence among young adults.

Purpose: The aim of the study was to investigate whether there is a relationship between resting energy expenditure (REE) and increased blood pressure (BP) among students of the Medical University of Łódź in Poland. Additionally, the prevalence of increased systolic and diastolic blood pressure values among participants was measured.

Material and Methods: Forty-five people with standard BMI (18.5-24.9 kg/m²) were examined, 30 females and 15 males. Smokers, athletes, pregnant women and chronically-ill people, such as diabetic or asthmatic patients, were excluded. The participants' body composition variables like body weight, fat and muscle mass, bone weight, and metabolic age, were measured using a bioelectrical impedance analysis Tanita BC-601 scale. The participants were resting quietly in a supine position for the whole time of REE measurement (Ultima CardiO2 PFX machine). Blood pressure was measured three times: before the rest period, after 15 minutes of rest, and at the end of the REE examination. Statistical analysis was run on sample size containing 10 participants. The results showed that in order to assess the possible correlation 35 more participants needed to be examined. Statistical analysis included Spearman correlation coefficients with significance level set at $p < 0.05$.

Results: Overall, 13.3% of participants had hypertension (SBP ≥ 140 or DBP ≥ 90 mmHg). The analysis with combined sexes showed REE was significantly correlated with SBP and DBP.

Conclusions: The study shows that there is a potential correlation between increased resting energy expenditure and higher blood pressure among the participants. The analysis of systematically elevated REE parameter may be useful in prophylaxis of hypertension in young adults.

JUVENES PRO MEDICINA
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„Determinants of Outcome in Cardiac Tamponade: Aetiology and Management”

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Introduction: Cardiac tamponade is a life-threatening condition affecting heterogeneous patient population, with in-hospital and long-term mortality remaining high (10-29%) despite improvement of treatment. Current scientific evidence indicates that malignancy is the aetiology with the highest mortality risk, while pericardiotomy is the best treatment method with the most favourable outcome

Purpose: The aim of the study was to assess the clinical course, aetiology, prognosis and predictors of death in patients presenting with cardiac tamponade.

Material and Methods: This single-centre retrospective study enrolled 100 consecutive patients hospitalized due to cardiac tamponade between October 2021 and November 2025. The analysis included demographic data, length of stay and hospitalization parameters, laboratory and imaging results, treatment, as well as complications and mortality.

Results: A total of 100 hospitalizations for cardiac tamponade were analysed. Among hospitalized patients 57% (n=57) were male. After excluding hospitalizations ending in death, the median length of stay was 7.5 days [interquartile range (IQR):

5-13 days]. Eighty-seven patients (87%) required admission to intensive care unit where the median length of stay was 3 days (IQR: 2-5 days). The most common aetiology of cardiac tamponade were interventional cardiology and cardiac surgery procedures. (n=31, 31%), the second most frequent cause was malignant pericardial effusion (n=17, 17%). Aetiology remained undetermined in 27 patients (27%). In the multivariable logistic regression model iatrogenic aetiology was the only independent predictor of in-hospital mortality (odds ratio: 6.28 [95% confidence interval: 1.26-31.44] p=0.03). In 30 patients (30%) cardiac tamponade was managed using pericardiotomy, while 70 patients (70%) underwent pericardiocentesis. Pericardiotomy was associated with a significantly longer post-procedural in-hospital stay length compared to pericardiocentesis (median [IQR]: 4 [3-6] vs. 3 [2-4] days, p=0.04). In-hospital mortality was 18% and 12-month post-discharge mortality was 33.9%.

Conclusions: In the studied population iatrogenic aetiology was the most frequent cause of cardiac tamponade and was also a predictor of in-hospital mortality. Notably, a substantial proportion of patients (87%) required intensive care unit hospitalization. The choice of cardiac decompression procedure had a statistically significant impact on the length of hospitalization. These are preliminary results that require validation in larger cohort.

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Immediate invasive hemodynamic effects of large-bore mechanical thrombectomy with the FlowTriever system in acute pulmonary embolism: a single-center experience

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Introduction: Large-bore mechanical thrombectomy (LBMT) has emerged as an effective treatment option for intermediate-high and high-risk pulmonary embolism (PE). While its clinical efficacy and safety have been increasingly reported, data on immediate invasive hemodynamic effects remain limited. Mechanical clot extraction offers a unique opportunity for rapid reduction of right ventricular (RV) afterload and real-time hemodynamic improvement.

Purpose: To evaluate the immediate invasive hemodynamic changes following LBMT using the FlowTriever system in patients with acute PE.

Material and Methods: We analyzed consecutive patients with intermediate-high (IHR) and high-risk (HR) PE, according to ESC 2019 pulmonary embolism guidelines, treated with LBMT using the FlowTriever system at a tertiary expert PE center. Invasive hemodynamic measurements were obtained immediately before and after the procedure. The primary focus was on changes in pulmonary artery pressures (PAP), cardiac output (CO), and total pulmonary resistance (TPR). Secondary endpoints included imaging parameters such as RV-to-left ratio (RV/LV) and tricuspid annular plane systolic excursion (TAPSE) change and in-hospital safety outcomes such as in-hospital mortality and ISTH major bleeding rate.

Results: Among 62 patients [mean age 63±15 years; 45.2% female; IHR [47 (75,8%)], HR [15 (24,2%)],]], LBMT with the FlowTriever system resulted in immediate and significant improvement in invasive hemodynamic parameters. Systolic and mean PAPs decreased markedly (53.1±14.9 to 38.8±13.3 mmHg and 30.68±8.3 to 23.49±8.46 mmHg, respectively; both $p<0.001$), along with reduction in the right atrial pressure (from median value 9 [IQR 6.8-12] to 7 [IQR 5-12]). These changes were accompanied by a significant decrease in TPR (7.9 to 5.0 WU, $p<0.001$) and an increase in CO (3.9 to 4.6 L/min, $p<0.001$), reflecting rapid RV unloading. RV-pulmonary coupling improved significantly with the TAPSE/systolic PAP ratio increasing from 0.27 to 0.57, $p<0.001$), with consistent improvements in the RV/LV ratio (from 1.6 to 0.91, $p<0.001$). Adverse events were infrequent, including major bleeding 5 (8.2%), in-hospital mortality 3 (4.8%) [3(20%) of HR and 0(0%) of IHR PE patients).

Conclusions: The LBMT with the FlowTriever system was associated with rapid and substantial improvement in invasive hemodynamic parameters, reflecting immediate RV unloading and reduction of pulmonary resistance. These findings highlight the potential of this strategy to provide instant hemodynamic stabilization in patients with intermediate-high and high-risk PE.

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Life After Rastelli: A Lifesaving Repair with a High-Risk Future

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Introduction: The Rastelli procedure is used in patients with dTGA, VSD, and pulmonary stenosis or atresia to achieve correction using a valved RVOT conduit. Long-term outcomes remain limited by conduit failure, arrhythmias, reinterventions, and sudden cardiac death, while very long-term single-centre data are scarce.

Purpose: To assess long-term outcomes, complications, and survival in patients after Rastelli repair in a single-centre cohort.

Material and Methods: We retrospectively analysed 17 patients(13 males) after Rastelli repair, born between 1982 and 2007 and operated between 1991 and 2009, almost all at our centre. Indications were dTGA/VSD/PS (n=14), dTGA/VSD/PA (n=2), and ccTGA/VSD/PA (n=1). Mean age at correction was 6.4±4.8 years (0.5-21). RVOT reconstruction used homografts in 15 patients and homografts with native pulmonary artery inflow in 2. Follow-up covered 1991-2025 (up to 34 years).

Results: All patients required repeated catheter-based or surgical reinterventions. Eight underwent percutaneous pulmonary valve implantation (PAVTI) with Melody (n=7) or Edwards Sapien (n=1). Infective endocarditis occurred in 5 patients (29.4%): in 2 (11.8%) before and in 4 (23.5%) after PAVTI; one post-PAVTI case involved the aortic valve (5.9%), and one patient had recurrent episodes before and after PAVTI. Surgical pulmonary homograft replacement was required in eight patients.

Other interventions included RVOT stenting, balloon homograft dilatation, pulmonary artery angioplasty, residual VSD closure, atrial flutter ablation, and pacemaker/ICD implantation. Concomitant valve surgery included aortic (n=2), pulmonary (n=4), and mitral (n=1) valve procedures.

Overall mortality was 29% (5/17), predominantly due to sudden cardiac death (three patients). This could be associated with aortic root dilatation, severely reduced LVEF, significant pulmonary valve obstruction, QRS prolongation, and complete AV block after DDDR followed by ICD implantation. After PAVTI, sudden cardiac death occurred in 3/17 patients (17.6%), corresponding to 3/8 (37.5%) of the PAVTI subgroup.

Conclusions: Patients after Rastelli repair represent a very high-risk population. Progressive ventricular dysfunction and electrical instability appear to drive late adverse outcomes. Further multicentre studies are needed.

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Prevalence of patent foramen ovale and qualification for its closure after neurological incidents

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Introduction: The foramen ovale plays a crucial role in fetal development. This structure closes and heals after birth, but it can remain patent in up to a quarter of adults. The presence of a patent foramen ovale (PFO) itself is not considered pathological, but it is associated with a higher risk of cryptogenic stroke, decompression sickness, migraine headaches, and platypnea-orthodeoxia syndrome.

Purpose: We sought to determine the frequency of patent foramen ovale and the percentage of patients eligible for PFO closure.

Material and Methods: We retrospectively analysed the Department of Cardiology and Congenital Heart Diseases' database of patients. The study population were patients referred for transoesophageal echocardiography because of previous stroke, transient ischaemic attack, or vascular changes in the central nervous system detected by magnetic resonance imaging. Data on baseline characteristics, treatment, and clinical course were obtained from hospital and outpatient clinic documentation. Transthoracic echocardiography was performed in all patients. After assessing clinical indications, it was decided to perform transesophageal echocardiography.

Results: We included 379 patients (mean age 55±16 years, 69% female); 8 of them (2%) were excluded from transesophageal echocardiography due to other more probable causes of neurological episodes. PFO was diagnosed in 162 of 371 patients (44%). Moreover, 13 patients (3,5%) were diagnosed with atrial septal defect. Before PFO closure was considered, genetic and haematological diagnostics were performed to assess for coagulation disorders. Finally, 106 patients (29%) underwent successful percutaneous occluder implantation.

Conclusions: Detecting PFO is not difficult in everyday practice. However, it should be remembered that its identification does not directly qualify for occluder implantation. Before making clinical decisions, other possible etiological factors of stroke should be considered.

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Novel Echocardiographic Characterization of Biatrial Remodeling in Patients with Atrial Fibrillation Undergoing Ablation

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Introduction: Atrial fibrillation (AF) leads to structural and functional remodelling of the atria, including enlargement, changes in geometry, and impaired reservoir and contractile function. Modern echocardiographic parameters, including volumetric indices and atrial muscle strain, allow for a more accurate assessment of the degree of remodelling and may be important in qualifying patients for ablation.

Purpose: This study aims to evaluate advanced structural and functional parameters of the left atrium (LA) and right atrium (RA) in patients with AF who qualify for ablation and to analyze the changes in these parameters post-procedure.

Material and Methods: The investigation involved 52 patients with AF (38% with paroxysmal AF > 6 months, 59% with persistent AF) scheduled for ablation, with a mean age of 67±11 years, 42.3% of whom were male. Each patient underwent transthoracic echocardiography with the assessment of the following atrial morphology and function parameters: left atrial volume index (LAVI), right atrial volume index (RAVI), left atrial sphericity index (LASI), left atrial contraction index (LACI), right atrial contraction index (RACI), left atrial reservoir strain (LARS), and right atrial reservoir strain (RARS). These assessments were repeated after the ablation.

Results: The findings demonstrated significant enlargement of both atria; LAVI measured at 41.37±17 ml/m² and RAVI at 32.43± 9 ml/m². The LASI (0.69±0.5) reflected an increase in LA sphericity. Notably, functional measures were abnormal: LACI was at 65± 35%, and RACI at 72±16%. The reservoir function exhibited pronounced deficiencies, with LARS at 17.18± 7% and RARS at 20.76 ±9%. Follow-up results are presently under analysis.

Conclusions: Patients with AF undergoing ablation reveal significant enlargement and mechanical dysfunction in both atria, highlighting the importance of advanced echocardiographic evaluation in understanding atrial remodeling and guiding treatment strategies. Further analysis of post-ablation results is anticipated to enhance our comprehension of the impact of these interventions on atrial structure and function.

JUVENES PRO MEDICINA

PhD

7th of May 2026

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JUVENES PRO MEDICINA
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Association between GABA and glutamate serum concentrations and neuropsychiatric comorbidities of obstructive sleep apnea

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Introduction: Obstructive sleep apnea (OSA) is a common sleep disorder characterized by recurrent upper airway collapse during sleep. Patients with OSA frequently present with neuropsychiatric comorbidities, including depression, insomnia and altered pain sensation. Dysregulation of glutamate and gammaaminobutyric acid (GABA) neurotransmission may contribute to these symptoms; however, their role in OSA remains insufficiently understood.

Purpose: This study aimed to evaluate serum concentration changes of GABA and glutamate in OSA patients and to assess their association with depressive and insomnia symptoms as well as severity of pain sensation in OSA patients.

Material and Methods: The study included 80 participants who underwent polysomnography (PSG) and were assigned based on the apnea–hypopnea index (AHI) into a control group (n=35; AHI<5) and OSA group (n=45; AHI≥30). Depressive and insomnia symptoms were assessed using the Montgomery–Åsberg Depression Rating Scale (MADRS) and the Insomnia Severity Index (ISI), respectively. Pain sensations were measured using short form survey instrument (SF-36). Morning blood samples were collected after PSG, and serum GABA and glutamate levels were measured using ELISA.

Results: No significant differences in GABA concentrations were observed between study groups. Glutamate levels were significantly higher in OSA patients compared to controls (p=0.021). Within the OSA group, individuals with depressive symptoms (MADRS≥7) exhibited higher glutamate levels than those without (p=0.015). Positive correlation between glutamate and MADRS scores (R=0.498, p=0.007). was present in OSA participants. Elevated glutamate levels were also observed in OSA patients with insomnia symptoms (ISI≥7) compared to those without (p=0.02). No consistent associations were found for GABA. Additionally in OSA group we found a positive correlation between frequency of bodily pain sensation with both glutamate (R=0.564; p=0.001) and GABA (R=0.382; p=0.037)

Conclusions: These findings suggest that glutamate dysregulation, but not GABA alterations, may be involved in the pathogenesis of comorbid depression and insomnia in OSA patients. Additionally, results indicate that, both glutamate and GABA upregulation may impact the pain sensation in OSA patients. Further studies are needed to determine the causal nature of these relationships.

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MicroRNA Signatures Linking Endometriosis and Ovarian Cancer through Inflammation- and Infection-Related Pathways

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Introduction: Endometriosis is a chronic, multifactorial disease characterized by the presence of endometrial-like tissue outside the uterine cavity. Its occurrence is associated with an increased risk of developing endometriosis-associated ovarian cancers, particularly endometrioid and clear cell carcinomas.

Purpose: The aim of this study was to assess the expression profiles of microRNAs (miRNAs) in endometriosis and endometriosis-associated ovarian cancer.

Material and Methods: The study included samples from patients with ovarian endometriosis (OE, n = 9), deep infiltrating endometriosis (DIE, n = 9), and peritoneal endometriosis (PE, n = 9), as well as eutopic endometrium from women without endometriosis (n = 8) and ovarian cancers: clear cell ovarian carcinoma (CCOC, n = 7) and other epithelial ovarian cancers (EOC, n = 6). MicroRNA (miRNA) expression profiles were analyzed using high-throughput sequencing. Differential expression analysis was performed using the limma-voom pipeline in RStudio. MiRNAs were considered significantly differentially expressed at $p < 0.05$ and $|\log2FC| > 1$. Bioinformatic analyses, including pathway enrichment and interaction network analysis, were performed using the miRNet platform.

Results: Due to decreased sequencing quality, four PE samples and one DIE sample were excluded from further analysis. A total of 522 microRNAs were identified across all analyzed samples. Differential expression analysis revealed significantly different miRNAs between EH and both endometriotic and cancer tissues, as well as between OE and endometriosis-associated ovarian cancers. No significantly differentially expressed miRNAs were identified between DIE and CCOC, and only two significant miRNAs were found between DIE and EOC.

Pathway analysis comparing endometriotic tissues with EH demonstrated significant involvement of miRNAs in pathways related to inflammatory response, cell adhesion, and infection processes, including HTLV-1 and EBV infections. In comparisons between ovarian cancer (EOC) and ovarian endometriosis, as well as between clear cell ovarian carcinoma (CCOC) and ovarian endometriosis, enrichment of inflammatory pathways was again observed, including the JAK/STAT signaling pathway, immune-related pathways (chemokines, T cells), and viral infection pathways (Epstein–Barr virus, EBV; human T-cell leukemia virus type 1, HTLV-1). Additionally, significant associations with the p53 signaling pathway were identified, suggesting a role of miRNAs in tumorigenic transformation.

Conclusions: Our results highlight the potential involvement of infectious factors in the pathogenesis of endometriosis. These findings suggest that viral infections may not only contribute to the initiation and progression of endometriosis but could also play a critical role in the development of endometriosis-associated ovarian cancers, potentially influencing disease onset, chronicity, and malignant transformation.

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Proteomic insights into the pathophysiology of PACS2 syndrome

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Introduction: PACS2 syndrome is an ultra-rare genetic disorder caused by de novo mutations in the PACS2 gene (E209K or E211K variants), manifesting primarily as neuronal dysfunction with seizures, neurodevelopmental delay, impaired speech and motor development, and behavioral abnormalities. PACS2 protein is involved in intracellular trafficking, calcium ion homeostasis, and the cellular stress response; however, the pathomechanism linking specific mutations to the clinical phenotype remains poorly understood, with only three original research articles published to date.

Purpose: To address this gap, we conducted the first in vivo proteomic analysis of hippocampal tissue from a PACS2 syndrome mice model.

Material and Methods: Hippocampal tissues were collected from PACS2E209K/WT knock-in and wild-type PACS2WT/WT animals (n = 6 per group; age 10–12 weeks), homogenised and processed using a standard proteomic workflow. Tryptically digested proteins were separated on a nano-LC system coupled to an Orbitrap Fusion mass spectrometer, and data were acquired in data-independent acquisition (DIA) mode and analyzed with Spectronaut software.

Results: We identified 4,422 proteins, of which 267 were significantly upregulated and 195 downregulated. Upregulated pathways were primarily associated with energy metabolism and sodium/potassium homeostasis, whereas downregulated pathways related to synapse organization, cell junction organisation and regulation of intracellular protein localisation. Detailed analysis revealed signatures consistent with blood–brain barrier (BBB) disruption, including albumin extravasation and water–electrolyte imbalance in the extracellular matrix, a mechanism that may contribute to epileptic seizure generation. This is the first evidence linking BBB dysfunction to PACS2 syndrome. We additionally observed changes indicative of astrocyte reactivation, suggesting that glial dysfunction plays a role in disease pathophysiology. Previously reported alterations in calcium ion flux and mitochondria–endoplasmic reticulum interactions were also confirmed.

Conclusions: These findings substantially advance the understanding of PACS2 syndrome pathophysiology, although targeted validation studies are warranted to confirm the proteomic observations.

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Impact of gallic acid metabolites on EMT modulation in colorectal cancer

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Introduction: Colorectal cancer (CRC) is highly lethal, largely due to its strong metastatic potential and its ability to modulate the tumor microenvironmen. Furthermore, current treatment methods remain inadequate for advanced CRC, which is unfortunately the stage at which most patients (approximately 62%) are diagnosed. Therefore, it is crucial to pursue novel therapeutic strategies. While gallic acid is well-known for its anti-cancer properties, it is its derivatives that primarily circulate in human plasma. Additionally, these compounds have not been investigated in the context of colorectal cancer. Consequently, we examined how nine of phase II gallic acid metabolites affect processes related to epithelial to mesenchymal transition (EMT) across colorectal cancer cell lines characterized by varying levels of invasiveness.

Purpose: The aim of the study was to examine how nine selected metabolites of gallic acid influence the EMT-related processes in colorectal cancer cells, to determine whether their potential effects differ based on the invasiveness of the specific cell line, and t

Material and Methods: The study was conducted using two colorectal cancer cell lines, LS180 and LoVo. Cell viability was assessed using the SRB assay for four representative compounds, and IC20 values were determined. Subsequently, cells were treated with the selected concentrations and their invasive potential and migration toward type I collagen were evaluated using a Transwell system. In addition, MMP-7 protein levels in conditioned media were measured by ELISA. Cell viability was also assessed in a normal colon epithelial cell line (CCD 841 CoN).

Results: Gallic acid metabolites significantly impaired invasion and migration in LoVo cells, with sulfated and glucuronidated forms showing differential inhibitory potency. These effects coincided with reduced MMP-7 protein levels. In contrast, no statistically significant changes in invasion, migration, or MMP-7 levels were detected in the LS180 cell line. Survival curves obtained for normal colon epithelial cells revealed no detectable effects of the compounds on cell viability.

Conclusions: Gallic acid metabolites exhibit the ability to limit EMT-related processes in invasive colorectal cancer cells. One potential mechanism underlying their activity is the reduction of extracellular matrix degradation. The tested compounds do not exert a significant effect on cell lines with low invasive potential and likewise show no significant effects in normal colon cells.

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AP-2 Transcription Factors as Oncogenic and Tumour-Suppressive Regulators in Low-Grade Glioma and Glioblastoma: A Multi-Database In Silico Analysis

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Introduction: The AP-2 family comprises five transcription factors (encoded by TFAP2A-E genes) critical for embryonic development and increasingly implicated in oncogenesis. Systematic pan-cancer analyses reveal that brain tumours, particularly low-grade glioma (LGG) and glioblastoma (GBM), exhibit the most consistent AP-2 dysregulation across all cancer types. Despite their role in tumorigenesis, the mechanistic understanding of AP-2–mediated oncogenic signalling remains limited.

Purpose: The aim of the study was to evaluate the expression of AP-2 transcription factor family members in brain tumours versus normal tissue using GENT2, GEPIA2, and Oncopression databases, and to determine the prognostic significance of each member for patient

Material and Methods: Expression of TFAP2A-E was analysed across tumour and normal tissues using GENT2 (GPL570, GPL96), GEPIA2 and Oncopression databases. Prognostic impact was evaluated by Kaplan-Meier analysis using ToPP database with log-rank testing and Cox proportional hazards modelling in TCGA-LGG and TCGA-GBM cohorts. The statistical significance of the results was determined at p-value < 0.05.

Results: The overall results showed three members exhibiting oncogenic profiles.

TFAP2A is overexpressed in LGG and GBM with unfavourable prognosis (LGG: HR=1.63, p=0.0052; GBM: HR=1.64, p=0.014). TFAP2B shows the strongest LGG association (HR=3.23, p<0.0001, GBM: HR=1.7, P=0.009). TFAP2C is upregulated in both grades (LGG: HR=1.59, p=0.031; GBM: HR=1.54, p=0.017). On the other hand, TFAP2D and TFAP2E are downregulated in gliomas relative to normal brain, with higher expression conferring improved survival (TFAP2D LGG: HR=0.518, p=0.012; TFAP2E LGG: HR=0.567, p=0.004; GBM: HR=0.59, p=0.01).

These findings were reproduced across all four databases.

Conclusions: Multi-platform in silico analysis identified two functionally opposing AP-2 subgroups in glioma: TFAP2A, TFAP2B, and TFAP2C acting as oncogenes, consistently overexpressed and independently predict poor survival, while TFAP2D and TFAP2E are downregulated with higher expression correlating with improved overall survival, suggesting tumour-suppressive roles. The strongest prognostic effect was observed for TFAP2B in LGG. Their consistent prognostic associations validate AP-2 members as clinically relevant biomarkers in gliomas.

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FLT4 as a macrophage-related biomarker gene associated with tumor progression and metastatic potential in colorectal cancer: an integrative in silico analysis

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Introduction: Colorectal cancer (CRC) remains one of the most common malignancies worldwide and a leading cause of cancer-related mortality, mainly due to the progression of liver metastases. The tumor microenvironment components, including tumor-associated macrophages (TAMs), play a key role in tumor progression and metastasis, highlighting the need to identify macrophage-related biomarkers in metastatic colorectal cancer. Our previous study initially identified FLT4 as one of the candidate genes potentially associated with macrophage-related signaling and metastatic progression in CRC (unpublished data).

Purpose: This study aimed to evaluate the association between FLT4 gene expression and clinicopathological features in CRC using integrative bioinformatic analysis. Additionally, the prognostic significance of FLT4 expression in metastatic CRC was assessed.

Material and Methods: Gene expression and clinical data were obtained from the TCGA Firehose Legacy colorectal adenocarcinoma cohort and the Metastatic Colorectal Cancer dataset (MSK, Cancer Cell 2018) available in the cBioPortal platform. Functional annotation analysis was performed using DAVID and KEGG tools. Survival analysis was conducted using Kaplan-Meier methods, and associations between FLT4 expression and clinicopathological parameters, including sex, tumor location, histological type, stage and TNM classification, were statistically evaluated.

Results: High FLT4 expression was associated with shorter DFS (log-rank $p = 0.0114$). The median DFS was 59.17 months in the high-expression group and was not reached in the low-expression group, with increased recurrence risk (HR = 1.73; 95% CI: 1.13-2.64). No significant differences in FLT4 expression were observed between male and female patients ($p = 0.4694$) or colon and rectal tumors ($p = 0.2715$). Analysis of histological subtypes revealed a significant difference in FLT4 expression among groups (Welch's ANOVA $p = 0.0237$). Post-hoc analysis indicated higher FLT4 expression in colon mucinous adenocarcinoma compared with colon adenocarcinoma ($p = 0.0134$). FLT4 expression was significantly associated with CRC progression. Expression levels increased with advancing clinical stage (Kruskal-Wallis $p = 0.0002$), with significantly higher expression observed in stage III ($p = 0.0369$) and stage IV ($p = 0.0005$) compared with stage I. Similarly, FLT4 expression increased with tumor invasion depth (TNM-T) (Welch's ANOVA $p = 0.0004$), with significantly higher levels in T4 tumors compared with earlier stages. Elevated FLT4 expression was also associated with lymph node involvement (TNM-N) (Welch's ANOVA $p < 0.0001$), with significantly higher expression in N1 ($p = 0.0406$) and N2 ($p < 0.0001$) compared with N0. Furthermore, FLT4 expression was significantly higher in metastatic tumors (M1) compared with non-metastatic cases (M0) ($p = 0.0036$). Consistently, tumors classified as T3-T4 showed significantly higher FLT4 expression than early tumors (T1-T2) ($p = 0.0002$).

Conclusions: FLT4 expression was associated with CRC progression and adverse clinicopathological features, including advanced tumor stage, lymph node involvement and metastasis. These findings suggest that FLT4 may represent a potential biomarker associated with tumor progression and metastatic potential in colorectal cancer.

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Baseline Expression and Regulatory Dynamics of Hydrogen Sulfide-Metabolizing Enzymes in Immune Cells

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Introduction: Immune cells operate in highly variable redox environments and require flexible metabolic mechanisms to maintain homeostasis during inflammatory challenges. Sulfur-related pathways may contribute to this adaptation, but their transcriptional organization across leukocyte subsets remains insufficiently defined. While the general physiological roles of hydrogen sulfide are partially established, the expression patterns and functional contributions of enzymes governing sulfur metabolism across leukocyte populations remain poorly characterized.

Purpose: The objective of this research was to characterize the baseline expression profile of hydrogen sulfide-related enzymes across diverse immune cell subsets and to identify the primary determinants driving changes within these metabolic pathways.

Material and Methods: Publicly available transcriptomic data from multiple resting and stimulated immune cell populations were analyzed to compare expression patterns of genes involved in sulfur turnover, redox defense, and related transport processes. Analytical procedures in the R environment included clustering procedures, correlation-based structure analysis, and comparative assessment of catabolic to biosynthetic transcript predominance. Statistical evaluation was performed using Kruskal-Wallis and Dunn's tests with false discovery rate correction.

Results: Analysis of the resting profiles revealed that all investigated immune cells possess a significantly higher capacity for hydrogen sulfide degradation than for its synthesis. Cells belonging to the myeloid lineage displayed the highest basal catabolic potential among all analyzed groups. Upon stimulation with inflammatory factors, leukocytes exhibited a noticeable upregulation of their antioxidant machinery. This effect was most pronounced in myeloid populations, where increased expression of cystine transporters coincided with activation of downstream redox effectors. The metabolic equilibrium shifted from constitutive clearance toward an integrated defense mechanism utilizing sulfur-containing amino acids.

Conclusions: Leukocyte sulfur metabolism is strictly modulated by external regulatory determinants rather than maintaining a static state. The documented transcriptional shift reflects a targeted functional rerouting of sulfur amino acids to ensure antioxidant defense during inflammation. Moreover, the extensive basal H2S degradation capacity implies that the immune system actively participates in systemic detoxification of hydrogen sulfide.

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Biocidal properties of modified experimental resin-based dental composites

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Introduction: Resin-based composites (RBC) are widely used in dentistry. However, a drawback of using these materials is that microbial colonisation occurs on the surface of composite restorations, which, in the long term, leads to biofilm formation and the development of secondary caries. Consequently, efforts are being made to identify suitable modifications that limit this phenomenon. These measures are intended to reduce adhesion and limit the formation of microbial biofilms. Quaternary ammonium salts (QAS) are known for their biocidal activity against a broad spectrum of pathogens. They are commonly used as disinfectants and appear to be promising RBC modifiers.

Purpose: The aim of the study was to evaluate the microbiological properties of three quaternary ammonium salts following their incorporation against Streptococcus mutans, Escherichia coli, and Candida albicans.

Material and Methods: The matrix of composites, consisting of traditional monomers, including bis-GMA, UDMA, and TEGDMA, was modified with CTAB, DODAB, and DDAB at concentrations ranging from 0.25 to 3.0 wt%. The filler was silica after silanization. During the study, the following tests were performed: cytometric analysis, biocidal analysis of surfaces, and susceptibility to colonisation by Escherichia coli, Streptococcus mutans, and Candida albicans.

Results: The highest efficacy against pathogens was observed with 2 wt% CTAB after 60 minutes (74% for Streptococcus mutans, 65% for Escherichia coli, and 24% for Candida albicans); for DODAB, the figures were 69%, 56%, and 22%, respectively. In the case of DDAB, a higher number of dead cells is observed after 60 minutes—71% for Streptococcus mutans, 51% for Escherichia coli, and 24% for Candida albicans.

Conclusions: The results showed that these modifications reduced microbial colonisation. Both CTAB and DDAB can significantly improve the biocidal properties of composites. In the case of DODAB modification, the results are slightly lower. This modification represents a promising approach to reducing biofilm formation and improving the long-term clinical performance of prosthetic restorations.

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Oxeiptosis vs Pyroptosis in Non-Small Cell Lung Cancer: A Single-Cell Transcriptomic Comparison

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Introduction: Lung cancer remains the most frequently diagnosed cancer and the leading cause of cancer-related death worldwide, with approximately 2.5 million new cases and 1.8 million deaths in 2022 according to GLOBOCAN. Non-small cell lung cancer (NSCLC) accounts for approximately 85% of all lung tumors. Regulated cell death (RCD) encompasses multiple genetically controlled death modalities beyond classical apoptosis, several of which are implicated in tumorigenesis, immune evasion, and therapy resistance. Among them, oxeiptosis and pyroptosis represent two mechanistically opposing yet reactive oxygen species-connected RCD subroutines: oxeiptosis is a caspase-independent, non-inflammatory death driven by the KEAP1-PGAM5-AIFM1 axis under high oxidative stress, whereas pyroptosis is a highly inflammatory, Gasdermin-mediated death that activates innate immunity through IL-1β and IL-18 release.

Purpose: To compare the transcriptional activity of oxeiptosis and pyroptosis across the NSCLC tumor microenvironment at single-cell resolution and characterize their functional enrichment profiles.

Material and Methods: We utilized a publicly available integrated single-cell RNA sequencing dataset comprising 224,611 cells from seven independent NSCLC cohorts, by Prazanowska & Lim. Module scores for 13 RCD pathways, including oxeiptosis and pyroptosis, were computed using Seurat's AddModuleScore based on curated gene sets. Differential expression (DE) analysis (Cancer vs. Rest) was performed globally and per-pathway. Functional enrichment (GO, Reactome) was conducted on pathway-specific DE genes. Head-to-head pathway comparison employed Cliff's delta across nine cell types to quantify effect size and direction.

Results: Cancer cells exhibited a significant preference for oxeiptosis over pyroptosis (Cliff's delta = 0.511, large effect). The complete oxeiptosis core genes: NFE2L1, NFE2L2, KEAP1, GPX4, and AIFM1 were upregulated in cancer cells, while canonical pyroptosis effectors: CASP1, NLRP1, IL1B, TNF, and GZMB were strongly downregulated. Myeloid cells were the dominant pyroptosis-active population, confirming inflammasome compartmentalization to immune cells. Beyond expected pathway signatures, like oxidative stress, NLR signaling and innate immunity pathways, enrichment analysis revealed non-canonical themes: oxeiptosis DE genes additionally mapped to ferroptosis and apoptosis regulation, while pyroptosis DE genes enriched for necroptosis and ESCRT-dependent membrane repair, suggesting cross-talk between RCD subroutines in the NSCLC microenvironment.

Conclusions: NSCLC cancer cells demonstrate a transcriptional shift toward non-inflammatory oxeiptosis and away from pro-inflammatory pyroptosis, which may represent an immune evasion strategy. These findings suggest that pharmacological re-activation of pyroptosis or inhibition of the KEAP1–PGAM5–AIFM1 oxeiptosis axis could serve as novel therapeutic approaches to re-engage anti-tumor immune surveillance in NSCLC.

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Identification of Independent Prognostic Biomarkers in Gliomas Through Multi-Endpoint Bioinformatics Analysis and Network Analysis

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Introduction: Gliomas, including glioblastoma (GBM) and lower-grade glioma (LGG), represent some of the most aggressive and heterogeneous brain tumors. The tumor microenvironment (TME), shaped by immune checkpoints, inflammatory mediators, and oncogenic signals, plays a critical role in disease progression. Identifying robust prognostic biomarkers within the TME could improve risk stratification and guide targeted therapeutic strategies.

Purpose: To identify and validate independent prognostic gene biomarkers in GBM and LGG through comprehensive multi-endpoint bioinformatics analysis using publicly available genomic databases.

Material and Methods: A curated panel of 50 candidate genes related to immune regulation, checkpoint signaling, and tumor biology was analyzed. Prognostic significance was assessed using TOPP (Tumor Portal) across five survival endpoints: overall survival (OS), progression-free interval (PFI), disease-specific survival (DSS), disease-free interval (DFI), and relapse-free survival (RFS), separately for GBM and LGG cohorts. Genes confirmed as independent prognostic factors in at least one endpoint were subjected to expression profiling via GEPIA2, protein–protein interaction network construction using STRING and GeneMania, and functional enrichment analysis using DAVID.

Results: Eighteen genes were identified as independent prognostic factors across at least one survival endpoint: IGFBP2, FOXP3, PLAUR, OLIG2, VEGFA, CD274, RAB42, CD8A, EMP3, TNFAIP6, ADAM12, CD4, TGFB1, LAG3, S100A4, ICAM1, GPX4, and PDCD1. IGFBP2 emerged as the most robust biomarker, independently confirmed across six TOPP analyses spanning both GBM and LGG and multiple survival endpoints. Expression profiling confirmed differential expression of the majority of identified genes between tumor and normal tissue. Network analyses revealed functional interconnections, with ADAM12, RAB42, OLIG2, and GPX4 remaining outside the core STRING network, suggesting distinct regulatory roles.

Conclusions: Multi-endpoint survival analysis identified a clinically relevant gene signature with IGFBP2 as the leading prognostic biomarker in gliomas. These findings provide a basis for further experimental validation and potential application in patient risk stratification and immunotherapy target selection.

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Evaluation of cytotoxic properties of Aronia melanocarpa leaf extracts and their encapsulates in colorectal cancer

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Introduction: Colorectal cancer (CRC) is one of the most frequent and fatal cancer types worldwide. The development of novel, efficient therapies is essential to minimize mortality rates. Besides traditionally used medications and procedures, natural compounds are gaining increasing interest. When combined with standard treatments, they exhibit notable chemopreventive properties.

Purpose: This study aimed to assess the effects of aronia leaf extract (ALE), its encapsulated form (EALE), and the carrier itself (flaxseed polysaccharides, FP) on the viability of both SW-480 colorectal cancer and CCD841CoN colon epithelial cells. Additionally,

Material and Methods: The SW-480 and CCD841CoN cell lines were tested for cytotoxicity of ALE, EALE, and FP using an MTT assay at 24, 48, and 72 hours across 100–1000 µg/ml. 5-fluorouracil (50 and 100 µM) served as a positive control. Antioxidant activity was evaluated using the FRAP and ABTS assays.

Results: Both ALEs obtained from VII and X, along with their respective encapsulated forms, significantly reduced CRC cells viability in a time- and concentration-dependent manner. However, more potent cytotoxic effects were observed with ALE from X, particularly after incubation with EALE. The highly cytotoxic nature of EALE from X is evident at 500 µg/ml, whereas for EALE from VII, the same effect requires 1000 µg/ml. None of the tested compounds affected the viability of CCD841CoN cells at any incubation time or concentration, except for EALE from VII at 750 and 1000 µg/ml, where cell viability decreased significantly in a time- and concentration-dependent manner. FP showed no or minimal effect, not exceeding 10% of the control. Composition analysis showed that compounds from VII had notably higher total phenolic content than those from X. At both harvest times, ALE exhibited the highest levels, followed by EALE, with FP displaying the lowest. Antioxidant assays confirmed that ALE had the strongest free radical-scavenging activity (for VII and X), while EALE and FP showed the weakest

Conclusions: The results show that ALE and EALE, but not FP, are cytotoxic to SW-480 cells and mostly do not affect CCD841CoN cells, making them selective. Harvest timing may influence their chemopreventive properties.

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Immunology and Rheumatology Case Study

7th of May 2026

Coordinators:

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Jury:

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Theory versus practice: The atypical presentation of an eosinophilic granulomatosis with polyangiitis (EGPA) - case study

Adrian Majtas

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Introduction: Eosinophilic granulomatosis with polyangiitis (EGPA) is a rare form of vasculitis, considered as an immune disorder based on dysregulation of Th2 pathway activation. Activated TH2 lymphocytes release IL-4, 5, 13, promote activation of eosinophils and their release into the bloodstream, leading to organ damage. Two phenotypes of EGPA can be distinguished: ANCA+ and ANCA-. The ANCA- is more prevalent and mainly associated with severe asthma. The ANCA+ is characterized by small vessel vasculitis, mostly glomerulonephritis. Due to its rarity, EGPA poses challenges in clinical presentation and diagnosis. Atypical cases can occur, adding complexity to the diagnostic process. The following case study presents a EGPA case, highlighting the required diagnostic and therapeutic strategies.

Case report: A 60-year-old male was admitted due to a 4-month progressive decline in exercise tolerance, dyspnoea and fatigue. Additionally, the patient reported chronic cacosmia. The patient's medical history includes GERD and recurrent sinusitis. Spirometry revealed an airway obstruction with a positive bronchodilator response, leading to a diagnosis of mild asthma. The CT scan of the paranasal sinuses revealed mucosal thickening in maxillary and frontal sinuses. The bronchofiberoscopy with biopsy was carried out. Histopathology showed chronic inflammation with eosinophilic infiltration penetrating small vessel lumina, without atypia. Surprisingly, neither granulomas nor necrosis were present. The chest CT exam with contrast demonstrated bilateral, diffuse ground-glass infiltrates. In the laboratory findings, elevated inflammatory markers were observed, along with anaemia and eosinophilia. Because of these findings, a series of immunological assays and tests for infectious agents were performed. Fungal PCR tests gave negative results. Screening for HIV, HBV, HCV was negative. Neither anti-CCP nor anti-GBM antibodies were detected. Furthermore, tests for Bence-Jones protein and other malignancy screenings were also negative. These findings excluded the majority of suspected etiologies for the patient’s condition. ECG and echocardiography showed no abnormalities. Due to laboratory and immunological results, the patient was diagnosed with EGPA, based on peripheral eosinophilia (5 points), chronic sinusitis (3 points) and asthma (3 points). Furthermore, histopathological examination of biopsy specimens detected an extravascular inflammation with a predominance of eosinophils (2 points). The patient was ANCA(-). According to the 2022 EULAR criteria a cumulative score of 13 points was achieved, which confirmed the diagnosis (>6 points). Notably, the patient's asthma is classified as mild, contrasting with the typically severe course of ANCA- patients. Presence of ground-glass opacities on chest CT is atypical, lacking the classic migratory pulmonary infiltrates. The absence of necrosis and granuloma are also an unexpected finding. Despite this atypical presentation, classification criteria were fulfilled, confirming diagnosis. The patient was treated with systemic corticosteroid therapy, supported with intranasal corticosteroid drops. Given that the patient was newly diagnosed, a decision was made not to initiate anti-IL-5 therapy. The follow-up after 4 months showed no ventilatory defects. HRCT showed regression of the ground-glass infiltrates. The inflammatory markers normalized. Low doses of systemic Prednisone were maintained.

Conclusions: This case highlights the potential discrepancy between classical and atypical manifestations of EGPA. The disease can present with mild asthma, atypical radiological findings such as ground-glass opacities, and a histological absence of necrosis and granulomas. Despite these deviations from textbook patterns, established classification criteria can still be fulfilled, securing a definitive diagnosis. Consequently, the lack of a severe respiratory phenotype in ACNA- profile should not delay clinical suspicion. Clinicians must maintain high vigilance in cases of unexplained dyspnea accompanied by eosinophilia, pursuing comprehensive diagnostics to implement treatment and achieve clinical remission.

JUVENES PRO-MEDICINA
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Immunological or Metabolic Puzzle? Massive Calcinosis Mimicking Autoimmune Relapse in a Patient with End-Stage Renal Disease

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Introduction: Goodpasture syndrome, also known as anti-glomerular basement membrane (anti-GBM) disease, is a rare, life-threatening autoimmune disorder characterised by the production of antibodies against antigens in the glomerular and alveolar basement membranes. Patients are prone to renal damage and pulmonary complications, including life-threatening pulmonary hemorrhage. It can lead to end-stage renal disease (ESRD), requiring chronic dialysis and subsequent kidney transplantation.

Case report: A 48-year-old man was admitted to the Rheumatology Department due to progressive joint pain. In 2023, he was diagnosed with Goodpasture syndrome, which was limited to renal involvement and led to ESRD. He had been on regular hemodialysis three times per week for 4 hours and 20 minutes and was being prepared for a kidney transplantation. Over the preceding year, he developed chronic, progressive, symmetrical, polyarticular pain affecting the shoulders, elbows, metacarpophalangeal joints, hips, knees and feet. Symptoms were accompanied by morning stiffness, reduced range of motion (particularly in the shoulders), subjective muscle weakness and postural abnormalities. Intermittent swelling of the wrists and ankles was also observed. Laboratory findings revealed elevated inflammatory markers and typical ESRD disturbances, including hyperphosphatemia, hypercalcemia and secondary hyperparathyroidism. Immunological testing showed positive antinuclear antibodies (ANA 1:1280, granular pattern) and a low-titre MPO-ANCA (1:20), while the myositis panel and rheumatoid factor were negative. Despite the presence of positive autoantibodies, there was no clinical evidence of active systemic disease. Imaging studies demonstrated degenerative changes and massive soft tissue calcifications, particularly in the subacromial-subdeltoid bursae, as well as degenerative changes in the spine. The patient was diagnosed with dialysis-related arthropathy, painful shoulder syndrome and coexisting osteoarthritis. Management focused on metabolic stabilisation, withdrawal of calcium and vitamin D supplementation, analgesia with tramadol/paracetamol and referral for orthopedic intervention, while awaiting kidney transplantation. The patient showed clinical and symptomatic improvement.

Conclusions: Although the patient had a history of Goodpasture syndrome, the current clinical picture was dominated by the long-term consequences of renal replacement therapy rather than an immunological relapse. Initially, the presence of high-titre ANA and MPO-ANCA suggested an autoimmune flare; however, the imaging findings of massive, metastatic calcifications indicated that the underlying pathology was metabolic rather than inflammatory. Recognition of dialysis-related arthropathy and a multidisciplinary approach are crucial to ensure appropriate management and to avoid unnecessary immunosuppressive therapy, particularly in patients awaiting kidney transplantation.

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The Hives That Didn’t Behave: Looking Beyond Simple Urticaria

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Introduction: Although urticaria is a common and usually self-limiting condition, persistent or treatment-resistant cases should prompt evaluation for alternative diagnoses beyond simple allergic causes. One rare but clinically important entity is Hypocomplementemic Urticarial Vasculitis (HUV), an autoimmune small-vessel vasculitis characterized by recurrent urticarial lesions, hypocomplementemia, and potential systemic involvement. Unlike typical urticaria, lesions persist for more than 24 hours, may leave residual hyperpigmentation, and can be associated with angioedema, arthralgia, or organ-specific manifestations. Diagnosis relies on clinical suspicion, decreased complement levels (C3, C4, C1q), autoimmune markers, and histopathologic confirmation of leukocytoclastic vasculitis. Misdiagnosis is common due to overlap with ordinary hives. Recognition of HUV is critical, as low-dose corticosteroids are often insufficient, and early diagnosis with appropriate therapy may prevent systemic complications.

Case report: A 44 y/o female presented with diffuse pruritic wheals, predominantly on the extremities and back, most pronounced around the knees and feet. Some lesions were vesicular, persisted for more than 24 hours, and resolved with residual discoloration. She also reported episodic edema of the hands, feet, and face, accompanied by facial flushing. Initial low-dose oral corticosteroids were ineffective. Medical history included central diabetes insipidus, pituitary microadenoma, hypothyroidism, insulin resistance, obesity, gout, and fatty liver disease. A skin biopsy was performed, and the patient was referred to the Rheumatology Department. Higher-dose corticosteroids led to temporary improvement, with gradual fading of lesions and residual hyperpigmentation. After 3 months, symptoms recurred, and the patient became steroid-dependent. Laboratory tests showed decreased C3, C4, and C1q, with positive ANA (1:1280), SSA (+++), and Ro52 (+). Infectious causes were excluded. Histopathology confirmed leukocytoclastic vasculitis, establishing the diagnosis of HUV. Treatment was escalated to intravenous corticosteroid pulses, resulting in complete remission. Methotrexate and dapsone were introduced as steroid-sparing therapy.

Conclusions: Persistent urticaria may conceal a more serious underlying disease. This case highlights the diagnostic challenge of HUV, given its resemblance to common hives and partial responsiveness to corticosteroids. The diagnosis was ultimately guided by lesion characteristics, complement consumption, and confirmation by skin biopsy. This underscores the importance of maintaining diagnostic vigilance in patients with persistent or atypical urticaria, and the key role of laboratory evaluation and histopathologic confirmation. Interdisciplinary collaboration remains essential to detect serious systemic disease and guide appropriate therapy.

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The Wild West of Rare Diseases: Unmasking VEXAS Syndrome After 2.5 Years of Diagnostic Uncertainty

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Introduction: VEXAS (Vacuoles, E1 Enzyme, X-linked, Autoinflammatory, Somatic) syndrome is a rare, severe adult-onset autoinflammatory disease caused by somatic mutations in the UBA1 gene. It predominantly affects males over 50 years old and presents with a broad spectrum of haematological and inflammatory manifestations, such as cytopenia, chondritis, skin lesions, and fever. Due to its phenotypic overlap with multiple rheumatological and haematological disorders, VEXAS remains frequently misdiagnosed, resulting in significant diagnostic delays and prolonged inappropriate treatment.

Case report: A 71-year-old male presented with a 2.5-year history of recurrent fevers, urticaria, bilateral auricular chondritis, arthritis, livedo reticularis and progressive transfusion-dependent anaemia (Hgb 7.3 g/dL, PLT 61 G/L, CRP 122 mg/L, ESR 158 mm/h). Initial workup across multiple clinics considered Schnitzler syndrome, IgG4-related disease, giant cell arteritis, and Sjögren's syndrome, however all of the diagnoses were ultimately excluded. Bone marrow biopsy revealed vacuolization of myeloid precursors, dysmegakaryopoiesis (60%), and dysgranulopoiesis (10%), consistent with low-blast MDS (MDS-LB). Next-generation sequencing identified somatic mutations in DNMT3A (p.Arg882Cys, VAF 40%) and TET2 (p.Met695Asnfs*17, VAF 33%) with a normal karyotype. Consequently, molecular confirmation of UBA1 mutation established the diagnosis of VEXAS syndrome in December 2025, approximately 2.5 years after symptom onset. In accordance with 2025 ACR recommendations, approval for ruxolitinib therapy (15 mg twice daily) was obtained through the Polish national exceptional drug access programme (RDTL) in January 2026. At the first follow-up visit, treatment was well tolerated with no adverse effects reported.

Conclusions: This case illustrates the significant diagnostic challenge posed by VEXAS syndrome. A delay of 2.5 years and consideration of four alternative diagnoses before confirmation of UBA1 mutation underscores the importance of clinical awareness of this condition. VEXAS should be considered in older males presenting with treatment-refractory inflammatory syndrome, unexplained cytopenia and bone marrow vacuolization of myeloid precursors. The identification of DNMT3A and TET2 mutations reflects the frequent co-occurrence of clonal haematopoiesis in VEXAS syndrome, with potential implications for disease course and treatment selection. Timely genetic testing and multidisciplinary collaboration between rheumatologists and haematologists are essential for accurate diagnosis and access to targeted therapy.

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Progressive Digital Ischemia in Mixed Connective Tissue Disease: From Raynaud's Phenomenon to Gangrene

Kacper Pawlak ; Maria Możdżan

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Introduction: Raynaud's phenomenon is commonly the first clinical sign of mixed connective tissue disease (MCTD). Progression to severe ischemic complications, such as digital necrosis or gangrene, remains uncommon but poses a serious clinical challenge. We present a case of advanced vascular involvement in MCTD leading to tissue loss despite ongoing therapy.

Case report: A 53-year-old male with a known diagnosis of MCTD (since 2020) was admitted for reassessment of disease activity and treatment adjustment. Initially, the disease manifested with mild skin fibrosis and enhanced Raynaud's phenomenon, without signs of necrosis. His previous treatment included methylprednisolone, methotrexate, and pentoxifylline. In August 2025, the patient reported rapid worsening of symptoms, with painful ulcers on both hands and developing dry necrosis of distal phalanges. Laboratory findings revealed elevated inflammatory markers, anemia of chronic disease, and thrombocytosis. On examination, cyanosis and skin thickening were present on the hands, feet, and face. The clinical picture was consistent with scleroderma-like features. Additional findings included lower limb edema, stable pulmonary emphysema, and dysphagia related to esophagitis. Intravenous prostaglandin E1 therapy was initiated, resulting in partial improvement of peripheral circulation. Calcium channel blockers and targeted antibiotic therapy were also introduced due to secondary infection of digital ulcers. The patient was discharged in stable condition. At follow-up four weeks later, improvement was observed in previously affected areas, particularly on the left hand. However, the right hand showed progression of necrosis with recurrent infection and abscess formation. Surgical intervention, including debridement and partial amputation of affected digits, was required. Following treatment, the patient's general condition improved, inflammatory parameters decreased, and wound healing progressed without complications. Further prostaglandin therapy is planned, with ongoing monitoring.

Conclusions: This case underlines that, although rare, severe vascular complications in MCTD can develop and may require combined pharmacological and surgical management.

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Extensive Calcinosis in Systemic Sclerosis- a Therapeutic Challenge

Katarzyna Sołoducha

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Introduction: Systemic sclerosis is a chronic systemic connective tissue disease, characterized by progressive fibrosis of the skin and organs, leading to microvascular dysfunction and inflammation. Calcinosis is a frequent complication, defined by the accumulation of insoluble calcium salts in the skin and subcutaneous tissue, most commonly affecting the digits. In some cases, calcinosis may present with more severe involvement, posing a therapeutic challenge due to a lack of standardized and effective treatment strategies.

Case report: We present a case of a 75-year-old female patient, admitted to the Rheumatology Ward for evaluation of suspected malignancy and systemic symptoms. The patient was initially hospitalized in the Dermatology Department due to progressive skin symptoms. The patient reported a three-year history of skin induration and nodular lesions of the trunk. During the last year, symptoms including mild pruritus, dysphagia, exertional dyspnea, peripheral edema, arthalgia, and occasional dryness of the eyes occurred. Notably, according to the patient, Raynaud's phenomenon was absent. On admission, the patient was in good general condition. On physical examination, extensive skin induration with hyperpigmentation, nodules, and dryness, as well as sclerodactyly with scars and ulcerations, were revealed. Teleangiectasias were present on the trunk, limbs, and face. Laboratory findings showed increased inflammatory markers, including CRP (6.4mg/l), OB (59mm/1h), and ANA antibodies at titers of 1:1280 (granular pattern) and 1:320 (cytoplasmic pattern), without specific autoantibodies. Gastrocopy revealed an esophageal stricture. Capillaroscopy revealed a pattern consistent with late-stage scleroderma microangiopathy. CT scan showed extensive subcutaneous calcifications, involving the thighs, gluteal area, and abdomen. Moreover, a focal lesion in the breast was detected on imaging studies. For that reason, the patient was referred for oncological consultation. Based on these findings, and despite the absence of specific autoantibodies, the patient fulfilled the ACR/EULAR classification criteria for systemic sclerosis.

Due to extensive calcinosis, therapy focused on microvascular dysfunction, including a calcium channel blocker and pentoxifylline, was introduced. Moreover, to reduce the progression of skin calcification, cyclosporine was added with satisfactory tolerance and effects. The implemented treatment, based on the pathophysiological mechanisms, resulted in a favorable clinical outcome, with regression of skin lesions and stabilization of calcinosis.

Conclusions: Calcinosis remains a significant and challenging complication of systemic sclerosis. Our case highlights the importance of an individualized approach to choosing the right therapeutic strategy and a pathophysiology-based approach targeting both vascular and inflammatory mechanisms. Presented therapy may represent a promising option in selected patients.

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Recurrent Angioedema of unknown origin in a Patient with Type 1 Diabetes and Hashimoto's Thyroiditis: A Case Report

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Introduction: Recurrent angioedema with mucosal and airway involvement despite negative allergy testing presents a diagnostic dilemma and suggests non–IgE-mediated mechanisms. In patients with coexisting autoimmune disease, overlapping triggers such as drug reactions and metal hypersensitivity may contribute to a complex and underrecognized clinical entity.

Case report: A 41-year-old woman with type 1 diabetes mellitus and Hashimoto's thyroiditis experienced recurrent episodes of oral and pharyngeal edema accompanied by burning sensations and, during acute attacks, difficulty breathing and speaking. In June 2025, a change in insulin therapy triggered severe angioedema with airway involvement, necessitating hospitalization. Treatment with dexamethasone, phenazoline, doxycycline, and clemastine led to symptom resolution. Subsequent insulin adjustments (Apidra and Lantus) subsided symptoms. In July 2025, ingestion of a bakery product (pączek) triggered immediate oral mucosal swelling, erythema, and burning. The patient also reported similar reactions after consuming raw leafy vegetables on multiple occasions. Initial evaluation excluded IgE-mediated allergy, with normal inhalant- and food-specific IgE and total IgE levels. Complement studies, including C1 inhibitor activity and concentration as well as C3 and C4 levels, were also within normal limits, effectively ruling out hereditary angioedema. Pulmonary evaluation, including bronchodilator reversibility testing, was negative despite exertional dyspnea. Patch testing revealed delayed hypersensitivity to nickel and pallad. The implicated vegetables were nickel-containing due to soil exposure, and dietary elimination resulted in complete resolution of mucosal symptoms. Autoimmune screening showed positive ANA (1:160, nucleolar and speckled) and cANCA 1:20. The patient was subsequently diagnosed with rheumatoid arthritis and treated with hydroxychloroquine, Dexoduo, and Egidon, leading to resolution of joint symptoms. Planned initiation of biologic therapy for rheumatoid arthritis is scheduled for June 2026.

Conclusions: This case highlights the complex interplay of drug reactions, metal allergy, and autoimmune comorbidities in recurrent angioedema. Accurate identification of triggers, pharmacologic management, and targeted dietary modifications are essential to prevent life-threatening episodes and optimize patient outcomes.

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Early Diagnosis and Treatment of Hypersensitivity Pneumonitis Resulting in Significant Functional and Radiological Improvement: A Case Report

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Introduction: Interstitial lung diseases (ILDs) are a heterogeneous group of progressive lung diseases with the incidence range from 4.6 to 31.5 per 100 000 individuals. It is characterized by inflammation and fibrosis, resulting in high mortality when falsely diagnosed. However, in some of the subtypes of ILD, like hypersensitivity pneumonitis (HP), early diagnosis and proper treatment can lead to complete disease regression.

Case report: A 68-year-old male was admitted due to progressive exertional dyspnea and cough lasting three months. On admission, the patient presented with hypoxemia and bilateral inspiratory crackles. Spirometry and diffusing capacity of the lung for carbon monoxide (DLCO) showed signs of moderate restrictive pattern with impaired gas transfer (DLCO= 50%, <1st percentile). Thoracic high-resolution computed tomography (HRCT) demonstrated diffuse interstitial abnormalities in both lungs, including ground-glass opacities, reticular changes, and mosaic attenuation. To further examine the etiology of the interstitial lung disease, bronchoscopy with bronchoalveolar lavage and transbronchial lung biopsy was performed, based on which hypersensitivity pneumonitis (HP) was diagnosed. Control thoracic radiograph revealed right-sided pneumothorax requiring drainage. HP treatment in the form of systemic corticosteroid was introduced - initially intravenous hydrocortisone lasting 5 days, then converted to oral prednizolon for the next 6 months. During follow-up, gradual improvement in the patient's symptoms was observed- reduction of dyspnea and increase in exercise tolerance. DLCO showed an increase from 50% to 89%. Follow-up HRCT demonstrated significant resolve of initially observed interstitial infiltrates with residual subpleural fibrosis. It should be noted that no progress of interstitial lung abnormalities had been observed, resulting in gradual discontinuation of corticosteroid therapy.

Conclusions: HP is a complex disease with vague, non-specific initial symptoms requiring comprehensive diagnostic evaluation when suspected. Early recognition of ILD and prompt treatment may lead to a significant clinical improvement and complete regression of symptoms. It should be noted that although all invasive procedures carry potential risk for the patient thanks to the rapid diagnostic regimen, he still remained a beneficiary of our actions.

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Rare Co-occurrence of Anti-PM/Scl and Anti-Th/To Antibodies in Systemic Sclerosis: Case report

Zuzanna Poczta, Paulina Mularczyk

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Work supervisor: Prof. dr hab. n. med. i n. o zdr. Bogna Grygiel-Górniak

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Introduction: Systemic sclerosis (SSc) is a rare, chronic autoimmune connective tissue disease characterized by the presence of specific autoantibodies that correlate with specific organ involvement. Anti-Th/To antibodies are strongly associated with a high risk of developing interstitial lung disease (ILD) and pulmonary hypertension (PH), with relatively mild skin involvement. Anti-PM/Scl-100 and anti-PM/Scl-75 antibodies are found primarily in the overlap syndromes of SSc and polymyositis/dermatomyositis. The presence of these autoantibodies correlates with increased muscle involvement and ILD, as well as skin and joint symptoms. Multiple autoantibodies coexist in only 2–5% of patients with SSc, making this specific combination an exceptionally rare serological variant.

Case report: A 73-year-old woman was admitted to the Department of Rheumatology for clinical evaluation. On admission, the patient reported pain and swelling in the joints of her hands and ankles. She also had persistent Raynaud's phenomenon, nasal atrophy, distal sclerodactyly, pigmented lesions, telangiectasia, and residual scars from digital ulcers. High-resolution chest computed tomography (HRCT) revealed interstitial lung disease characterized by subpleural fibrosing lesions and a honeycomb pattern. Serological testing revealed a high ANA titer of 1:5120. The ANA profile revealed anti-PM/Scl-100, anti-PM/Scl-75, and Th/To antibodies. A densitometry study confirmed osteoporosis. The diagnosis of SSc was confirmed, and the patient was qualified for treatment with nintedanib and discharged from the hospital with a recommendation to continue bisphosphonate therapy.

Conclusions: This case highlights the multisystemic complexity of systemic sclerosis, which requires ongoing, multidisciplinary clinical surveillance. Furthermore, it highlights the importance of accurate autoantibody testing to predict the risk of specific complications, particularly interstitial lung disease. Monitoring and treating end-organ complications is also crucial, as it directly translates into longer survival and improved quality of life.

JUVENES PRO MEDICINA

Nephrology Case Study

7th of May 2026

Coordinators:

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Jury:

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Genetic testing as a therapeutic compass – the case of a patient with atypical hemolytic uremic syndrome

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Introduction: Atypical hemolytic uremic syndrome (aHUS) is an ultra-rare, severe complement-mediated thrombotic microangiopathy (CM-TMA) characterized by the triad of microangiopathic hemolytic anemia (MAHA), thrombocytopenia, and acute kidney injury (AKI). The diagnosis is established by the presence of TMA with normal disintegrin and metalloproteinase with a thrombospondin type 1 motif, member 13 (ADAMTS13) activity after exclusion of secondary causes. Targeted therapy includes the administration of an anti-C5 monoclonal antibody (eculizumab or ravulizumab), starting as early as possible. Genetic testing is an integral component of aHUS management.

Case report: A 40-year-old man was referred to the Department of Nephrology of the Central Clinical Hospital due to a suspicion of hemolytic uremic syndrome. At admission to the primary facility he presented with anuria, pulmonary oedema and hemoptysis, symptoms were preceded by a mild upper respiratory tract infection. Laboratory tests showed MAHA (schistocytes in the blood smear, elevated lactate dehydrogenase (2215 U/L) and low haptoglobin levels), thrombocytopenia (82 G/L), and increased serum creatinine (2104 µmol/l). He received four blood transfusions, IV methylprednisolone, hemodialysis (HD) and plasmapheresis. The bronchoscopy confirmed alveolar hemorrhage. In our department, considering clinical presentation, a suspicion of vasculitis was made. After testing negative for anti-GBM and ANCA antibodies, confirming normal ADAMTS13 activity (57,1%) and TMA in kidney biopsy, the patient was qualified for ravulizumab therapy. Material for genetic testing was collected. After treatment initiation, the patient experienced substantial improvement in hemolysis. However, he stayed HD-dependent. Anti-C5 therapy was continued and qualification for kidney transplantation was initiated. During the 5-month follow-up, the patient still required HD but did not show any signs of MAHA. In such case, according to recommendations, treatment withdrawal may be considered. However, at that time genetic testing results were received and the pathogenic heterozygous defect in the CFH gene (c.3356A>G) was identified. Besides, 2 polymorphisms in CFH gene rising the risk of CM-TMA were found. The risk of TMA recurrence associated with this genetic form is high, and long-term prognosis without anti-C5 treatment is known to be poor. Thus, ravulizumab therapy needs to be continued in this patient, in particular after kidney transplantation.

Conclusions: Genetic testing result may drive treatment decisions in aHUS. Besides confirming genetic background of the disease, it allows determining the prognosis andpost-transplant recurrence risk, and supports decisions on treatment duration and peri-transplant management. This case demonstrates that a prompt, clinical diagnosis does not obviate the need to identify genetic background.

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Idiopathic Mixed Cryoglobulinemia (IMCG) as a rare cause of nephritis - case report

Alicja Mikłaszewicz

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Introduction: Mixed Cryoglobulinemia (MCG) is a rare (1:100 000) autoimmune-mediated disease characterized by inflammation of blood vessels caused by deposition of abnormal proteins called cryoglobulins. This disease primarily affects the skin and joints, and less frequently the kidneys, where it manifests as cryoglobulinemic glomerulonephritis.

Case report: 58-year old male was hospitalized with symptoms and signs of systemic vasculitis and impaired kidney function (serum creatinine 178 µmol/l, serum urea (17 mmol/L). He complained of severe exhaustion on exertion that has been present for about a year, accompanied by muscle fatigue. Additionally, the patient had purpura skin lesions on his legs. Cryoglobulinemia is in most cases caused by a chronic viral infection like Hepatitis B or C, HIV or EBV, but this patient tested negative for all of these infections. Since the cause of renal function deterioration remained unclear, a kidney biopsy was quickly performed and, surprisingly, revealed Mesangial Proliferative Glomerulonephritis (MesPGN). Following this diagnosis, the therapy with glucocorticoids was initiated but, unfortunately, failed to improve renal and dermatological symptoms. Because of the resistance to first-line therapy an anti-CD20 monoclonal antibody (rituximab) was started leading to a rapid improvement in both kidney function and extra-renal manifestations of the disease.

Conclusions: Idiopathic Mixed Cryoglobulinemia is an ultra-rare disease that requires individual approach and targeted potent immunosuppressive therapy. It is important to consider the possibility of MCG presence while diagnosing, even in absence of a clear cause, i.e. viral infection.

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A Non-Obvious Drug-Drug Interaction with Severe Consequences: Rosuvastatin and Febuxostat

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Introduction: Medications used to treat different diseases may cause adverse effects. These effects can be intensified or altered by drug-drug interactions, highlighting the need for careful evaluation in clinical practice.

Case report: A 42-year-old man with a history of gout treated chronically with febuxostat presented to the Emergency Department with 24-hour malaise, loss of appetite, and anuria. He provided results of ambulatory laboratory tests from two days prior, showing markedly elevated liver enzymes (AST 12,911 U/L, ALT 1,904 U/L, GGT 1,417 U/L), prompting hepatology referral. On admission, he had hepatomegaly, severe renal failure (serum creatinine 10.25 mg/dL; N: 0.7-1.2 mg/dl), and slightly decreasing transaminases. He reported excessive alcohol intake two weeks prior and subsequent flu-like symptoms treated with paracetamol and ibuprofen. Toxicological and viral screening were negative. Chronic liver disease was excluded. Due to persistent kidney failure, hemodialysis was initiated.

Further history revealed that laboratory tests had been performed three weeks after initiation of rosuvastatin 30 mg for newly diagnosed hypercholesterolemia. Previously described “flu-like symptoms" proved to be predominantly generalized muscle pain. This led to diagnosis of acute liver injury and rhabdomyolysis, resulting in acute kidney injury. Kidney biopsy confirmed myoglobin cast nephropathy and acute tubulointerstitial nephritis. Treatment and intravenous glucocorticosteroids improved renal function and normalized liver parameters.

The trigger for the entire episode was identified as a rarely described drug-drug interaction between febuxostat and rosuvastatin. Febuxostat particularly at higher doses doubles rosuvastatin plasma concentration and prolongs its half-life. The risk was amplified by initiating rosuvastatin at an excessively high dose, concurrent alcohol and paracetamol use, and insufficient patient education regarding statin-associated muscle symptoms and the need for prompt medical evaluation.

Conclusions: This case illustrates a drug-specific adverse reaction associated with the concomitant use of febuxostat and rosuvastatin, rather than a class effect of statins. It highlights the importance of considering drug–drug interactions when managing common chronic conditions. The situation also highlights the risks of routine prescribing practices and the consequences of insufficient patient education regarding potentially severe complications. Increasing clinicians’ awareness of such interactions and adopting a more cautious approach to medication selection may help reduce preventable harm.

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Recurrent bladder tumour turns out to be non-oncological

Mateusz Mich, Michalina Ruszkiewicz

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Introduction: Ormond's disease is a rare condition that develops due to fibrosis of the retroperitoneum. It commonly manifests with hypertension, pain in the lower back, weight loss and malaise. These non-specific symptoms may lead to misdiagnosis and mistreatment of patient.

Case report: A 63-year-old male with history of recurrent urinary bladder tumours, treated with multiple transurethral resections of bladder tumours, which had infiltrated the left ureter and caused urinary retention, was admitted to nephrology ward due to a suspected urinary tract infection. The patient presented with fever, weakness, loss of appetite, nausea and mild stomach pain. Prior to admission, he had been unsuccessfully treated with antibiotics (initially with ciprofloxacin, followed by tetracycline).

During his stay, inflammatory markers remained elevated despite ongoing therapy. Computed tomography scan showed an inflammatory infiltrate around the left kidney and stenosis of the left ureter. Histopathological examination revealed no evidence of malignancy.

Based on these findings and patient's history, corticosteroid therapy was initiated. The patient's condition improved, the ongoing symptoms resolved and he was discharged with a suspicion of Ormond's disease. He was prescribed prednisone and referred to nephrology and urology clinics for further evaluation.

At a one month follow-up, the patient reported no fever or renal pain. Performed pyelography showed stenosis of the middle section of the left ureter. At the subsequent visit, after another month, control cystoscopy showed no sign of bladder tumour recurrence.

Conclusions: Patients with Ormond's disease are rarely encountered, but can be commonly mistreated for a long time. Fast diagnosis and appropriate treatment can prevent serious complications, like chronic kidney disease, and improve the patient's quality of life.

JUVENES PRO MEDICINA
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A Warning Against Treating Lab Values - Ciprofloxacin-Induced ATIN

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Introduction: Antibiotics remain a cornerstone of modern medicine, yet their misuse contributes significantly to the selection of multi-drug resistant strains and the occurrence of severe adverse drug reactions. Fluoroquinolones, while effective, are a documented cause of drug-induced Acute Tubulointerstitial Nephritis (ATIN). In oncological patients, interpreting inflammatory markers like C-reactive protein (CRP) requires caution, as elevations are often related to malignancy rather than infection.

Case report: A 57-year-old male with metastatic prostate cancer was hospitalized for urinary retention during holidays in Egypt. At that time, lab results showed creatinine 0.91 mg/dL and CRP 11.5 mg/L. Despite the absence of symptoms of clinical infection, probably due to borderline elevation of CRP, ciprofloxacin was prescribed. 9 days later, he developed nausea, vomiting, gluteal erythema, and severe acute kidney injury, with creatinine peaking at 9–10 mg/dL. Ultrasound revealed bilateral nephromegaly and increased echogenicity. Renal biopsy confirmed ATIN. Management included four hemodialysis sessions and systemic corticosteroid therapy. Following treatment, creatinine decreased to 3.74 mg/dL and CRP stabilized. The patient was transferred to the oncology department for continued steroid therapy and management of recurrent hematuria.

Conclusions: Conclusions: This case highlights the risks of "treating the lab results" rather than the clinical picture. In patients with advanced malignancy, mild CRP elevation is frequently a non-specific marker of the underlying disease. Initiating fluoroquinolone therapy without clear clinical indications can lead to life-threatening complications, such as ATIN, which significantly complicates the primary oncological treatment and reduces the patient's quality of life. Clinicians must exercise vigilance and adhere to antibiotic stewardship to avoid preventable iatrogenic harm.

JUVENES PRO MEDICINA
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Calciphylaxis in a Dialysis Patient: When Calcium and Phosphorus Metabolism Disorders Become Life-Threatening

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Introduction: Calciphylaxis is a rare but potentially life-threatening condition characterized by calcification of small and medium-sized blood vessels in the skin and subcutaneous tissue. It occurs most commonly in patients with end-stage renal disease and is strongly associated with disturbances in calcium–phosphate metabolism and secondary hyperparathyroidism. Progressive vascular calcification leads to tissue ischemia, resulting in painful skin necrosis and a high risk of infection.

Case report: We present the case of a 66-year-old female patient with multiple comorbidities undergoing chronic haemodialysis due to atherosclerotic stenosis of the renal arteries. In November 2025, painful necrotic lesions developed on the thighs and lower legs. Laboratory investigations revealed disturbances in calcium–phosphate metabolism and elevated parathyroid hormone levels. Additional diagnostic tests were performed at the dialysis unit to exclude other potential causes of necrotic skin lesions of the lower extremities. Based on clinical findings and exclusion of alternative diagnoses, calciphylaxis was suspected and treatment was initiated. The hemodialysis regimen was intensified with the introduction of hemodiafiltration, calcium and vitamin D supplementation were discontinued, and therapy with a calcimimetic agent was introduced. Local wound care and analgesic management were also provided.

Conclusions: Following initiation of treatment, disease progression was halted and improvement in calcium–phosphate metabolism was observed. Calciphylaxis remains associated with high mortality; therefore, early recognition and prompt multidisciplinary management are essential to improve patient outcomes.

JUVENES PRO MEDICINA
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The Last Draining Kidney: Acute-on-Chronic Renal Crisis from Bilateral Staghorn Obstructive Uropathy.

Valerie Osawaru

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Introduction: Obstructive uropathy is defined as a functional or structural interruption of urinary outflow at any level of the urinary tract. It represents a potentially reversible cause of acute kidney injury (AKI); however, when superimposed on chronic kidney disease (CKD), it can precipitate rapid renal decompensation and irreversible nephron loss. Bilateral staghorn calculi are uncommon, accounting for a small proportion of all renal stones (approximately 10-20%) and are most often unilateral in presentation. In patients with limited renal reserve, particularly those with underlying structural renal abnormalities, early recognition and timely decompression are critical to prevent progression to end-stage kidney disease. This case report aims to highlight the diagnostic and therapeutic challenges in identifying the dominant functioning renal unit in a patient with advanced CKD and bilateral obstructive staghorn calculi, to guide appropriate decompression, inform nephrectomy decisions, and preserve residual renal function.

Case report: A 74-year-old male patient with exacerbated AKI who presented to the emergency room with worsening renal function consistent with acute-on-chronic kidney injury. Imaging demonstrated extensive bilateral staghorn calculi with persistent bilateral urinary tract dilatation. The right kidney was hydronephrotic with marked cortical thinning and likely significantly impaired function. The left kidney measured 115 mm with preserved cortical thickness (up to 14 mm) but demonstrated a staghorn calculus occupying the renal pelvis and lower calyx (31 × 16 mm) with associated urothelial congestion and was emergently decompressed via percutaneous nephrostomy. A 24 × 14 mm calculus was lodged at the pelvi-ureteric junction, with additional renal pelvic (20 × 10 mm) and calyceal deposits, and associated urinary stasis. Despite left-sided diversion, minimal bladder filling was observed, raising concern that the right kidney may be contributing disproportionately to residual native urinary drainage. Vascular access was escalated from an initial right internal jugular tunneled catheter to a left-sided permanent tunneled cannula to facilitate ongoing hemodialysis in the setting of persistent renal failure. The clinical scenario created uncertainty regarding the true dominant functional unit, particularly as nephrectomy and renal replacement therapy are to be considered due to chronic obstruction and structural compromise. Key details: History: Bilaterally obstructed kidneys, negative bilateral Goldflam's sign, atelectatic lung changes, creatinine (571 µmol/L). Left Kidney: Staghorn calculi filling the pelvis and partially the calyx of the lower group with dimensions of 31x16mm. Right kidney: Staghorn calculi with dimensions of 24x14mm wedged into the medullary-to-mural junction.

Conclusions: Bilateral staghorn obstructive uropathy in advanced CKD presents complex diagnostic and surgical challenges. The need to transition to permanent dialysis access further underscores the severity of renal compromise and the importance of timely intervention in obstructive uropathy. Accurate identification of the functional renal unit is essential prior to nephrectomy to prevent catastrophic renal loss. This case emphasises the critical need for precise functional assessment and individualised, multidisciplinary decision-making to guide decompression and surgical strategy, particularly when the dominant renal unit is uncertain.

JUVENES PRO MEDICINA

Neurology and Neurosurgery Case Study

8th of May 2026

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JUVENES PRO-MEDICINA
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Transforaminal endoscopic lumbar discectomy in a 43-year old patient - a Case report.

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Introduction: Low back pain is one of the leading causes of disability worldwide, significantly impairing patients' quality of life. Lumbar disc herniation frequently underlies radiculopathy, often necessitating surgical intervention. While conventional techniques such as open microdiscectomy remain effective, they are associated with greater tissue trauma, prolonged hospital stay and higher risk of complications. In recent years, minimally invasive approaches, particularly transforaminal endoscopic lumbar discectomy (TELD) have gained increasing attention due to reduced surgical trauma and faster recovery with outcomes comparable to conventional techniques. However, TELD is not universally applicable, as certain anatomical variations and complex disc herniation may limit its feasibility. Success of this approach depends on patient selection and surgeon experience.

Case report: 43-year-old male was admitted to the Department of Neurosurgery due to acute left-sided femoral radiculopathy persisting since December 2025. Imaging studies confirmed sequestered lumbar disc herniation at the L1/L2 on the left side. The patient reported moderate pain intensity (NRS=4). His medical history was significant for obesity and hypertension. On March 10th, 2026 following general endotracheal anaesthesia, the patient underwent an endoscopic transforaminal discectomy in the prone position. The surgical field was localized using fluoroscopy (L2/L3) followed by guiding needle insertion, sequential dilation and placement of the working cannula anchored at the junction of the transverse process and the superior articular process. The L1 nerve root was visualized and found to be compressed and tensioned by herniated disc fragments which were successfully removed, resulting in adequate decompression and free mobilization of neural structures. The procedure was completed with a single skin suture. The postoperative diagnosis was consistent with preoperative diagnosis. The patient tolerated the procedure well, remained in overall good condition with no neurological deficits or significant pain. Rehabilitation was initiated and the patient was discharged home in stable condition.

Conclusions: Lumbar disc herniation represents one of the most frequent indications for spinal surgery worldwide. This case supports existing evidence that transforaminal endoscopic discectomy represents effective and minimally invasive technique for the management of this medical condition. However, further research is required to establish their long-term efficacy due to steep learning curve and clinical outcomes remaining highly dependent on an appropriate patient selection.

JUVENES PRO MEDICINA
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Diagnostic Challenges in Primary Angiitis of the Central Nervous System: A Case Report Supported by Systematic Review

Alicja Witkowska

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Introduction: Primary angiitis of the central nervous system (PACNS), also referred to as isolated CNS vasculitis, is a rare and potentially life-threatening inflammatory disorder confined to the brain and spinal cord vasculature. With an estimated annual incidence of approximately 2.4 cases per 1 million person-years, PACNS remains a diagnostic challenge due to its heterogeneous clinical presentation, lack of specific biomarkers, and overlap with other neurological and systemic conditions. Early recognition is critical, as timely immunosuppressive treatment may prevent irreversible neurological damage.

Case report: A patient was admitted to the Department of Neurology for further diagnostic evaluation following multiple prior hospitalizations due to transient loss of consciousness and progressive fatigue. The patient reported several weeks of non-specific symptoms, including episodic confusion, headaches of moderate to severe intensity, and decreased exercise tolerance. No history of systemic autoimmune disease, infection, or substance abuse was identified. Neurological examination on admission was largely unremarkable, with no focal deficits. Routine laboratory investigations, including inflammatory markers, autoimmune and infectious screening, were within normal limits. Given the persistence of unexplained neurological symptoms and inconclusive non-invasive diagnostics, a brain biopsy was performed. Histopathological examination demonstrated transmural inflammatory infiltrates with lymphocytic predominance and evidence of vessel wall destruction, consistent with an arteritic process characteristic of PACNS.

Conclusions: This case highlights the complexity of diagnosing PACNS, particularly in patients presenting with non-specific neurological symptoms and inconclusive imaging findings. Brain biopsy remains the gold standard for diagnosis in ambiguous cases. To contextualise this case, a systematic review of 371 publications was performed, highlighting the marked heterogeneity of PACNS presentation and the limitations of non-invasive diagnostics. Headache, cognitive impairment, and focal deficits are most commonly reported, while MRI and CSF findings, although frequently abnormal, lack specificity. Angiographic studies may be inconclusive, particularly in small-vessel disease. Brain biopsy remains the diagnostic gold standard and is essential for excluding critical mimics such as CNS lymphoma and infectious vasculitis. This case underscores the importance of a structured diagnostic approach and early consideration of PACNS in patients with unexplained inflammatory CNS pathology. Increased awareness may reduce diagnostic delay and improve outcomes.

JUVENES PRO MEDICINA
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Very Late-Onset Niemann-Pick Type C Disease Masquerading as Progressive Supranuclear Palsy: A Diagnostic Pitfall

Antoni Bolek

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Introduction: Niemann-Pick disease type C (NPC) is a rare, autosomal recessive lysosomal storage disorder that leads to the toxic accumulation of unesterified cholesterol and lipids in cells. The adult-onset form of the disease (manifesting >15 years of age) is notoriously difficult to diagnose due to its rarity and variable, non-specific clinical picture. We present a unique case of a very late-onset NPC that closely mimicked atypical parkinsonism, creating a significant diagnostic challenge.

Case report: A male patient presented with a history of progressive neurodegenerative decline, coming under the care of our department the age of 61. At that time, he exhibited cognitive impairment (MMSE 27 points) and gait disturbances; he experienced difficulty walking a distance of 500 meters due to fatigue, accompanied by an unsteady gait characterized by stepping forward and backward. By the age of 62, the patient developed a restricted upward and downward gaze (vertical supranuclear gaze palsy), slowed horizontal saccades, and altered facial expression. Over the following years, his condition continued to deteriorate, and at the age of 67, clinical examination revealed hypomimia, ataxia of all four limbs, dysarthria, reflex myoclonus, a wide-based gait requiring assistance, and generalized bradykinesia. Initial brain MRI demonstrated cortico-subcortical atrophy and cerebellar hypoplasia. Crucially, the imaging also revealed an increased pons-to-midbrain area ratio. This specific morphological change, commonly recognized in neuroimaging as the "hummingbird sign," combined with the patient's oculomotor disturbances, served as a major diagnostic pitfall by strongly suggesting Progressive Supranuclear Palsy (PSP) in the differential diagnosis. Ultimately, Next-Generation Sequencing (NGS) resolved the diagnostic dilemma by identifying a homozygous pathogenic mutation (p.Ser954Leu) in the NPC1 gene. Following the confirmed diagnosis, the patient was qualified for targeted therapy with miglustat.

Conclusions: This case illustrates the extreme diagnostic difficulties encountered in adult-onset NPC. The clinical manifestation is predominantly psychiatric and neurodegenerative, with extrapyramidal symptoms that seamlessly mimic other conditions. The presence of the "hummingbird sign" on MRI further complicates the differential diagnosis, proving that structural midbrain atrophy is not exclusive to PSP. A highly non-specific, delayed onset of NPC demands profound clinical vigilance from physicians, especially when evaluating atypical parkinsonism. Correct and timely diagnosis is absolutely vital, as it enables the introduction of miglustat. While miglustat is not a definitive cure, it is a targeted, disease-modifying therapy capable of slowing the progression of neurological symptoms. Finally, this case highlights a significant gap in current literature; the scarcity of data regarding patients with such extremely late presentations poses an ongoing challenge for optimizing therapeutic management.

JUVENES PRO MEDICINA
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Incidentally Detected Carotid Web During Acute Ischemic Stroke Work-Up: A Case Report with a Narrative Literature Review

Barbara Rosiak, Adam Dobek, Dagmara Wilmańska , Beata Śliwińska, Jacek Rożniecki, Mariusz Stasiołek, Jarosław Chrząstek, Ludomir Stefańczyk

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Introduction: Carotid web (CaW) is an uncommon intimal variant of fibromuscular dysplasia affecting the internal carotid artery, increasingly recognized as a potential cause of ischemic stroke in young and middle-aged patients without traditional vascular risk factors. The lesion consists of a thin, shelf-like fibrointimal projection arising from the carotid bulb that disturbs local hemodynamics and promotes thrombus formation with subsequent embolization to the cerebral circulation. Despite its clinical relevance, CaW remains frequently underdiagnosed because of its subtle imaging appearance and limited awareness in routine clinical practice.

Case report: We report the case of a 40-year-old woman admitted with sudden speech disturbances and right-sided weakness. Neurological examination revealed mixed aphasia and mild right-sided hemiparesis (NIHSS 8). Computed tomography angiography demonstrated occlusion of a distal branch of the left middle cerebral artery and an abnormal lesion within the left internal carotid artery at the level of the carotid bulb, suspected to represent a carotid web. Because the therapeutic window for intravenous thrombolysis had elapsed, mechanical thrombectomy was performed, achieving complete reperfusion (mTICI 3). Follow-up imaging confirmed ischemic changes in the left frontoparietal region. Extensive diagnostic evaluation excluded other potential causes of stroke. During follow-up, persistent carotid stenosis was identified and the patient subsequently underwent carotid angioplasty with stent implantation, resulting in restoration of normal arterial lumen and cerebral blood flow. The postoperative course was uneventful, and the patient was discharged in good clinical condition.

Conclusions: This case highlights the importance of considering carotid web in the differential diagnosis of cryptogenic stroke in young patients. Early recognition using advanced vascular imaging and appropriate interventional treatment may significantly reduce the risk of recurrent cerebrovascular events.

JUVENES PRO MEDICINA
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Chiari I Decompression Without Duraplasty: A Case of Complete Functional Recovery

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Introduction: Chiari I Malformation (CIM) is a structural defect where the cerebellar tonsils displace into the spinal canal, often leading to the formation of a syrinx (syringomyelia) due to obstructed cerebrospinal fluid (CSF) flow. While the gold standard of treatment is posterior fossa decompression, there is ongoing discussion regarding the extent of the procedure. Traditionally, many surgeons perform a duraplasty (opening and expanding the dura mater) to ensure adequate space. However, this step increases the risk of postoperative complications, such as CSF leaks and chemical meningitis. This case report aims to demonstrate that a less invasive, bone-only approach can lead to an immediate and complete clinical recovery, even in cases with significant neurological deficits and a large syrinx.

Case report: A 19-year-old male presented with a 5-month history of progressive left hemiparesis (3/5 Daniels scale), severe exertional headaches, dizziness, and generalized hyperreflexia. Sensory examination revealed patchy thermoanalgesic dissociation. An MRI confirmed a CIM with 7.6 mm of tonsillar herniation and a large associated cervicothoracic syrinx extending from C2 to T2. Given the severe and progressing symptoms, surgical intervention was performed. The procedure consisted exclusively of a suboccipital craniectomy and resection of the C1 posterior arch. Critically, no duraplasty was performed, and the dura mater was not opened.

Conclusions: The patient achieved a complete (ad integrum) clinical recovery within 24 hours post-surgery. While the standard surgical approach for Chiari I malformation is well-documented to include duraplasty, this step was deliberately omitted. The pathophysiology of associated syringomyelia, though debated, consistently involves altered cerebrospinal fluid (CSF) dynamics. This case suggests that osseous decompression alone was sufficient to achieve a reconstitution of this flow, thereby resolving the neural compression and reversing the severe myelopathy. This outcome supports bone-only decompression as a powerful and potentially safer strategy in select patients, challenging the necessity of more invasive dural opening.

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Ischaemic stroke due to Borrelia-induced vasculitis

Kornelia Szydło

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Introduction: Lyme disease, caused by Borrelia burgdorferi, may lead to neuroborreliosis in approximately 20% of cases. Neurological manifestations are diverse and most commonly include radiculopathy, cranial neuritis, lymphocytic meningitis (Bannwarth syndrome), and ocular symptoms. Although vasculitis is a recognised complication, its role in ischaemic stroke is extremely rare, particularly in the paediatric population, where it represents a serious and potentially life-threatening sequela.

Case report: We report a 4-year-old boy presenting with acute ischaemic hemispheric stroke and arterial occlusion. Development prior to admission was normal. He presented to the ER with left-sided facial asymmetry and rapidly progressive hemiparesis involving both upper and lower extremities. On examination, he was conscious, logical, and responsive. A left-sided Babinski sign was present, without meningeal signs. One day prior to onset, he developed a fever, severe headache, and vomiting. Initial CT demonstrated a hypodense lesion in the right basal ganglia. MRI revealed narrowing of the right internal carotid and middle cerebral arteries, with vessel wall thickening and contrast enhancement, consistent with vasculitis-associated ischaemia. Following exclusion of autoimmune (e.g., systemic lupus erythematosus, ANCA-associated vasculitis) and prothrombotic aetiologies (e.g., thrombophilia, homocystinuria), infectious workup was performed. Serology confirmed Borrelia infection, with IgG antibodies in serum and both IgG and IgM in cerebrospinal fluid, establishing the diagnosis of vasculitis-mediated ischaemic stroke secondary to neuroborreliosis. Treatment was initiated with antiplatelet therapy and intravenous ceftriaxone, followed by corticosteroids targeting vascular and parenchymal inflammation; however, both therapies proved ineffective, with no sufficient clinical improvement and persistent vessel wall enhancement on follow-up MRI, indicating ongoing inflammation. The patient underwent rehabilitation for residual left-sided weakness. Despite persistent malacic changes, no cognitive impairment was observed.

Conclusions: Ischaemic stroke secondary to neuroborreliosis is rare, especially in children. This case shows the importance of considering infectious aetiologies, including Borrelia, in the diagnostics of paediatric stroke, even in the absence of typical preceding symptoms. This is particularly relevant in endemic areas or after possible exposure. Vasculitis-induced stroke requires prompt recognition and treatment, as delayed diagnosis may lead to permanent neurological deficits. Due to the rarity of this condition, management often relies on off-label therapeutic strategies, highlighting the need for further research and standardised guidelines.

JUVENES PRO MEDICINA
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Approach to a Giant Anterior Cranial Fossa Meningioma in a 24-year-old patient – a case report

Maja Mejza, Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

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Introduction: Meningiomas are considered the most common intracranial benign tumors, however atypical meningiomas (WHO grade II) can grow rapidly and present as moderately aggressive. Meningiomas with a diameter exceeding 5 cm are commonly referred to as “giant”. Their symptoms can range from focal neurological deficits to those of mass effect and elevated intracranial pressure. Current standard of care – gross total resection remains challenging in giant meningiomas due to their size and common proximity to critical structures. Moreover, these tumors are known to recur following resection.

Case report: A 24-year-old female was admitted to the Department of Neurosurgery for the continuation of treatment after partial tumor resection in 2023. On admission, she complained of headaches and reduced ability to smell that persisted for 3 months. The surgery was performed with the patient in a supine position using a Mayfield head clamp and neuronavigation. Following a bicoronal incision, an extended bifrontal craniectomy was conducted. A beige-grey tumor with attachments was successfully resected. The postoperative pathological examination confirmed a giant atypical meningioma. In the postoperative period, due to the signs of diabetes insipidus, the patient was placed on a desmopressin therapy. She was discharged with the instructions to continue the recovery process in the Department of Neurological Rehabilitation.

Conclusions: The treatment of giant meningiomas is complex due to their aggressive nature and high rate of recurrence. This case report highlights the need for an individualized and continuous approach for the successful neurosurgical management of these tumors.

JUVENES PRO MEDICINA
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A triple autoimmune threat: Stiff Person Syndrome emerging in a patient with Hashimoto's and vitiligo.

Patryk Cieloch, Robert Rawicki

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Introduction: Stiff Person Syndrome (SPS) is an exceptionally rare neurological disorder characterized by progressive muscle stiffness and painful paroxysmal spasms triggered by unexpected stimuli, such as loud noises or emotional stress. Pathophysiologically, SPS is linked to the autoimmune impairment of GABAergic neurotransmission, most frequently associated with antibodies against glutamic acid decarboxylase (GAD65). Notably, SPS is often accompanied by other autoimmune conditions, forming a distinct clinical phenotype of polyautoimmunity.

Case report: A 65-year-old female presented with a four-year history of paroxysmal "stiffness attacks" that resulted in recurrent falls and multiple fractures. The episodes were triggered by a heightened startle response to sudden sounds (e.g., sirens, barking dogs) and physical touch. The patient's medical history was significant for Hashimoto's thyroiditis and vitiligo, both diagnosed at age 27. Neurological examination revealed hyperreflexia, a broad-based gait, lumbar hyperlordosis, and the "clasp-knife" sign in the lower limbs. Early diagnostics were inconclusive, with brain MRI showing only non-specific vascular changes. A diagnostic breakthrough occurred in 2024 when laboratory testing revealed extremely high serum anti-GAD antibody titers (>2000 IU/mL; reference range <10 IU/mL). Following the diagnosis, treatment with prednisone and tizanidine was initiated, leading to significant clinical stabilization and a reduction in the frequency of falls.

Conclusions: This case illustrates the significant diagnostic delay—averaging several years—often encountered in SPS patients due to the rarity of the syndrome and its mimicry of psychiatric or non-specific age-related disorders. The presence of a "triple autoimmune threat" in this patient underscores the importance of clinical vigilance for rare neuro-autoimmune conditions in individuals with established polyautoimmunity. Ultra-high GADA titers (>2000 IU/mL) serve as a highly specific biomarker for the classical form of SPS. Early recognition is vital to prevent debilitating complications and to improve the patient's quality of life through targeted GABAergic and immunomodulatory therapies.

JUVENES PRO MEDICINA

Dermatology Case Study

8th of May 2026

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JUVENES PRO-MEDICINA
06-09/05/2026 Łódź, Poland

Treating Netherton syndrome with dupilumab: between clinical improvement and adverse effects

Agnieszka Rodak

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Work supervisor: prof. Aleksandra Lesiak MD, PhD [2, 3], Natalia Bień MD, prof. Joanna Narbutt MD,PhD [2]

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Introduction: Netherton syndrome (SPINK5-sEDD) is a rare autosomal recessive genetic disorder caused by mutations in the SPINK5 gene. It is currently classified as a syndromic epidermal differentiation disorder associated with impaired skin barrier function. The condition is characterized by erythroderma progressing to ichthyosis, atopy, and bamboo hair (trichorrhexis invaginata). Treatment is mainly symptomatic and includes topical corticosteroids, emollients, and systemic immunomodulatory therapies. New approaches, including ex vivo gene therapy targeting SPINK5, are currently under investigation.

Case report: We present the case of a female patient who, from the first months of life, developed pruritic erythematous-exfoliative and erythematous-papular lesions affecting the trunk, face, and limbs, along with characteristic hair abnormalities. Histopathological examination showed features consistent with a keratinization disorder. Next-generation sequencing revealed a pathogenic variant in the SPINK5 gene, confirming the diagnosis of Netherton syndrome.

At the age of 5, the patient was admitted to a dermatology department for treatment optimization. Physical examination revealed widespread pruritic erythematous-exfoliative lesions, particularly in flexural areas. Previous treatment with topical corticosteroids resulted in limited improvement. The patient was qualified for systemic therapy and started on dupilumab (300 mg subcutaneously every 4 weeks), with continued topical treatment.After two months, a reduction in pruritic lesions was observed. However, new small psoriasis-like lesions appeared on the arms, buttocks, and lower abdomen, and candidiasis of the vaginal vestibule was suspected. Treatment was continued and acitretin was added. Topical antifungal and corticosteroid therapy was introduced, including isoconazole with diflucortolone and mometasone ointment for skin lesions. At follow-up, partial improvement of these lesions was noted, but new psoriasiform eruptions developed, mainly on the trunk. Vaginal erosion persisted. Due to the presence of blood in the stool, the dose of acitretin was reduced. Oral fluconazole was introduced. Additional supportive treatment included cholesterol-based emollients, topical corticosteroids, and intravaginal hyaluronic acid. This combined approach resulted in significant clinical improvement, including reduction of pruritus, skin lesions, vaginal erosion, and gastrointestinal symptoms.

Conclusions: This case highlights the complexity of systemic treatment in Netherton syndrome. Although dupilumab may improve symptoms, it can be associated with adverse effects and paradoxical skin reactions. Careful monitoring and an individualized therapeutic approach are essential to achieve optimal outcomes.

JUVENES PRO MEDICINA
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When ectodermal dysplasia is not the answer: a diagnostic pitfall in pediatric hair disorders.

Aleksandra Prusak, Maria Rajczak

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Introduction: Hair abnormalities in infancy often raise concern for ectodermal dysplasia; however, similar clinical features may also occur in rare, isolated conditions such as uncombable hair syndrome (UHS). UHS is a benign hair shaft disorder presenting in early childhood with dry, frizzy, and difficult-to-manage hair, without systemic involvement. Distinguishing between these entities can be challenging based on clinical features alone.

Case report: A 1-year-old girl was referred due to abnormal hair texture noted since early infancy. Her hair was dry, frizzy, and resistant to combing, involving the entire scalp and extending to the posterior neck and upper back. Despite the striking phenotype, no other ectodermal abnormalities were observed.Given the clinical suspicion of an ectodermal disorder, genetic testing was initiated. Initial targeted testing did not yield a diagnosis, raising further uncertainty. Whole exome sequencing (WES) subsequently identified a homozygous c.881C>T (p.Ala294Val) variant in the PADI3 gene, confirmed by Sanger sequencing and classified as likely pathogenic. No copy number variations were detected. These findings established the diagnosis of uncombable hair syndrome.

Conclusions: This case highlights how a visually striking but isolated hair phenotype can mimic more complex genetic disorders such as ectodermal dysplasia, potentially leading to overdiagnosis and unnecessary concern. It also underlines the diagnostic value of comprehensive genetic testing when clinical presentation is ambiguous. Recognizing UHS is important, as it allows for reassurance regarding its benign course and avoids extensive and potentially invasive investigations.

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CARD14-associated papulosquamous eruption: a great mimicker of psoriasis and pityriasis rubra pilaris

Alicja Kwaśny

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Introduction: CARD14-associated papulosquamous eruption (CAPE) is a rare autoinflammatory disorder caused by gain-of-function mutations in the CARD14 gene. It is characterized by dysregulated keratinization and overlapping clinical and histopathological features of psoriasis and pityriasis rubra pilaris (PRP), which often makes diagnosis challenging.

Case report: A 16-year-old female was admitted in 2025 for evaluation of widespread erythematous papular lesions with superficial scaling involving most of the body surface, along with psoriasiform plaques on the lower limbs. The first lesions appeared at the age of 7 and resolved with topical treatment. Five years before admission, a flare occurred following an infection, with gradual progression of skin involvement. Previous treatments for psoriasis, including acitretin (discontinued due to severe palmoplantar exfoliation) and NB-UVB phototherapy (which worsened the condition), were ineffective. Family history was positive for PRP in the patient's mother. Histopathological findings were inconclusive, suggesting psoriasis or PRP.Re-evaluation of previous biopsies and additional samples raised suspicion of CAPE. Genetic testing using whole exome sequencing confirmed a pathogenic CARD14 mutation, establishing the diagnosis. Treatment with ustekinumab led to significant clinical improvement.

Conclusions: CAPE is a rare and diagnostically challenging disorder due to its overlap with psoriasis and PRP. Diagnosis often requires both histopathological and genetic evaluation. Although no standardized treatment guidelines exist, targeted biologic therapies, particularly IL-12/23 and IL-17 inhibitors, may provide effective disease control.

JUVENES PRO MEDICINA
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Severe Exacerbation of Pyoderma Gangrenosum in a Patient with PASH Syndrome: Case Report

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Introduction: Pyoderma gangrenosum is a rare, non-infectious dermatosis characterized by progressive, ulcerative skin lesions and neutrophilic infiltration. It is frequently associated with systemic inflammatory conditions such as inflammatory bowel disease (IBD) and rare syndromes - PASH. The course of this disease is often relapsing and may depend on changes in immunosuppressive therapy. This case demonstrates a severe exacerbation of pyoderma gangrenosum triggered by discontinuation of systemic treatment in a patient with PASH syndrome. It raises awareness of potential risks of therapy withdrawal, while additionally emphasizing the importance of proper long-term disease management.

Case report: A 32-year-old male with a history of pyoderma gangrenosum and previously diagnosed PASH syndrome was admitted due to another episode of exacerbation of skin lesions. The current flare-up has been present for approximately 1-2 weeks and was most likely associated with the discontinuation of immunosuppressive therapy. The cessation was due to a gastrointestinal infection. Dermatological examination revealed multiple ulcerative lesions with hemorrhagic and purulent exudate located on the lower extremities. The presence of inflammatory nodular and acneiform lesions on the trunk, neck, and upper extremities was reported. Features of hidradenitis suppurativa (HS) were also present, including a perianal fistula. Laboratory findings showed a significant systemic inflammatory state. The patient was treated with systemic glucocorticosteroid (GCS) pulses followed by oral GCS and cyclosporine. This resulted in significant clinical improvement without further disease progression.

Conclusions: Pyoderma gangrenosum should be considered a chronic, relapsing inflammatory condition in which disease activity is influenced by changes in immunosuppressive therapy. This case highlights the potential risk of severe exacerbation following treatment cessation, particularly in patients with underlying systemic conditions such as PASH syndrome. At the same time, this report highlights that the timely reintroduction of proper therapy is the key to effective disease control. Careful long-term management and individualized treatment strategies are essential in preventing further relapses.

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Melanoma or a benign ulcerative lesion? - the importance of histopathology

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Introduction: Melanoma, also referred to as malignant melanoma, is the most aggressive form of skin cancer. Advanced disease is associated with a poor prognosis. A high degree of clinical suspicion should be maintained, particularly in patients with chronic, non-healing ulcerative lesions. Definitive diagnosis requires histopathological examination.

Case report: A 59-year-old man with ichthyosis vulgaris presented with a two-year history of a 5 × 7 cm erythematous, non-healing ulcerative lesion on his right lower leg. The lesion was painless, with occasional bleeding, and had previously been evaluated by surgeons, with no significant findings observed on ultrasound. Dermoscopy of the lesion revealed a predominantly erythematous background with atypical vascular structures. A diagnostic biopsy for histopathological assessment demonstrated features consistent with invasive melanoma with ulceration, classified as pT3b (Breslow thickness 2.2 mm). Sentinel lymph node biopsy showed no evidence of metastasis. The patient subsequently underwent wide local excision of the primary tumor with appropriate surgical margins.

Conclusions: Cutaneous malignancies can mimic benign inflammatory lesions. For long-standing lesions with nonspecific clinical and dermoscopic findings, histopathological examination is essential for accurate diagnosis, guiding management, and determining prognosis.

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Pembrolizumab-Induced Bullous Pemphigoid in a Patient with Advanced Lung Cancer: A Case Report

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Introduction: Bullous pemphigoid is an autoimmune blistering disease that can be triggered by medications, including immune checkpoint inhibitors such as pembrolizumab. Drug-induced pemphigoid represents a diagnostic and therapeutic challenge, particularly in oncologic patients where immunosuppressive therapy may be limited.

Case report: We present a 75-year-old male with a history of stage IV lung adenocarcinoma treated with pembrolizumab since 2020, who was admitted with a 2-week history of progressive blistering skin lesions and a 1-month history of severe pruritus. Clinical examination revealed erythematous-edematous lesions, erosions, and tense blisters involving the skin as well as mucous membranes of the oral cavity and genital area. The patient reported intense pruritus (10/10 NRS), significantly impairing sleep. Indirect immunofluorescence confirmed the presence of antibodies against the basement membrane zone, and serological testing demonstrated elevated BP180 antibodies, confirming the diagnosis of bullous pemphigoid. The clinical presentation, along with the patient's oncological history and ongoing pembrolizumab therapy, supported the diagnosis of drug-induced bullous pemphigoid.

Conclusions: Immune checkpoint inhibitors such as pembrolizumab are increasingly recognized as triggers of autoimmune dermatologic conditions, including bullous pemphigoid. Management of such cases is challenging due to the need to balance cancer therapy with control of autoimmune disease, often limiting the use of systemic immunosuppressants. Early recognition of drug-induced pemphigoid is essential for appropriate management and may require modification of oncologic treatment. This case highlights the importance of considering immunotherapy-related adverse events in patients presenting with new-onset blistering diseases.

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More than a rash: Sweet syndrome as a warning sign of systemic disease in a multimorbid patient

Krystian Kwaśniewski

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Introduction: Sweet syndrome (acute febrile neutrophilic dermatosis) is an uncommon inflammatory condition that may act as a cutaneous warning sign of systemic disease. Although classically defined by neutrophilic dermal infiltration without vasculitis, atypical histopathological features can obscure the diagnosis and delay appropriate management.

Case report: A 65-year-old woman was admitted for exacerbation of congestive heart failure and bronchial asthma. During hospitalization, she developed rapidly evolving, painful erythematous plaques on the hands, with central vesiculation and pustule formation. The eruption coincided with acute kidney injury and a marked inflammatory response (elevated CRP, leukocytosis, neutrophilia), raising concern for a systemic process. Given the clinical picture, a broad differential diagnosis was considered, including disseminated herpes zoster, erythema multiforme, autoimmune bullous disease, and leukemic skin infiltration. Histopathology revealed dense neutrophilic infiltration of the dermis with involvement of small vessels, accompanied by edema, fibrinoid changes, and leukocytoclasia. Although suggestive of vasculitis, these findings were ultimately interpreted as secondary vascular damage in the setting of intense neutrophilic inflammation. Superficial ulceration further supported the severity of the process. The patient met both major and multiple minor diagnostic criteria for Sweet syndrome, including a recent upper respiratory infection and a rapid response to systemic corticosteroids. A diagnosis of bullous Sweet syndrome was established, prompting targeted evaluation for an underlying systemic condition.

Conclusions: This case underscores how the skin may serve as an early and sometimes misleading signal of systemic disease. Atypical histopathological features, particularly secondary vasculitic changes, can mask the diagnosis and broaden the differential. Recognizing these nuances is critical not only for accurate diagnosis but also for timely identification of potentially serious underlying conditions. In such cases, the dermatologist plays a key role in bridging cutaneous findings with systemic disease.

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Infection-triggered erythema annulare centrifugum as a manifestation of immune dysregulation in a pediatric liver transplant recipient

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Introduction: Erythema annulare centrifugum (EAC) is a rare dermatosis characterized by annular, centrifugally expanding erythematous lesions with central clearing. Although most cases are idiopathic, EAC may occur secondary to infections, autoimmune conditions, or medications. In immunocompromised patients, it may reflect underlying immune dysregulation rather than a primary dermatologic disorder.

Case report: A 10-year-old girl was admitted for evaluation of recurrent annular, erythematous, infiltrated lesions involving the upper and lower extremities. At the age of 6 months, she underwent liver transplantation due to biliary atresia and has since been maintained on tacrolimus. Notably, all episodes were preceded by infectious symptoms and demonstrated a self-limiting course. The most recent relapse occurred in March 2026, again in temporal association with an infection. Histopathological examination revealed mild acanthosis with focal parakeratosis and dermal edema. A perivascular lymphocytic infiltrate with numerous eosinophils was present, without evidence of vasculitis or granuloma formation (CD68-negative). Periodic acid–Schiff (PAS) and Grocott staining were negative for fungal elements. Laboratory investigations showed elevated transaminases, eosinophilia ($1.65 \times 10^3/\mu L$), and a positive antinuclear antibody (ANA) titer of 1:80. Serology was positive for IgG antibodies against Epstein–Barr virus (EBV), Parvovirus B19, and cytomegalovirus (CMV). Extended immunological testing (Western blot) revealed multiple autoantibodies, including AMA-M2, centromere B, OJ, Jo-1, and Mi-2α. Antineutrophil cytoplasmic antibodies (ANCA), direct immunofluorescence (DIF), and indirect immunofluorescence (IIF) studies were negative. Initial treatment included systemic and topical corticosteroids and emollients, followed by proactive therapy with pimecrolimus, resulting in satisfactory disease control.

Conclusions: This case illustrates recurrent, infection-triggered EAC as a manifestation of immune dysregulation in a pediatric transplant recipient. The consistent temporal relationship with infections and spontaneous resolution of lesions support a reactive etiology. The presence of multiple autoantibodies further suggests underlying immune imbalance in the context of long-term immunosuppression. In such patients, comprehensive immunological evaluation is essential. Topical calcineurin inhibitors may represent an effective and safe long-term therapeutic option. Although rare, EAC should be considered in the differential diagnosis of annular dermatoses, particularly in immunocompromised or clinically complex patients.

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Botulinum toxin type A as a rescue therapy for refractory Chilblain Lupus Erythematosus – a case report

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Introduction: Chilblain Lupus Erythematosus (CHLE) is a rare, chronic form of cutaneous lupus erythematosus triggered by cold and damp conditions. While CHLE occurs in both sporadic and inherited forms, sporadic cases are more prevalent and typically affect middle-aged women. The disease is characterized by pruritic and sometimes painful erythematous-violet papules and plaques located on the acral regions – fingers and toes, rarely ears or nose. CHLE may present as an isolated condition or in association with systemic lupus erythematosus (SLE). Management typically involves thermal protection, antimalarials, and systemic immunosuppressants.

Case report: A 43-year old female presented with a three-year history of worsening erythematous-edematous lesions on the fingertips and toes. The patient's clinical course was characterized by a prolonged diagnostic process and initial misinterpretation of the symptoms, which led to multiple unsuccessful treatments. Following specialist consultation, laboratory findings and biopsy confirmed CHLE. Standard treatments including hydroxychloroquine and low-dose corticosteroids, failed to control seasonal flares. An attempt to escalate the therapy with Mycophenolate Mofetil (2g/day) resulted in leukopenia and therefore had to be discontinued. Due to the lack of viable systemic options and refractory nature of the lesions, BTX-A was injected intradermally into the affected digits and metatarsal areas. The patient reported rapid symptomatic relief with a marked reduction of edema and pruritus, subsequently allowing secondary lesions to heal.

Conclusions: Unfortunately CHLE often remains resistant to treatment. This unique case demonstrates that BTX-A is a safe and effective alternative for treating CHLE, particularly when systemic therapy results in severe adverse effects or remains unsuccessful. By improving microvascular tone and reducing neurogenic inflammation, BTX-A directly targets the main symptoms of the disease. While further investigation is required, this approach represents a promising bridge therapy in refractory cutaneous lupus erythematosus.

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One disease, two genetic clues: Do KRT5 and TGM5 variants shape the phenotype of epidermolysis bullosa?

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Introduction: Inherited blistering dermatoses constitute a heterogeneous group of disorders characterized by increased skin fragility and the formation of blisters and erosions following minor mechanical trauma. Advances in molecular diagnostics have enabled the identification of pathogenic genetic variants responsible for impaired epidermal integrity. Genetic testing plays an important role in establishing the correct diagnosis, differentiating between various blistering disorders and assessing the potential hereditary nature of the disease.

Case report: A 46-year-old male patient was admitted to the dermatology department for optimization of his treatment regimen. The initial symptoms appeared at approximately four years of age and were characterized by recurrent blister formation on the feet following minor mechanical trauma. Clinical presentation, family history, and genetic testing results were comprehensively evaluated. Family history revealed similar symptoms in the patient's daughter, suggesting a hereditary background. Genetic analysis identified a heterozygous c.556-16C>G variant in the KRT5 gene and a heterozygous p.Gly113Cys variant in the TGM5 gene.Dermatological examination demonstrated erythematous and erosive lesions predominantly affecting the feet. During hospitalization, topical management was optimized, including the use of advanced wound dressings and targeted dermatological preparations. The patient showed a favorable clinical response and was discharged in good general condition, with recommendations for continued outpatient dermatological follow-up.

Conclusions: Genetic diagnostics is crucial for accurate diagnosis and classification of inherited blistering dermatoses. Integrating clinical and molecular data enables better disease characterization and supports appropriate management, ultimately improving patient quality of life.

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When the rash repeats itself: recurrent symmetrical drug-related intertriginous and flexural exanthema (SDRIFE) in a 16-year-old female.

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Introduction: Symmetrical drug-related intertriginous and flexural exanthema (SDRIFE), historically referred to as “baboon syndrome”, is a rare systemic drug-induced eruption. It typically presents as well-demarcated erythema of the gluteal and intertriginous areas following systemic exposure to a trigger. Although described across all age groups, SDRIFE is uncommon in pediatric patients. Its pathogenesis is associated with a type IV hypersensitivity reaction; however, identification of the causative factor may be challenging, particularly in recurrent cases.

Case report: A 16-year-old female presented with recurrent episodes of erythematous-edematous lesions associated with pruritus, burning, and episodic arthralgia. Symptoms began in 2019 and recurred every 6–12 months, often following upper respiratory tract infections. Each episode lasted 5–6 days and resolved with characteristic sheet-like desquamation. Laboratory findings showed mildly elevated ANA (1:160, speckled) with borderline anti-dsDNA; other parameters were within normal limits. Histopathology from a buttock lesion revealed acanthosis with perivascular lymphocytic infiltrates, plasma cells, and eosinophils, confirming SDRIFE. Additional testing detected IgM antibodies against enteroviruses and Yersinia spp., and antibiotic therapy was introduced. High-dose antihistamines led to clinical improvement.

Conclusions: This case highlights a recurrent, non-classical presentation of SDRIFE in an adolescent patient. While typically drug-induced, the temporal association with infections suggests a broader spectrum of triggers. The recurring pattern and post-inflammatory desquamation were key diagnostic clues. Histopathology remains essential in unclear cases. Increased awareness of SDRIFE may help avoid misdiagnosis and unnecessary treatment.

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Cutaneous Clues to Hereditary Leiomyomatosis and Renal Cell Carcinoma (HLRCC): A Case Report

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Introduction: Hereditary leiomyomatosis and renal cell carcinoma (HLRCC) is a rare autosomal dominant syndrome caused by FH mutations, associated with cutaneous leiomyomas, uterine fibroids, and aggressive renal cancer. Skin lesions may be the first diagnostic clue.

Case report: A 62-year-old man presented with multiple long-standing nodular skin lesions, increasing in number and associated with pain triggered by cold and pressure. Previous dermatological treatments were ineffective, with frequent recurrences. Examination revealed numerous firm, dome-shaped, skin-colored to reddish-brown nodules (up to 1 cm) on the trunk and extremities, consistent with cutaneous leiomyomas. Family history included early hysterectomies due to uterine fibroids in first-degree relatives and kidney cancer in a paternal uncle. Genetic testing identified a pathogenic FH variant, confirming HLRCC. The patient was enrolled in renal surveillance, and cascade testing was recommended.

Conclusions: Multiple painful cutaneous leiomyomas should raise suspicion for HLRCC. Early recognition enables timely cancer surveillance and identification of at-risk relatives.

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Hailey - Hailey Disease Treated with Photodynamic Therapy: A Case Report

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Introduction: Hailey–Hailey disease (familial benign chronic pemphigus) is a rare autosomal dominant genodermatosis characterized by recurrent erosive lesions in intertriginous areas. Due to its chronic relapsing course and lack of standardized treatment guidelines, management remains challenging and often requires individualized therapeutic approaches.

Case report: We present a 72-year-old female with a long-standing history of Hailey–Hailey disease involving primarily the axillary and lumbosacral regions. The patient experienced recurrent exacerbations requiring multiple hospitalizations and various topical and systemic therapies with limited and temporary improvement. Notably, the patient had a history of breast cancer treated with surgery and radiotherapy, after which lesions also appeared in the irradiated area. Given the refractory nature of the disease, photodynamic therapy (PDT) with 5-aminolevulinic acid was introduced. Treatment was applied to affected regions, particularly the axilla and lumbosacral area. The procedure was well tolerated despite transient burning sensations. Significant clinical improvement was observed, including reduction in erythema, erosions, and patient-reported symptoms, with sustained benefit over follow-up.

Conclusions: Hailey–Hailey disease remains a therapeutic challenge due to the absence of clear management guidelines and frequent recurrences. This case highlights photodynamic therapy as a promising and effective treatment option, particularly in localized, treatment-resistant disease. The favorable response observed in intertriginous areas such as the axilla and lumbosacral region suggests PDT may represent a valuable addition to the therapeutic arsenal. Further studies are needed to establish standardized protocols and long-term outcomes.

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Localized Bullous Pemphigoid of the Neck: A Case Report

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Introduction: Bullous pemphigoid (BP) is an autoimmune subepidermal blistering disorder typically presenting in a generalized form. However, localized BP is a rare variant often associated with triggering factors such as trauma, surgery, radiotherapy, or chronic irritation, which may expose basement membrane zone antigens.

Case report: We present a 76-year-old female with a 2-month history of localized blistering lesions on the left side of the neck. The lesions appeared following repeated mechanical irritation from a necklace. Clinical examination revealed tense blisters, erosions, and crusted plaques confined to the affected area. No generalized involvement was noted. Serological testing for BP180 and BP230 antibodies was negative. Direct immunofluorescence of a skin biopsy demonstrated linear deposition of IgG and complement (C3) along the basement membrane zone, confirming the diagnosis of localized bullous pemphigoid. The patient was treated with high-potency topical corticosteroids, resulting in clinical improvement and remission.

Conclusions: Localized BP is an uncommon presentation that may be triggered by local skin damage, leading to exposure of BP autoantigens (BP180 and BP230) and subsequent autoimmune response. Negative circulating antibodies do not exclude the diagnosis, making direct immunofluorescence essential. Recognition of localized BP is important to avoid misdiagnosis and ensure appropriate management. This case highlights the role of mechanical trauma as a potential trigger and emphasizes the need for awareness of atypical presentations of BP.

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Superficial Atypical Melanocytic Proliferation of Uncertain Significance (SAMPUS): A Diagnostic Challenge Mimicking Melanoma

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Introduction: SAMPUS represents a group of melanocytic lesions with uncertain malignant potential, often posing a diagnostic challenge and frequently managed similarly to melanoma. Such lesions require careful clinical and histopathological correlation.

Case report: We present a male patient with a history of extensive sun exposure who developed a suspicious lesion on the right forearm. The lesion exhibited dermoscopic features suggestive of melanoma, including asymmetry, irregular pigment network, and blue-gray coloration with erythematous areas. The lesion had been present for an unknown duration and was initially recommended for excision one year prior to presentation. Surgical excision was performed in April 2023, followed by referral for wider excision by an oncologic surgeon. Histopathological examination revealed superficial atypical melanocytic proliferation of uncertain significance (SAMPUS). No sentinel lymph node biopsy was performed. The patient remains under regular dermatological follow-up with no evidence of recurrence.

Conclusions: SAMPUS lesions present a significant diagnostic and management challenge, as they share clinical and histopathological features with melanoma. In cases of diagnostic uncertainty, management often follows melanoma treatment protocols, including surgical excision and oncologic evaluation. This case highlights the importance of recognizing atypical melanocytic lesions and ensuring appropriate follow-up due to their uncertain biological behavior.

JUVENES PRO MEDICINA

Gynecology and Obstetrics Case Study

8th of May 2026

Coordinators:

Ludwika Mucha

Cloé Lepoivre

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JUVENES PRO MEDICINA
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Diagnostic challenges in disorders of sex development: distinguishing ovotesticular DSD from Swyer syndrome

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Introduction: Disorders of sex development (DSD) represent a heterogeneous group of congenital conditions involving discordance between chromosomal, gonadal and phenotypic sex. In phenotypic females presenting with a 46,XY karyotype and primary amenorrhea, complete gonadal dysgenesis (Swyer syndrome) is commonly considered as the initial diagnosis. However, clinical and laboratory findings may be inconclusive. In such cases, differentiation from ovotesticular DSD might be challenging and often requires histopathological verification.

Case report: 17-year-old phenotypic female was admitted to the Department of Gynecological Endocrinology due to primary amenorrhoea and delayed pubertal development. Patient presented with obesity and exhibited underdevelopment of tertiary sex characteristics, and as such was classified as Tanner stage I. The external genitalia were phenotypically female. Further findings in transabdominal ultrasonography revealed an undersized uterus (38 x 13 mm) and small gonads with minimal asymmetry (the left slightly larger). Hormonal evaluation demonstrated hypergonadotropic hypogonadism and low anti-Müllerian hormone (AMH) levels. Further metabolic assessment revealed insulin resistance and showed impairment in fasting blood glucose levels test. Karyotype analysis demonstrated 46,XY without mosaicism, while testing for SRY gene came back negative. Based on the clinical, genetic and endocrine findings, Swyer syndrome was initially suspected. Due to the presence of Y-chromosome material and the associated risk of gonadal malignancy, bilateral laparoscopic gonadectomy was performed. Histopathological examination unexpectedly revealed the coexistence of ovarian and testicular tissue, establishing the final diagnosis of ovotesticular DSD.

Conclusions: This case highlights the diagnostic challenges in 46,XY DSD. Low AMH levels, uterine presence and hypergonadotropic hypogonadism may strongly suggest complete gonadal dysgenesis. However, ovotesticular DSD may present with overlapping clinical and laboratory features. Ovotesticular DSD should remain in the differential diagnosis of phenotypic females with 46,XY karyotype and primary amenorrhea, even when initial findings are consistent with Swyer syndrome. Definitive diagnosis may only be possible following surgical and histological assessment.

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A diagnostic labyrinth – CD5-positive diffuse large B-cell lymphoma of the uterine cervix mimicking aggressive mesenchymal tumor.

Amelia Bień, Maksymilian Skwirut, Tomasz Łatkiewicz

Presenting author: Amelia Bień

Work supervisor: Professor Rafał Tarkowski MD, PhD, DSc and Krzysztof Kułak MD, PhD

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Introduction: Primary cervical lymphomas (PCL) are rare, representing 0.5% of extranodal non-Hodgkin lymphomas. Diffuse large B-cell lymphoma (DLBCL) is the most frequent subtype, comprising approximately 80% of cases. The CD5-positive variant is highly aggressive, associated with a higher risk of central nervous system (CNS) involvement and inferior survival compared to CD5-negative cases. Due to their stromal origin, routine cytology is often an insensitive diagnostic tool.

Case report: A 51-year-old female presented with spotting 14 months post-menopause and lower abdominal pain. Initial gynecological examination revealed a cervical mass, which showed significant growth during a follow-up evaluation only two weeks later. A biopsy of the lesion was performed, suggesting a benign mesenchymal tumor (Aggressive Angiomyxoma) with a Ki67 index of 8%. MRI showed a 10x6.5x8 cm tumor infiltrating the vagina and parametria (FIGO IIIB/IVA). The patient underwent modified radical hysterectomy with bilateral salpingo-oophorectomy and a vaginal cuff. Final histopathology revealed CD5+ DLBCL-NOS, anaplastic morphology, GCB type according to the Hans algorithm (CD10−, MUM1−, BCL6+). The Ki67 index reached 80% in the surgical specimen. IHC profiling confirmed: CD45(+), CD20(+), PAX5(+), CD30(+), CD5(+), and BCL6(+). A PET-CT scan performed 2 months post-surgery demonstrated a complete metabolic response. After multidisciplinary evaluation, the patient remains under close surveillance without systemic therapy at the time of reporting.

Conclusions: Cervical DLBCL can clinically and histologically mimic mesenchymal tumors, leading to radical surgery instead of primary immunochemotherapy. The Ki67 discrepancy (8% vs. 80%) highlights the risk of sampling error in stromal masses. The GCB profile in this CD5-positive DLBCL is unusual, as most CD5+ cases exhibit a non-GCB profile. CD30 expression, found in 10-14% of DLBCL, should not be misinterpreted as anaplastic large cell lymphoma. Recognition of CD5+ DLBCL is vital due to CNS relapse risk, warranting consideration of methotrexate-based prophylaxis. Deep punch biopsies and comprehensive IHC panels (including CD20, CD5, BCL6, and CD30) are essential for cervical masses not fitting the typical carcinoma profile.

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Idiopathic premature constriction of the ductus arteriosus - case report and implications for screening

Anna Skiba

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Introduction: Premature constriction or closure of the fetal ductus arteriosus (DA) is a rare but potentially life-threatening condition leading to right ventricular pressure overload, tricuspid regurgitation and intrauterine circulatory failure. While maternal exposure to non-steroidal anti-inflammatory drugs (NSAIDs) is the primary etiological factor, this study presents a case of fetal restrictive DA flow where maternal pharmacological and dietary causes were rigorously excluded.

Case report: A 29-year-old patient in her second pregnancy at 29 weeks of gestation was admitted to the Institute with suspected premature fetal DA constriction. A detailed history regarding NSAID use and consumption of polyphenol-rich foods was negative. Fetal echocardiography revealed abnormal, accelerated flow in the ductus arteriosus and holosystolic tricuspid regurgitation, indicating right ventricular overload. Strict cardio-obstetric monitoring and prenatal corticosteroid therapy with betamethasone were initiated. At 31+3 weeks of gestation, due to progressing signs of circulatory failure, the pregnancy was terminated via cesarean section. A female neonate (1840g) was delivered in fair condition with Apgar score of 6/6/7/7. Postnatal echocardiography confirmed right ventricular hypertrophy and pulmonary hypertension secondary to intrauterine pathology. The infant required mechanical ventilation and circulatory support with dobutamine. The patient was discharged in good general condition on the 47th day of life with a referral to the Cardiology Outpatient Clinic.

Conclusions: Echocardiographic monitoring is critical for determining the optimal timing of delivery, balancing the risks of severe prematurity against irreversible fetal cardiac decompensation. Although detailed fetal echocardiography is not currently a universal routine screening tool, severe cases occurring without any identifiable risk factors highlight the need to reconsider broader screening approaches. These findings support the inclusion of DA flow assessment in routine third-trimester fetal echocardiography, regardless of maternal history. Further research is necessary to establish currently unknown causes of this pathology.

JUVENES PRO MEDICINA
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Life Threatening Postpartum Hemorrhage in a Patient Declining Blood Transfusion: A Case Report

Hannah Drea, Rose Kelly, Ekaterine Abashidze

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Work supervisor: dr n. med. Katarzyna Wojda; prof. Ph.D. n. med. Piotr Sieroszewski

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Introduction: Postpartum hemorrhage (PPH) is a leading cause of maternal morbidity and mortality worldwide, often requiring blood transfusion. It is defined as blood loss exceeding 500 mL after vaginal delivery or 1,000 mL after cesarean section. Management becomes particularly challenging in patients who refuse blood transfusions, such as Jehovah's Witnesses. This case demonstrates the complexity of PPH management in such a patient and the need for a successful multidisciplinary approach while respecting the patient's religious beliefs.

Case report: A 21-year-old primigravida at 38.5 weeks of gestation presented in active labor. There was no progression in the second stage of labor, and an emergency cesarean section was performed. The neonate weighed 3,700g with an Apgar score of 10/10. After the cesarean section, she subsequently developed hypotension with a hemoglobin level of 6,8 g/dl. The patient, a Jehovah's Witness, refused all blood transfusions. CT imaging revealed a massive right parametrium hematoma, prompting urgent reoperation. Intraoperative findings included extensive retroperitoneal and right lateral uterine wall hematoma, requiring evacuation, ligation of the right internal iliac, and right adnexectomy. After the reoperation, she presented profound anemia with a hemoglobin level of 2,8 g/dl. She was managed with erythropoietin (EPO) therapy, alongside supportive care in the ICU, hemostatic agents, and meticulous monitoring. Finally, after a multidisciplinary approach, the patient gradually stabilized and was discharged home.

Conclusions: This case highlights the extraordinary challenges of managing life-threatening postpartum hemorrhage in a patient refusing blood transfusions. While such cases are exceptionally difficult, this report demonstrates that successful management is possible with prompt recognition, rapid surgical intervention, and comprehensive multidisciplinary critical care.

JUVENES PRO MEDICINA
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Double cardiac arrests in 29 year old woman after delivery

Julia Traczyk

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Introduction: In Poland in 2024, 472 women died in the perinatal period. The most common causes include obstetrics bleeding, infections, eclampsia and HELLP syndrome. Sudden cardiac arrest rarely occurs in perinatal period. American Heart Association suggests that it occurs in 1:12 000 admissions for delivery.

Case report: A 29 year old primiparous patient in second pregnancy of 40 weeks, with pregnancy induced hipertension (PIH), hypothyroidism, insulin resistance and cervical electroconization that was performed 2 years earlier, was admitted to the hospital for labour induction. Firstly, she was qualified for labour preinduction by Foley catheter, followed by unsuccessful labour induction with oxytocin. 3 days after hospital admission, patient delivered naturally a healthy daughter with 10 points in Apgar score. In addition to episiotomy a perineal tear in IIIa stage was observed.. Due to extension of birth trauma, anesthesiologist team was requested for general anesthesia for perineal suturation. Rectal sphincter injury and episiotomy were sutured in a typical way. Postnatal 10 units of oxytocin were administered, obtaining uterus constriction. Combined blood loss was estimated for 1000 ml. At the end of suturation, perineum was injected with 0,25% bupivacaine solution, on anesthesiologist commission. At the end of anaesthesia, oxygen saturation decreased to 70%, blood pressure was unmeasurable and bradycardia occurred. Sudden cardiac arrest was diagnosed. Cardiopulmonary resuscitation was performed and a resuscitation team was called. In the meantime, ultrasound examination was performed and it excluded fluid in the peritoneal cavity. There was no vaginal bleeding. The patient was intubated and given an external cardiac massage. After 14 minutes sinus rhythm was obtained. 2 minutes after another cardiac arrest began in ventricular tachycardia mechanism. Second resuscitation was performed. After 30 minutes from first cardiac arrest, sinus rhythm was obtained. CT scan was performed and it excluded pulmonary thromboembolism, amniotic fluid embolism and reversible causes of cardiac arrest. Patient was handed over to the intensive care unit (ICU). Due to bupivacaine intoxication suspicion, 20% lipid emulsion was applied. After extubation patient had a seizure with consciousness loss, dyspnea, saturation decreasing and trismus. Patient was intubated again and sedated which stopped the seizure. After this episode, patient's family reported that she had epilepsy in childhood. Another attempt for extubation ended successfully. A severe uterine bleeding was observed, followed by instrumental inspection of the uterus. 15 days after labour patient was discharged in good condition with hypotensive and anticoagulant treatment.

Conclusions: There are several possible reasons of the cardiac arrest including bupivacaine poisoning and hypovolemic shock. This case presents the importance of perinaternal care, estimating blood loss, mobilization medical team and interdisciplinary cooperation.

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The Great Mimicker: Aggressive Angiomyxoma as a Diagnostic and Therapeutic Challenge.

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Work supervisor: Professor Rafał Tarkowski MD, PhD, DSc and Krzysztof Kułak MD, PhD

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Introduction: Aggressive Angiomyxoma (AA) is a rare, slow-growing mesenchymal tumor that predominantly affects the pelvis and perineal soft tissue, occurring in approximately 90% of cases in women of reproductive age. Despite its biologically benign nature, AA is characterized by a high propensity of local infiltration of pelvic structures and a high local recurrence rate (up to 70%). Due to its nonspecific clinical presentation, AA is frequently misdiagnosed as a vaginal cyst, Bartholin's gland cyst, or endometriosis. While radical surgical resection remains the gold standard of treatment, alternative strategies are employed in recurrent or unresectable cases. These include hormonal therapy (GnRH analogues, selective estrogen receptor modulators, aromatase inhibitors), which leverages the expression of ER and PgR receptors within the tumor cells, as well as vascular embolization, which targets the characteristically rich vascularity of the lesion.

Case report: A 36-year-old female patient (G1P1) with an unremarkable family history presented for evaluation of a mass near the vaginal vestibule. A 2019 MRI revealed a hypervascular, heterogeneously enhancing lesion extending into the pelvic cavity, adjacent to the vagina, uterus, and bladder. Initial differential diagnoses included complicated endometriosis or a Gartner's duct cyst. The patient sought surgical consultation in July 2023 due to increasing discomfort. A 70mm mass was surgically excited. However, the initial histopathological report described it as a fibrous cyst. In 2024, a follow-up MRI revealed an extensive pelvic mass (23 x 10.5 x 9cm) consistent with AA, showing marked progression compared to previous imaging. The lesion extended form the internal iliac vessels along the elevator ani muscle, trough the intersphincteric space, into the ischioanal fossa. In July 2024 the laparoscopic resection of the retroperitoneal tumor was performed. While October 2024 MRI showed no evidence of disease, a recurrence in the left iliac fossa was identified in August 2025. Consequently, hormonal therapy with a GnRH analogue (triptorelin) was initiated. The patient remains under surveillance at the time of reporting.

Conclusions: This case illustrates the critical challenges in managing AA. Significant diagnostic pitfalls were observed, as the lesion was initially misidentified as a fibrous cyst, thereby delaying appropriate intervention. Furthermore, multimodal therapeutic approach is also crucial, where postoperative recurrence required the introduction of hormonal therapy. It also highlights the paramount importance of long-term imaging surveillance, even following seemingly radical surgery, due to the insidious nature of AA's local recurrence.

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Pregnancy in a Rudimentary Horn of a Unicornuate Uterus- A case Report

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Work supervisor: Dr hab.n.med. Jan Bieńkiewicz

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Introduction: Pregnancy in a non-communicating rudimentary horn of a uterus is an exceptionally rare form of ectopic pregnancy. Due to its atypical location, it is often associated with delayed diagnosis, which can result in serious medical consequences. Prompt recognition and selecting a correct management strategy are therefore critical to prevent maternal morbidity and mortality.

Case report: A 31-year-old gravida 2, para 1 woman with no known prior health issues presented to the Gynecology Clinic of the Institute of Polish Mother's Health Centre ICZMP in Łódź for evaluation of early pregnancy, with rising serum B-human chorionic gonadotropin (B-hCG) levels and no confirmed intrauterine gestation. At the time of presentation, she was clinically stable and had an unremarkable abdominal examination. Initial transvaginal ultrasound showed normal adnexa, no free pelvic fluid, and an artifact suggesting a gestational sac with an embryonic pole without visible cardiac activity ; all located beyond the limits of the uterine body, which was additionally significantly tilted to the right side. At that stage, a uterine malformation was not suspected. Laboratory results showed a B-hCG of 4703 IU/L and a progesterone of 12.9 ng/mL, with all other values within normal limits. Given the diagnostic uncertainty, curettage was performed to exclude retained products of conception within the communicating uterine cavity, as pregnancy in the left non-communicating horn was considered unlikely at that stage. The results showed hypersecretory endometrium with decidual reaction without chorionic villi or embryonic tissue which increased the likelihood of an existing ectopic pregnancy. Repeat expert-level transvaginal ultrasound, revealed a congenital uterine anomaly consistent with a hemi-uterus with a left rudimentary cavity (U4a according to the ESHRE/ESGE classification) measuring 29 x 17 x 24 mm, and containing hyperechoic tissue likely representing products of conception. B-hCG levels continued to rise. Diagnostic laparoscopy confirmed a unicornuate uterus with a non-communicating rudimentary horn on the left, which was removed along with the ipsilateral fallopian tube. Pregnancy in the rudimentary horn was also confirmed by the pathology report.

Conclusions: Rising β-hCG levels in the absence of an intrauterine pregnancy should prompt evaluation for ectopic pregnancy. In patients with a known or suspected Müllerian anomaly, implantation within a non-communicating rudimentary uterine horn must also be considered, although this is an extremely rare event. This case highlights the importance of early recognition and appropriate decision-making to avoid maternal complications.

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Diagnostic Challenges – Intraoperative Findings of Deep Endometriosis in Small Intestine- Case Report

Zuzanna Sosnowska

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Introduction: Deep Endometriosis (DE) is defined as a presence of an endometrial tissue with associated fibrosis outside of the uterine cavity. DE is estimated to affect approximately one in five women diagnosed with endometriosis. When it occurs in intestine, lumen can narrow consequently leading to intestine's obstruction. Although ultrasonography is a diagnostic method to picture endometriosis centers, it is not always effective.

Case report: 30- year old patient was admitted to the clinic with a history of dysmenorrhea and menorrhagia. Other symptoms were diarrhea during menstruation and dyspareunia. On physical examination, the abdomen was soft and non-tender, with no signs of peritoneal signs. Left uterosacral ligament was thickened and painful (10 in VAS scale). Ultrasonography showed two lesions with heterogeneous density on the rectum and one on each uterosacral ligament, further verified by RWC-TVS. Subsequently, the patient was qualified to laparoscopic excisions of the lesions. During ongoing operation five additional centers of DE were found on small intestine, which were not identified by USG prior to the procedure. It was verified in histopathological analysis. DE centers were responsible for narrowing of the lumen, potentially leading to a life-threatening intestinal obstruction. Rectal and uterosacral lesions were removed and rectal anastomosis was performed. The patient was discharged in good condition with a scheduled follow-up.

Conclusions: This case highlights that Deep Endometriosis can occur on various anatomical structures with multiple centers which may result in a diverse range of symptoms. Although ultrasonography can provide a significant insight into a patient's condition, it is important to note that the thorough analysis conducted by a medical professional should be applied as a verification strategy.

JUVENES PRO MEDICINA

Cardiology and Cardiosurgery Case Study

8th of May 2026

Coordinators:

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JUVENES PRO MEDICINA
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TAVI-in-TAVI procedure in a patient with prior cardiac surgery: a case report

Adam Gała

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Introduction: Transcatheter Aortic Valve Implantation (TAVI) has become an established treatment for patients with severe aortic stenosis. With increasing procedural volume, transcatheter valve dysfunction is expected to rise. In selected cases, implantation of a new valve within a prior prosthesis is required. TAVI-in-TAVI remains a procedure without clear guideline recommendations and its long-term outcomes remain uncertain.

Case report: A 64-year-old male was admitted to our Cardiosurgery Department due to progressive dyspnea (NYHA class IV) and reduced exercise tolerance over the preceding 3 months. His medical history included smoking, hypertension and hypercholesterolemia. In 2008, the patient underwent PCI with two DES in the LAD. Later that year, he underwent open-heart surgery due to unstable angina pectoris during which CABG was performed with the LIMA anastomosed to the distal LAD and an SVG to the OMB. In addition, an ASD was surgically closed. In 2017, due to severe aortic stenosis, the patient underwent a TAVI procedure using a self-expanding Evolut R-34 valve. The procedure was successful and the patient was discharged in good condition. The patient's current symptoms began during COVID-19 infection in January 2022 and progressively worsened thereafter. He was hospitalised in March 2022 due to heart failure exacerbation. He was subsequently admitted to our department in June 2022. At the current admission TTE revealed severe aortic regurgitation of the previously implanted valve. CT showed leaflet degeneration. After Heart Team evaluation, the patient was qualified for a TAVI-in-TAVI procedure. During the intervention, PCI of a critical (99%) RCA stenosis was performed first. Subsequently, the RCA ostium was protected by advancing a coronary guidewire. A balloon-expandable Edwards SAPIEN 3 valve was successfully implanted within the degenerated Evolut R valve. Intra-procedural echocardiography confirmed correct position and function of the newly implanted valve. The patient was discharged in good condition and remains well at follow-up.

Conclusions: This case highlights the feasibility of TAVI-in-TAVI in a patient with complex cardiovascular history, requiring a combined approach with PCI and coronary protection. The temporal association between symptom onset and recent COVID-19 infection raises the question of a potential role of inflammatory processes in accelerated valve degeneration, although causality cannot be established. With the increasing number of TAVI procedures, transcatheter valve failure is expected to become more common. However, TAVI-in-TAVI remains a procedure with limited evidence and lacks clear guideline recommendations. Further studies are needed to optimise patient selection and procedural strategies in this setting.

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Functional Recovery Through Structured Rehabilitation Post-TAVI in a Multimorbid Patient

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Introduction: Patients with heart failure (HF) and end-stage renal disease (ESRD) represent a highly complex clinical population with reduced functional capacity and limited therapeutic options. The role of structured cardiac rehabilitation (CR) in such patients remains underutilized, particularly following transcatheter aortic valve implantation (TAVI) complicated by infection.

Case report: A 72-year-old male presented following TAVI complicated by Enterococcus faecalis sepsis, with an extensive cardiovascular history encompassing sick sinus syndrome, chronic coronary syndrome with previous NSTEMI, heart failure with preserved ejection fraction (HFpEF; LVEF=55%), paroxysmal atrial fibrillation, and first-degree AV block. Renal comorbidity was significant, with ESRD attributable to glomerulonephritis requiring chronic hemodialysis, superimposed on polycystic kidney disease. Baseline functional assessment demonstrated severely diminished exercise tolerance, with a 6MWT yielding 125 meters with mandatory rest pauses, in conjunction with uncontrolled hypertension (188/110mmHg). Management incorporated a comprehensive multidisciplinary strategy, including ongoing hemodialysis, pharmacological optimization, and a structured 25-day inpatient cardiac rehabilitation protocol encompassing aerobic, respiratory, and coordinative exercise components. Inpatient Holter ECG monitoring identified significant arrhythmic episodes, prompting treatment modification, notably optimization of betablockade. Functional outcomes at discharge were markedly improved, with 6MWT performance advancing to 316 meters without rest interruption and blood pressure partially ameliorated to 180/80 mmHg. Rehabilitation was completed without incident.

Conclusions: Cardiac rehabilitation is both possible and effective for patients with end-stage renal disease (ESRD) undergoing dialysis, despite their complex associated health issues. However, the nature of dialysis necessitates personalized, multidisciplinary rehabilitation strategies. The need for specialized protocols for high-risk cardiac patients undergoing renal replacement therapy is highlighted by these cases, which support the development of individualized CR pathways for some populations.

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Alirocumab as an Effective Hypolipidemic Agent in Hypercholesterolemia with Statin Intolerance – A Case Report

Ernest Borkowski

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Introduction: Hypercholesterolemia remains a major modifiable risk factor for cardiovascular (CV) events and death. Despite both pharmacological and non-pharmacological interventions, some patients fail to reach the guideline-recommended low-density lipoprotein (LDL) cholesterol levels. As statins are the first-line treatment for dyslipidemias, statin intolerance (SI), most commonly manifesting as statin-associated muscle symptoms (SAMS), poses a significant clinical challenge, particularly in high CV risk patients. This therapeutic gap highlights the need to implement novel hypolipidemic agents, such as proprotein convertase subtilisin/kexin 9 (PCSK9) inhibitors, to provide an effective alternative for achieving adequate LDL-cholesterol (LDL-C) reduction. Alirocumab is a human monoclonal antibody that inhibits PCSK9 on the hepatocyte cell surface, preventing the degradation of LDL receptors and enhancing plasma LDL clearance.

Case report: A 70-year-old female presented with a heavily burdened CV history, including hypercholesterolemia, chronic coronary syndrome, chronic heart failure with preserved ejection fraction (NYHA II), arterial hypertension, and a non-ST-elevation myocardial infarction. Since 2017, the patient has been treated with statins, including atorvastatin 20 mg/day, which was temporarily increased to 30 mg/day, and rosuvastatin 5 mg/day. During the treatment with higher-dose atorvastatin and rosuvastatin, she reported recurrent SAMS accompanied by significant increases in creatine kinase levels (up to 1506 U/L), fulfilling the 2022 National Lipid Association criteria for SI. Despite the addition of ezetimibe 10 mg/day to atorvastatin 20 mg/day, the patient failed to reach the recommended LDL-C level for her risk group. In April 2025, the patient was qualified for treatment with alirocumab 300 mg (in combination with ezetimibe 10 mg/day and atorvastatin 20 mg/day) through the Polish Emergency Access to Drug Technologies procedure. Follow-up laboratory examinations after 9 months showed a substantial reduction in LDL-C levels, from 2.45 mmol/L to 0.4 mmol/L, translating to an 84% reduction. The patient reports no adverse effects and is scheduled for the continuation of therapy.

Conclusions: As statins remain the gold standard treatment for hyperlipidemia, patients with SI represent a major therapeutic challenge, putting them at greater risk of CV events and death. This case study demonstrates that such therapeutic challenges can be effectively addressed by utilizing novel lipid-lowering drugs (e.g., alirocumab).

JUVENES PRO MEDICINA
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Early Stent Thrombosis After Primary PCI for Anterior STEMI: When Presumed Allergy and Inadequate Antiplatelet Loading Collide

Filip Lewandowski, Natan Adamów

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Introduction: Early stent thrombosis after primary percutaneous coronary intervention (PCI) for ST-segment elevation myocardial infarction (STEMI) is an uncommon but dangerous complications associated with recurrent ischemia. In the acute STEMI setting, rapid and effective dual antiplatelet therapy is essential for procedural success and prevention of thrombotic complications. However, treatment may be compromised by reported drug allergy, intolerance, or impaired drug absorption. This case highlights the interplay between presumed aspirin and iodinated contrast hypersensitivity and inadequate antiplatelet loading culminating in early thrombotic stent failure.

Case report: A 63-year-old man with hypertension was admitted with acute anterior STEMI. Shortly after arrival, he developed in-hospital cardiac arrest due to torsades de pointes evolving into ventricular fibrillation. Return of spontaneous circulation was achieved after two defibrillations. Initial echocardiography demonstrated apical akinesia with a left ventricular ejection fraction (LVEF) of 38%. Because of a reported in the emergency department history of iodinated contrast and aspirin allergy, urgent allergology consultation was obtained and premedication was administered with only ticagrelor loading dose given before coronary angiography. The procedure revealed proximal left anterior descending artery (LAD) occlusion, and primary PCI with thrombectomy and drug-eluting stent implantation achieved an optimal angiographic result. On the second night of hospitalization, the patient developed recurrent chest pain with renewed anterior ST-segment elevation. Urgent repeat angiography demonstrated acute thrombotic occlusion of the proximal LAD stent. Repeat PCI included aspiration thrombectomy, intracoronary eptifibatide infusion and intravascular ultrasound guided post-dilatation resulting in TIMI 2-3 flow with residual mural thrombus, but no evidence of stent malapposition. Subsequent history review clarified that the reported aspirin allergy was in fact remote gastrointestinal bleeding rather than adverse effect. In addition, the patient had vomited ticagrelor before the index procedure and had therefore not achieved effective dual antiplatelet loading, which was considered the main trigger of early stent thrombosis. Aspirin and ticagrelor were reloaded, intravenous eptifibatide was continued, and the subsequent course was uneventful with LVEF improvement to 45-50%, no recurrent ischemia, and safe patient discharge.

Conclusions: This case underscores the need for immediate verification of reported drug allergy in STEMI patients, as misclassification may result in inappropriate withholding of guideline-directed antiplatelet therapy. Ineffective P2Y12-inhibitors loading due to vomiting should be recognized as an important and potentially preventable cause of early stent thrombosis.

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Uhl's Anomaly: Is Glenn Enough for Long-Term Stability?

Kacper Jaros, Maja Butrym

Presenting author: Kacper Jaros

Work supervisor: dr n. med. Mateusz Knop, dr hab. n. med. Roland Fiszer

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Introduction: Uhl's anomaly is an exceptionally rare congenital heart defect characterized by partial or complete absence of right ventricular myocardium, leading to progressive right ventricular dilation and right heart failure. Since its first description in 1952, only around 100 cases have been reported, and no standardized therapeutic approach has been established due to the rarity of the condition. The prognosis is generally poor, and survival without intervention is uncommon.

Case report: We present an 18-year follow-up of a male patient diagnosed with Uhl's anomaly in early infancy. Right ventricular enlargement was first detected at 3.5 months of age, while the patient remained asymptomatic until the age of five, when fatigue and reduced exercise tolerance developed. Arrhythmogenic right ventricular cardiomyopathy was initially suspected, but the final diagnosis confirmed Uhl's anomaly. Pharmacologic therapy resulted in clinical improvement, and due to progressive right ventricular dilatation and dysfunction, a bidirectional Glenn shunt was performed at the age of six. Imaging studies revealed severe right ventricular enlargement, global hypokinesia, and marked thinning of the free wall, with relatively preserved left ventricular function. Despite advanced structural abnormalities, the patient has remained clinically stable throughout 18 years of follow-up (NYHA I-II), without significant arrhythmias, with preserved exercise tolerance, a patent Glenn circulation, and stable hemodynamics. Long-term stability was achieved with individualized pharmacologic therapy.

Conclusions: This case demonstrates that in selected patients with Uhl's anomaly, Glenn circulation combined with optimized pharmacologic therapy may provide durable long-term clinical stability despite severe right ventricular structural disease. The prolonged follow-up offers valuable insight into the long-term course of this exceptionally rare condition and suggests that Fontan completion may be deferred in clinically stable patients.

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Two Problems, One Strategy: Combined Balloon Mitral Valvuloplasty and Left Atrial Appendage Closure in Mitral Stenosis with Atrial Fibrillation

Maciej Zieliński

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Work supervisor: dr. hab. Krzysztof Kaczmarek

Affiliations: UMED

Introduction: Atrial fibrillation is considered to be the most common arrhythmia in the general population, with prevalence surpassing 10% in patients above 80 years of age. The prevalence of mitral stenosis is significantly lower, yet these two diseases often coexist, in many cases due to structural changes in the left atrium resulting from increased atrial pressure and inflammatory changes in these structures. Both may lead to thromboembolism, with potentially fatal consequences such as stroke.

Case report: In the presented case a 66-year-old female patient was admitted to the electrocardiology unit with persistent atrial fibrillation and rheumatic disease of the mitral valve resulting in mitral stenosis and regurgitation. Additionally burdened with left-sided hemiparesis after an ischemic stroke. Two procedures were performed simultaneously – percutaneous left atrial appendage closure with an occluder device and percutaneous balloon valvuloplasty. At a 4-month follow-up no complications of the combined procedure were found, and the result was confirmed by echocardiographic examination.

Conclusions: Combined structural procedures such as the one presented are not included in the standard treatment for mitral stenosis with concomitant atrial fibrillation. Studies performed in larger groups of patients are still needed to evaluate the risk and confirm the efficacy of this approach.

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Coexisting Coronary Aneurysms and In-Stent Restenosis After DES Implantation

Maja Butrym, Kacper Jaros

Presenting author: Maja Butrym

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Introduction: Stent-related inflammation is a rare but clinically important cause of coronary aneurysmal changes. It may present simultaneously as in-stent restenosis and aneurysmal dilatation, complicating revascularization strategies. Coronary artery aneurysms (CAA) occur in 0.3-5.3% of patients and may result from atherosclerosis, inflammatory disorders, or iatrogenic factors such as PCI and drug-eluting stent (DES) implantation.

Case report: A 37-year-old man presented with inferior ST-segment elevation myocardial infarction preceded by one month of worsening angina. Coronary angiography showed occlusion of the left circumflex artery (Cx) and non-obstructive lesions in other vessels. Primary PCI with DES implantation was performed. The patient subsequently developed non-ST-segment elevation myocardial infarction. Repeat angiography revealed re-occlusion of the Cx, critical right coronary artery (RCA) stenosis, and disease progression. PCI with additional DES implantation was performed. Further imaging demonstrated aneurysmal dilatation within stented segments in both arteries. Despite corticosteroid and subsequent immunosuppressive therapy, persistent aneurysms and significant in-stent restenosis were observed. IVUS and OCT confirmed aneurysmal cavities, stent malapposition, and vessel wall thickening. Due to disease progression, the patient underwent off-pump coronary artery bypass grafting (OPCAB). Postoperative imaging showed occlusion of stented segments with persistent aneurysms, while the graft to the LAD and D1 remained patent. The clinical course remained stable, and no definitive etiology of coronary changes was identified.

Conclusions: Stent-related inflammation may lead to the coexistence of coronary aneurysms and in-stent restenosis. Rapid progression and atypical features should raise suspicion of an inflammatory mechanism. In such cases, repeated PCI may be ineffective, and surgical revascularization should be considered.

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Masked Advanced Coronary Artery Disease : A Diagnostic Challenge in an Amateur Athlete

Martyna Świerkowska

Presenting author: Martyna Świerkowska

Work supervisor: Prof Paweł Krzesiński MD, PhD; Małgorzata Kurpaska, MD, PhD; Katarzyna Piotrowicz, MD, PhD

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Introduction: Above-average exercise capacity and a high threshold for symptoms such as dyspnea or chest pain in athletes may create false reassurance regarding the absence of clinically significant coronary artery disease (CAD). The aim of this report is to present the diagnostic reasoning and therapeutic management of an amateur endurance athlete who developed exertional dyspnea during a marathon run.

Case report: A 50-year-old male and amateur long-distance runner with a history of hypertension, hyperlipidemia reported recurrent exertional dyspnea with the onset approximately at the 20th kilometer of a marathon run, forcing short rest but not preventing completion. Cardiopulmonary exercise test (CPET) showed normal exercise capacity (peak oxygen uptake of 34 ml/min/kg, 104% of the predicted value). No dyspnea or chest pain occurred during maximal exertion, though ECG showed 1-2 mm ST-segment depression and T-wave changes in leads II, III, aVF, V5, and V6. Coronary computed tomography angiography (CCTA) showed a circumferential non-calcified plaque in the left anterior descending (LAD) artery; the appearance raised the possibility of spontaneous coronary artery dissection. Coronary angiography confirmed severe LAD disease with 80% stenosis in segment 6 and a critical lesion in segment 7. Two drug-eluting stents were implanted into the LAD during a single procedure.

Conclusions: Firstly, supranormal exercise capacity and mildness of symptoms in endurance athletes may mask advanced CAD. Secondly, electrically positive CPET findings (1–2 mm ST-segment depression) warrant further anatomical assessment even in patients with low risk factor–weighted clinical likelihood. Finally, CCTA should be considered early in athletes with new-onset exertional symptoms, as it may reveal significant stenosis.

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IVUS Says Defer, Physiology Says Treat: A Discordant Left Main Stenosis Case Report

Natan Adamów

Presenting author: Natan Adamów

Work supervisor: Miłosz Jaguszewski MD, PhD, FESC; Maksymilian Mielczarek MD, PhD

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Introduction: In angiographically intermediate left main (LM) stenosis, intravascular ultrasound (IVUS)–derived minimal lumen area (MLA) is commonly used to guide deferral versus revascularization. An MLA ≥6.0 mm² is a widely accepted value to support safe deferral. However, discordance between angiography, intravascular imaging, and physiologic assessment may occur. In such cases, integrating IVUS with invasive coronary physiology (FFR/iFR) is pivotal to determine the functional significance of the lesion and guide revascularization strategy.

Case report: A 72-year-old man with hypertension was transferred from a cruise ship to the emergency unit for suspected NSTEMI. The day before admission he developed presyncope during treadmill exercise, while subsequently sustaining ventricular tachycardia, followed by profound bradycardia and hypotension responding to adrenaline infusion. On admission he was hemodynamically stable, while transthoracic echocardiography showed no regional wall-motion abnormalities and left ventricular ejection fraction of 55%, raising concern that symptoms and biomarker elevation might not be attributable solely to epicardial coronary disease. Coronary angiography demonstrated an asymmetrical 50-60% LM lesion, therefore IVUS was performed showing 55% area stenosis with MLA 10.2 mm² (proximal reference 23 mm²), well above the 6.0 mm² deferral cut-off, which alone would not support LM revascularization. Given the borderline angiographic appearance in a very tall patient (BSA 2.48 m²) and ongoing clinical uncertainty regarding further management strategy, additional invasive physiology assessment was carried out. Fractional flow reserve across LM/LAD was 0.77, confirming functional significance. Following Heart Team discussion and shared decision-making, percutaneous coronary intervention using a bifurcation technique with drug-eluting stent implantation was performed with an optimal angiographic result and no residual stenosis. To exclude non-coronary causes, Holter ECG, cardiac magnetic resonance, and FDG-PET were conducted. None supported active inflammatory/infiltrative myocardial disease. Owing to a history of hemodynamically unstable tachyarrhythmia with conduction disease and with active inflammation excluded, the patient was qualified for dual-chamber ICD implantation for secondary prevention.

Conclusions: Guideline IVUS MLA thresholds are decision aids rather than patient-specific absolutes. In this case, despite an MLA above the commonly used LM deferral cut-off, FFR confirmed hemodynamically significant disease and directly guided revascularization. These findings highlight the value of integrating intracoronary imaging with invasive physiology to refine risk stratification, prevent inappropriate deferral, and support safe, evidence-aligned management of intermediate LM stenosis.

JUVENES PRO MEDICINA
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Diagnostic pitfalls in acute aortic syndrome.

Piotr Kruszyński

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Work supervisor: prof. dr hab. n.med. Piotr Lipiec

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Introduction: Acute aortic dissection is the most common acute aortic syndrome. In this life-threatening condition, a tear in the aorta's inner layer allows blood into the middle layer, separating it from the outer layers and creating a false lumen. It predominantly affects men (~65%) over 60 years (~85%), with key risk factors including uncontrolled hypertension, bicuspid aortic valve, aortic coarctation, and genetic connective tissue disorders (Marfan, Ehlers-Danlos syndrome). Key symptoms include sudden tearing chest pain radiating to the interscapular region, hypotension, circulatory shock, and a diastolic murmur over the aortic arch due to acute aortic regurgitation. Cerebral ischemia and limb paralysis may also occur. The imaging of choice is CT angiography (neck, chest, pelvis) in stable patients, and TTE or TEE in unstable patients. The rapidly worsening prognosis makes early diagnosis critical.

Case report: A 46-year-old woman, previously untreated for heart disease, was admitted in serious condition with impaired communication, disorientation, confusion, and no reported chest pain. A day earlier, she sought emergency care in a different hospital for interscapular pain and was discharged without further diagnostics, with a back pain diagnosis. She vomited that night and hadn't urinated since then. Her BP was 80/60 mmHg, and her HR was 120 BPM. Five minutes after admission, the patient suddenly lost consciousness, developed tetraplegia, involuntary urination, and pupils unresponsive to light; GCS = 3. A TTE using a portable ultrasound revealed a large mass in the left atrium, suggesting a myxoma or thrombus. A stroke was suspected, with plans to refer the patient to the Neurology Clinic for diagnostic confirmation and thrombolytic therapy assessment. Meanwhile, the family brought documentation from the previous day's emergency department visit. The discharge summary stated: "The patient complained of chest pain radiating to the back, which occurred after bending down." A second TTE, this time using a high-quality stationary device, showed the mass was actually a periaortic hematoma compressing the left atrium from outside. The dissection of the descending aorta was also visible. The patient was transferred to the Vascular Surgery Department, where immediate CT angiography confirmed the diagnosis. Thirty minutes after endovascular aortic repair, the patient died.

Conclusions: Aortic dissection is a life-threatening condition whose symptoms may initially suggest less serious diagnoses. Given the often misleading presentation and patient's high risk, aortic dissection should be included in the differential diagnosis of sudden chest or back pain of unclear etiology, especially with neurological symptoms. It is important to note that high-quality diagnostic equipment reduces the risk of misleading images and consequent clinical errors.

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Eisenmenger syndrome in a patient with a complete atrioventricular canal

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Introduction: Atrioventricular septal defect (AVSD) is a congenital heart defect involving underdevelopment of the atrial and ventricular septum with abnormalities of the atrioventricular valves. It accounts for around 5% of congenital heart defects and occurs in 2 per 10,000 live births. AVSD is strongly associated with chromosomal aberrations, especially trisomy 21, present in 70% of cases and representing the most common congenital heart defect in this population. The most severe form is a complete atrioventricular canal defect (CAVC). In CAVC, defects in the atrial and ventricular septa result in intense left-to-right shunting, leading to increased pulmonary flow and morphological remodeling of the pulmonary vasculature. As a result, patients quickly develop pulmonary hypertension and Eisenmenger syndrome. Chronic hypoxia leads to secondary polycythemia, creating a complex clinical picture in patients with CAVC.

Case report: A 37-year-old patient with trisomy 21, Eisenmenger syndrome secondary to CAVC, secondary polycythemia, thrombocytopenia, and hypothyroidism was admitted to the Cardiology Department due to mild exercise intolerance. The patient had been treated with bosentan since 2013 and sildenafil since 2018. Laboratory tests confirmed polycythemia with elevated red blood cell parameters: RBC 8.17* 10^6 µl, HGB 21.5 g/dl, and HCT 69.1%. The patient also had elevated NT-proBNP (1504 pg/ml) and serum creatinine (1.80 mg/dl). Liver enzymes remained normal. ECG showed sinus rhythm (HR 81/min) with incomplete RBBB. In the 6MWT, the patient walked 400m with desaturation from 71% to 64%. An echocardiogram confirmed Eisenmenger syndrome due to AVSD, without pulmonary trunk stenosis, a common atrioventricular valve with regurgitation, and normal left ventricular systolic function with an EF of 57%. After one day of hospitalization, the patient was discharged in good condition with recommendations for further primary care and periodic check-ups at the Cardiology and Endocrinology Clinic.

Conclusions: Patients with uncorrected CAVC develop complications that significantly affect their quality of life and prognosis. However, modern pharmacotherapy for pulmonary hypertension reduces symptoms and improves prognosis.

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Resolution of Left Ventricular Outflow Tract Obstruction in Hypertrophic Cardiomyopathy Using Mavacamten

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Introduction: Obstructive hypertrophic myocardiopathy (oHCM) is a disease characterized by dynamic left ventricular outflow tract (LVOT) obstruction, typically caused by an interplay of basal interventricular septum thickening and systolic anterior motion (SAM) of the mitral valve leaflet. Compared to nonobstructive hypertrophic myocardiopathy, the LVOT obstruction in oHCM leads to a high symptom burden. Traditional treatment of oHCM includes mainly drugs focusing on symptomatic relief such as beta-blockers, calcium channels blockers or antiarrhythmics. Recently, the novel medication Mavacamten has been approved, which inhibits cardiac myosin and therefore aims to treat the underlying physiological cause of myocardial hypertrophy.

Case report: A 46-year-old male patient with a previous history of invasively treated papillary thyroid cancer, gastric ulcers leading to gastrointestinal bleeding, hypertension, hyperlipidemia as well as a purine and pyrimidine metabolism disorder presented to the cardiology department with periodic palpitations in 2023. Echocardiographic examination was performed revealing severe interventricular septal thickening up to 21mm, a resting LVOT gradient of 43mmHg, increasing to 85mmHg after the Valsalva maneuver together with SAM of the mitral valve leaflet and with a preserved ejection fraction of 55%. Additionally, a slightly elevated NTproBNP (139,0 pg/ml) was recorded. A Holter EKG showed mild benign supraventricular and ventricular arrythmias. The patient was diagnosed with oHCM in November 2023 and prescribed standard treatment for heart failure including Bisoprolol 10mg, Eplenerone 25mg and Empagliflozyne 10mg, resulting in minimal symptom relief. In 2025, the patient was qualified for the drug program B162. Genetic testing was performed and the patient was started on Mavacamten 5mg. After four weeks of treatment, the LVOT gradient improved to 13mmHg after Valsalva and 7 mmHg at rest from the previous echocardiographic examination. His NT-pro-BNP dropped to 96 ng/ml. After 12 weeks of mavacamten therapy, LVOT gradients remained significantly reduced, and the patient reported symptomatic improvement.

Conclusions: This case demonstrates the great potential of mavacamten for reduction of LVOT obstruction and symptom alleviation in patients with oHCM.

JUVENES PRO MEDICINA
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Transcatheter Closure of Post-Infarction Ventricular Septal Rupture: A Viable Alternative to Surgery

Raja Bou Ghannam

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Introduction: Ventricular septal rupture (VSR) is a rare but catastrophic mechanical complication of acute myocardial infarction, occurring in approximately 0.2–0.3% of patients with ST-elevation myocardial infarction despite contemporary reperfusion therapy. The condition results from transmural myocardial necrosis leading to interventricular septal disruption and acute left-to-right shunting, frequently causing cardiogenic shock and rapid hemodynamic deterioration. Untreated VSR carries extremely high mortality, while surgical repair remains associated with significant perioperative risk, particularly in elderly or hemodynamically unstable patients. Transcatheter closure has recently emerged as a potential alternative treatment strategy in carefully selected patients.

Case report: A 78-year-old female patient presented with a delayed anterior ST-elevation myocardial infarction complicated by cardiogenic shock. Transthoracic echocardiography revealed a ventricular septal rupture measuring approximately 7–8 mm. Primary percutaneous coronary intervention of the left anterior descending artery was performed. The patient did not consent to the proposed surgical treatment and was discharged after achieving clinical stabilization. Approximately four months after the initial myocardial infarction, the patient presented with progressive heart failure symptoms (NYHA class III). Echocardiographic examination revealed a persistent ventricular septal defect measuring 10 × 15 mm with preserved left ventricular systolic function (LVEF 58%). The patient subsequently agreed to transcatheter closure of the defect, which was successfully performed using a 20-mm PI-VSD occluder device. Post-procedural echocardiography demonstrated minimal residual shunting and preserved left ventricular function, with significant symptomatic improvement following intervention.

Conclusions: This case demonstrates that transcatheter closure of post-infarction ventricular septal rupture can be technically feasible and clinically effective in selected patients. In individuals with elevated surgical risk or those who decline surgical intervention, percutaneous treatment may represent a viable alternative to conventional surgical repair in the management of mechanical complications following myocardial infarction.

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Mavacamten as Targeted Therapy in Obstructive Hypertrophic Cardiomyopathy – Case Report

Robert Rouba , Abdullah Al Bayati

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Introduction: Hypertrophic cardiomyopathy (HCM) is the most common inherited myocardial disorder (≈1 in 500 individuals) and the leading cause of sudden cardiac death in patients under 35 years old. It is characterized by left ventricular hypertrophy leading to diastolic dysfunction. A major subtype involves asymmetric interventricular septal hypertrophy, resulting in left ventricular outflow tract obstruction (LVOTO). A hallmark of this disease is systolic anterior motion (SAM) of the mitral valve, which causes the LVOTO. The mainstay of treatment is pharmacotherapy with beta-blockers, non-dihydropyridine calcium channel blockers, and disopyramide to provide control over LVOT gradients. Today, a new selective cardiac myosin inhibitor called mavacamten is available, providing a substantial shift in treatment by directly addressing the underlying hypercontractile sarcomeric mechanism.

Case report: A 57-year-old male with a history of heart failure (NYHA III) presented with paroxysmal palpitations, progressive exercise intolerance, near-syncope episodes, and exertional chest pain. Laboratory investigation revealed an elevated N-terminal B-type natriuretic peptide (NT-proBNP) of 2,384 pg/ml, prompting transthoracic echocardiography (TTE) examination. TTE revealed a preserved ejection fraction (EF) of 60%, asymmetrical interventricular septal thickness in diastole (IVSd) of 20 mm, SAM(+) and mild regurgitation of the mitral valve, an indexed left atrial volume (LAVi) of 43 mL/m2 and significant LVOTO with a resting gradient of 52 mmHg and a provoked gradient of 97 mmHg after Valsalva maneuver. The findings confirmed the diagnosis of obstructive HCM. Further genetic testing confirmed eligibility for mavacamten (Camzyos) therapy through the national Polish B.162 program. The efficacy of the new therapy was monitored monthly via TTE. One month of treatment with mavacamten resulted in a reduction of the LVOT gradient to 19 mmHg at rest and 49 mmHg during Valsalva, with a decrease of the NT-proBNP to 880 pg/mL with a preserved EF of 56%, leading to also symptomatic and functional improvement.

Conclusions: This case demonstrates the efficacy of mavacamten treatment in patients with obstructive HCM, showing that the direct myosin ATPase inhibition offers rapid hemodynamic improvement as well as symptomatic relief.

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Ischemic Complications in a Patient With Spontaneous Echo Contrast Undergoing Percutaneous Left Atrial Appendage Closure

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Introduction: It has been shown that LAAC, although very safe, may lead to the occurrence of new brain ischemic lesions in around 30% of patients. Most of the lesions are silent, and their clinical significance remains uncertain. Another well-known complication of LAAC is DRT that occurs in up to 8% of patients who undergo serial TEE imaging. DRT may be related to the increased risk of ischemic events.

Case report: The current case describes an 87-year-old female who underwent LAAC because of bleeding complications related to anticoagulation therapy. The transesophageal echocardiography (TEE) performed prior to LAAC revealed favorable left atrial appendage anatomy and excluded evident thrombus. A Watchman FLX (Boston Scientific) was successfully implanted with adequate compression of 15%, no detectable leaks, and shoulder protrusion of up to 5 mm. However, due to anatomical challenges, 7 partial device recaptures and repositions were required to achieve a satisfactory result. Periprocedural transesophageal echocardiography (TEE) revealed spontaneous echo contrast in the left atrium but without definite features of thrombus. At 30-day follow-up TEE, a large thrombus (21 mm in length and 10 mm in thickness) was detected, and oral anticoagulation was restarted. Serial TEEs performed during extended follow-up showed gradual resolution of the thrombus. The patient also underwent serial periprocedural magnetic resonance that documented occurrence of 5 new brain ischemic lesions.

Conclusions: This case shows that spontaneous echo contrast present in the left atrium can potentially result in increased risk of thrombotic complications after LAAC such as new brain ischemic lesions or DRT. It also highlights that oral anticoagulation might be a better choice than dual antiplatelet therapy for patients with spontaneous echo contrast in left atrium undergoing LAAC.

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Transcatheter edge-to-edge repair of the tricuspid valve in a patient with Anderson-Fabry disease

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Introduction: Anderson-Fabry disease (AFD) is a rare lysosomal storage disorder caused by mutations in the GLA gene. It results in tissue accumulation of globotriaosylceramide (Gb3), which frequently leads to cardiac complications including valvular malfunctions. The cardiovascular disorders represent the main cause of morbidity and mortality in patients with AFD.

Case report: The patient was a 64-year-old man with the classic phenotype of Anderson-Fabry disease (AFD) who underwent the transcatheter tricuspid edge-to-edge repair (T-TEER) for the severe symptomatic tricuspid regurgitation (TR). His past medical history included kidney disease, cardiac hypertrophy, atrial fibrillation (AF), complete atrioventricular block, lymphedema, and hypothyroidism. The severity of tricuspid regurgitation exacerbated his significant lymphatic edema, rendering the patient unable to be discharged from the hospital prior to the procedure. The T-TEER was performed under general anesthesia and TEE guidance. Three Pascal ACE devices were implanted starting from the anteroseptal commissure towards the posterior aspect of the valve. The procedure enabled successful TR reduction to the mild degree which translated into clinical improvement and favorable right ventricle and atrium remodeling that were sustained at one year follow-up.

Conclusions: The significant tricuspid regurgitation although less prevalent than mitral or aortic disease may occur in AFD patients. T-TEER procedure is an effective treatment option in patients with AFD complicated by severe symptomatic TR and can result in meaningful and durable reverse right ventricle remodeling.

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Infective endocarditis following suboptimal transcatheter aortic valve implantation in a patient with bicuspid aortic valve

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Introduction: Transcatheter aortic valve implantation (TAVI) is a less invasive treatment for severe aortic stenosis compared to open-heart surgery. Despite that, the incidence of infective endocarditis (IE) is estimated at 1-1.5 % within the first year after TAVI. However, in the case of transcatheter valve embolization and migration (TVEM), a rare complication accounting for 0.92 % of TAVI patients, its impact on the following risk of IE remains unclear due to scarce data.

Case report: A 66-year-old male with a history of chronic heart failure with mildly reduced left ventricular ejection fraction of 44 % and multiple percutaneous coronary interventions for chronic coronary syndrome was admitted to the hospital with recurrent fever, fatigue, excessive perspiration, and unintentional weight loss of 4 kg within one month. 3 months prior to hospitalization, the patient underwent TAVI for severe bicuspid aortic valve (BAV) stenosis. At that time, postprocedural transthoracic echocardiography demonstrated increased transvalvular velocities (3.5 m/s) and pressure gradients (peak/mean: 49/35 mmHg) across the bioprosthetic valve. Transesophageal echocardiography (TEE), performed before hospital discharge, revealed an abnormal, supravalvular position of the prosthetic valve, a paravalvular leak, and severe ostial stenosis. Considering preserved prosthetic leaflet mobility, hemodynamic stability, and patient preference, a conservative approach was pursued. On admission, laboratory investigations revealed leukocytosis with neutrophilia, elevated C-reactive protein levels, and decreased hemoglobin concentration. Blood cultures were positive for Enterococcus faecalis. Computed tomography angiography revealed extensive calcifications and thickening of the BAV, as well as malposition of the implanted valve. The diagnosis of IE was confirmed with TEE, which revealed a 16x10 mm vegetation in the area between prosthetic and native valve. As the patient declined cardiac surgery, conservative management was implemented. Based on antibiotic susceptibility testing results, treatment with ampicillin was initiated. After several days, gentamicin and vancomycin were added. Subsequent TEE revealed a reduction in vegetation size to 13x6 mm, accompanied by improvement in laboratory parameters and clinical condition. After 49 days of intravenous antibiotic treatment, the patient was discharged home with continuation of oral antibiotic therapy with amoxicillin and moxifloxacin. At the six-month follow-up, TEE did not reveal previously visualized vegetation. The remaining TEE findings were comparable to those observed during hospitalization.

Conclusions: BAV has been associated with a 23.1-fold higher risk of IE. While BAV and TAVI are well-established risk factors for IE, this case report suggests a possible contribution of TVEM, highlighting the need for further data to clarify its significance. Evidence regarding optimal management of TVEM remains limited, which poses a relevant challenge in clinical practice.

JUVENES PRO MEDICINA

Gastroenterology Case study

8th of May 2026

Coordinators:

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JUVENES PRO-MEDICINA
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Rescue Treatment With Dual Infliximab and Upadacitinib therapy in Severe Ulcerative Colitis Complicated by Clostridioides Difficile infection and Influenza A - A case report

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Introduction: Acute severe ulcerative colitis (ASUC) refractory to both glucocorticosteroids (GCS) and anti-TNF therapy is an uncommon yet challenging clinical presentation. In addition, a superimposed Clostridioides difficile infection (CDI) and Influenza A infection further exacerbate the clinical situation by increasing the risk of immunosuppressive complications and potential exacerbation of the active acute infections, while restraining treatment may lead to the escalation of the refractory colitis. While the concept of a combination therapy involving an anti-TNF agent and a JAK-1 inhibitor falls outside the European Crohn's and Colitis Organization (ECCO) and American College of Gastroenterology (ACG) guidelines, the unique nature of this case justifies the need for this approach and adds to the emerging literature on ASUC treatment.

Case report: A 32-year-old male was diagnosed with pancolitis (E3) in 2017, with remission confirmed on colonoscopy in 2022. Two years later, he was admitted for the first time with a severe flare (Mayo score 11), which was managed conservatively with GCS and supportive care. The patient's disease continued to progress, resulting in rehospitalization in January 2026 with worsening severity (complete Mayo score 12, Mayo endoscopic score 3), and no response to conservative GCS and azathioprine therapy, prompting rescue treatment with Infliximab. Lab evaluation revealed a C-reactive protein (CRP) of 120 mg/L, serum albumin of 26.4 g/L, and hemoglobin of 9.3 g/dL, which was managed with transfusion of four units of packed red blood cells. The patient's condition improved, and he was scheduled for a follow-up Infliximab infusion. However, in February 2026, the patient was readmitted due to CDI (confirmed with GDH antigen and toxin A/B positive) as well as Influenza type A infection, alongside severe colitis, rendering standard therapy escalation unsafe due to the risk of exacerbation of the concomitant acute infections. Furthermore, at this point of the disease course, the CRP had peaked to 245.96 mg/L, and six units of packed red blood cells were transfused due to secondary anemia, bringing the cumulative transfusion burden to 12 units across admissions. Given the failure of Infliximab monotherapy and with colectomy under consideration, Upadacitinib (45mg) was added to the therapeutic regimen on 20th February 2026 as combination rescue therapy, a clinical decision made outside the guideline-recommended approach. Ten days after discharge, CDI recurred, highlighting the potent immunosuppressive effect required to manage the severe refractory colitis.

Conclusions: The decision to combine Infliximab with Upadacitinib was driven by the failure of standard rescue options and the need to achieve a potent, broader anti-inflammatory control while avoiding colectomy. The subsequent CDI recurrence within days of discharge illustrates the challenge of maintaining a sensitive balance between adequate immunosuppression and the effective treatment of an acute infection.

JUVENES PRO-MEDICINA
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Duodenal Wall Hematoma Imitating a Pancreatic Tumor as a Rare Cause of Obstructive Jaundice – A Case report

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Presenting author: Michał Nawracaj

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Introduction: Obstructive jaundice is mostly caused by malignant lesions, such as pancreatic head cancer and cholangiocarcinoma. Atypical benign conditions, such as intramural duodenal hematoma (IDH), can imitate malignant processes in both clinical presentation and radiological findings. Early and accurate diagnosis is essential to prevent unnecessary invasive treatment.

Case report: A 65-year-old patient was referred for assessment of obstructive jaundice and endoscopic retrograde cholangiopancreatography (ERCP). The initial presentation included hematemesis, anemia (hemoglobin 9.8 g/dL; 13.0–17.5 normal), cholestasis (ALP 225 U/L; 40–150 normal; GGTP 664 U/L; 12–64 normal), and coagulopathy (APTT 48.3 s; 20–40 normal; INR 1.43; 0.8–1.2 normal). Imaging (MRCP, CT) showed dilation of both intra- and extrahepatic bile ducts (common bile duct up to 17 mm; normal <7 mm) and pancreatic duct (up to 14 mm), suggesting obstruction at the pancreatic head. CT also revealed a heterogeneous mass (44 × 56 mm) in the duodenum. The ERCP demonstrated duodenal stenosis due to external compression and distal bile duct narrowing, and a self-expandable metal stent (SEMS) was inserted. Endoscopic ultrasound with biopsy revealed an intramural duodenal hematoma without malignant features. The patient's medical history was significant for multiple comorbidities and previous anticoagulation therapy.

Conclusions: Intramural duodenal hematoma is a rare but important differential diagnosis of pancreatic head tumors causing obstructive jaundice. Early detection with imaging techniques including endoscopic ultrasonography is critical to confirm the diagnosis accurately. Early recognition facilitates the conservative treatment and avoidance of unnecessary high invasive surgical procedures.

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Atypical Presentation of Salmonella Bacteremia in Ulcerative Colitis During Immunosuppressive Treatment: A Case Report

Oliwia Hankowska

Presenting author: Oliwia Hankowska

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Introduction: Ulcerative colitis (UC) is a chronic, relapsing inflammatory bowel disease with a complex and incompletely understood pathogenesis involving genetic, immunological, and environmental factors. Current treatment strategies include 5-aminosalicylates, corticosteroids, immunosuppressive agents, and biologic therapies. Although effective in controlling disease activity, immunosuppressive treatment increases the risk of severe infections, including bacteremia and sepsis. In UC, impaired intestinal barrier integrity further predisposes to systemic dissemination of enteric pathogens. Consequently, foodborne infections may present atypically and progress rapidly to life-threatening complications.

Case report: A 57-year-old man with ulcerative colitis diagnosed in 2006 was admitted because of generalized weakness, fever up to 39°C, and severe hypotension (70/40 mmHg) lasting for two days. On admission, he reported no diarrhea, nausea, or vomiting. Physical examination revealed a soft, non-tender abdomen, and imaging studies showed no significant abnormalities. Laboratory tests demonstrated a marked inflammatory response: white blood cell count 12.6 G/L, C-reactive protein (CRP) 282.9 mg/L, and procalcitonin (PCT) >100 ng/mL. The patient had been receiving infliximab and systemic glucocorticosteroids since July 2022 because of UC exacerbation. Epidemiological history revealed that one week before symptom onset, he had attended his daughter's wedding, where he consumed food prepared several days earlier. Blood cultures were obtained on admission, and fluid resuscitation with empiric ceftriaxone therapy was initiated. Blood cultures confirmed Salmonella spp. bacteremia associated with foodborne infection. After microbiological identification and susceptibility testing, antibiotic therapy was modified according to the antibiogram, and targeted treatment with ceftriaxone and sulfamethoxazole/trimethoprim for 10 days was introduced. Previous UC treatment was continued, including mesalazine 3 g/day and prednisone 30 mg/day. Follow-up blood cultures collected at the end of antibiotic treatment remained sterile, with improvement of inflammatory markers: CRP 22.3 mg/L, PCT 0.75 ng/mL, and WBC 9.4 G/L.

Conclusions: Non-typhoidal Salmonella bacteremia in patients with IBD is a severe and potentially

life-threatening condition, particularly during biologic and corticosteroid therapy. The clinical picture may mimic disease exacerbation and delay the diagnosis. This case highlights the importance of detailed epidemiological history-taking, prompt microbiological diagnostics, and early targeted antimicrobial therapy in immunocompromised patients with UC presenting with systemic inflammatory response.

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“Hidden behind discrimination- metabolic disorders masking hemochromatosis”

Wiktoria Rabiega; Maciej Slipko

Presenting author: Wiktoria Rabiega

Work supervisor: Prof. hab. dr n. med. Mirosława Pietruczuk

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Introduction: The C282Y mutation in the HFE gene is responsible for the most prevalent form of hemochromatosis in Caucasian populations - adult-onset type 1 hemochromatosis - with a prevalence of 1 in 300 to 500 individuals. While primarily symptomatic in homozygotes, concurrent hepatotoxic environmental factors, such as alcohol consumption, significantly exacerbate the clinical course. Due to its insidious onset, the disease frequently remains underdiagnosed or is recognized only in advanced stages. Clinical manifestations are routinely misattributed to concurrent liver-damaging etiologies, notably alcohol use disorder, leading to severe diagnostic delays.

Case report: A 55-year-old overweight male presented to his general practitioner with a six-month history of sleep disturbances. Empirical management with hypnotics proved ineffective. He subsequently sought a second opinion, reporting persistent insomnia and right upper extremity arthralgia. The patient admitted to daily alcohol consumption (equivalent to one glass of wine and two spirits). Physical examination revealed generalized hyperpigmentation, gynecomastia, erectile dysfunction, and hepatomegaly. Laboratory investigations demonstrated macrocytic anemia, elevated hepatic transaminases, and hyperglycemia, culminating in a diagnosis of diabetes mellitus. Despite targeted lifestyle modifications resulting in a 7 kg weight loss and strict alcohol abstinence, clinical improvement was absent. Instead, gynecomastia and fatigue worsened. Subsequent serological testing revealed marked hyperferritinemia (6000 µg/L) and elevated transferrin saturation (80%). Family history was notable for a father who succumbed to cryptogenic cirrhosis despite lifelong alcohol abstinence. Genetic screening confirmed the presence of the HFE gene C282Y mutation. A definitive diagnosis of type 1 hemochromatosis was established.

Conclusions: Untreated hemochromatosis precipitates life-threatening complications. Patients with serum ferritin levels exceeding 1000 µg/L are at a significantly heightened risk of developing hepatocellular carcinoma, alongside potential sequelae such as restrictive cardiomyopathy and neurodegenerative disorders. This case underscores the formidable challenges in establishing a timely diagnosis. Clinicians must maintain a high index of suspicion regarding the "clinical masks" of this disorder, particularly concomitant alcohol use disorder or metabolic syndrome. The high prevalence of these confounding conditions can easily obscure underlying iron overload, leading to missed diagnoses, ineffective interventions, and potentially fatal patient outcomes.

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Severe case of Crohn's disease in a 17-year-old patient with fistulas and abscesses

Marta Abramowicz, Justyna Frączyk

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Introduction: Crohn's disease is a chronic inflammatory condition resulting from interaction between the intestinal microbiota and the host immune system, leading to inappropriate mucosal immune activation. The inflammation is transmural and may affect any part of the gastrointestinal tract, most commonly the distal ileum and proximal colon. Over time, it may lead to complications such as abscesses, fistulas, and strictures. In adolescents, typical symptoms include fatigue, abdominal pain, diarrhea, and weight loss.

Case report: A 17-year-old female with Crohn's disease was admitted to the department of Gastroenterology, Allergology and Pediatrics of Polish Mother's Memorial due to severe abdominal pain and fever. Two days later, her symptoms worsened. Imaging revealed intestinal obstruction, requiring urgent surgery. Upon laparotomy, approximately 700 ml of intestinal content was released under pressure. The intestines were diffusely inflamed and covered with fibrin. Two conglomerates with small bowel perforations were identified. An appendectomy was performed, and due to a larger perforation (3 cm), segmental resection with double-barrel ileostomy was carried out. Postoperatively, the patient improved under antibiotic therapy, corticosteroids, and adalimumab. After a two-week period of relative remission, imaging revealed fluid collections suggestive of abscesses. The patient also reported purulent vaginal discharge, raising suspicion of an enterovaginal fistula, which was not confirmed on MRI. One abscess was drained under ultrasound guidance. Due to progression of collections despite treatment, the patient was referred for surgical consultation in the Department of General and Colorectal Surgery USK-WAM Łodź. During surgery, not all abscesses could be drained. Follow-up imaging showed persistent and increasing collections. The patient is currently awaiting 3D MR enterography for precise surgical planning. Her condition remains stable.

Conclusions: This case illustrates a severe and complicated course of Crohn's disease in an adolescent patient, requiring both surgical and medical management. It highlights the challenges associated with multiple small and poorly visualized abscesses, which may limit treatment effectiveness. A multidisciplinary approach and advanced imaging techniques, such as MR enterography, are essential for optimal management and improved outcomes.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Gastrointestinal Obstruction Masked as Gastroenteritis After Ingestion of 19 Magnets in a 6-Year-Old Child with Autism

Martyna Załęczna

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Introduction: Foreign body ingestion by children is a frequent cause of intervention in Pediatric Emergency Departments. Patients with Autism Spectrum Disorder (ASD) present a particular diagnostic challenge due to limited history-taking and difficult physical examination resulting from a lack of cooperation. Ingestion of multiple magnets poses an immediate life-threatening risk, creating the potential for intestinal wall compression, necrosis, perforation, and obstruction. The danger increases the later the foreign body is discovered in the gastrointestinal tract, as it may initially present asymptomatically or mimic a gastrointestinal infection.

Case report: A 6-year-old boy with autism and epilepsy was admitted to the Emergency Department due to abdominal pain, vomiting, and loose stools. An initial abdominal ultrasound revealed free fluid in the peritoneal cavity, thickened small bowel walls, and enlarged mesenteric lymph nodes. The clinical and sonographic picture suggested a potential gastrointestinal infection, resulting in the patient's admission to the pediatric gastroenterology ward. Due to worsening abdominal pain, a board-like rigid abdomen, refusal to eat or drink, and bilious vomiting on the third day of hospitalization and an expanded maternal history regarding potential ingestion of playdough, an upright abdominal X-ray was performed. The imaging revealed a foreign body in the sigmoid colon (approx. 81x25 mm) and air-fluid levels typical of a bowel obstruction. The boy was urgently qualified for surgery in the pediatric surgery department. During an exploratory laparotomy, 19 magnets arranged in two conglomerates were extracted from the small intestine. No perforations or fistulas were observed. Following intravenous antibiotic therapy (cefuroxime, metronidazole) and fluid therapy, the patient's condition improved. The boy was discharged home on the 7th day of hospitalization in good general condition.

Conclusions: This case demonstrates that in children, especially those with neurodevelopmental disorders (e.g. ASD), non-specific gastrointestinal symptoms like abdominal pain and vomiting can mask life-threatening conditions. A lack of clinical improvement during presumed gastroenteritis, combined with difficulties in physical examination, should prompt the early implementation of radiological diagnostics (X-ray). Immediate surgical intervention after confirming the presence of multiple magnets is crucial, as they can attract each other across different bowel loops, causing tissue compression and leading to severe local complications such as intestinal perforation and bowel obstruction.

JUVENES PRO MEDICINA

Anesthesiology and Emergency Medicine Case Study

8th of May 2026

Coordinators:

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JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Visual Recovery in Branch Retinal Artery Occlusion Treated with Hyperbaric Oxygen Therapy

Agata Rzeszuto, Małgorzata Dul, Helena Żórawska, Paweł Niczyporuk, Michał Kołacz

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Introduction: Branch Retinal Artery Occlusion (BRAO) is an acute ophthalmic condition characterized by sudden retinal ischemia, which may result in severe and often irreversible visual impairment. The disorder is most commonly associated with embolic events obstructing the retinal arterial circulation. Despite advances in ophthalmic care, effective treatment options remain limited, particularly when therapy is initiated with delay. Hyperbaric oxygen therapy (HBOT) has been proposed as a supportive treatment strategy. By increasing the partial pressure of oxygen in plasma, HBOT may improve oxygen diffusion to ischemic retinal tissue, potentially protecting retinal neurons and prolonging the therapeutic window.

Case report: This case series presents three patients diagnosed with BRAO who received hyperbaric oxygen therapy. The patients differed in age as well as in the time interval between symptom onset and initiation of treatment, which ranged from 5 to 48 hours (5, 36, and 48 hours). Each patient underwent daily HBOT sessions delivered at 2.5 atmospheres absolute (ATA). Treatment outcomes were assessed through regular ophthalmologic evaluations, with particular attention to best-corrected visual acuity and subjective visual field symptoms. All three patients demonstrated noticeable improvement in visual acuity accompanied by a reduction in visual field disturbances. Importantly, clinical benefits were observed even in individuals who began therapy more than 24 hours after the onset of symptoms. The therapy was well tolerated, and no treatment-related complications were reported

Conclusions: The presented cases suggest that hyperbaric oxygen therapy may represent a valuable adjunctive treatment option for patients with Branch Retinal Artery Occlusion. The observed improvements, including in cases with delayed treatment initiation, indicate that HBOT may help reduce ischemic retinal injury during the reperfusion phase. These findings support the potential role of HBOT in extending the therapeutic window and improving visual outcomes in patients with this vision-threatening condition.

JUVENES PRO MEDICINA
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Necrotizing Soft Tissue Infection In 36-Old Male: A Case Report

Jakub Robert Winckiewicz, Sławomir Lech Czaban MD, PhD, Aleksandra Car, MSc, Arkadiusz Zdrójkowski, MSc

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Introduction: Streptococcus pyogenes (Group A Streptococcus, GAS) is a Gram-positive bacterium responsible for a wide range of human infections, ranging from mild respiratory illnesses to severe invasive diseases. Among the most life-threatening manifestations are septicemia and necrotizing soft tissue infections (NSTIs), which is characterized by nonspecific clinical presentation, rapid progression, and extensive tissue necrosis.

Case report: We report the case of a 36-year-old male who developed a necrotizing soft tissue infection (NSTI) with septic shock due to S. pyogenes following a minor thumb injury. The patient initially presented with left shoulder pain and fever, which rapidly progressed to extensive scrotal edema, severe ecchymosis extending to the thorax, and multiorgan dysfunction. Management included immediate surgical intervention, empirical broad-spectrum antibiotic therapy, and intensive care support, including mechanical ventilation, continuous renal replacement therapy (CRRT), and vasopressor therapy. Local wound management followed the TIME framework, including systematic debridement, negative pressure wound therapy (NPWT), and adjunctive hyperbaric oxygen therapy (HBOT). After 61 days of intensive care, the patient achieved clinical stability with successful infection control and was transferred for further treatment. We assessed disease severity and treatment efficacy using the Sepsis-related Organ Failure Assessment (SOFA) and Acute Physiology and Chronic Health Evaluation II (APACHE II) scoring systems. The SOFA score was used to assess and monitor the degree of multiorgan dysfunction, while the APACHE II score provided additional prognostic information. Repeated evaluations facilitated monitoring of the patient's clinical trajectory and response to the implemented comprehensive therapeutic strategy.

Conclusions: This case highlights the importance of early recognition, prompt surgical management, and comprehensive multidisciplinary supportive care in the successful treatment of severe S. pyogenes infections.

JUVENES PRO MEDICINA
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Airway Management in Granulomatosis with Polyangiitis: FROVA-Guided Intubation and Ventrain-Assisted Ventilation in Severe Upper Airway Stenosis

Kimberly C Sebastian

Presenting author: Kimberly C Sebastian

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Introduction: Granulomatosis with polyangiitis (GPA), previously known as Wegener's granulomatosis, is a relatively uncommon form of necrotizing vasculitis characterized by chronic inflammation that can lead to airway narrowing or stenosis. Such patients present significant challenges for airway management, requiring careful planning and specialized techniques.

Case Presentation: A 22-year-old female with GPA, diagnosed in August 2025, was scheduled for surgery. She reported inspiratory stridor for the past 3 months and was treated with low-dose corticosteroids and monoclonal antibodies. Endoscopic evaluation revealed high-grade laryngeal stenosis, prompting the anaesthetic team to anticipate a difficult airway. They selected the Frova Intubating Introducer, a tool that aids intubation by allowing ventilation through its central lumen. Ventilation was supported using the Ventrain device, which operates on the principle of Expiratory Ventilation Assistance (EVA). It delivers oxygen during inspiration and actively removes gas during expiration, helping to prevent air trapping. This technique was performed manually by the anaesthesiologist. General anaesthesia was maintained using total intravenous anaesthesia (TIVA). Following airway stabilisation, the surgical team proceeded with topical application of glucocorticosteroids to the stenotic segment, with subsequent balloon dilation. The procedure was completed smoothly, with no intraoperative complications.

Conclusion: This case demonstrates the importance of tailored airway planning in patients with GPA-related stenosis. The combined use of the Frova catheter and the Ventrain device provided a controlled and effective method of securing the airway while maintaining ventilation through a critically narrowed lumen.

JUVENES PRO MEDICINA
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Spontaneous Rectus Sheath Hematoma Triggered by Influenza A–Related Coughing in an Anticoagulated Patient

Małgorzata Dul, Agata Rzeszuto, Helena Żórawska, Paweł Niczyporuk, Michał Kołacz

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Introduction: Influenza A infection is typically associated with respiratory manifestations; however, in some patients it may lead to uncommon extrapulmonary complications. Intense and persistent coughing can significantly increase intra-abdominal pressure and, particularly in individuals receiving anticoagulant therapy, may result in spontaneous bleeding within the abdominal wall.

Case report: A 71-year-old woman with a medical history of atrial fibrillation treated with anticoagulants, arterial hypertension, and previously surgically treated cecal cancer was admitted to the emergency department with sudden lower abdominal pain accompanied by vomiting, fever, and shortness of breath. Laboratory tests demonstrated elevated inflammatory markers, and virological testing confirmed influenza A infection. Computed tomography of the abdomen and chest revealed bilateral inflammatory lung infiltrates and a large rectus sheath hematoma with evidence of active bleeding. The hemorrhage was most likely caused by severe coughing episodes occurring during the viral infection in the context of anticoagulant therapy. The patient was treated successfully with transcatheter arterial embolization, which resulted in rapid control of the bleeding and eliminated the need for surgical intervention.

Conclusions: This case highlights that influenza A infection may present with acute abdominal pain caused by spontaneous rectus sheath hematoma, especially in patients receiving anticoagulants. Early recognition of this rare complication is crucial. Prompt imaging diagnostics and minimally invasive interventional radiology techniques can provide effective treatment and help avoid unnecessary surgery.

JUVENES PRO MEDICINA
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The High Stakes of Diagnostic Errors: Preventing Unjust Liver Transplant Disqualification by Differentiating EMG Artifacts from NCSE

Martyna Winiecka

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Introduction: Acute-on-chronic liver failure (ACLF) is frequently associated with severe neurological impairment, primarily manifesting as Hepatic Encephalopathy. However, differentiating deep Hepatic Encephalopathy from non-convulsive status epilepticus (NCSE) remains a significant diagnostic challenge in the intensive care unit. While limited-channel frontal EEG systems (e.g., SedLine) provide rapid point-of-care assessment, they are highly susceptible to electromyographic artifacts from frontal muscles. Misinterpreting these artifacts as seizure activity can lead to inappropriate pharmacological intervention and, crucially, perceived treatment futility that may disqualify patients from life-saving liver transplantation.

Case report: A 60-year-old woman with alcoholic liver cirrhosis was admitted to the ICU for Orthotopic Liver Transplantation (OLTx) qualification following a 6 g paracetamol overdose. On admission, the patient was unconscious (GCS 3), requiring mechanical ventilation, but remained hemodynamically stable without vasopressors. Laboratory tests revealed severe hyperammonemia (NH_3 350 µmol/L) and recurrent hypoglycemia requiring continuous 20% glucose infusion. Intensive therapy for hepatic encephalopathy was initiated with lactulose, rifaximin, and L-ornithine L-aspartate (LOLA). Despite a significant reduction in ammonia levels to 150 µmol/L, her neurological status did not improve. Due to suspected NCSE and limited access to full-montage EEG during the weekend, 4-channel frontal EEG monitoring (SedLine) was initiated. The recording showed high-amplitude, variable activity suggestive of seizure-like pattern. A diazepam test resulted in immediate trace suppression, further strengthening the NCSE suspicion. To differentiate brain activity from frontal muscle interference, a neuromuscular blockade (NMB) test was performed. Following NMB administration, the EEG trace quieted identically to the diazepam effect, confirming that the "seizures" were, in fact, an electromyographic artifact from frontal muscles. Antiepileptic drugs were withheld and standard metabolic correction was continued. The patient regained full consciousness (GCS 15) the following day.

Conclusions: This case underscores that limited-lead frontal EEG is highly susceptible to EMG artifacts mimicking NCSE, potentially leading to significant diagnostic errors. It demonstrates that trace suppression following benzodiazepine administration is not pathognomonic for NCSE in frontal leads, as it may solely reflect the drug's muscle-relaxant properties. Accurate differentiation is vital during OLTx qualification to avoid an erroneous label of treatment futility and unjust patient disqualification. When full EEG is unavailable, neuromuscular blockade challenge serves as a decisive bedside tool to unmask EMG interference, ensuring appropriate therapy and equitable organ allocation.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

The Hierarchical Escalation of Vascular Access in Nijmegen Breakage Syndrome. – Case Report

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Introduction: Nijmegen Breakage Syndrome (NBS) is a rare autosomal recessive genetic disorder characterized by severe chromosomal instability and hypersensitivity to ionizing radiation. Patients frequently develop lymphoid malignancies necessitating intensive chemotherapy and central venous access.

Case report: We present the management of an 18-year-old female with NBS and Hodgkin Lymphoma. Despite a functioning Broviac catheter, the clinical requirement for total parenteral nutrition (TPN) necessitated the implementation of additional central access. Adhering to the principle of stepwise escalation, USG-guided bedside attempts at centrally inserted central catheters (CICC) and peripherally inserted central catheters (PICC) were initially unsuccessful due to small-caliber upper extremity veins (<3 mm) and limited patient cooperation. Escalation led to successful USG-guided subclavian CVC implantation under general anesthesia (GA), verified via intracavitary electrocardiogram (IC-ECG). However, the clinical course was complicated by the patient's moderate intellectual disability; in a state of agitation, the patient accidentally self-extricated the subclavian catheter. Furthermore, the onset of acute renal failure necessitated Continuous Veno-Venous Hemodialysis (CVVHD). Consequently, placement of additional catheters in the lower extremities became mandatory: a USG-guided dialysis catheter was placed in the right femoral vein, and a USG-guided CVC in the left femoral vein. All tip positionings were performed without ionizing radiation.

Conclusions: Vascular access in NBS requires a "bespoke" hierarchical approach integrating anatomical, behavioural, and multi-organ demands. Cognitive impairment significantly increases the risk of complications such as self-extrication. The preferred minimally invasive approach should be promptly escalated in the setting of multi- organ failure to facilitate the implementation of TPN. Finally, adhering to the "As Low As Reasonably Achievable" (ALARA) principle through mandatory USG-guidance and IC-ECG for tip verification is essential to maintain radiation-free protocols, ensuring patient safety in this highly sensitive population.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

When a Life-saving Procedure Becomes a Threat: Pulmonary Embolism During VA-ECMO Cannulation in a Postpartum Patient

Jagoda Rink, Natan Adamów

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Introduction: Pulmonary embolism (PE), along with deep vein thrombosis, is a manifestation of venous thromboembolism and remains a major cause of hemodynamic deterioration in critically ill patients. Pregnancy, postpartum period, sepsis, heart failure and recent surgery are well-established risk factors. In such settings, urgent vascular interventions may contribute to thrombus dislodgement or propagation, leading to acute PE.

Case report: A 36-year-old woman was admitted to the cardiac intensive care unit with a refractory cardiogenic shock due to suspected peripartum cardiomyopathy requiring urgent veno-arterial extracorporeal membrane oxygenation (VA-ECMO) support following sudden cardiac arrest caused by ventricular fibrillation. Two weeks prior, she had undergone cesarean section, followed by emergency laparotomy for small bowel perforation and peritonitis. Septic shock subsequently developed, with only partial stabilization achieved despite initial treatment. Transthoracic echocardiography before VA-ECMO implantation showed severe biventricular systolic dysfunction, with a left ventricular ejection fraction (LVEF) of 10-15%. During venous cannulation, transesophageal echocardiography visualized a mobile thrombus in the right atrium. After multidisciplinary assessment, unfractionated heparin infusion and VA-ECMO were initiated. On the following day, computed tomography revealed embolic material in the distal right pulmonary artery. Urgent catheter-directed mechanical thrombectomy was performed with multiple aspiration passes carried out at the bifurcation of intermediate and right upper lobe pulmonary arteries. Due to a lack of aspiration flow, the entire device and sheath were removed en bloc, retrieving an 8-cm thrombus. After 5 days of intensive therapy and VA-ECMO support, LVEF improved to 40-45%. Further complications included pneumonia and intra-abdominal candidiasis, both successfully treated. The patient was discharged for rehabilitation in stable condition one month later.

Conclusions: This case highlights that pulmonary embolism in critically ill patients should be considered not only a consequence of the underlying prothrombotic state but also a potential complication of urgent vascular procedures. Visualization of a mobile right atrial thrombus during venous cannulation strongly suggests that catheter manipulation may have triggered thrombus dislodgement and subsequent pulmonary embolization. This emphasizes the need for heightened vigilance during major intravascular interventions, as early recognition and coordinated multidisciplinary approach are essential for a favourable clinical outcome.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Just a Nosebleed? When Massive Epistaxis Originates from Cavernous Carotid Aneurysm.

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Introduction: Epistaxis is a frequent reason for patient visits to otolaryngology emergency departments. Most cases are benign, vascular anomalies account for less than 5% of all epistaxis occurrences. The presence of an internal carotid artery (ICA) aneurysm in the cavernous segment, penetrating the roof of the sphenoid sinus, is a rare clinical entity. These aneurysms account for only 1–2% of all intracranial aneurysms. The majority of aneurysms in this region are pseudoaneurysms, most often resulting from trauma. Their progressive growth can destroy the adjacent sphenoid sinus wall, posing a risk of life-threatening, massive epistaxis with a reported 30% case mortality rate.

Case report: A 62-year-old female patient with multiple comorbidities was admitted to the hospital due to recurrent massive epistaxis. On admission, she presented severe anemia with a hemoglobin level of 5.7 g/dL. Cyclonamine, Exacyl, packed red blood cells (pRBC) and intravenous fluid therapy were administered. The following day, bleeding recurred with very rapid blood loss - approximately 500 ml within 3 minutes. Therefore, a 16F Foley catheter and bilateral anterior tamponade were inserted. During her stay in the ward, massive bleeding occurred several more times, and the same treatment as before was used, with a total of 8 units of pRBC transfused. A contrast-enhanced computed tomography (CT) scan and an angiographic CT scan revealed a suspected 3-4 mm aneurysm in the cavernous segment of the left internal carotid artery (LICA), protruding into a deficit in the upper wall of the sphenoid sinus. After consultation with the Neurosurgery Department, the stabilized patient was transferred for transcatheter embolization of the cavernous internal carotid artery aneurysm.

Conclusions: Spontaneous, non-traumatic aneurysms are very rare, and extradural ones are even rarer. To our knowledge, only a few cases similar to ours have been described, in which an aneurysm of the cavernous segment of the LICA leads to damage to the posterior-superior wall of the sphenoid sinus and causes massive nasal bleeding. Despite their rarity, ICA aneurysms must be included in the differential diagnosis for massive, refractory epistaxis. This case underscores the critical need for advanced vascular imaging and strongly warns against the transnasal biopsy of a sphenoid mass before ruling out underlying vascular anomalies. Endovascular techniques, combined with multidisciplinary collaboration, remain the gold standard for managing this life-threatening condition.

JUVENES PRO MEDICINA

Prenatal Cardiology Case Study

7th of May 2026

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JUVENES PRO MEDICINA
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Long QT syndrome diagnosed in the neonatal period – retrospective analysis of prenatal findings

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Introduction: Long QT syndrome (LQTS) is an inherited cardiac channelopathy characterized by delayed ventricular repolarization and increased risk of malignant ventricular arrhythmias and sudden cardiac death. The estimated prevalence of LQTS is approximately 1 in 2000 live births. Mutations in genes encoding cardiac ion channels, most commonly KCNQ1, KCNH2, and SCN5A, are responsible for the majority of cases. Prenatal manifestations of LQTS may be subtle and include persistent fetal bradycardia, reduced fetal movements, or fetal arrhythmias. In many cases, however, the condition remains unrecognized until after birth.

Case report: We present a case of a neonate in whom long QT syndrome was diagnosed in the early neonatal period with retrospective analysis of prenatal findings. During pregnancy, fetal monitoring revealed a baseline fetal heart rate of approximately 120–130 beats per minute with occasional episodes of bradycardia. The mother reported reduced perception of fetal movements. Prenatal ultrasound examinations did not reveal structural cardiac abnormalities. Amniocentesis was performed due to prenatal concerns, and the fetal karyotype was normal. Assessment of fetal cardiovascular status using the Huhta cardiovascular score indicated preserved fetal well-being without signs of heart failure or hydrops. The infant was born at 38 weeks of gestation with a birth weight of 2970 g and Apgar scores of 6, 9, 9, and 10. Shortly after birth, electrocardiographic examination revealed sinus rhythm with significant QT prolongation (QTc up to 509 ms). Laboratory tests demonstrated transient electrolyte disturbances, including hypocalcemia and hypomagnesemia. Echocardiography showed normal cardiac anatomy with a small atrial septal defect (FO/ASD II) and preserved ventricular function. Analysis of heart rate variability indicated reduced autonomic variability. Genetic testing using next-generation sequencing identified a heterozygous pathogenic variant in the KCNQ1 gene, consistent with long QT syndrome type 1 (LQT1).

Conclusions: This case report highlights that subtle prenatal signs such as mild fetal bradycardia and reduced fetal movements may represent early manifestations of long QT syndrome. Because prenatal symptoms are often nonspecific, the diagnosis is frequently established only in the neonatal period after electrocardiographic evaluation. Early identification of LQTS is crucial, as appropriate management and long-term cardiologic follow-up can significantly reduce the risk of life-threatening arrhythmias and sudden cardiac death. Increased awareness of potential prenatal indicators of channelopathies may improve early detection and clinical outcomes.

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„Prenatally diagnosed heart tumors – diagnosis, prognosis and management''

Ludwika Mucha

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Work supervisor: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek Liberska

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Introduction: Fetal heart tumors are rare pathologies diagnosed in prenatal echocardiography. The aim of this study is to present prenatal diagnosis of fetal heart tumor and discuss further treatment based on a clinical case.

Case report: A 31-year-old patient (P1,D1) with suspicion of a fetal heart tumor was referred to the Department of Prenatal Cardiology of the ICZMP in Łódź. The patient stayed in 7 clinics, of which she was examined 6 times at the ICZMP in Łódź. The fetus was diagnosed with a heart tumor in the 22nd week, at the time of the first examination on April 29, 2025, the tumor size was 22x21mm. The day after the consultation, the patient was administered Bethamethasone to improve fetal lung development and limit fetal weight gain. In the following weeks, the tumor evolved significantly - 32.4 x 36.5 mm, ending with 83 cm3 (the day before delivery). Before delivery, the patient was hospitalized for 65 days at the ICZMP in Łódź. In the 28 weeks, a consultation was convened and on that day the fetus was in a state of failure 4-6 points/10 CV.P.S with polyhydramnios and generalized edema. Delivery was under general anesthesia in the hybrid room of the Cardiac Surgery Clinic of the ICZMP. The patient birth to a female child at 31 weeks, 2100 g, CS and Apgar: 1/2/4. After delivery, the baby was resuscitated (HR<60/min) for 30 seconds and the neonatal surgery began 11 minutes after the start of labor. The Cardiac Surgical Team removed a tumor measuring 7x5x5cm. The girl underwent laparotomy twice (on the 7th and 12th day of life). The girl was discharged home - after 6 weeks - in overall good health.

Conclusions: The above case report emphasizes the importance of early cardiac diagnosis of the fetus. It shows how important and irreplaceable is close cooperation between medical units and the great common desire to save the youngest patients.

JUVENES PRO MEDICINA
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Interrupted aortic arch with thymic aplasia in a newborn – why was the defect not detected earlier?

Małgorzata Sędłak, Paulina Wawrzyniak , Dominika Pisarczyk

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Introduction: Interrupted aortic arch (IAA) is a rare and life-threatening congenital heart defect characterized by a complete discontinuity between the ascending and descending aorta. It is a duct-dependent lesion requiring rapid diagnosis and urgent management in the neonatal period. IAA is frequently associated with ventricular septal defect and chromosomal abnormalities, particularly 22q11.2 deletion (DiGeorge syndrome). Despite advances in prenatal ultrasonography and neonatal pulse oximetry screening, some critical congenital heart defects remain undetected before or shortly after birth.

Case report: We present a case of a term newborn diagnosed with interrupted aortic arch and thymic aplasia in the neonatal period. The infant was born at 39 weeks of gestation by cesarean section in good general condition with Apgar scores of 10 in the 1st and 5th minute. Pregnancy was monitored regularly and routine prenatal ultrasound examinations revealed no abnormalities. Family history was notable for congenital heart disease in the mother's twin sister (ventricular septal defect). During the first hours of life the newborn remained clinically stable and pulse oximetry screening showed normal oxygen saturation. On the first day of life decreased activity, poor feeding, cold lower extremities and weak femoral pulses were observed. A soft systolic murmur was detected on auscultation. These findings prompted further diagnostic evaluation. Echocardiography revealed interrupted aortic arch distal to the brachiocephalic trunk, a large ventricular septal defect, patent ductus arteriosus and signs of left ventricular dysfunction. The thymus was not visualized in the anterior mediastinum, suggesting thymic aplasia and possible DiGeorge syndrome. Continuous prostaglandin E1 infusion was initiated to maintain ductal patency and the newborn was transferred to a tertiary pediatric cardiology center for further management and surgical treatment.

Conclusions: This case highlights the diagnostic challenges in detecting duct-dependent congenital heart defects. Interrupted aortic arch may remain unrecognized during prenatal screening because fetal circulation masks hemodynamic abnormalities. Additionally, pulse oximetry screening may be normal when the ductus arteriosus remains patent. Careful physical examination, including assessment of femoral pulses and signs of peripheral hypoperfusion, remains essential for early detection of critical congenital heart disease. Echocardiography plays a key role in confirming the diagnosis and enabling prompt life-saving treatment

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Hypoplastic Left Heart Syndrome with Interrupted Aortic Arch - a case study

Marta Podlasińska

Presenting author: Marta Podlasińska

Work supervisor: prof. Maria Respondek Liberska, dr hab. Iwona Strzelecka

Affiliations: Mazovian Academy in Plock

Introduction: Hypoplastic left heart syndrome (HLHS) is a congenital defect in which the hypoplasia of the left heart structures is accompanied by the necessity for the right ventricle to take over the full output of both pulmonary and systemic circulation. A key element of modern management of this defect is early prenatal diagnosis, which enables monitoring of the evolutionary nature of changes in the fetal cardiovascular system. HLHS may remain stable during gestational age or may progress. In cases with an evolutionary course, such as increasing restriction of the foramen ovale or flow disturbances in the pulmonary veins, the implementation of maternal oxygen therapy may play a significant therapeutic role.

Case report: This case presents a fetus diagnosed with HLHS at 21 weeks of gestation (hbd). In the course of further diagnostics, the diagnosis was expanded to include interrupted aortic arch (IAA). Due to the evolutionary nature of the defect and the increasing restriction of the foramen ovale, the patient was referred to the Polish Mother's Memorial Hospital Research Institute in Lodz to ensure the highest quality of prenatal and perinatal care. The fetal stability was monitored with a series of Echo examinations, which took place at 21, 22, 33, 34, 36, and 38 hbd. At 34 hbd, critical features of the defect were confirmed: mitral valve atresia, a filiform ascending aorta, and restriction at the level of the foramen ovale (FO) with flow velocities up to 120 cm/s, as well as retrograde flow in the pulmonary veins (reversal flow 24 cm/s). A maternal hyperoxygenation test performed at 34 hbd yielded a positive reaction in the form of the resolution of the retrograde flow in the pulmonary veins, which became the basis for the implementation of maternal oxygen therapy until spontaneous delivery. At 39 hbd, the child was born via natural delivery with a birth weight of 3600 g and 10 points on the Apgar scale. A prostaglandin infusion was started immediately after birth, and on the 7th day of life, the newborn underwent the Norwood procedure. The postoperative period was complicated by circulatory and respiratory failure, pneumonia of Klebsiella etiology (29th day of life), and COVID-19 infection (66th day of life). During the hospitalization, anemia requiring transfusion and paralysis of the left hemi-diaphragm were also noted. The infant was discharged home on the 72nd day of life in good general condition with a body weight of 5000 g. The patient remained under strict specialist care, requiring supplemental feeding through a gastric tube and pharmacotherapy.

Conclusions: This case emphasizes the crucial importance of early referral to a prenatal cardiology center of the highest reference level, which allows for interdisciplinary management of a difficult case of evolutionary HLHS and an effective fight for the newborn's life despite numerous complications.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Prenatally Detected Vascular Ring – A Case Study

Patrycja Bujnowicz

Presenting author: Patrycja Bujnowicz

Work supervisor: dr hab. prof. uczelni Iwona Strzelecka, prof. dr hab. n. med. Maria Respondek-Liberska

Affiliations: Medical University in Lodz (UMED)

Introduction: A vascular ring is a rare congenital disease manifested by abnormal formation of the main blood vessels surrounding the trachea and esophagus. Depending on the type and severity, these malformations may lead to compression of adjacent structures, causing respiratory and gastrointestinal obstruction symptoms in neonates/children. Nevertheless, they may also remain asymptomatic. Advances in prenatal diagnostics, particularly in fetal echocardiography, are increasingly allowing to detect upper mediastinal anomalies at an early stage, which are often difficult to diagnose even postnatally. Accurate prenatal diagnosis is crucial for planning perinatal care and treatment.

Case report: A 30-year-old woman with a high-risk pregnancy (gestational diabetes, pregnancy-induced hypertension and Hashimoto disease) was referred to the Department of Prenatal Cardiology ICZMP in Łódź. Examinations at 12, 18hbd were reported as "correct". At 20hbd, the abnormal origin of the great vessels was observed for the first time. At 28.6 hbd in a male fetus, a vascular ring was confirmed, consisting of a right aortic arch, a left-sided ductus arteriosus and additional encircling vessel. No extracardiac anomalies were identified. During a follow-up fetal echocardiography (35hbd), accelerated flow through the ductus arteriosus (V max – 180cm/s) and interventricular septal hypertrophy with right ventricular overload (Tei RV: 0,76) were noted. A three-vessel umbilical cord was also observed around the fetal neck. The neonate was delivered at 39.9 hbd via cesarean section due to maternal orthopedic indications, with a birth weight of 3130g and an Apgar score of 8/8. CT angiography of the chest revealed an ascending aorta that divided before the arch into two branches: a dominant right arch and a hypoplastic left arch. These vessels formed a complete vascular ring encircling the trachea and esophagus, merging into a singular descending aorta at a tracheal carina level. Slight tracheal compression was noted, with a maximum lumen diameter of 5,5x5mm. General condition of the neonate was good, with no significant respiratory or feeding dysfunctions. The patient was discharged on the 15th day of life with a recommendation for a further follow-up. At the age of 7 months, the male infant was readmitted (due to intermittent choking during feeding) for elective surgical correction of the vascular ring. Surgical division of the ring and transection of the arterial ligament resulted in the expected outcome, without complications. The child was discharged in a good general condition.

Conclusions: Despite an initially asymptomatic course, prenatal monitoring and cardiological diagnostics revealed significant abnormalities that were later confirmed postnatally. This case highlights the importance of prenatal diagnostics, which enabled early assessment and appropriate planning of effective treatment.

JUVENES PRO MEDICINA
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Cardiovascular consequences of Twin-to Twin Transfusion Syndrome – divergent neonatal outcomes in monochorionic twins born at 27 weeks of gestation: a case report

Paulina Wawrzyniak, Dominika Pisarczyk, Małgorzata Sędłak

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Introduction: Twin-to-twin transfusion syndrome (TTTS) is a severe complication of monochorionic twin pregnancies caused by unbalanced blood flow through placental vascular anastomoses. This leads to hypovolemia in the donor twin and chronic volume overload in the recipient twin. Cardiovascular dysfunction is a key component of TTTS and may already be detected prenatally using fetal echocardiography. Postnatal cardiac evaluation helps to assess the hemodynamic consequences of TTTS and guides neonatal management.

Case report: We present monochorionic diamniotic male twins delivered by cesarean section at 27 weeks of gestation due to fetal distress in the course of TTTS. Clinical course and serial echocardiographic examinations were retrospectively analyzed during neonatal intensive care. The recipient twin (birth weight 860 g) presented with polycythemia and signs of circulatory overload. Echocardiography revealed myocardial hypertrophy, restricted aortic valve opening suggesting functional aortic stenosis, abnormal ventricular filling and impaired venous return. Abnormal cerebral Doppler flow patterns suggested severe hemodynamic instability. During hospitalization the patient developed intraventricular hemorrhage grade IV and massive gastrointestinal bleeding and died on day 20 of life due to progressive cardiorespiratory failure. The donor twin (birth weight 600 g) was hypotrophic and presented with severe anemia and oliguria. Echocardiography initially showed relatively preserved cardiac morphology with hemodynamically significant patent ductus arteriosus. After pharmacological closure of the ductus arteriosus partial improvement of cardiac function was observed. The infant survived but developed complications of extreme prematurity including necrotizing enterocolitis requiring surgery, bronchopulmonary dysplasia, retinopathy of prematurity, sensorineural hearing loss and neurodevelopmental impairment.

Conclusions: TTTS leads to significant cardiovascular remodeling already in the fetal period, particularly in the recipient twin exposed to chronic volume overload. Postnatal echocardiography may reveal findings mimicking structural heart disease, such as myocardial hypertrophy or functional aortic stenosis. This case highlights the importance of early cardiovascular monitoring in TTTS and demonstrates that the same prenatal pathology may result in markedly different neonatal outcomes.

JUVENES PRO MEDICINA

Internal Medicine I

Case Reports

9th of May 2026

Coordinators:

Zofia Wieczorek

Wiktoria Woźniacka

Abdullah Al Bayati

Mayibongwe Morapedi

Jury:

dr n. med. Melania Mikołajczyk- Solińska

prof. dr hab. n. med. Marlena Broncel

dr n. med. Anna Kawińska

dr n. med. Mateusz Staciwa

dr n. med. Maciej Nadel

JUVENES PRO MEDICINA
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A rare case of a young patient diagnosed with subglottic stenosis in granulomatosis with polyangiitis.

Agata Kłosowicz

Presenting author: Agata Kłosowicz

Work supervisor: Joanna Miłkowska-Dymanowska MD, PhD

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Introduction: The granulomatosis with polyangiitis (GPA) is an autoimmune system disease characterized by ANCA-associated vasculitis of a small-sized blood vessels, which leads to necrotizing granulomatous inflammation. The majority of cases present as multi-organ disorder, particullary affecting the upper respiratory tracts, lungs and kidneys. However, it may also manifest as single-organ vasculitis. The subglottic stenosis, which is defined as narrowing of the airways below the vocal cords, occurs approximately 16-23% of patient with GPA. Due to overlapping symptoms with many other conditions, it may be misdiagnosed and treated improperly.

Case report: A 20-year-old female was admitted to the Pulmonary Department due to progressively worsening hoarseness, voice changes, and chronic cough persisting for 3–4 years. Her medical history included recurrent pneumonias, inferior nasal concha reconstruction, and adenotonsillotomy. She had been previously misdiagnosed with asthma and was repeatedly unable to perform spirometry correctly. Bronchofiberoscopy revealed subglottic stenosis. Laboratory evaluation demonstrated significantly elevated MPO-ANCA levels, while no evidence of renal involvement was found. Computed tomography showed chronic rhinosinusitis and subglottic narrowing, without pulmonary parenchymal or mediastinal abnormalities. Based on clinical and laboratory findings, granulomatosis with polyangiitis (GPA) was diagnosed, presenting as single-organ vasculitis limited to the subglottic region. Remission-induction therapy with intravenous rituximab and glucocorticoids (tapered according to the PEXIVAS protocol) was initiated, along with trimethoprim–sulfamethoxazole prophylaxis. Despite clinical improvement, the patient continues to experience exertional dyspnea (mMRC grade 2) and productive cough. Owing to persistent airway narrowing, endoscopic dilatation of the subglottic stenosis is planned. The patient remains on maintenance therapy with rituximab and low-dose prednisone.

Conclusions: The granulomatosis with polyangiitis is a highly heterogeneous condition. Its manifestations may be entirely not associated with each other. Early diagnosis of GPA can improve patient outcomes by enabling a more effective response to remission-inducing therapy. Thereupon, the increased diagnostic vigilance should be maintained to avoid excluding rarer diseases. Every incorrect decision leads to delay in initiating appropriate therapy, which may contribute to the development of irreversible fibromatous lesions and worsening of a patient's prognosis.

JUVENES PRO MEDICINA
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Sarcoidosis Mimicking Multiple Diseases: A Case Report

Aleksandra Błasiak, dr hab. n. med., prof. uczelni Michał Panek

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Work supervisor: dr hab. n. med., prof. uczelni Michał Panek

Affiliations: Medical University of Lodz

Introduction: Sarcoidosis is a disease of unknown etiology characterized by the formation of non-caseating granulomas in various organs. It may present with numerous symptoms that mimic other diseases, which often leads to misdiagnosis, particularly in multisystem sarcoidosis. This form of the disease is clinically significant due to its potential for vital organ affection and chronic organ damage. Multisystem involvement, defined as the involvement of three or more organs, is observed in approximately 20% of patients.

Case report: In November 2025, a 51-year-old woman was admitted for evaluation of multiple micronodular lesions observed on a chest X-ray performed due to dyspnea and chronic dry cough. No symptoms of infection were observed, however the patient also suffered from severe asthma, chronic sinusitis with nasal polyps, weakness, depression, hypertension, chronic fatigue, visual disturbances and skin lesions. She also reported dry mouth symptoms suggestive of Sjögren's syndrome, however, the diagnosis was not confirmed following an ultrasound examination and a negative ANA antibody result. In 2023 the patient was hospitalized due to decreased vision in her left eye. It was suspected of ischemic changes in the left optic nerve and after intravenous methylprednisolone pulse therapy (1000 mg for 5 days), her vision improved. In 2024, nodular lesions with edema and inflammation appeared on the anterior shins and were initially suspected to be lichen planus, although this diagnosis was not confirmed histopathologically. On current admission, the patient was in good general condition and presented with skin lesions resembling erythema nodosum. Laboratory tests revealed a normal serum calcium level of 2.45 mmol/L. Pulmonary function tests showed moderate, irreversible bronchial obstruction (FEV1 54%) with an elevated residual volume, while TLC and DLCO remained within normal limits, suggesting fixed obstruction rather than asthma, with possible coexistence of both conditions. Chest CT revealed diffuse nodular and micronodular lesions in both lungs, some with a perilymphatic and subpleural distribution, most prominent in the parabasal segments, which was suggestive of sarcoidosis. Small hilar and paratracheal lymph nodes were also present. Bronchofiberoscopy with biopsies revealed fragments of epithelioid cell granulomas. Sarcoidosis was diagnosed, oral steroid therapy with prednisolone 60 mg per day was initiated and the patient was discharged in good condition.

Conclusions: This case illustrates the wide range of sarcoidosis manifestations that can lead to misdiagnosis. In this patient, the disease presented with visual disturbances resembling ischemic optic nerve changes, asthma-like symptoms, xerostomia suggestive of Sjögren's syndrome and skin lesions similar to lichen planus. Such variability can delay correct diagnosis and treatment, highlighting the importance of considering sarcoidosis in patients with multiorgan and atypical symptoms.

JUVENES PRO MEDICINA
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Severe osteoporosis and fragility fractures as the presenting feature of Cushing's disease in a middle-aged man.

Aleksandra Ławecka

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Work supervisor: Dr Péter Reismann, MD, PhD, Associate Professor

Affiliations: Semmelweis University

Introduction: Cushing's disease represents an ACTH-dependent state of hypercortisolism due to a pituitary corticotroph adenoma. When cortisol remains chronically elevated, consequences appear across multiple systems, with common findings including hypertension, diabetes mellitus, hypogonadism and pronounced secondary osteoporosis. In male patients, reduced bone density can pass unnoticed until fragility fractures have already occurred. For that reason, recognising endocrine explanations early matters, since prompt treatment can improve skeletal outcomes and metabolic control, thereby reducing morbidity and mortality risk.

Case report: A 51-year-old man (physician), known to have hypertension and type 2 diabetes mellitus, was referred for assessment of severe osteoporosis following several fractures sustained with minimal trauma. His history included a vertebral compression fracture at Th10–11 in 2016, followed by a left pertrochanteric femoral fracture in 2021. Clinical examination revealed central adiposity, facial plethora, pearly striae and a reduced rib-to-iliac crest distance, a pattern that directed attention toward endogenous hypercortisolism. Dual-energy X-ray absorptiometry confirmed substantial bone loss, most evident at the femoral neck (T-score -3.6) and total hip (T-score -2.8), alongside a high estimated risk of further fracture. Endocrine testing supported ACTH-dependent hypercortisolism: morning cortisol and ACTH were elevated, cortisol failed to suppress following low-dose dexamethasone, urinary free cortisol excretion was increased, and CRH testing produced a response consistent with a pituitary source. Pituitary MRI identified a right-sided macroadenoma measuring 17 × 7 × 17mm, extending toward the cavernous sinus (Knosp 1–2). After review by the multidisciplinary pituitary board, the right-sided macroadenoma was judged the most likely ACTH-secreting lesion, and transsphenoidal surgery was recommended. One striking element of the case was the patient's ongoing refusal of definitive surgical treatment despite repeated specialist recommendations, a decision made in the context of his own professional background as a cardiac surgeon. Therefore, given the clinical severity of hypercortisolism, conservative therapy with metyrapone, a known cortisol-synthesis inhibitor drug, was started in September 2022. Biochemical indices improved, blood pressure and glycaemic control became easier to manage, and the overall clinical picture stabilised.

Conclusions: Advanced skeletal morbidity can be the first recognised manifestation of Cushing's disease. Particularly in men, where secondary osteoporosis may not be considered early in the diagnostic pathway. The case reinforces the need for careful endocrine assessment in male patients presenting with pathological or low-trauma fractures. It also highlights the management challenges that arise when clear biochemical and radiological evidence exists, but definitive surgical therapy is declined.

JUVENES PRO MEDICINA
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A Diagnostic Odyssey Across Three Hospitals: Hypercalcemic Crisis of Unknown Origin

Alicja Szymańska, Michał Chwaściński

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Work supervisor: Katarzyna Szczecińska, MD, PhD, Professor Michał Nowicki MD, PhD

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Introduction: Hypercalcemia is a common metabolic disorder defined by a calcium level above 2.6 mmol/L and affects approximately 0.5–3% of hospitalized patients. It may present with a wide spectrum of gastrointestinal, musculoskeletal, cardiovascular, neurological, and kidney symptoms. Leading causes of hypercalcemia are primary hyperparathyroidism and malignancy, accounting for approximately 90% of all cases. However, determining the underlying etiology can often be time-consuming and difficult.

Case report: An 80-year-old female was hospitalized in a neurology ward due to muscle weakness, constipation, dizziness and confusion. A preliminary diagnosis of transient ischemic attack was made, as computed tomography and magnetic resonance imaging showed no evidence of stroke. Laboratory tests demonstrated severe hypercalcemia, with calcium concentration of 4.05 mmol/L. Due to significant increase in creatinine and urea serum concentration, the patient was evaluated by a nephrologist and subsequently transferred to the nephrology ward, with the diagnosis of acute kidney injury secondary to hypercalcemic crisis. Full hypercalcemia workup showed elevated parathyroid hormone concentration of 1019,5 pg/mL, which led to a suspicion of primary hyperparathyroidism. Routine hypercalcemia management including iv fluids, loop diuretics and glucorticosteroids was administered, which promptly led to a significant improvement in patient's condition. Ultrasound of the neck did not reveal any enlarged parathyroid gland. Finally the localization of adenoma was determined with 99m/Tc-MIBI parathyroid scintigraphy, which showed an ectopic parathyroid gland localized in the superior mediastinum. Due to persistent hypercalcemia, cinacalcet hydrochloride and pamidronate were started, and shortly thereafter the patient was referred to surgery for removal of the ectopic parathyroid gland. After the surgery the patient was transferred to the endocrinology center as she required intensive calcium supplementation in the course of hungry bone syndrome. The entire diagnostic and treatment process took a month but had to be carried out in three different medical facilities

Conclusions: This case highlights the importance of differential diagnosis as well as considering rare causes of altered mental state and neurological symptoms, such as hypercalcemia. It also emphasizes the importance of a complete initial diagnosis of any severe hypercalcemia and a search for ectopic parathyroid adenoma.

JUVENES PRO MEDICINA
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The Rural Mask of Cirrhosis: A Case Study of Massive Ascites in a Nine-Year-Old Boy

Bolacin Hamza Yildirim

Presenting author: Bolacin Hamza Yildirim

Work supervisor: Dr. Tom Heller, MD

Affiliations: University of Pavia

Introduction: Ascites is a common clinical syndrome, the initial differentials of which often include hepatic disease, cardiac failure, and nephrotic syndrome. There exist, however, less common malignant or infectious causes that must not be excluded, one of which is Peritoneal Tuberculosis (PTB). PTB is a paucibacillary form of extrapulmonary tuberculosis in which the peritoneum becomes infected, most often through reactivation of latent TB with hematogenous or lymphatic spread. It usually presents insidiously with nonspecific symptoms such as ascites, abdominal pain, fever, and weight loss, which makes diagnosis challenging, particularly in low-resource settings.

Case report: A 9-year-old HIV-negative male presented with a two-week history of progressive abdominal distention. He was initially admitted to a rural district hospital where his symptoms were interpreted as sepsis and treated with intravenous antibiotics. Although the antibiotics provided temporary symptomatic relief, the underlying pathology was missed, and the patient was discharged. One week later, the child was readmitted to a central facility with recurrent massive ascites. To refine the differential diagnosis at the bedside, a focused point-of-care ultrasound (POCUS) examination was performed. The CURLS protocol was used to assess for heart failure yielding negative results, renal imaging confirmed normal kidney size without obstruction or signs of chronic disease, and liver-focused ultrasound did not show features suggestive of cirrhosis. These findings made advanced cardiac, renal, and chronic hepatic failure less likely and shifted the working differential toward malignancy and chronic infection, including tuberculosis. The revelation of regular LFTs, Urea and Creatinine upon a CBC further reinforced what had been demonstrated with US examinations, and combined with the thrombocytosis indicating a reactive inflammatory process, supported consideration of chronic infection. Subsequently paracentesis was performed, and ascitic fluid analysis using Xpert MTB/RIF Ultra detected Mycobacterium tuberculosis in the “trace” category, providing microbiologic support for peritoneal tuberculosis. The patient was initiated on RHZE therapy, resulting in complete clinical recovery and resolution of abdominal distension within three months.

Conclusions: This case illustrates the value of structured POCUS protocols as a practical diagnostic tool in low-resource settings, where they can rapidly reduce the likelihood of major organ-based causes of ascites and guide more targeted investigations. It also highlights peritoneal tuberculosis as a key diagnostic consideration in children presenting with unexplained ascites, particularly when common hepatic, cardiac, and renal causes are not supported by bedside findings. Early integration of POCUS with focused laboratory testing can shorten diagnostic delays and improve outcomes in paucibacillary forms of tuberculosis that frequently mimic other internal medicine conditions.

JUVENES PRO MEDICINA
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Multidisciplinary Rescue of a Patient with Complicated Crohn's Disease, Sepsis and Severe Thromboembolic Events: a Case Report

Dominik Czarnomski, Maja Janowska, Julia Chibowska, Paweł Janucik

Presenting author: Dominik Czarnomski

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Introduction: Surgical resection remains the cornerstone treatment for perforated Crohn's disease (CD) complicated by massive abscess formation. However, concurrent life-threatening thromboembolic and infectious complications can render emergency laparotomy prohibitively risky. This case illustrates how a synchronized, multidisciplinary approach can successfully navigate competing therapeutic risks, shifting the paradigm towards aggressive, non-operative management in a critically ill patient.

Case report: A 42-year-old male with CD and hypertension was admitted with severe gastrointestinal obstruction and sepsis (CRP 257.2 mg/L, procalcitonin 44.03 ng/mL). CT revealed a progressively dilating colon (up to 70 mm) raising clinical suspicion of toxic megacolon, a sealed intestinal perforation (~30x35 mm), and a massive right flank abscess (1,000-1,500 mL). The clinical course was acutely complicated by right femoral deep vein thrombosis, segmental pulmonary embolism (PE) and a severe polymicrobial infection including Influenza A, enteropathogenic Escherichia coli (EPEC), extended-spectrum beta-lactamase (ESBL)-producing E. coli, methicillin-resistant coagulase-negative Staphylococci (MRCoNS), high-level aminoglycoside-resistant (HLAR) Enterococci, and Candida albicans. This constellation of pathologies created an immediate therapeutic conflict: the PE necessitated full anticoagulation (low-molecular-weight heparin), while the massive abscess and profound anemia posed severe bleeding risks. Deemed a prohibitive surgical candidate, the patient's care was urgently coordinated by a multidisciplinary team (gastroenterologists, surgeons, interventional radiologists, angiologists, cardiologists and psychiatrists). Source control was achieved through a carefully orchestrated, minimally invasive approach including thoracentesis (1,300 mL) and ultrasound-guided percutaneous abscess drainage which required precise, temporary interruption of anticoagulation alongside aggressive culture-directed antimicrobial therapy. A concurrent severe depressive episode with suicidal ideation was co-managed with prompt psychiatric care, reinforcing the necessity of holistic support. Ultimately, the patient was discharged in a stable condition on a non-vitamin K antagonist oral anticoagulant (NOAC).

Conclusions: The intersection of acute surgical emergencies and absolute contraindications to operative intervention creates a clinical dilemma where standard guidelines cannot be safely applied. Managing these competing therapeutic risks relies fundamentally on collaboration across medical specialties. Ultimately, this report highlights that a highly individualized, multidisciplinary paradigm balancing aggressive medical management and psychiatric care with targeted, minimally invasive procedures is paramount to a life-saving outcome.

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Two faces of cystic fibrosis

Gabriela Rosiak

Presenting author: Gabriela Rosiak

Work supervisor: Małgorzata Pietrusińska, PhD

Affiliations: Medical University of Lodz

Introduction: Cystic fibrosis is an autosomal recessive genetic disease caused by mutations of the cystic fibrosis transmembrane conductance regulator (CFTR) gene. The results of this are thicker mucus and difficulties with clearing it. This illness occurs most commonly in Caucasian race children and young adults. The most affected organs are lungs, pancreas, sweat glands, liver, intestine, salivary glands, nasal mucosa and reproductive tract.

Case report: A 22-year-old male suffering from cystic fibrosis has frequent exacerbations of pulmonary infections. He was diagnosed with allergic bronchopulmonary aspergillosis in November 2024. In December 2025 he was admitted to the Pulmonary Department due to deteriorating ventilation parameters and haematoptysis. During this hospitalization he was diagnosed with invasive aspergillosis. A 25-year-old female, also suffering from cystic fibrosis, since childhood had symptoms of liver failure, diabetes and exocrine pancreatic insufficiency. Due to progressive cirrhosis of the liver, oesophageal varices developed, which were banded twice. In September 2021 she underwent simultaneous liver and pancreas transplantation. Both patients have the same mutation of the CFTR gene - delF508. They are treated with the same CFTR modulators.

Conclusions: These two cases show how different symptoms can be caused by the same mutation of CFTR gene. It can affect separately respiratory tract and the pancreas with the liver. This variability of symptoms emphasise the importance of individualized treatment for patients suffering from cystic fibrosis.

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Too late for cystic fibrosis? An unexpected discovery of a CFTR mutation in a 72-year-old patient

Gabriela Ujma, Daria Wojtowicz

Presenting author: Gabriela Ujma

Work supervisor: Joanna Miłkowska-Dymanowska, PhD

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Introduction: The term „CFTR-related disease" represents a spectrum of conditions characterized by dysfunction of the cystic fibrosis transmembrane conductance regulator (CFTR) protein that do not meet the diagnostic criteria for cystic fibrosis. These disorders often are characterized by atypical course or manifest themselves monosymptomatically. Such features directly lead to underdiagnosis, especially in patients of older age. We report a case of such atypical presentation of this illness - a case of a 72-year-old patient with newly identified CFTR mutation and no prior history of cystic fibrosis.

Case report: In April 2024, a 72-year-old male was admitted to the pulmonary unit due to severe dyspnea and productive cough with expectoration of large amounts of purulent secretions. Medical history states productive cough for 18 years, with a remission that lasted 10 years. Coughing intensified in December 2023 with fever and significant loss of weight (10 kg). Patient states that he has been diagnosed with chronic sinusitis and otitis media, treated with steroids and antihistamines. Bronchofiberoscopy was performed - a significant amount of purulent secretion was evacuated, from which no microorganisms were cultured, Quantiferon test was negative. Tests revealed no ANA, ANCA, anti-CCP, or RF autoantibodies. No IgA, IgG, or IgM deficiency was detected. CT scan of the chest revealed numerous inflammatory and bronchiectatic changes. Spirometry confirmed moderate persistent obstruction. Due to eosinophilia, triple therapy was introduced: azithromycin, erdosteine and beclometazone+formoterol+glycopyrronium, accompanied by pulmonary rehabilitation. There was a significant improvement visible in the patient's clinical condition and spirometry results (change from 47% to 74% predicted value). Exacerbation of the disease occurred after patients' family doctor stopped azithromycin therapy. After reintroducing the drug, the patient's condition improved again. Eventually, due to severe bronchiectasis (BSI - 11) and persistent symptoms a genetic test was performed, which revealed a heterozygous recessive mutation of the CFTR gene. Variants not included in the analysis have not been ruled out, so further genetic testing may be necessary. Sweat chloride test results are pending.

Conclusions: This case accentuates some diagnostic predicaments of CFTR related disease - a late onset and presentation consisting mainly of isolated respiratory symptoms, which should be considered atypical. Among the elderly population, such cases may mimic more common conditions, such as chronic obstructive pulmonary disease (COPD), especially if there is no prior diagnosis of cystic fibrosis. This poses a threat of underdiagnosing. That's why a clinical practitioner should always consider CFTR-related disease in a patient presenting with chronic respiratory issues and unexplained bronchiectasis, as such rare presentation is possible, even with the lack of a cystic fibrosis diagnosis.

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Microscopic polyangiitis (MPA) - Case Report

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Work supervisor: Monika Górska, Ilona Kurnatowska

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Introduction: Microscopic polyangiitis (MPA) is a necrotizing vasculitis that predominantly affects small vessels. The disease commonly presents with necrotizing glomerulonephritis and is frequently associated with pulmonary capillaritis. Importantly, MPA may present as a renal-limited disease, which can pose a diagnostic challenge.

Case report: A 47-year-old woman was admitted to the Nephrology Department with progressive lower-extremity oedema, increased fatigue, and arthralgia. Laboratory tests revealed ANA 1:320, pANCA 1:320, elevated serum creatinine (1.76 mg/dL, eGFR of 34 mL/min/1.73 m^2), erythrocyturia, proteinuria (3 g/dL), and leukocyturia. Renal biopsy (RB) demonstrated extensive tubulointerstitial fibrosis, 18 glomeruli, almost completely sclerosed, with fibrous crescents and advanced interstitial changes. Hemodialysis was initiated, along with three intravenous pulses of cyclophosphamide; however, no initial response was observed. Several months later, the patient presented with unexpectedly low serum creatinine and urea levels. A repeat RB revealed mesangial matrix expansion, crescentic glomerulonephritis with fibrous crescents and what is the most important - fibrocellular crescents which were not determined in the first RB. Remission induction therapy with cyclophosphamide was initiated. Four months later, dialysis was discontinued, and the patient remains under outpatient care with stable kidney function(sCr, eGFR of 20 mL/min/1.73 m^2.)

Conclusions: This case not only provides valuable insight into the management of a patient with a relatively uncommon disease but also highlights the importance of reassessing the diagnosis when the clinical course and subsequent findings are inconsistent with the initial diagnostic interpretation.

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Rare Coexistence of Insulinoma and Type 2 Diabetes Mellitus: A Diagnostic Challenge - Case Report

Julia Ryniecka

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Introduction: Insulinomas are rare pancreatic neuroendocrine neoplasms with an estimated incidence of approximately one to four cases per million per year. They are the most common functioning pancreatic neuroendocrine tumors and typically present with hypoglycemia. Although the diagnosis is often suggested by Whipple's triad, it remains challenging due to the nonspecific nature of the symptoms and the wide differential diagnosis of hypoglycemia. In patients with diabetes mellitus, recurrent hypoglycemia is usually attributed to the use of hypoglycemic agents, which may delay identification of other underlying causes. The coexistence of diabetes mellitus and insulinoma is extremely rare and may represent a significant diagnostic challenge.

Case report: A 78-year-old female with a 9-year history of type 2 diabetes mellitus was admitted to the Internal Medicine and Diabetology department due to one-and-a-half-year history of fasting and between-meal hypoglycemia, with home blood glucose measurements as low as 39 mg/dL. She reported symptoms of weakness, dizziness, and blurred vision, which resolved after intake of a sugary drink. Her medical history was also notable for hypertension, dyslipidemia, coronary artery disease with a previous acute coronary syndrome in 2010, and iatrogenic hypothyroidism following thyroidectomy for hyperthyroidism. Laboratory evaluation revealed venous blood glucose: 42 mg/dL, elevated levels of insulin (843.6 pmol/l) and C-peptide (3.47nmol/l), while other laboratory parameters were within normal limits. Abdominal CT revealed a 23 × 20 × 22 mm contrast-enhancing mass in the tail of the pancreas, suggestive of a neoplastic lesion, with insulinoma included in the differential diagnosis; the pancreas was otherwise small with a preserved lobular pattern, the main pancreatic duct was not dilated, and no additional abnormalities were observed. Given the clinical presentation and imaging findings strongly suggestive of an insulinoma, the patient was scheduled for surgical intervention. A midline upper laparotomy was performed, and the mass was successfully excised. Postoperatively, intensive subcutaneous insulin therapy was initiated, achieving optimal metabolic control of her diabetes, and she was discharged in good general condition.

Conclusions: This case illustrates a rare and diagnostically challenging coexistence of insulinoma and type 2 diabetes mellitus. Recurrent hypoglycemia in diabetic patients is often attributed to antidiabetic therapy, potentially delaying recognition of other causes. Careful clinical evaluation, thorough laboratory assessment, and appropriate imaging are essential for timely diagnosis. Surgical resection remains the treatment of choice, leading to resolution of hypoglycemic episodes and optimal metabolic control. This case underscores the importance of maintaining a high index of suspicion for insulinoma in diabetic patients presenting with unexplained recurrent hypoglycemia.

JUVENES PRO MEDICINA
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Benralizumab as a new therapeutic option for patients with HES – a case report.

Kamil Marszałek

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Introduction: Hypereosinophilic syndrome (HES) encompasses a group of heterogeneous disorders characterized by persistent and substantial elevations in eosinophil levels (>1500 cells/µL) and can present with dermatological, pulmonary, gastrointestinal, cardiac and neurological symptoms. Based on its etiology, HES can be divided into five subtypes: primary, secondary, familial, idiopathic and organ-restricted. The disease is rare with 0.36 to 6.3 incidents per 100,000 cases and systemic glucocorticoids is the primary line of therapy for most HES variants.

Case report: A 64-year-old female was admitted to the Allergology Department to diagnose the cause of persistent eosinophilia. The patient was previously diagnosed with asthma, gastroesophageal reflux, hypertension with history of hypereosinophilia in two previous years (highest value: 1790 cells/µL). One year prior, the patient was hospitalized in the Otolaryngology Department in order to have functional endoscopic sinus surgery (FESS). On admission, the patient reported general malaise, dyspnea, coughing and stomach ache. During the hospitalisation, the patient was treated with oral and inhaled steroids for asthma, with unsatisfactory response and moderate decrease in the number of eosinophils. Based on medical history, clinical state, and laboratory results HES was diagnosed. The patient was offered to participate in a phase III clinical study with use of benralizumab in HES treatment (NATRON). One year later, the patient was admitted to the Clinic due to nasal congestion with smell impairment. Intensification of sinusitis treatment with oral corticosteroids was successful. Currently, the patient remains in the study, with no persisting symptoms, normal eosinophil values, and with significant asthma improvement.

Conclusions: Hypereosinophilic syndrome is an umbrella term for diverse diseases, of which the common element is the tissue and/or peripheral hypereosinophilia with concomitant destruction of organs. One and only biologic currently registered in HES treatment is mepolizumab. Abovementioned case presents a patient in phase III clinical trial, treated with benralizumab (anti- IL-5R alpha), proving its efficacy and utility, creating a new therapeutic option for HES patients.

JUVENES PRO-MEDICINA
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Asymptomatic Hyperandrogenism: A Case of Non-Classical Congenital Adrenal Hyperplasia as a Hidden Cause of Infertility

Katarzyna Sołoducha

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Introduction: Congenital adrenal hyperplasia with 21-hydroxylase deficiency is an autosomal recessive disorder resulting from a mutation in the CYP21A2 gene. It is characterized by inhibition of cortisol and aldosterone synthesis, resulting in a compensatory increase in ACTH and adrenal androgen secretion. In women, the classic form of CAH presents with evident clinical signs of hyperandrogenism, whereas the non-classical form may have a milder course, making it more likely to be undiagnosed until adulthood. A rarer variant is the cryptic form, in which clinical symptoms are absent, and the diagnosis is based solely on hormonal and genetic findings.

Case report: We present a case of a 27-year-old female patient referred to the Department of Endocrinology and Metabolic Diseases, Polish Mother's Memorial Hospital - Research Institute, for diagnostic evaluation of hyperandrogenism, detected on outpatient laboratory testing. Before admission, the patient was under Fertility Clinic care. Despite significant biochemical abnormalities, the patient did not report any typical symptoms of hyperandrogenism, such as hirsutism or acne. What is important, the patient did not experience any menstrual irregularities, which contributed to masking the underlying disorder. Tests performed at the clinic showed increased levels of 17-OH-progesterone (18,3 ng/ml), DHEA-S (620 ug/dl), androstendione (5,58 ng/ml), and testosterone (1,240 ng/ml). Serum cortisol levels were within the lower normal range. A 1 mg dexamethasone suppression test yielded normal results. These findings indicated an adrenal source of androgen excess. After ruling out other possible causes, a diagnosis of congenital adrenal hyperplasia caused by 21-hydroxylase deficiency was made. The above diagnosis likely explains the patient's infertility history and has significant importance for clinical management. Despite the reduced fertility, pregnancy is possible in CAH- affected patients, with appropriate preconception counseling, genetic risk assessment, and individualized care. Pharmacological treatment must consider both maternal and fetal needs, as certain glucocorticoids are not inactivated by the placenta and exert effects on the fetus, which in selected cases may be therapeutically intended. However, prenatal diagnostic options are limited, and the use of prenatal glucocorticoid therapy remains controversial due to an uncertain benefit–risk ratio.

Conclusions: CAH may occur without the typical clinical signs of hyperandrogenism, and their absence does not exclude the presence of the disease. The key diagnostic criterium for CAH are increased levels of basal and / or stimulated 17-OH-P. In patients planning pregnancy, a multidisciplinary approach involving endocrinologists, gynecologists, and genetic counselors is essential. Our case aims to highlight that CAH diagnosis might be delayed until adulthood in non-classical variants and to outline appropriate management strategies in patients planning pregnancy.

JUVENES PRO MEDICINA
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Spontaneous remission of Cushing's disease following pituitary microadenoma apoplexy: A case report with a 5-year follow-up

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Introduction: Cushing's disease (CD) is the primary etiology of endogenous Cushing's syndrome (CS). Spontaneous remission of CD is an infrequent occurrence, typically associated with microadenoma apoplexy. The purpose of this case report is to illustrate the rare event of spontaneous CD remission driven by pituitary apoplexy, alongside the ensuing long-term clinical challenges.

Case report: A 31-year-old female was admitted for an elective evaluation of the long-term consequences of ACTH-dependent CD, diagnosed in 2018. Her initial presentation included rapid and severe weight gain (approximately 40 kg), menstrual irregularities, violaceous abdominal striae, hirsutism, and acne. Endocrine assessment demonstrated a loss of physiological diurnal cortisol variation, featuring elevated midnight serum cortisol (16–24 µg/dL), lack of cortisol suppression following the overnight 1-mg dexamethasone test, and elevated plasma ACTH levels [48–72 pg/mL] (ref: [10–60]). A robust ACTH response to CRH stimulation corroborated the pituitary origin of hypercortisolism. High-resolution pituitary MRI identified a [1 mm] microadenoma. Furthermore, a 68Ga-DOTA-TATE PET/CT scan ruled out any ectopic ACTH production. In 2019, while awaiting surgical intervention, the patient experienced a spontaneous clinical and biochemical remission of hypercortisolism. Her cushingoid phenotype resolved entirely, she lost 40 kg, and eumenorrhea was restored. Subsequent pituitary MRI scans revealed features compatible with prior tumor apoplexy, which eventually evolved into a fibrotic residual mass by 2022. For nearly four years, despite apparent clinical cure, an inadequate suppression on the 1 mg dexamethasone test (LDDST) and a paradoxical response to desmopressin (DDAVP) stimulation persisted. This indicated the continued presence of dysplastic corticotroph cells, necessitating vigilant monitoring for hypercortisolism relapse. Definitive normalization of the HPA axis was eventually established in 2023, characterized by the loss of DDAVP responsiveness and adequate suppression on the LDDST.

Conclusions: Spontaneous remission of CD is an exceedingly rare phenomenon, most commonly resulting from pituitary tumor apoplexy. As demonstrated in this case, abnormal DDAVP stimulation may persist for a long period despite clinical and biochemical remission of hypercortisolemia. Therefore, such patients require long-term surveillance due to the significant risk of CD recurrence.

JUVENES PRO MEDICINA
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How tricky could diagnosis of recurrent hemoptysis get? - Case study of a patient with mycotic aneurysm and pyogenic granuloma

Krzysztof Biernacki

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Introduction: Mycotic aneurysm is a rare condition characterized by a localized dilation of the arterial wall with a saccular morphology. Despite its name, it is mostly caused by bacteria. Microorganisms settle within the vasa vasorum of large arteries because of bacteremia, septic embolization, or through direct invasion of the vessel wall. Untreated mycotic aneurysms are associated with high mortality, as they frequently lead to vessel ruptures and massive hemorrhages. Pyogenic granuloma is a relatively common tumor-like lesion presenting as a red, pedunculated papule often with ulcerated surface and marked friability. In most cases, etiology remains unknown. It occurs typically on skin and mucous membranes of the head and neck. The concurrent occurrence of mycotic aneurysm and bronchial pyogenic granuloma has not been reported in the literature.

Case report: A 51-year-old man presented to the Emergency Department due to his first-ever episode of hemoptysis preceded by throat discomfort. During the diagnostic workup, imaging studies revealed a saccular aneurysm of the aortic arch and a polypoid mass lesion on the wall of the left main bronchus. The patient underwent the TEVAR procedure and was transferred to the pulmonology department for diagnostics of endobronchial lesion. Despite the use of broad-spectrum antibiotic therapy following the TEVAR procedure, the infection persisted in a latent form, and hemoptysis recurred with regrowth of the lesion after bronchoscopic excisional biopsies. The patient underwent multiple diagnostic and therapeutic interventions, including PET-CT imaging, repeated bronchoscopic removal of the endobronchial lesion and installing bronchial nitinol stent. They failed to provide sustained clinical benefits. Moreover, the histopathological findings suggesting the possibility of vasculitis led to the initiation of ineffective immunosuppressive therapy. Clinical remission was ultimately achieved after two years, following the implementation of prolonged antibiotic therapy with cloxacillin. During this time, the patient experienced multiple significant complications, including pulmonary embolism, endoleak, sepsis, and acute kidney injury. Despite extensive rheumatologic evaluation, no autoimmune etiology of the granulomatous lesion was identified.

Conclusions: This unique case of concurrent aortic mycotic aneurysm with bronchial pyogenic granuloma serves as a reminder and a lesson. Firstly, every doctor should be aware of the predominance of the clinical image over the histopathological reports, as effects of chronic pathogen stimulation may look like an autoimmunologic process. Secondly, the TEVAR procedure, although representing a promising alternative to open surgical repair, still does not yield satisfactory outcomes in terms of infection eradication. Furthermore, there are no clear, standardized management guidelines for cases of recurrent graft infection; thus, the described patient remains on indefinite antibiotic therapy.

JUVENES PRO MEDICINA
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The watermelon pattern behind recurrent anemia: a case of Gastric Antral Vascular Ectasia (GAVE)

Łucja Wróbel

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Introduction: Gastric antral vascular ectasia (GAVE) is a rare, non-variceal cause of upper gastrointestinal bleeding. It typically presents with chronic, occult blood loss leading to iron deficiency anemia. The condition is commonly referred to as "watermelon stomach" due to its characteristic endoscopic appearance of longitudinal erythematous stripes in the antrum. GAVE often coexists with liver cirrhosis, autoimmune diseases (especially systemic sclerosis), and chronic kidney disease. Management is based on therapeutic endoscopy, most commonly with argon plasma coagulation (APC).

Case report: A 73-year-old female was admitted with severe symptomatic anemia, experiencing progressive weakness and decreased exercise tolerance over several weeks, without overt gastrointestinal bleeding. She had been hospitalized multiple times previously and required numerous transfusions due to severe anemia. Prior gastroscopies revealed a gastric ulcer (Forrest III), portal hypertensive gastropathy, as well as vascular lesions in the antrum and duodenum that had been treated with APC. Despite these interventions, the source of chronic bleeding remained unidentified, leading to worsening anemia and the need for repeat hospitalization. On current admission, laboratory tests showed hemoglobin 4.3 g/dL, AST 53 U/L, ALT 30 U/L (De Ritis ratio 1.77), and chronic iron deficiency. Her medical history included liver cirrhosis, peptic ulcer disease, colonic diverticulosis, type 2 diabetes mellitus, a left renal cortical cyst, COPD, history of smoking, and serological evidence of past hepatitis B exposure (anti-HBc positive). Abdominal CT demonstrated a cirrhotic liver with features of portal hypertension and collateral circulation. Esophagogastroduodenoscopy revealed findings consistent with GAVE, with actively oozing telangiectasias in the antrum and pyloric canal. Duodenal telangiectasias were also noted and treated with endoscopic clipping. APC was applied to the gastric lesions. During hospitalization, the patient received 9 units of packed red blood cells.

Conclusions: This case highlights GAVE as a rare but clinically significant cause of recurrent, transfusion-dependent iron deficiency anemia. It emphasizes the importance of systematic evaluation and early endoscopic assessment in patients with unexplained or refractory anemia, particularly when prior investigations fail to identify a source of bleeding. Early recognition and treatment of GAVE can prevent repeated hospitalizations and reduce transfusion requirements, underscoring the need for heightened clinical awareness in at-risk populations.

JUVENES PRO-MEDICINA
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Rare Paraneoplastic Syndrome: Membranous Nephropathy In Neuroendocrine Tumor – A Case Report

Łukasz Hurt

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Introduction: Neuroendocrine neoplasms (NENs) are rare tumors, most commonly arising in the gastrointestinal tract and lungs. They may cause systemic manifestations through the secretion of bioactive substances or paraneoplastic mechanisms. Membranous nephropathy (MN) is a chronic glomerular disease characterised by immune complex deposition along the outer glomerular basement membrane, resulting in proteinuria and hypoalbuminemia. While MN is typically associated with gastrointestinal and lung carcinomas, its occurrence in NENs is exceptionally rare and limited to isolated reports.

Case report: A 72 year old woman with stage G4 chronic kidney disease was admitted in October 2025 to the hospital due to worsening renal function, proteinuria, and microscopic haematuria. Laboratory tests showed eGFR 25 ml/min/1.73 m², creatinine 1.96 mg/dl, and mild normocytic anaemia. Kidney biopsy revealed a membranous-pattern glomerulopathy with crescents, irregular IgM and C3c deposits, without light-chain restriction on immunohistochemical examination. These findings suggested nephropathy of possible secondary origin, prompting evaluation for a possible tumor. Laboratory tests revealed elevated tumor markers (CA 19-9, CA 15-3, HE4, ROMA). Abdominal CT demonstrated mild right-sided urinary tract obstruction and a 24 × 15 mm nodular lesion near the mesenteric vessels in the cecal region, interpreted as an enlarged lymph node. PET imaging showed increased 18F-FDG (SUVmax 6.3) uptake in the ileocecal region; however, there were no clear signs of a focal lesion with high metabolic activity, and the process was most likely hyperplastic in a single lymph node. The result was considered inconclusive. It was decided to perform robotic laparoscopy, which revealed cecal infiltration. Consequently, a hemicolectomy was performed, and histopathological examination confirmed a well-differentiated neuroendocrine tumor (NEN G1) of the ileocecal region infiltrating the full bowel wall and peritoneal adipose tissue, with serosal perforation, perineural invasion, and vascular emboli. Tumor cells were chromogranin-positive with a Ki-67 index <1%. The improvement in renal parameters following tumor resection suggests that membranous nephropathy was a paraneoplastic syndrome.

Conclusions: This case highlights membranous pattern nephropathy as a clinically relevant paraneoplastic manifestation of neuroendocrine tumors. Renal recovery closely mirrored effective control of the underlying NET. In adults with unexplained MN or nephrotic-range proteinuria, evaluation for underlying malignancy, including NENs, should be considered, as timely treatment may improve renal outcomes. The case also underscores the importance of multidisciplinary collaboration in diagnosis and management.

JUVENES PRO MEDICINA

Internal Medicine II Case Reports

9th of May 2026

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JUVENES PRO MEDICINA
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Multimodal Immunomodulatory Therapy in Sepsis-HLH Overlap Syndrome: A Case Report of Successful Management with TPE and IVIG

Martyna Winiecka

Presenting author: Martyna Winiecka

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Introduction: Sepsis-Hemophagocytic Lymphohistiocytosis overlap syndrome (SHLHOS) is a rare life-threatening condition of excessive immune activation leading to multiorgan failure. Due to overlapping clinical features with a septic shock, it is often underdiagnosed. We present a case of a 25-year-old male with multiorgan failure and features of HLH, successfully managed with therapeutic plasma exchange (TPE) and immunomodulatory therapy.

Case report: A 25-year-old male was admitted to the intensive care unit with septic shock. He was initially awake and alert but rapidly deteriorated, developing refractory shock that required escalating doses of vasopressors. His condition progressed to acute kidney failure, requiring dialysis, and he exhibited severe coagulopathy consistent with disseminated intravascular coagulation (DIC). Progressive respiratory failure necessitated endotracheal intubation and mechanical ventilation. The patient developed metabolic acidosis and underwent sustained low-efficiency dialysis (SLEDD). Inflammatory markers were elevated (ferritin 10,000 ng/mL, IL-6>50,000 pg/mL, procalcitonin 172 ng/mL). Despite the initial treatment including broad-spectrum antibiotics, meropenem and vancomycin, and antiviral coverage, as well as an extensive infectious workup—including negative blood, bronchoalveolar lavage (BAL), and urine cultures, along with a negative serology screen—the patient's condition continued to deteriorate. Suspecting SHLHOS, treatment with steroids was initiated alongside therapeutic plasma exchange (TPE) with fresh frozen plasma, intravenous immunoglobulins (IVIG), and antithrombin III. TPE was used to remove inflammatory mediators and stabilize the patient. After 7 weeks in the ICU, the patient was transferred to a step-down unit.

Conclusions: Sepsis-HLH Overlap Syndrome (SHLHOS) is a challenging diagnosis due to the overlapping clinical features of both conditions and the risks of immunosuppressive treatment in a septic patient. This case highlights the need of early recognition and multimodal therapy to mitigate the inflammatory response and prevent organ damage. Given the balance between immunosuppression and the risk of worsening infection, therapeutic plasma exchange and intravenous immunoglobulins were used to modulate immune dysregulation, but their effectiveness in SHLHOS remains unclear, as there are no randomized controlled trials due to the rarity of the condition. This underscores the need for research to establish evidence-based treatment.

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Veillonella Atypica bacteremia in an immunocompetent patient

Maxwella Oyintare Fakrogha, Karolina Beita Viquez MD

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Introduction:

Veillonella species are gram-negative, obligate anaerobic cocci that are commonly part of the commensal microbiota of the human gastrointestinal and genitourinary tracts. These organisms have low virulence and are frequently identified in polymicrobial infections, such as dental abscesses and intraabdominal infections. While infections caused by Veillonella species are typically associated with immunocompromised individuals, this case reports highlights an unusual infection in an immunocompetent patient with no significant comorbidities.

Case report: A 67-year-old immunocompetent male with a medical history of obstructive sleep apnoea presented to the hospital following an episode of cardiac arrest secondary to ventricular fibrillation. After successful resuscitation and coronary intervention of a drug-eluting stent placed in the left anterior descending (LAD) artery occlusion, the patient was admitted to the intensive care unit for further monitoring. On hospital day 2, the patient developed a fever of 38.6°C. Blood cultures revealed growth of Veillonella atypica in an anaerobic sample. Imaging studies did not identify a source of infection. The patient was initially treated with piperacillin-tazobactam, then upon consultation was later transitioned to ampicillin-sulbactam for a course of seven days before subsequently being discharged on oral amoxicillin-clavulanate. The patients fever subsided, his white blood cell count normalized and was subsequently discharged home clinically stable.

Conclusions: This case shows that Veillonella atypica has the potential to cause bacteremia in immunocompetent patients without pre-existing comorbidities. Given its nonspecific presentation and diagnostic challenges, clinicians should maintain awareness of its pathogenic potential. More case reports are needed to fully understand the pathogenicity of Veillonella.

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Imported Furuncular Myiasis Due to Cordylobia anthropophaga in a 24-Year-Old Traveller - A Case Report

Justyna Adamczuk, Katarzyna Sikorska, Piotr Czupryna, Karol Borawski, Mateusz Matwiejuk, Hend Malla, Merry Jebessa, Anna Moniuszko-Malinowska

Presenting author: Merry Jebessa

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Introduction: Myiasis, a neglected tropical disease, is the most common form of human infestation by dipterous fly larvae. Of the many forms, Cutaneous Myiasis is the predominant type. It occurs when larvae invade and develop within the skin of vertebrate hosts. European cases of cutaneous myiasis due to Cordylobia anthropophaga (Tumbu fly) are observed in travellers returning from sub-Saharan Africa. Patients typically present with painful boil-like nodules, often accompanied by a sensation of movement within the lesion.Here we present a case of Cutaneous Myiasis acquired after a short trip to Zanzibar, East Africa.

Case report: A 24-year-old previously healthy woman presented to the Emergency Department with intensely painful skin lesions on the left forearm and both buttocks. The symptoms appeared one week after returning to Poland from Zanzibar. Physical examination revealed multiple erythematous crater-like lesions: three on the right buttock, one on the left buttock, and one on the left forearm. Point-of-care ultrasonography demonstrated inflammatory changes in the subcutaneous tissue and distinct hypoechoic channels at the dermal–subcutaneous interface containing moving structures suggestive of parasitic larvae. Prior to presentation, the patient had manually extracted one larva herself. The remaining larvae were removed in the Emergency Department and outpatient clinic following surgical consultation. Morphological features and lesion distribution were consistent with cutaneous myiasis. A specimen was sent to a reference parasitology laboratory in Gdynia, which confirmed the organism as Cordylobia anthropophaga. Symptomatic treatment, including antihistamines, analgesics, and antibiotic therapy, was administered, and dermatological follow-up was recommended. The patient recovered without complications.

Conclusions: This case highlights travel-associated cutaneous myiasis as an important differential diagnosis in returning travelers presenting with furuncular skin lesions. Point-of-care ultrasonography can facilitate early diagnosis by demonstrating larval movement within subcutaneous tissues. Prompt recognition and larval extraction lead to rapid symptom resolution and help prevent complications and misdiagnosis as other skin conditions.

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Atypical Isolated Pulmonary Amyloidosis: A Case Report

Michał Lichoń

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Work supervisor: dr n. med. Joanna Miłkowska-Dymanowska

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Introduction: Amyloidosis is a group of diseases characterized by extracellular deposition of fibrillar dissoluble misfolded proteins which hardly ever occurs in a lung parenchyma in its isolated form. It is often presenting with nonspecific clinical and radiological features that can mimic neoplasia or other cystic and interstitial lung disorders leading to organ dysfunction and eventually death.

Case report: We present the case of a 42-year-old female, non-smoker, initially treated for bronchitis in 2017. Chest radiography revealed numerous bilateral pulmonary opacities. High-resolution computed tomography (HRCT) showed diffuse, thin-walled cystic lesions of varying shapes with relative sparing of the lung bases, accompanied by ground-glass opacities and small nodules. Initial histopathological examination following video-assisted thoracoscopic lung biopsy demonstrated features of emphysema and pneumoconiosis. Reevaluation in a referral center, including Congo red staining, confirmed amyloid deposition predominantly within vascular walls, alveolar septa, and bronchiolar structures, with immunohistochemistry suggesting AL amyloidosis. The sole symptom reported by the patient was reduced exercise tolerance. Systemic involvement was not demonstrated: serum and urine studies showed no monoclonal protein, bone marrow biopsy revealed only 4% plasma cells with minimal amyloid deposits, and cardiac and abdominal imaging were unremarkable. Pulmonary function tests initially demonstrated an obstruction and restrictive pattern with reduced diffusing capacity (DLCO). In 2025, the patient was hospitalized due to persistent cough and decreased exercise tolerance, and was diagnosed with superimposed atypical and bacterial pneumonia. Despite treatment, respiratory symptoms persisted with fluctuating functional impairment. During long-term follow-up, imaging demonstrated progression with coexisting cystic and calcified nodular lesions. In 2026, the newest spirometry revealed persistent airflow obstruction with a positive bronchodilator response, while body plethysmography showed significant air trapping and reduced DLCO.

Conclusions: This case highlights a rare presentation of pulmonary AL amyloidosis with combined cystic and nodular changes, slow radiological progression and evolving functional impairment, including air trapping in the absence of overt systemic disease. The report underscores the importance of histopathological reevaluation and longterm follow-up. Moreover, lung transplantation remains the only effective considerable option to prevent sudden or progressive deterioration, highlighting the lack of effective non-invasive treatment options.

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Beyond the skin: lesions as the first clue to small-cell lung cancer

Patrycja Chmielarz

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Introduction: Dermatomyositis is an idiopathic inflammatory myopathy that can occur as a paraneoplastic syndrome and is associated with malignancy in approximately 10–30% of cases. In some patients, skin lesions may appear before the diagnosis of cancer, which can make the initial diagnosis challenging due to overlap with other dermatologic conditions.

Case report: A 65-year-old woman presented with erythematous-scaling and erythematous-papular lesions located on photo-exposed areas, including the forehead, eyelids, cheeks, dorsal hands with nailfold involvement, as well as the upper chest and lateral trunk. Over the preceding three months, she reported an unintentional weight loss of 5 kg and lack of improvement with topical treatment. At the time of initial evaluation, no muscle weakness was observed and creatine kinase levels were within the normal range. Subacute cutaneous lupus erythematosus was initially suspected; however, dermatomyositis and a possible paraneoplastic background were also taken into consideration due to overlapping clinical features. Further work-up revealed a mass in the left lung on chest X-ray, and bronchoscopy confirmed small-cell lung carcinoma. Histopathological examination of the skin biopsy supported the diagnosis of dermatomyositis. Tumor markers (CA 19-9, CA 15-3, CYFRA 21-1, and CEA) were elevated. During follow-up, the patient developed muscle weakness, limb edema, and paresthesia. After a cardiovascular event, systemic chemotherapy was deemed contraindicated, and the patient was treated with radiotherapy along with continued immunosuppressive therapy.

Conclusions: Dermatomyositis can be a manifestation of an underlying malignancy, with skin lesions sometimes being the first sign of disease. Because of its similarity to other dermatologic conditions, the diagnosis may be delayed. In older patients, especially those with rapidly developing skin changes, systemic symptoms, and poor response to standard topical treatment, a paraneoplastic cause should be considered. In such cases, appropriate malignancy screening is warranted.

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Iatrogenic Hyponatremia During the Diagnostic Workup of Hyperandrogenism: From Clinical Suspicion to Real Threat

Tomasz Wieczorkiewicz, Kornel Witek

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Introduction: Desmopressin (DDAVP) is increasingly used in the diagnostic workup of Cushing's syndrome (CS), particularly as an adjunctive dynamic test in selected clinical scenarios including differentiation between functional and neoplastic hypercortisolemia. Although considered a useful confirmatory tool DDAVP administration may be associated with clinically relevant water–electrolyte disturbances. We report a case of a young woman in whom DDAVP testing performed during the evaluation of hypercortisolemia was complicated by severe hyponatremia.

Case report: A 22-year-old woman was admitted to the Department of Endocrinology for verification of suspected CS after lack of cortisol suppression in an outpatient overnight 1mg dexamethasone suppression test (DST). The diagnostic workup was initiated due to clinical features of hyperandrogenism. Physical examination revealed marked hirsutism and acne, without phenotypic features of CS. Laboratory evaluation showed significantly elevated androgen levels: total testosterone 2.73nmol/L [0.48–1.85] and dehydroepiandrosterone sulfate 727.7µg/dL [134.2–407.4]. Circadian cortisol rhythm, 24hour urinary free cortisol excretion, and plasma ACTH were normal. Non-classical congenital adrenal hyperplasia was excluded. Pituitary MRI revealed a lesion suggestive of a Rathke's cleft cyst. Additionally, a combined overnight 1mg DST followed by 10µg DDAVP stimulation was performed. Once again, complete cortisol suppression after DST was not achieved(6.8 µg/dL) however, the absence of a cortisol response to DDAVP stimulation(negative result) argued against the neoplastic hypercortisolemia. A few hours post-test, the patient developed severe headache and somnolence. Venous blood gas analysis revealed acute hyponatremia: serum sodium 122mmol/L[137–145], plasma osmolality 262mmol/kgH_2O. Further history revealed that despite prior instructions regarding strict fluid restriction after DDAVP test, the patient had consumed approximately 3000mL of water motivated by a desire to "flush out the contrast agent" after MRI. Hyponatremia was corrected with 3% sodium chloride, resulting in rapid clinical improvement and normalization of serum sodium.

Conclusions: This case highlights that DDAVP, as a potent antidiuretic agent, carries a significant risk of severe water intoxication, particularly in the setting of inadequate fluid restriction. Thorough patient education is essential to prevent potentially life-threatening iatrogenic complications during endocrine diagnostic testing.

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Endocrine Manifestations of Nephrotic Syndrome: Menstrual Irregularities and Biochemical Hyperandrogenism Secondary to Urinary Protein Loss.

Tymon Pietrzak

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Introduction: Nephrotic syndrome is characterised by classic symptoms: heavy proteinuria, hypoalbuminemia, peripheral oedema, and hyperlipidaemia. Due to the urinary loss of various binding proteins, a variety of endocrinological abnormalities might occur, complicating diagnosis and medical management. A rare manifestation could be menstrual disorders which would constitute a great diagnostic trap.

Case report: An 18-year-old female was admitted to the Endocrinology Department with menstrual irregularities which lasted for 7 months prior to hospitalisation. Cycles had duration of 32-41 days and additionally, 5 kg weight gain occurred. Initially, the patient's menarche occurred at age 11 with regular cycles (28-30 days). From age of 11 she had been also suffering from dysmenorrhoea and menorrhagia. The patient denied hirsutism, acne, or striae. Medical history includes migraine and thrombocytopenia under haematological surveillance. Initial evaluation revealed laboratory hyperandrogenism and insulin resistance (based on OGTT), neither of which was confirmed during repeated examinations during later hospitalisation. Throughout hospitalisation a pelvic ultrasound was performed, showing no abnormalities. Additionally, a by skull MRI revealed non-specific focal lesions in the FLAIR sequence (requiring neurological follow-up). Blood pressure remained at a level of 135/90 to 155/85 mmHg, an investigation into secondary causes of hypertension began. Further laboratory findings revealed severe hypoalbuminemia (2.6 g/dl) and massive proteinuria (7064 mg/24h), leading to the diagnosis of nephrotic syndrome. Notably, renal excretory function remained preserved. These findings were associated with hyperlipidaemia, hypocalcaemia, vitamin D deficiency, and euthyroid sick syndrome (low free thyroid hormones with normal TSH levels), likely connected to the urinary loss of binding proteins. The patient was referred to the Nephrology Department for further diagnostic work-up

Conclusions: This case emphasises the complexity of endocrine manifestations arising from nephrotic syndrome. Urinary loss of hormone-binding proteins that caused the initial presentation with menstrual irregularities and transient hyperandrogenism constituting a diagnostic trap. The findings highlight the importance of considering renal pathology as a differential diagnosis in patients with sudden weight gain and hormonal imbalances that do not align with the clinical picture of primary endocrine disorders.

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Nursing care for a patient with multimorbidity in the course of obesity

Weronika Trendowicz

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Introduction: Obesity is a chronic lifestyle-related disease characterized by excessive and pathological accumulation of body fat resulting in abnormal weight gain. The presence of obesity increases the risk of developing a range of detrimental health conditions, which may lead to multimorbidity. Multimorbidity is a clinical state defined by the coexistence of two or more chronic diseases in one individual. As these conditions often share common risk factors and pathophysiological mechanisms, their prevention and treatment strategies frequently overlap. Consequently, effective management requires an integrated holistic approach that addresses not only the primary disease but also the broader spectrum of related health issues, lifestyle factors, and long-term patient care.

Case report: A 69-year-old female patient was diagnosed with class III obesity, type 2 diabetes, hypertension, depression, hypercholesterolemia, and gout. Abdominal and retroperitoneal ultrasound, which was difficult to assess due to obesity, revealed non-alcoholic fatty liver disease. Qualitative and quantitative dietary deficiencies were noted, including excessively large food portions and a preference for salty snacks and sweets. The patient reported reluctance to attend check-ups and did not regularly monitor glycemic parameters, body weight, or blood pressure. Total cholesterol was 124 mg/dl, HDL 48.1 mg/dl, LDL 48 mg/dl, and triglycerides 141 mg/dl. Fasting blood glucose was 133 mg/dl, and 2-hour postprandial blood glucose was 189 mg/dl. The patient weighed 110 kg, was 163 cm tall, and had a BMI of 41.4, confirming class III obesity. She was also classified as stage 3 according to the Edmonton Obesity Staging System, scored 10/15 on the Geriatric Depression Scale, and 21 points on the Mini Nutritional Assessment, indicating a risk of malnutrition.

Conclusions: Observations of patients with multimorbidity, including individuals with obesity, indicate that obesity contributes to numerous health complications and a significant decline in quality of life. Nursing care plays a key role in managing patients with multimorbidity associated with obesity, with particular emphasis on holistic medical interventions, patient education, and psychological support. A care process focused on maintaining a healthy lifestyle throughout life may contribute to improved patient outcomes.

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From Resistance to Remission: A Case Report on Maintenance Electroconvulsive Therapy in Bipolar II Disorder

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Introduction: Bipolar II Disorder is a chronic condition where depressive episodes often predominate, lasting longer and recurring more frequently than hypomania. Managing these episodes, particularly when characterized by mixed features or treatment resistance, remains a significant clinical challenge associated with increased suicidality and poor prognosis. While pharmacological options are diverse, many clinicians regard electroconvulsive therapy (ECT) as the most effective intervention for treatment-resistant bipolar depression.

Case report: A 41-year-old male with Bipolar II Disorder was admitted to the psychiatric hospital to undergo his first session of maintenance ECT (m-ECT). He has been under psychiatric care since 2008, with an initial presentation characterized by a hypomanic episode involving racing thoughts, hypersexuality, and risky behaviors. Following initial treatment with valproic acid, he achieved a five-year remission starting in 2009 while maintained on venlafaxine and carbamazepine. Subsequent depressive relapses proved high resistantance to standard pharmacotherapy. He has undergone numerous unsuccessful trials with a wide range of agents, including clomipramine, vortioxetine and aripiprazole (complicated by aggravated akathisia), duloxetine, and various combinations of sertraline, mirtazapine, olanzapine, milnacipran, and bupropion. Other failed interventions include brexpiprazole, cariprazine, reboxetine, doxepin, sulpiride, amisulpride, paroxetine, methylphenidate, lithium, flupentixol, and moclobemide. Due to this medication resistance, the patient previously received three full index ECT series (12 treatments in 2023, 12 in 2025, and 15 in 2026). Throughout these treatments, significant clinical improvement was observed, resulting in full remission. The patient's depressive episodes typically last approximately six months and include depressed mood, psychomotor retardation, anergia, anhedonia, impaired concentration, significant appetite loss and sleep disturbances. He also reports periodic suicidal ideation, though his history is notable for a suicide attempt by drug overdose in 2007. Upon admission, he appears euthymic with reactive affect and psychomotor stability, showing no impairment of consciousness and presenting no signs of active psychosis, aggression, or impulsivity. His current pharmacological management includes quetiapine 300 mg XR, pramipexole 2 mg, and vortioxetine 20 mg. He has also been maintained on lorazepam 1 mg TID and zolpidem 10 mg qhs for several weeks.

Conclusions: In summary, this case indicates that maintenance electroconvulsive therapy can be a highly effective and well-tolerated treatment strategy for patients with bipolar II disorder who fail to respond to extensive pharmacotherapy. By preventing relapses and maintaining full clinical remission, m-ECT offers a viable, long-term solution for the recurrent depressive episodes that characterize this disorder.

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Treatment-resistant depression and anorexia nervosa - a challenging combination

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Introduction: Treatment-Resistant Depression (TRD) occurring alongside Anorexia Nervosa (AN) presents a clinical challenge. While TRD involves a chronic lack of response to multiple medications, the physiological stress of AN induces metabolic changes that may decrease the effectiveness of standard treatments. This case illustrates a prolonged progression where the state of malnutrition and systemic inflammation limited the clinical impact of intensive interventions, including intravenous (IV) ketamine infusions and electroconvulsive therapy (ECT).

Case report: A 31-year-old female was admitted in 2025 following a suicide attempt by drug overdose. The patient has a clinical history beginning in 2020 with depression. Subsequently, an adult-onset diagnosis of Celiac disease served as a catalyst for the development of restrictive eating patterns consistent with Anorexia Nervosa (AN). Comorbidities included endometriosis, Hashimoto's thyroiditis, and PCOS, contributing to a high systemic inflammatory load. Throughout the 6-year clinical history, the patient underwent multiple unsuccessful medicine changes, demonstrating a lack of response to both monotherapy and polypharmacologic combinations. These included multiple SSRI/SNRI antidepressants, atypical antipsychotic and mood stabilizer augmentations. In January 2025, mirtazapine was discontinued due to drug-induced leukopenia, a transition that potentially coincided with a period of increased nutritional vulnerability. By March 2025, the patient reached a BMI of 15.7. Following the failure of standard pharmacotherapy, the patient transitioned to more complex interventions. IV racemic ketamine infusions yielded transient improvement in patient's everyday activity, but failed to achieve long-lasting full symptomatic remission. Subsequently, an intensive course of electroconvulsive therapy (ECT) sessions was administered. While the patient's weight stabilized (BMI 19.1) by June 2025, the treatment resulted in cognitive impairments, memory loss and chronic headaches. No clinical improvement in mood was observed following the completion of the ECT series, eventually leading to the 2026 acute admission following the attempt. Given the failure of biological methods, specialized psychotherapy represents the most probable path to healing.

Conclusions: The lack of response to multiple interventions may suggest the patient's nutritional state (BMI < 16) created a physiological barrier to remission. Systemic inflammation likely served as a persistent neurobiological stressor, maintaining the depressive state. Additionally, malnutrition significantly impairs the mechanisms of neuroplasticity, which are crucial in the treatment of depression and in the response to psychotherapy. In such cases, nutritional rehabilitation and inflammatory management are the primary requirements needed for treatment efficacy.

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Late Diagnosed Familial Hypercholesterolemia as a Driver of Recurrent Coronary Events Across Generations - A case report

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Work supervisor: Dr. Phillip Kiełbowicz MD, Prof. Małgorzata Lelonek MD, PhD, FESC, FHFA

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Introduction: The most common monogenic lipid disorder is familial hypercholesterolemia (FH), which is severely underdiagnosed. The affected individual is often exposed to detrimental LDL-C levels for decades, which leads to premature atherosclerotic cardiovascular disease (ASCVD). Furthermore, given the autosomal dominant pattern of inheritance, accelerated ischemic heart disease (IHD) may affect multiple generations. Earlier diagnoses via genetic testing and approved diagnostic algorithms have the potential to accelerate the management of complications through adequate lipid control. The upcoming cholesterol-modifying therapy with PCSK9 inhibitors (PCSK9i) shows promising results in achieving the desired LDL-C levels.

Case report: A 73-year-old male with ASCVD, hypercholesterolemia, and obesity, presented to the hospital in September 2024 with acute decompensated heart failure (HF) (NYHA III). Relevant medical history includes the first cardiac-related hospitalization in 1999 and multivessel coronary artery disease (CAD) with coronary artery bypass graft (CABG) surgery in 2010. More than a decade later and after multiple coronary events, genetic testing revealed heterozygous FH of the LDLR variant (NM_001195799:c.304T>A;p.Cys102Ser, exon 3). The Dutch Lipid Clinic Network (DLCN) score was also calculated and resulted in 11 points. Although the patient has been on lipid-lowering therapy since 1999, with repeated modifications to various pharmacotherapeutic agents, the desired LDL-C levels were not achieved at any stage. The patient's family history was positive for IHD, with his brother and mother having experienced multiple coronary events. He was thus qualified for treatment with inclisiran through the Polish national B.101 program for the management of hypercholesterolemia. Follow-up after 10 months of treatment revealed a 41% improvement in LDL-C levels, from 97 mg/dL to 57 mg/dL, finally approaching the guideline-recommended levels. Through cascade screening, the patient's brother and daughter were also diagnosed with FH, showing three generations affected by the FH.

Conclusions: This case illustrates how a delayed diagnosis results in decades of exposure to elevated LDL-C, along with the consequences of this exposure. PCSK9i are effective for achieving LDL-C goals, and in this case, made a substantial reduction approaching guideline-recommended levels. In FH, familial cascade screening is of critical importance to prevent IHD in younger generations.

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Idiopatic optic neuritis – a case report

Michał Uramowski

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Introduction: Acute optic neuritis can be an isolated disease or be associated with neurological or rheumatological diseases such as multiple sclerosis, Devic's disease, lupus, or sarcoidosis. Moreover, vascular origins, mechanical causes, vitamin deficiencies, or infections must be taken into consideration. To confirm the diagnosis, the patient must undergo imaging tests such as contrast-enhanced MRI and have bloodwork performed to check for specific antibodies and markers. If no proper action is taken, there is a serious risk of complete loss of vision. Therefore, the patient should urgently be admitted to a multidisciplinary center for diagnosis and treatment.

Case report: The patient is a 26-year-old female who was admitted to the Ophthalmology Department due to partial loss of vision in the left eye. Fundus examination revealed optic disc oedema. Visual acuity was initially preserved: Vod = 0.95 cc +0.5/ -1.0 ax 96 and Vos = 0.95 cc +0.25/ -1.0 ax 75. After performing an MRI, acute optic neuritis was diagnosed. Despite testing for antibodies and markers present in various rheumatological and neurological diseases, no certain cause of inflammation was found. Furthermore, the patient had not suffered from any infection prior to the onset of symptoms. The patient had never been hospitalized and was only taking sertraline for depression. However, period preceding the symptoms was stresful for the patient and she was consuming enormous amounts of energy drinks. To relieve the symptoms, she was administered Solu-Medrol at a dose of 1g per day i.v. for 4 days. Steroid treatment resulted in complete resolution of symptoms. Visual acuity returned to the same values as prior to the onset of the illness.

Conclusions: Due to the lack of a specific cause of the idiopathic optic neuritis, a multidisciplinary diagnostics should always be carried out. The idiopathicoptic neuritis may be the first sign of systemic disease that will develop in the future. It is also possible that the progressing disease is seronegative. However, reported symptoms could be also explained by vasoconstriction induced by an excessive intake of caffeine from energy drinks combined with antidepressants. Despite the lack of a certain diagnosis, the patient should be monitored for potential neurological or rheumatological diseases, and her diet should be modified immediately.

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When a Stroke Is Not a Stroke: A Rare Mitochondrial Mimic

P. Kubielas, B. Filipek, B. Bielecki

Presenting author: Paulina Anna Kubielas

Work supervisor: Beata Filipek, prof. dr hab. n. med. Mariusz Stasiołek

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Introduction: Introduction: MELAS (mitochondrial encephalomyopathy, lactic acidosis, and stroke-like episodes) is a rare disorder caused by mutations in mitochondrial DNA, most commonly m.3243A>G in the MT-TL1 gene. These mutations impair respiratory chain function, particularly in high-energy-demand tissues. Clinically, MELAS presents with stroke-like episodes before the age of 40, often accompanied by hemianopia or cortical blindness, as well as encephalopathy, seizures, cognitive decline, lactic acidosis, and mitochondrial myopathy with ragged-red fibers (RRF).

Case report: Case report: A 24-year-old male was admitted to the Neurology Department with disturbances to his right-sided visual field and impaired cognitive function, including disorientation, psychomotor slowing, and difficulty understanding complex commands. His medical history was notable for high myopia and sensorineural hearing loss. Family history revealed hearing loss in the patient's mother and aunt. Neurological examination on admission revealed disturbances in aphasic speech, hearing impairment, a right-sided visual deficit with neglect, and brisk deep tendon reflexes with left-sided polyclonus. The initial head CT scan was unremarkable. MRI scan revealed stroke-like lesions in the left hemisphere that did not correspond to the vascular territories of the central nervous system (CNS). Laboratory tests revealed significantly elevated lactate levels and increased cardiac biomarkers, while screening for infection and autoimmunity causes was negative. A cardiac evaluation suggested hypertrophic cardiomyopathy and recurrent supraventricular tachycardia associated with Wolff-Parkinson-White (WPW) syndrome, for which amiodarone therapy and catheter ablation were required. Given his clinical presentation, particularly elevated lactate levels, hearing impairment, WPW syndrome, and neuroimaging findings inconsistent with vascular territories, MELAS syndrome was suspected. Genetic testing confirmed the m.3243A>G mutation in the MT-TL1 gene. Follow-up revealed disease progression, resulting in recurrent hospitalizations. The patient experienced visual disturbances, transient loss of consciousness, focal neurological deficits, and seizures requiring antiepileptic treatment. Follow-up MRI imaging revealed progression of the brain lesions. The implemented treatment for this patient included coenzyme Q10, L-carnitine, taurine, and levetiracetam, as well as recommendations to engage in moderate physical activity and to avoid stress.

Conclusions: Conclusion: MELAS should be considered in young patients presenting with stroke-like episodes, multisystem involvement, and elevated lactate levels, particularly in the presence of a suggestive family history. Early recognition and genetic confirmation are essential for appropriate treatment and management.

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The common case with a plot twist: An Unexpected Cause of Arrhythmia: Pneumonia and Diabetic Ketoacidosis

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Introduction: Metabolic disorders and infections in elderly patients may precipitate serious cardiac complications, including arrhythmias. We report a case of a 71-year-old man with a difficult socioeconomic status who developed atrial flutter during pneumonia and decompensated diabetes with severe metabolic derangements.

Case report: The patient was admitted to the hospital's interventional cardiology department due to dyspnea at rest, pneumonia, and decompensated type 3 diabetes complicated by ketoacidosis. He had a history of acute coronary syndrome. Laboratory tests revealed a blood glucose level of 32 mmol/L; pH of 7.127; severe hypokalemia; markedly elevated inflammatory markers and NT-proBNP; urine ketones 7.4 mmol/L. An electrocardiogram (ECG) revealed atrial flutter with a rate of 160-200 bpm. The patient received antibiotics, insulin, antiarrhythmic therapy, and anticoagulation. At first, as an antiarrhythmic, landiolol was introduced with only a little effect and a heart rate of 130 bpm. Amiodarone with metoprolol was also unsuccessful. Eventually, verapamil was introduced with successful rhythm control and subsequent sinus rhythm restoration. Meanwhile, the metabolic issues had also been resolved. His symptoms improved, and sinus rhythm was restored. Metabolic abnormalities were corrected. He was discharged with recommendations for continued outpatient care and social support.

Conclusions: This case shows that in elderly patients with arrhythmia, reversible causes, such as metabolic disturbances and infections, should always be considered. Early recognition and treatment can improve outcomes.

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Adjuvant Breast Cancer Therapy with Letrozole and Its Cardiotoxic Manifestation in the Setting of Concomitant Heart Failure: A Case Report

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Introduction: Aromatase inhibitors are widely used in postmenopausal women with estrogen receptor-positive (ER+) breast cancer; however, such therapy has been associated with increased cancer therapy-related cardiovascular toxicity (CTR-CVT) and heart failure progression risk. The European Society of Cardiology (ESC) cardio-oncology guidelines indicate that there is an increased risk of cardiovascular disease (CVD) in patients on long-term aromatase inhibitor therapy, and in comparison to tamoxifen, letrozole (a third-generation aromatase inhibitor) is associated with an increased risk of heart failure (HF). Therefore, the guidelines recommend baseline cardiovascular (CV) risk stratification and ongoing monitoring in patients receiving endocrine therapy who are classified as high risk on the Systematic Coronary Risk Evaluation 2-Older Persons (SCORE2-OP) model.

Case report: An 86-year-old female patient presented to the hospital in October 2025 with an acute exacerbation of HF (NYHA III). Presenting symptoms included peripheral edema and worsening of exercise tolerance. Relevant medical history includes HF with reduced ejection fraction (HFrEF) of 40%, hypertension, dyslipidemia, and atrial fibrillation. Laboratory investigation revealed an N-terminal pro-B-type natriuretic peptide (NT-proBNP) level of 2192 pg/mL, anemia, thrombocytopenia, and impaired glucose tolerance. Echocardiography revealed a reduced ejection fraction (EF) of 31%, an increased left ventricular diameter (LVD), and diastolic dysfunction (E/e' 9.4, e' 8 cm/s, LAVi 79 mL/m2, TRV 3.03 m/s). In April 2025, she was diagnosed with ER+ breast cancer and underwent a right-sided mastectomy. As the patient is a postmenopausal woman with ER+ breast cancer, letrozole was initiated. Due to her age and comorbidities, in accordance with the ESC cardio-oncology guidelines, she is considered to have a high CVD risk according to SCORE2-OP. The significant decline in LVEF and the HF decompensation could indicate the cardiotoxic effect of letrozole, particularly in patients with significant CV risk. The patient was consulted cardiologically, and GDMT was optimized with control of CVD risk factors.

Conclusions: This case highlights the potential for heart failure progression as well as CTR-CVT in high-risk patients being treated with aromatase inhibitor therapy, and emphasizes the importance of guideline-directed cardiovascular surveillance as well as multidisciplinary cardio-oncological care.

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When Dementia is Not What it Seems: A Fatal Case of Leptomeningeal Carcinomatosis

Antoni Bolek

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Introduction: Gallbladder carcinoma (GBC) is an uncommon and highly aggressive biliary tract malignancy, often remaining clinically silent until advanced stages. Leptomeningeal carcinomatosis (LMC) is a rare, devastating complication seen in approximately 5% of cancer patients, typically originating from breast, lung, or melanoma primaries. LMC secondary to GBC is exceedingly rare. We report a unique case of an occult GBC presenting primarily as rapidly progressive cognitive decline and leptomeningeal spread, emphasizing the critical need for oncological vigilance in atypical neurological presentations.

Case report: A 77-year-old previously independent male was admitted with an acute one-week history of cognitive impairment, memory loss, and balance disorders. Initial diagnostics, including brain MRI, revealed age-related vascular changes and cortical atrophy without focal lesions, mass effect, or meningeal enhancement. EEG demonstrated paroxysmal activity, and neuropsychological evaluation indicated mild dementia of suspected mixed etiology. The patient was discharged but readmitted two weeks later with profound somnolence and worsening consciousness. A lumbar puncture showed a markedly abnormal profile: low glucose, severe hyperproteinorrhachia, and mild mononuclear pleocytosis. Follow-up MRI showed progressing hydrocephalus without distinct meningeal enhancement. Infectious (including TB PCR), autoimmune, CJD (14-3-3 protein), and standard paraneoplastic panels were negative. Despite intensive care, the patient's condition precipitously deteriorated, culminating in death one month after symptom onset. Post-mortem examination unexpectedly revealed leptomeningeal carcinomatosis originating from an undiagnosed primary gallbladder carcinoma.

Conclusions: LMC secondary to GBC is an exceptionally rare clinical situation that creates a significant diagnostic problem. In this patient, the clinical picture was heavily masked as a rapid neurodegenerative or vascular dementia, further confounded by the absence of classic MRI meningeal enhancement and abdominal symptoms. This unique case demonstrates that LMC can mimic rapid cognitive decline. Clinicians must maintain a high index of oncological suspicion when evaluating elderly patients with atypical, rapidly progressive neurological deterioration and abnormal cerebrospinal fluid findings, even when initial imaging is unrevealing.

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Unmasking the Great Imitator: Adult-Onset Niemann-Pick Type C Imitating Parkinson's Disease - a Case Report

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Introduction: Niemann-Pick disease type C (NPC) is a rare, autosomal recessive lysosomal storage disorder characterized by abnormal intracellular cholesterol trafficking. While commonly associated with childhood-onset, the adult-onset form frequently presents with insidious and atypical psychiatric or neurological symptoms, leading to significant diagnostic delays.

Case report: An adult male patient presented with a long-standing history of progressive neurological decline. Initial symptoms, which began over a decade prior to definitive diagnosis, included gait disturbances, emotional lability, and fine motor skill impairment. Initially misdiagnosed with Parkinson's disease, he was treated unsuccessfully with Levodopa, and later evaluated for severe multi-level spinal osteoarthritis and kyphosis due to chronic back pain. The patient exhibited persistent mild thrombocytopenia, with platelet counts ranging from 110 to 136 x 10^3/µL. Iron metabolism assessment revealed pronounced hyperferritinemia reaching 980 ng/mL, strongly suggesting macrophage activation typical of lysosomal storage. Upon specialized neurological evaluation, the patient exhibited ataxia affecting all four limbs, myoclonic tremor, a slowed, broad-based gait, and marked parkinsonian features. Further diagnostics revealed significant splenomegaly, measuring up to 180 mm on computed tomography. Brain magnetic resonance imaging (MRI) demonstrated cortical atrophy, thinning of the corpus callosum, and numerous non-specific focal white matter lesions. The definitive diagnosis of Niemann-Pick type C was confirmed via genetic testing, which revealed a homozygous mutation (p.Ser954Leu) in both alleles of the NPC1 gene. Following the diagnosis, the patient was qualified for substrate reduction therapy and initiated treatment with miglustat within the framework of Emergency Access to Drug Technologies (EADT). The therapy resulted in disease stabilization, manifested by improved overall well-being, a halt in the progression of mobility issues, and a reduction in dysphagia. The patient was placed under comprehensive multidisciplinary care, including intensive speech therapy. To manage cerebellar symptoms, the patient's pharmacological regimen was subsequently expanded to include acetyl-leucine.

Conclusions: This case highlights the critical importance of including lysosomal storage disorders in the differential diagnosis of adult-onset ataxia, vertical supranuclear gaze palsy, and atypical parkinsonism. Incidental findings such as unexplained splenomegaly should serve as a major clinical red flag. Early genetic screening and the prompt initiation of targeted therapies, such as miglustat, are crucial for stabilizing disease progression and improving the quality of life in patients with NPC.

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Pediatrics I Case Reports

9th of May 2026

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JUVENES PRO MEDICINA
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Novel heterozygous variant in BAZ2B gene identified in 11-year-old boy- the case report

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Introduction: The bromodomain adjacent to zinc finger 2B (BAZ2B) gene encodes a chromatin remodeling protein involved in regulation of gene transcription and epigenetic processes. Loss of BAZ2B function has been associated with neurodevelopmental disorders including developmental delay, intellectual disability and autism spectrum disorder. Variants in the BAZ2B gene have also been associated with dysmorphic features and developmental anomalies suggesting a broad and variable phenotypic spectrum.

Case report: We present a 11-year-old boy with delayed speech development and global psychomotor delay. The examination revealed dysmorphic features including ptosis, a prominent sagittal suture, apertognathia, flattened chest consistent with pectus excavatum, scapular asymmetry and generalized joint hypermobility (Beighton score 8/9). The patient has periodically experienced behavioral abnormalities in the form of verbal aggression and features of autism spectrum disorder. During the diagnostic process, cytogenetic analysis, PCR analysis for exclusion of FMR1 mutations, multiplex ligation-dependent probe amplification (MLPA) did not reveal any genomic imbalance. The patient was referred for further diagnostic evaluation. Whole exome sequencing (WES) identified a heterozygous c.3594G>T variant in the BAZ2B gene, classified as a variant of uncertain significance and a heterozygous c.1521_1523 variant in the CFTR gene, indicating carrier status.

Conclusions: The presented case suggests a possible association between BAZ2B variants and neurodevelopmental delay, manifestations of autism spectrum disorder and dysmorphic features. This case underscores the value of whole exome sequencing in the diagnostic process of patients with complex and unexplained clinical features. Further studies are required to better understand the role of the identified BAZ2B variant in the observed phenotype. Patients with neurodevelopmental disorders require individualized, multidisciplinary care including speech therapy and psychological support.

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Various Clinical “Faces” of Pneumococcal Infection (Meningitis, Pneumonia): A Case Report.

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Introduction: The most typical manifestation of Streptococcus pneumoniae infection is pneumonia. Approximately 60% of pediatric population are carriers of this pathogen, however severe forms of infection are increasingly observed. Invasive pneumococcal disease may manifest as sepsis or meningitis and may follow a severe and complicated course.

Case report: A two-year-old boy was admitted to the hospital with suspected meningitis and sepsis. His medical history included persistent vomiting and high fever (up to 39,6°C) four days prior to admission, behavioral changes occurring two days after initial symptoms and an upper respiratory tract infection treated symptomatically two weeks earlier. On admission, the patient was in a serious general condition, not-responsive to contact, irritable and occasionally confused. Physical examination revealed dehydration, cutaneous hypersensitivity, neck stiffness, positive meningeal signs (Kernig’s sign - upper and lower). Additionally, anisocoria and facial asymmetry with drooping of the right corner of the mouth were observed. Laboratory tests showed: RBC 3,68 10^6/µl (4,3- 5,5), HGB 10,2 g/dl (10,9- 14,2), HCT 29,4% (34-41), and CRP 30,5 mg/dl. Blood samples for culture were collected and empirical antibiotics therapy with vancomycin and ceftriaxone was initiated. Magnetic resonance imaging (MRI) revealed areas of increased signal intensity with diffusion restriction and no contrast enhancement, located in the deep white matter. The findings correlated with clinical symptoms and suggested an inflammatory process. During neurological consultation, the boy was found to have left-sided flaccid paresis and absence of deep tendon reflexes in the lower limbs. Lumbar puncture with cerebrospinal fluid collection was performed. PCR testing confirmed Streptococcus pneumoniae meningitis with encephalitis and sepsis. Subsequent neurological evaluations showed additional paralysis of the right cranial nerves III, VI and VII. Treatment with vancomycin and ceftriaxone was continued for 30 days. After completion of antibiotic therapy, the patient was transferred to the Neurology Clinic for further diagnostic evaluation and rehabilitation.

Conclusions: Despite the widespread prevalence of Streptococcus pneumoniae infections, not every case follows a predictable clinical course. Prompt diagnosis and appropriate treatment are essential to prevent irreversible complications of invasive pneumococcal disease.

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Streptococcal Toxic Shock Syndrome secondary to Scarlet Fever: A Case Report

Michalina Witkowska, Jan Zakrzewski

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Work supervisor: Magdalena Żak MD, Katarzyna Mikołajczyk MD

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Introduction: Streptococcal toxic shock syndrome (STSS) is an uncommon but devastating systemic illness caused by invasive infection with β-hemolytic streptococci, most frequently Streptococcus pyogenes. The disease develops rapidly and is mediated by bacterial exotoxins that trigger a massive inflammatory response, resulting in hypotension, capillary leak, and progressive dysfunction of multiple organ systems. Clinical manifestations often include high fever, severe myalgias, erythematous or purpuric rash, and evolving respiratory, renal, hepatic, or coagulation abnormalities. Early recognition, hemodynamic support, prompt administration of appropriate antibiotics, and consideration of adjunctive therapies are critical to improving outcomes.

Case report: We report the case of a 12 year old boy who developed streptococcal toxic shock syndrome as a complication of scarlet fever. He was admitted with signs of acute kidney injury (serum creatinine 2.02 mg/dL, eGFR 50 mL/min/1.73 m2), severe sore throat, fever up to 39°C, generalized rash, enlarged submandibular lymph nodes, and marked lethargy. During hospitalization he developed interstitial pneumonia with pleural effusion, requiring high flow nasal cannula oxygen therapy, and fluid refractory shock. STSS was diagnosed based on a positive pharyngeal culture for Streptococcus pyogenes, hypotension, acute kidney injury, and the characteristic rash. In addition to broad spectrum antibiotics and intravenous immunoglobulin (IVIG), the patient required intensive care and supportive therapies. After appropriate management, he was discharged in stable condition two weeks after admission.

Conclusions: This case underscores that scarlet fever can rapidly progress to fulminant streptococcal toxic shock syndrome in children, leading to multi organ involvement (AKI, respiratory failure with pleural effusion) and fluid refractory shock. It highlights the importance of early recognition, prompt microbiological diagnosis, and aggressive multidisciplinary management — including targeted antibiotics, IVIG, intensive supportive care and respiratory support — to reduce morbidity and mortality. Clinicians should remain vigilant for rapid deterioration in pediatric streptococcal infections to ensure timely intervention.

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MELAS - Mitochondrial Encephalopathy with Lactic Acidosis and Stroke-like Episodes

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Introduction: MELAS (mitochondrial encephalopathy with lactic acidosis and stroke-like episodes) is a rare mitochondrial disorder most commonly by the m.3243A>G mutation, presenting with multi system involvement and progressive neurological deterioration.

Case report: A 6-year-old girl was admitted with recurrent vomiting and dehydration. Her medical history included Wolff-Parkinson-White syndrome, vitamin D deficiency, and progressive muscle weakness. Laboratory tests revealed elevated cardiac troponin, creatine kinase, LDH, and serum lactate. Brain MRI showed cortical abnormalities with diffusion restriction and generalized atrophy. Neurological assessment demonstrated speech impairment, cognitive difficulties, strabismus, and ptosis. Cardiological evaluation confirmed hypertrophic cardiomyopathy. Genetic testing identified MELAS syndrome due to the m.3243A>G mutation, along with a TTN truncating variant associated with increased risk of dilated cardiomyopathy.

Conclusions: This case highlights the importance od considering mitochondrial disorders in children with nonspecific, multisystem presentations. Early diagnosis enables appropriate metabolic and supportive therapy and may improve clinical outcomes

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Intestinal Obstruction Syndrome in an Infant with Cystic Fibrosis: A Case Report

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Introduction: Cystic fibrosis (CF) is an autosomal recessive disease caused by mutations in the CFTR gene. Dysfunction of the CFTR protein leads to increased viscosity of mucus and impaired exocrine gland secretion. The disease manifests in multiple systems, most prominently in the lungs, resulting in progressive deterioration of lower respiratory tract function. It may also involve abdominal complications, including liver fibrosis, pancreatic insufficiency, and various gastrointestinal abnormalities. Intestinal manifestations include meconium ileus presenting shortly after birth, distal intestinal obstruction syndrome (DIOS), and chronic constipation.

Case report: We present the case of an 11-month-old girl with DIOS, who presented with abdominal distension, pain, emesis, constipation, and oliguria. What makes this case particularly compelling is how rapidly a seemingly non-specific set of symptoms can evolve into a life-threatening condition in a patient with CF. Treatment was initiated with antibiotics, retention enemas using N-acetylcysteine and Gastrografin, analgesics, and parenteral nutrition. The patient's general condition improved following conservative management.

Conclusions: Gastrointestinal manifestations of CF are common in the pediatric population. Early recognition and appropriate management of complications such as DIOS are crucial for improving patient outcomes and avoiding invasive interventions. Ultimately, it is not just about treating a disease, but about understanding its many faces and responding before they fully unfold.

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A silent disorder with a dramatic onset - hemorrhagic stroke as an initial manifestation of factor V deficiency in an infant

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Introduction: Hemorrhagic stroke in infancy is a rare but life-threatening condition, and its occurrence as the initial cerebral manifestation of a congenital coagulation disorder at such an early age is exceptionally uncommon. Such disorders may remain undetected until a severe bleeding episode occurs. Recognizing the underlying cause early and providing prompt multidisciplinary management are essential for survival and affect long-term neurological outcome.

Case report: We present a case of a 4.5-month-old infant born by caesarean section (birth weight: 4040 g, Apgar score: 10). Family history included sibling death on day four of life due to massive internal bleeding (renal hemorrhage and hepatic hematoma). Two days prior to hospital admission, the parents observed increasing apathy, vomiting, and feeding refusal. Cranial CT revealed intracerebral hemorrhage accompanied by severe coagulation abnormalities. The patient underwent urgent frontal lobe hematoma evacuation, followed by six days in intensive care. The treatment included mechanical ventilation, sedation, antibiotics and transfusions of fresh frozen plasma (FFP), tranexamic acid, etamsylate and vitamin K. Further hematological evaluation led to a diagnosis of congenital factor V deficiency confirmed by laboratory and genetic test results. The patient was discharged home in good general condition with ongoing weekly prophylactic FFP transfusions.

Conclusions: This case highlights a rare and severe presentation of congenital factor V deficiency manifesting as hemorrhagic stroke in early infancy. It underscores the critical importance of detailed family history in guiding early diagnostic suspicion, particularly in the presence of unexplained intracranial bleeding. Prompt recognition and rapid multidisciplinary intervention, including neurosurgical and hematological management, were essential for a favorable clinical outcome. Although rare, congenital coagulation disorders such as factor V deficiency should be considered in the differential diagnosis of infantile hemorrhagic stroke, as early diagnosis and appropriate prophylactic treatment are crucial to prevent recurrent bleeding and improve long-term prognosis.

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An Unexpected Diagnosis Behind a Common Finding: Tonsillar Enlargement Revealing T-Cell Lymphoblastic Lymphoma

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Introduction: T-cell lymphoblastic lymphoma (T-LBL) is a hematological malignancy with a rapid growth rate, predominantly affecting young adolescents. It most commonly presents with an anterior mediastinal mass, producing acute airway obstruction, superior vena cava syndrome, and presenting with laboratory evidence of high cellular turnover, including acute tumor lysis syndrome. Tumour spread to Waldeyer's ring is uncommon in this type of neoplasm and may mimic a benign condition, posing a diagnostic challenge. T-LBL is often diagnosed at an advanced stage due to its nonspecific clinical presentation. The involvement of easily accessible sites such as the tonsillar region can enable detection of aggressive lymphomas before the onset of life-threatening symptoms or biochemical abnormalities.

Case report: A 7-year-old girl was referred to a pediatric ENT clinic due to asymmetric enlargement of the left palatine tonsil and abscess in the periodontal region. The patient underwent tonsillectomy. The histopathology results raised suspicion of lymphoblastic neoplasm, and the patient was promptly referred to the Pediatric Oncohematology Department for further evaluation and second-look histopathology referral. Upon admission the girl was in good general condition, without fever, weight loss, respiratory symptoms, or any other systemic manifestations suggesting active proliferative disease. Pertinent physical examination findings include mildly enlarged, mobile left cervical lymph nodes, without generalized lymphoadenopathy or organomegaly. Initial laboratory investigations, including complete blood count, inflammatory markers, and biochemical parameters, were within normal limits. Bone marrow and cerebrospinal fluid examinations showed no evidence of blast infiltration. Second-look histopathology examination of the tonsillar tissue demonstrated infiltration consistent with T-cell lymphoblastic lymphoma, which warranted further investigation. High resolution computer tomography (HRCT) and whole-body MRI revealed a large anterior mediastinal mass with contiguous extension into cervical and supraclavicular regions, without tumour mass effect. During the evaluation and staging period, the patient stayed symptoms-free. Following initiation of oncological treatment, a rapid reduction of the tumor mass was observed within one month.

Conclusions: This case illustrates a presentation of T-LBL with tonsillar involvement, the absence of systemic symptoms, and no biochemical markers of high proliferative activity, despite stage III disease. Early detection was possible due to the visible extranodal manifestation, underscoring the importance of thorough physical examination and recognition of asymmetric tonsillar enlargement in pediatric patients as a potential oncological red flag. This report highlights a potential diagnostic challenge and emphasizes that aggressive lymphomas may present in a clinically silent manner, warranting a high index of suspicion.

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Arteriovenous malformation of the small intestine as a rare cause of recurrent severe anemia in a child – a case report

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Introduction: Background: Arteriovenous malformations of the small intestine in children are a rare cause of gastrointestinal bleeding and severe anemia. The diagnosis is often delayed, as standard endoscopic examinations, like gastroscopy and colonoscopy frequently fail to identify the source of bleeding.

Case report: Case presentation: An 8-year-old boy with a history of chylothorax in the neonatal period and shunt implantation was admitted due to recurrent severe anemia of unknown origin. Initial investigations revealed a positive fecal occult blood test, while gastroscopy and colonoscopy failed to identify a bleeding source. Histopathological examination showed only chronic inflammatory changes of the mucosa. Despite numerous diagnostic procedures, the underlying cause of anemia remained unclear, until abdominal CT angiography demonstrated multiple abnormal vessels within the wall of small bowel loops, and selective angiography confirmed an extensive arteriovenous malformation located in the ileum and cecum, supplied by branches of the superior mesenteric artery with venous drainage to the superior mesenteric vein. Capsule endoscopy confirmed the lesion within the small intestine. Due to persistent anemia and episodes of overt gastrointestinal bleeding, endovascular treatment was performed. Two selective embolization procedures using ethanol and coils were carried out. After the first procedure, anemia persisted. Second intervention resulted in both radiological and clinical confirmation of treatment success. Follow-up CT angiography showed a significant reduction in pathological vessels without signs of bowel necrosis. After the procedures, the patient no longer exhibited progressive anemia, and his state rapidly improved.

Conclusions: Discussion and conclusions: This case highlights that small bowel vascular malformations should be considered in children with chronic anemia and negative findings on standard endoscopy. CT angiography, selective angiography, and capsule endoscopy are crucial for diagnosis. In this case, repeated embolization proved to be an effective minimally invasive treatment, allowing control of bleeding and avoidance of extensive, risky surgical intervention.

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An Atypical Case of IPEX Syndrome with CMV and Cholangiopathy in an Infant

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Introduction: IPEX (immune dysregulation, polyendocrinopathy, enteropathy, X-linked) syndrome is an extremely rare autoimmune disease with an estimated prevalence of 1 in 1.6 million people. It is characterized by systemic autoimmunity, typically beginning in the first year of life, which includes the triad of enteropathy (manifesting as malabsorption and watery diarrhea), endocrinopathy (most commonly type 1 insulin-dependent diabetes mellitus), and eczematous dermatitis. However, the absence of one or more features of this triad, as seen in this case, where diabetes mellitus was notably absent throughout the entire clinical course should not exclude the diagnosis, as IPEX can present in incomplete or atypical forms. In most cases, IPEX syndrome is caused by variants in the FOXP3 gene, which is responsible for the production of regulatory T-cells (Tregs). Without a normal FOXP3 gene, there is a loss of Treg function, which results in other immune cells in the body mistakenly attacking healthy tissues.

Case report:A 7-week-old male infant was admitted to the Pediatric Intensive Care Unit presenting with methemoglobinemia, metabolic acidosis (pH 7.27), and secretory diarrhea. In the following weeks, progressive multi-organ failure including autoimmune enteropathy (secretory diarrhea and erosive gastropathy), primary hypothyroidism (TSH 20.6404 µIU/mL), ascites and pericardial effusion was noted. A pathogenic FOXP3 variant was identified, confirming IPEX syndrome. On imaging, progressive hepatosplenomegaly and a congenital CNS defect (left hemisphere atrophy with subdural hygroma) were revealed. Abdominal ultrasound showed a 3.3 mm hyperechoic band at the portal vein bifurcation, radiologically consistent with Kasai type III biliary atresia. However, the absence of hyperbilirubinemia on admission and the confirmed autoimmune background suggest this finding represents secondary sclerosing cholangitis rather than a congenital biliary abnormality. Subsequently, the case was severely complicated by a Cytomegalovirus (CMV) infection with a peak viral load of 185,000 copies/mL, thereby triggering secondary Hemophagocytic Lymphohistiocytosis (HLH). Laboratory findings met six of the eight HLH-2004 diagnostic criteria, including peak serum ferritin of 31,849 ng/mL, hypofibrinogenaemia (nadir 63 mg/dL), hypertriglyceridaemia (peak 5.14 mmol/L), pancytopenia, elevated soluble IL-2 receptor (2,493 U/mL), and an IL-6 cytokine storm peak of 1,623 pg/mL. Despite immunosuppression (Tacrolimus, Solu-Medrol) and antiviral therapy, the patient developed severe lactic acidosis (peak 29.61 mmol/L) requiring renal replacement therapy with heparin anticoagulation. This was complicated by sudden hemodynamic collapse, with a MAP of 20 mmHg and bradycardia to 80 bpm, which was managed empirically as a cardiac arrest event with brief chest compressions and a single dose of adrenaline, resulting in rapid hemodynamic recovery and subsequent escalation to mechanical ventilation.

Conclusion: This case highlights the diagnostic challenges of IPEX syndrome when it presents with atypical features such as secondary sclerosing cholangitis. Primary immune dysregulation and secondary triggers such as CMV can create a clinical environment that proves highly resistant to standard therapy. Early recognition and genetic confirmation of IPEX syndrome are vital. While immunosuppression can provide temporary stabilization, allogeneic hematopoietic stem cell transplantation remains the only potentially curative treatment. This case proves the necessity of a collaborative approach in managing infants with multi-organ autoimmune failure and severe opportunistic infections.

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Williams syndrome as a cause of elderly chronic kidney disease in children — based on a series of three clinical cases

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Introduction: Williams syndrome (WS) is a rare, genetically determined disorder caused by elastin deficiency resulting from a microdeletion on chromosome 7. The observed symptoms of WS include developmental delay, intellectual disability, specific cognitive profile, cardiovascular disease (supravalvular aortic stenosis, peripheral pulmonary artery stenosis, hypertension), vascular development disorders (including renal angiogenesis, glomerular and kidney tubule formation), connective tissue abnormalities, growth deficiency, endocrine disorders (early puberty, hypercalcemia, hypercalciuria, hypothyroidism), and a characteristic facial appearance ("elf face"). Therefore, from early life, there is a predisposition to chronic kidney disease (CKD), exacerbated by hemodynamic disorders, calcium and phosphorus metabolism disorders, including nephrocalcinosis. According to the literature, CKD in children with WS has a mild course and is limited to the early stages (I–II), with progression of the disease reported only sporadically.

Case report: We present three cases of boys diagnosed with WS and CKD who were referred to our clinic for the planning of multidisciplinary care. Two patients, aged 2 and 4, presented with stage IV CKD, while the third patient, a 6-year-old boy, presented with stage II CKD. The youngest boy exhibited hypercalcemia and hypercalciuria alongside nephrocalcinosis and renal dysplasia confirmed by ultrasonogram. No signs of hypertension were observed. The 4- and 6-years-old presented with cardiovascular abnormalities – specifically supravalvular aortal stenosis in both cases, with additional moderate hypoplasia of pulmonary artery branches and concentric ventricular hypertrophy in the 4-year-old. The 4-year-old is treated with oral amlodipine for arterial hypertension, however, no renal artery stenosis was identified in any of the three patients. The 6-year-old receives enalapril for microalbuminuria. All three patients displayed dysmorphic features characteristic to WS, hypotonia, as well as nutritional deficiency and massive dental issues. None of the patients have required dialysis.

Conclusions: Patients with WS may present with a variety of clinically significant symptoms requiring a multidisciplinary approach to treatment. Congenital renal abnormalities and urinary tract anomalies, hypercalciuria, vascular defects, and nutritional disorders should not be overlooked in the long-term management of these patients, as this may lead to the development of CKD.

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When the Liver Is Not the Whole Story: A Multisystem Diagnostic Challenge of Autoimmune Hepatitis Complicated by Vasculitis in a Pediatric Patient

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Introduction: Autoimmune hepatitis (AIH) is a chronic inflammatory liver disease of autoimmune origin. Although it primarily affects the liver, it reflects systemic immune dysregulation and may occasionally be associated with extrahepatic manifestations. Such presentations may complicate the diagnostic process and delay the correct diagnosis, particularly in pediatric patients.

Case report: A 12-year-old girl was admitted to the Department of Pediatrics, Gastroenterology and Allergology due to fever, headache, and abdominal pain. Initial laboratory tests revealed severe hepatocellular injury with transaminase levels exceeding 1000 U/L. Impaired liver synthetic function was also present, including prolonged INR and hypoalbuminemia. Additional findings included leukopenia, thrombocytopenia, and markedly elevated serum immunoglobulin G (IgG) levels. Serological testing showed positive HSV IgM antibodies, raising suspicion of viral infection, and antiviral therapy with acyclovir was initiated. However, liver enzyme levels did notimprove. Abdominal ultrasonography revealed hepatosplenomegaly without biliary obstruction. Further diagnostic evaluation, including liver biopsy and immunological testing, confirmed the diagnosis of autoimmune hepatitis. According to current clinical recommendations, standard immunosuppressive therapy with corticosteroids followed by azathioprine was initiated, resulting in significant clinical improvement with gradual normalization of liver enzymes. During corticosteroid tapering, the patient developed pain, swelling, and impaired weight-bearing of the right lower limb. Doppler ultrasonography of the lower limb arteries and veins excluded thrombosis and significant large-vessel pathology. Because of persistent symptoms and the presence of atypical p-ANCA antibodies, small-vessel vasculitic involvement was considered. Supportive treatment targeting microcirculatory impairment, including low-molecular-weight heparin, pentoxifylline, and acetylsalicylic acid, was introduced, resulting in clinical improvement.

Conclusions: This case demonstrates that autoimmune hepatitis in pediatric patients may present as a diagnostic challenge and may be associated with additional immune-mediated manifestations. Similar cases of autoimmune hepatitis accompanied by ANCA-associated vasculitis have been reported in adult patients, suggesting a possible link between systemic immune dysregulation and vascular involvement. Awareness of such associations may facilitate earlier recognition of systemic immune manifestations in patients with autoimmune hepatitis.

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Beyond Hemorrhoids: A Rare Vascular Cause of Severe Lower Gastrointestinal Bleeding in a Child

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Introduction: Lower gastrointestinal bleeding in children is a common clinical problem and a frequent indication for endoscopic evaluation. In contrast to adults, where hemorrhoids are a common cause, anorectal lesions are rare in pediatric populations, accounting for only 1-2% of cases. In children, hemorrhoids usually present with painless passage of small amounts of bright red blood, and rarely cause significant anemia. Profuse or recurrent bleeding, particularly with severe anemia, should prompt evaluation for alternative etiologies.

Case report: A 7-year-old boy was admitted to the Department of Gastroenterology, Allergology and Pediatrics due to lower gastrointestinal bleeding. Three days prior, he had undergone rubber-band ligation of two hemorrhoids without prior laboratory testing. His history revealed two years of bright red rectal bleeding with nearly every defecation. Previous evaluations included gastroscopy (normal), and colonoscopy revealing a sigmoid polyp <5 mm and an external hemorrhoidal nodule. On admission, the patient appeared severely ill, with pallor and laboratory findings showing hemoglobin (Hb) 3.9 g/dL and hematocrit 13.5%. He required transfusion of packed red blood cells (pRBCs) and fresh frozen plasma. Further diagnostic evaluation, which included abdominal MRI, revealed marked varicose dilatation of the inferior mesenteric vein (10–15 mm), narrowing of the portal vein trunk, and a wide communication between the inferior mesenteric vein and the right internal iliac vein. Based on clinical, endoscopic, and imaging findings, he was diagnosed with bleeding from rectal varices secondary to portal venous system abnormality. The patient was stabilized and discharged. At age 11, he was readmitted due to recurrent rectal bleeding and anemia (Hb 6.8 g/dL). Over the preceding week, he reported passage of bright red blood (about 3 tablespoons) with each defecation. During hospitalization, he required transfusion of one unit of pRBCs. Repeat imaging confirmed persistence of previously diagnosed vascular abnormalities. No further bleeding or anemia progression was observed, and he was discharged in good condition with recommendations for continued outpatient care.

Conclusions: This case illustrates that anorectal lesions in children may reflect deeper venous or portal-systemic abnormalities, such as congenital venous malformations, including portal vein stenosis and primary inferior mesenteric vein wall defects, or silent portal vein thrombosis. Baseline laboratory should precede invasive outpatient procedures, and cross-sectional vascular imaging should be considered for recurrent, severe, or disproportionate bleeding. Management should involve a multidisciplinary team to enable early diagnosis and prevent life-threatening anemia. Clinicians should remain alert to unusual severity or recurrence in children presenting with rectal varices.

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Severe acne as the first manifestation of Crohn's disease: a case of a 16-year-old boy

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Introduction: Inflammatory bowel disease (IBD) includes chronic inflammatory disorders of the gastrointestinal tract, with Crohn's disease being one of the most common types in children. Pediatric Crohn's disease usually presents with gastrointestinal or systemic symptoms, while cutaneous manifestations are rare and may vary in presentation. We report a pediatric case in which severe acne was the first manifestation of Crohn's disease, highlighting the need for heightened clinical awareness of atypical presentations in children.

Case report: A 16-year-old male was admitted to the Department of Gastroenterology, Allergy, and Pediatrics for evaluation of severe acne and elevated fecal calprotectin. The patient had a 2-year history of refractory acne, unsuccessfully treated with topical therapies, multiple courses of antibiotics, and systemic corticosteroids and a single dose od isotretinoin. On admission during the first hospitalisation, he was in generally good condition but had numerous pustular lesions and post-inflammatory scars on the scalp and trunk. History revealed a bowel habit of three stools per day, Bristol type 3. Physical examination and ultrasound revealed enlarged lymph nodes and a thickened segment of the intestinal wall, raising suspicion for inflammatory bowel disease (IBD). Subsequent hospitalization and histopathological analysis confirmed the diagnosis of Crohn's disease. Nutritional therapy was initiated, and previous treatment with doxycycline and dexamethasone was continued. Three months later, the patient experienced weight loss, increased fecal calprotectin, and occult blood in the stool. Enterography showed segmental narrowing of the small intestine. Treatment of the skin lesions also failed to achieve the expected effect. Taking everything into consideration, treatment with systemic corticosteroids and adalimumab was initiated to induce remission, and acne therapy was modified, including the reintroduction of isotretinoin as it was excluded as a causative factor for the acne lesions. The patient is currently under regular follow-up visits for the administration of subsequent doses of biological therapy.

Conclusions: This case highlights that severe or treatment-resistant acne in pediatric patients may rarely be the first manifestation of Crohn's disease. Clinicians should maintain a high index of suspicion for underlying inflammatory bowel disease in children presenting with atypical or refractory dermatologic symptoms, particularly when accompanied by subtle gastrointestinal or laboratory abnormalities. Importantly, minimal prior exposure to isotretinoin makes a drug-induced trigger unlikely. Early recognition can lead to timely diagnosis and appropriate management.

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Pediatric Sepsis Caused by an Opportunistic Bacterial Infection: A Case Report

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Introduction: Sepsis represents a significant challenge for pediatricians, particularly when caused by uncommon bacteria such as Staphylococcus warneri. This coagulase-negative bacterium is a natural inhabitant of the skin and mucous membranes, but it may cause sepsis in individuals with immunodeficiency. In such cases, treatment may be more challenging due to its extensive antibiotic resistance.

Case report: A 5- year-old girl was admitted after transfer from another hospital where she had been treated for mononucleosis and fungal laryngitis, after clinical deterioration raised suspicion of meningitis and sepsis. On admission the patient was apathic, vomited and an episode of seizure occurred. Physical examination revealed hypotension, tachycardia, peripheral and periorbital edema, enlarged liver and spleen. Procalcitonin (PCT) levels of approximately 100 ng/mL strongly suggested a severe bacterial infection; therefore, alongside standard management of shock, empirical therapy with ceftriaxone, vancomycin, and acyclovir was initiated to cover possible meningitis. Besides PCT, increased levels of interleukin 6 and receptors for interleukin 2 were detected. Reduced complement C3 levels supported a high probability of underlying immunodeficiency, as indicated by the patient's history. CSF and urine culture were negative, however, blood cultures grew Staphylococcus warneri. The bacterial isolate demonstrated MLSB resistance mechanism along with methicillin resistance, therefore, therapy was modified to meropenem, amikacin, vancomycin. On the third day of hospitalization, dyspnea and bilateral pleural effusions were developed. Pulmonary embolism was ruled out, and she required short-term respiratory support. Inflammatory markers gradually decreased, with PCT falling to 10.70 ng/mL on the fourth day. A follow-up with nephrology, neurology, gastroenterology, and immunology was advised. The patient was discharged in good general condition.

Conclusions: Patients with immunodeficiencies are at higher risk of developing severe infections due to opportunistic bacteria. In such cases, rapid identification of the causative pathogen is crucial to initiate targeted therapy.

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Food Protein–Induced Enterocolitis Syndrome Caused by a Rare Trigger

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Introduction: Food protein-induced enterocolitis syndrome (FPIES) is a non-immunoglobulin E cell mediated food allergy that typically presents with deferred vomiting and diarrhea. The majority of cases occur in infants with the most common triggers being grains and cow's milk. Due to its nonspecific presentation and potential for severe, life-threatening episodes, FPIES remains a significant diagnostic challenge.

Case report: A 8-month old boy was admitted to the Gastrointestinal Unit with a history of vomiting and diarrhea which started 3 days prior. On admission, the patient was in a moderately good general condition, apathetic and somnolent. The child had a diagnosis of chronic kidney disease secondary to obstructive uropathy (status post cystoscopy for posterior urethral valves) and hypothyroidism. He had a history of recurrent episodes of gastroenteritis symptoms requiring multiple hospitalizations. The elemental diet had been induced two months ago, due to suspicion of cow's milk allergy, with no significant clinical improvement. The laboratory investigation revealed a significant increase in PCT and CRP, therefore meropenem was initiated according to the antibiogram. Other findings of note included features of metabolic acidosis, elevations of methemoglobin level to 2,7%, and mild hypoglycemia. During hospitalization, the patient experienced an episode of vomiting following ingestion of carrot puree. A similar episode had been documented during a previous hospitalization after consumption of a meal containing rice and carrots. Total IgE was 5,22 IU/ml with no peripheral eosinophilia. Food Panel III was performed; no allergy to the tested food allergens was confirmed. Based on the clinical criteria including recurrent vomiting after ingestion of trigger and absence of IgE sensitization, FPIES to carrot was suspected, and referral for additional tests in hospital had been written. Elimination of carrots and potentially cross-reactive foods from the diet was recommended. Before planned hospitalisation, the patient was readmitted due to another episode of vomiting and diarrhea. Immunological, nephrological, urological, and otolaryngological consultations were performed and revealed no abnormalities. Microbiological testing was negative. Gastroscopic examination was unremarkable. Sigmoidoscopy revealed a normal mucosa with a preserved normal vascular pattern and numerous enlarged lymphoid follicles; suggestive of an allergic etiology.

Conclusions: The diagnosis of FPIES remains challenging because of the lack of specific biomarkers that can reliably confirm or exclude the disease. Consequently, diagnosis is largely based on clinical presentation. Increased methemoglobin levels may provide supportive diagnostic information in selected cases. Notably, vegetables are considered a relatively uncommon trigger of FPIES.

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CT-Negative, Diffusion-Positive: Infant Lenticulostriate Infarction Detected on MRI

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Introduction: Arterial ischemic stroke during infancy is rare and may be overlooked when neurologic symptoms arise after a seemingly minor traumatic event. Early non-contrast CT can be negative, particularly in deep perforator territory infarcts, and MR angiography may show no evidence of large-vessel occlusion. Diffusion-weighted MRI (DWI) with apparent diffusion coefficient (ADC) confirmation is essential to confirm true diffusion restriction and establish an early diagnosis of acute ischemia.

Case report: An 8-month-old boy was evaluated for sudden left-sided weakness after a fall from standing height. There was no loss of consciousness or vomiting. After a 1.5-hour nap, his mother noted reduced use of the left arm and leg, facial asymmetry, and poor postural control. Initial non-contrast head CT showed no acute findings. Brain MRI including TOF MR angiography was obtained because deficits persisted. DWI demonstrated a focal lesion in the right lentiform nucleus with adjacent periventricular involvement (18 × 12 mm) and matching low signal on the ADC map, consistent with true diffusion restriction from acute infarction. TOF imaging showed preserved flow-related signal in the major arteries of the circle of Willis and no cerebral edema, supporting a lenticulostriate (small perforator) territory infarct without large-vessel occlusion. Comprehensive in-hospital evaluation (cardiac, hematologic, autoimmune, and infectious) did not establish a clear etiology. The patient received low-molecular-weight heparin followed by acetylsalicylic acid and early rehabilitation, with progressive neurological improvement.

Conclusions: For infants presenting with acute hemiparesis, a negative CT primarily rules out hemorrhage rather than early ischemia. DWI with ADC mapping can establish an early diagnosis of deep small-vessel infarction that may be CT-negative and not accompanied by large-vessel occlusion on TOF imaging. Incorporating early MRI into the diagnostic pathway can reduce delays and guide appropriate management.

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Beyond the Reach of Cardiac Surgery: A Fatal Case of Recurrent Tamponade and Hidden CDG

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Introduction: Congenital disorders of glycosylation (CDG) are a group of inherited metabolic diseases caused by defects in the biochemical pathways of N- and O-linked glycosylation of proteins and lipids. Their clinical presentation is highly heterogeneous. Impaired glycosylation leads to multisystem involvement, including severe dysfunction of the cardiovascular system.

Case report: A 9-week-old preterm infant, born at 27 weeks of gestation, was urgently admitted to the Department of Pediatric Cardiac Surgery with suspected pericardial tamponade for further diagnostics and potential surgical treatment. Initial evaluation revealed pericardial effusion (up to 23 mm), with subsequent fluctuations and progression, particularly behind the right atrium and right ventricle. Due to rapid accumulation of fluid, the patient was qualified for hospitalization and underwent pericardial drainage. After the procedure, the infant was transferred in moderate condition to the Pediatric and Neonatal Intensive Care Unit. Because of recurrent pericardial effusion and suspected hypertrophic cardiomyopathy, the patient was readmitted. Clinical improvement was observed after decompression. However, within four days, imaging showed reaccumulation of fluid in the mediastinum. Genetic testing was initiated. Analysis revealed an abnormal transferrin isoform pattern with significantly elevated asialo- and disialotransferrin fractions, indicating impaired protein glycosylation. Chest X-ray and echocardiography confirmed significant pericardial effusion, and a third drainage procedure was performed. The child returned to the postoperative unit in stable condition. Approximately 10 minutes later, a sudden and severe clinical deterioration occurred. Cardiopulmonary resuscitation was initiated. Due to lack of response, emergency thoracotomy was performed; however, no fluid or clots were found in the mediastinum or around the heart. The patient was pronounced dead.

Conclusions: This case highlights the importance of considering metabolic disorders, including CDG, in the differential diagnosis of pericardial tamponade in infants. Early recognition may be challenging due to nonspecific and rapidly evolving clinical features. Broader diagnostic evaluation, including metabolic and genetic testing, should be considered in atypical or recurrent cases.

JUVENES PRO MEDICINA
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Polymicrogyria revealed by MRI: a case report of a 6-year-old with epileptic seizures and functional disabilities

Milena Krupa, Jakub Żebrowski, Magdalena Kowalczyk, Radosław Sochocki, Weronika Źrodowska

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Introduction: Polymicrogyria (PMG) is one of the most common malformations of cortical development (MCD). It often occurs alongside other brain malformations or as part of syndromic disorders. This condition is characterized by excessive, small folds of the cerebral cortex and pathological evidence of abnormal neuronal organization, as seen on an MRI scan. The risk factors are diverse and the disease may be caused by genetic factors and during pregnancy by infectious factors (such as TORCH), metabolic factors or vascular factors although these do not explain all cases. PMG can be manifested with epileptic seizures, motor abnormalities, developmental delay and cognitive deficits.

Case report: A six-year-old boy was admitted to the neurology ward for observation following an episode of tonic convulsions, suspected to be an epileptic seizure. His medical history includes hospitalization at 11 months of age for a single tonic-clonic seizure, accompanied by the presence of CMV DNA in his urine. A CT scan of the central nervous system was performed at that time, showing no abnormalities. The child was born following a high-risk pregnancy, at risk of premature birth and the mother having smoked cigarettes throughout the entire pregnancy. However, he was born in good health, with an Apgar score of 10. The patient is in good general condition and has a congenital deformity of the left foot, microcephaly and skin lesions in the form of Mongolian spots. He has general developmental delay, he does not speak or communicate his needs. A repeat CT scan of the central nervous system, performed also at this admission and revealed no significant abnormalities. A sleep EEG was performed, revealing the presence of epileptic activity. An MRI scan showed features of polymicrogyria in the cerebral hemispheres, which were most pronounced in the posterosuperior part of the right frontal lobe, the anterosuperior part of the right parietal lobe and the posterosuperior part of the left parietal lobe. Similar lesions are also present in the right temporal lobe. Otherwise, the brain tissue showed no focal lesions. Following genetic counselling, whole exome sequencing (WES) testing was performed, which did not reveal any pathogenic variants. However, a variant of unclear clinical significance in the NDE1 gene was identified, which is a likely cause of the disease. Antiepileptic treatment was initiated and the patient was discharged home.

Conclusions: A characteristic clinical presentation, alongside typical MRI findings, is essential for diagnosing polymicrogyria. However, determining the cause of the condition can be difficult and may involve multiple factors. It may be associated with genetic factors and maternal illnesses during pregnancy. Treatment is primarily symptomatic and involves multidrug antiepileptic therapy and close specialist monitoring.

JUVENES PRO MEDICINA

Pediatrics II Case Reports

9th of May 2026

Coordinators:

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JUVENES PRO-MEDICINA
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Incidental Diagnosis of Anomalous Left Coronary Artery from the Pulmonary Artery in a Neonate presenting with an indeterminate Cardiac Murmur - A Case Report

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Introduction: Anomalous left coronary artery from the pulmonary artery (ALCAPA) is a rare and life-threatening congenital coronary anomaly, accounting for approximately 0.25–0.5% of congenital heart diseases. If untreated, it could potentially lead to myocardial ischemia, left ventricular dysfunction, and high mortality in infancy. Neonatal presentation is uncommon because elevated pulmonary vascular resistance in early life delays the onset of ischemia. Early diagnosis before hemodynamic deterioration is crucial, as timely surgical correction significantly improves outcomes.

Case report: A term male neonate, born at 40 + 3 weeks of gestation via normal vaginal delivery with a birth weight of 3.16 kg, was admitted for postnatal observation. Antenatal and perinatal history were unremarkable. During the first days of life, the infant developed mild respiratory distress requiring brief non-invasive support and feeding intolerance with non-bilious vomiting. A sepsis workup was initiated, and empirical antibiotics were administered; however, laboratory parameters and blood cultures were normal. On examination, a cardiac murmur was detected despite stable hemodynamic status and oxygen saturation of 98% on room air. The murmur prompted a transthoracic echocardiographic examination, which revealed an anomalous origin of the left coronary artery from the pulmonary artery with bidirectional flow and features of coronary steal. Additional findings included mild mitral regurgitation, mildly reduced left ventricular systolic function with regional wall motion abnormalities, and mild hypoplasia of the pulmonary artery branches. No other structural abnormalities were identified. Following diagnosis, the neonate was managed conservatively with intravenous fluids and kept nil per os. Oxygen therapy was deliberately avoided to prevent reduction in pulmonary vascular resistance and worsening coronary steal. After multidisciplinary consultation, the patient was urgently referred to a tertiary pediatric cardiac center for definitive surgical management. The infant remained clinically stable at the time of transfer.

Conclusions: This case highlights the importance of early neonatal recognition of ALCAPA, even in the absence of severe symptoms. Subtle clinical findings, such as a cardiac murmur, should prompt early echocardiographic evaluation. Avoidance of interventions that reduce pulmonary vascular resistance and timely referral for surgical correction are essential to prevent myocardial injury. Early, incidental diagnosis prior to cardiovascular collapse can be life-saving and significantly improve outcomes.

JUVENES PRO-MEDICINA
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Severe reno-vascular hypertension with left ventricular hypertrophy in an infant with a SMAD3 mutation

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Introduction: Severe arterial hypertension (HTN) in young children is usually secondary in nature with renoparenchymal and renovascular hypertension (RVH), being the leading causes in the 0-6 year of age group. RVH is associated with early development of hypertension-mediated organ damage (HMOD), particularly left ventricular hypertrophy (LVH). Genetic disorders play a significant role among the causes of RVH in children. The aim of our report is to present a case of a 4-year-old boy with LVH secondary to severe RVH, in whom variant of uncertain significance of SMAD3 was identified.

Case report: In this case early-onset severe HTN was identified at 3 months of age. Pregnancy was complicated by maternal HTN, with a maternal history of two prior miscarriages and PAI-1 and MTHFR mutations. Initially, the patient was hospitalized for failure to thrive and urinary tract infection. Electrocardiography and echocardiography revealed severe myocardial hypertrophy – left ventricular mass index (LVMi) according to De Simone was 178 g/m2.7. Doppler ultrasound raised suspicion of bilateral renal artery stenosis, which was confirmed by CT-angiography. The patient was admitted to our clinic at the age of 10 months with office blood pressure (BP) of 121/66 mmHg. Antihypertensive treatment included propranolol, lisinopril, spironolactone and amlodipine. Whole-exome sequencing detected variant of uncertain significance of SMAD3, gene associated with Loeys-Dietz syndrome. However, the patient didn't present most common cardiovascular manifestation – coarctation of the aorta. Due to drug-resistant HTN and signs of HMOD, an ACE inhibitor (ramipril) was implemented, resulting in progressive decrease in BP (101/43 mmHg) with stable kidney function (serum creatine 0.66 mg/dL, eGFR 53 mL/min/1.73 m2). At 2 years of age, BP control was satisfactory, and LVMi decreased (65,88 g/m2.7). Over time, home BP exceeded 95th percentile, and at the age of 4 years, angio-CT demonstrated persistent stenosis and poorer right kidney perfusion. Due to absent right upper pole perfusion and impaired but preserved left kidney superior pole perfusion patient was qualified for left renal artery balloon angioplasty. On the fifth day after the procedure, BP was 103/62 mmHg. Patient remains on multidrug therapy (amlodipine, nebivolol, ramipril, spironolactone, furosemide, doxazosin) with normal home BP and no need for further intensification of treatment.

Conclusions: Early onset of HTN and HMOD should prompt consideration of genetic evaluation to aid further diagnosis and management. The cardiovascular impact of SMAD3 variants requires more extensive investigation.

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Pediatric Case of Familial Mediterranean Fever. Diagnostic Challenges in a Non-Endemic Region.

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Work supervisor: Justyna Roszkiewicz MD, PhD

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Introduction: Familial Mediterranean Fever (FMF) is a hereditary autoinflammatory disorder that predominantly affects populations originating from the Mediterranean basin, with its distribution historically associated with the Silk Road. Due to increasing migration, FMF is being diagnosed more frequently in children in Central and Northern Europe, including Poland. The disease is caused by gain-of-function mutations in the MEFV gene, which lead to dysregulation of the innate immune response. Clinically, FMF is characterized by recurrent episodes of fever accompanied by inflammatory manifestations involving the abdomen, chest, and joints.

Case report: We present the case of a 5-year-old boy diagnosed with FMF at the Department of Paediatric Cardiology and Rheumatology, Medical University of Łódź. At the age of 4 years, he was admitted with fever (up to 39.5 °C), vomiting, and abdominal pain. Laboratory investigations revealed markedly elevated inflammatory markers (CRP 178 mg/L, ESR 120 mm/h, serum amyloid A 568 mg/L). Microbiological cultures were negative, and the patient showed no clear clinical response to antibiotic therapy, making an infectious etiology unlikely. According to parental reports, the child had experienced recurrent febrile episodes occurring every 2–3 weeks, each associated with elevated inflammatory markers. The attacks had a sudden onset and resolved spontaneously within approximately three days. A positive family history was noted, as the patient's father is of Armenian origin, raising suspicion of FMF. Based on the clinical presentation and confirmation by genetic testing, treatment with colchicine was initiated. Although the frequency of febrile episodes initially decreased, the response was suboptimal. Following dose escalation, satisfactory disease control was achieved during follow-up.

Conclusions: Diagnosing FMF in children presenting with recurrent fever can be challenging due to the nonspecific nature of symptoms and the broad differential diagnosis. Awareness of this condition, together with careful evaluation of family history and ethnic background, is crucial for establishing the correct diagnosis. Early recognition of FMF enables timely initiation of colchicine therapy and may prevent long-term complications, including secondary amyloidosis.

JUVENES PRO MEDICINA
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Mucocutaneous Pigmentation an Initial Manifestation of Peutz-Jeghers Syndrome: A Case Report

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Work supervisor: Milena Kilijańczyk

Affiliations: Medical University of Warsaw

Introduction: Peutz-Jeghers syndrome (PJS) is an autosomal dominant disease characterized by a pathogenic variant in the STK11 gene, which encodes serine/threonine kinase 11 (STK11), a protein kinase that acts as a tumor suppressor. Up to 20% of patients with PJS do not have a family history of the disease and are presumed to have a STK11 de novo mutation. PJS is characterized by mucocutaneous pigmentation, gastrointestinal hamartomatous polyps, and an increased risk of gastrointestinal and extra-intestinal malignancies.

Case report: A 17-year-old boy was referred to genetic counseling due to characteristic mucocutaneous pigmentation and a history of small intestine obstruction. From early childhood (around the age of 5), a dentist had noted bluish-gray, lentiginous macules on and around the vermilion border of the lips. These lesions persisted and gradually became more prominent over time. At the age of 11, the patient developed acute small intestine obstruction caused by a polyp, requiring surgical intervention. Approximately 2 meters of the small intestine were resected, resulting in subsequent malabsorption. Histopathological examination revealed multiple gastrointestinal hamartomatous polyps. Based on the clinical and histological findings, Peutz-Jeghers syndrome was suspected. Initial genetic testing using Sanger sequencing did not identify any pathogenic single-nucleotide variants in the STK11 gene, and further genetic evaluation was not pursued at that time. However, due to strong clinical suspicion, additional testing was performed later. Multiplex ligation-dependent probe amplification (MLPA) revealed a large pathogenic deletion in the STK11 gene, encompassing exons 2-9, thereby confirming the diagnosis. The patient's parents and sister tested negative for the STK11 pathogenic variants, indicating a de novo event. The patient was provided with multidisciplinary care, including regular gastroenterological and oncological surveillance.

Conclusions: Mucocutaneous pigmentation should prompt early consideration of Peutz-Jeghers syndrome, particularly when present from childhood. Timely recognition is crucial, as it enables appropriate cancer surveillance and proactive gastroenterological management. This case underscores how characteristic early signs may be overlooked, leading to delayed diagnosis, and highlights the importance of early referral for comprehensive genetic testing- including methods capable of detecting large genomic rearrangements.

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When inflammation escalates: macrophage activation syndrome revealing systemic juvenile idiopathic arthritis in a patient with overlapping inflammatory diseases case report

Anna Wieczorek, Aleksandra Przybylak, Maria Rajczak

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Work supervisor: prof. Aleksandra Lesiak MD, PhD; prof. Joanna Narbutt, prof, Elżbieta Smolewska

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Introduction: Systemic juvenile idiopathic arthritis (sJIA) is a severe autoinflammatory disease that may initially present with nonspecific systemic symptoms such as fever, rash, and musculoskeletal pain. Macrophage activation syndrome (MAS) is a life-threatening complication of sJIA and, in rare cases, may precede its full clinical diagnosis.

Case report: A boy born on 4 October 2008 was admitted to hospital on 8 February 2022 because of an erythematous maculopapular rash involving the trunk and extremities, sore throat, fever, myalgia, arthralgia, dizziness, and vomiting. Laboratory investigations revealed progressively increasing inflammatory markers, hypertransaminasemia, coagulation abnormalities, and elevated cardiac enzymes. Myocarditis with arrhythmia was diagnosed. Due to progressive multiorgan failure—manifested by thrombocytopenia, leukocytosis, markedly elevated liver enzymes, D-dimers, lactate dehydrogenase, ferritin, and procalcitonin, together with hypoalbuminemia, metabolic acidosis, and hyperlactatemia—the patient was transferred to the intensive care unit, where catecholamine support was required for 2 days. Initial treatment included ceftriaxone, clindamycin, fluconazole, methylprednisolone pulses, intravenous immunoglobulins, albumin, and low-molecular-weight heparin. Attempts to taper glucocorticoids resulted in recurrent fever and rising inflammatory markers. With increasing ferritin and lactate dehydrogenase levels, MAS was diagnosed, and cyclosporine with tocilizumab was introduced, resulting in gradual clinical and laboratory improvement. The patient was discharged after 42 days of hospitalization. In September 2023, he experienced another episode of fever, sore throat, evanescent rash, and joint pain. Laboratory findings showed markedly elevated inflammatory markers, hyperferritinemia (up to 4656 ng/ml), increased IL-6, D-dimers, and ALT activity. Systemic JIA was diagnosed. Because three steroid pulses failed to achieve improvement, treatment with tocilizumab and cyclosporine was reintroduced, leading to disease control. The clinical course was further complicated by coexisting psoriasis and hidradenitis suppurativa, for which he was treated with acitretin, highlighting a complex background of autoinflammatory and dermatological comorbidities.

Conclusions: This case highlights that MAS may be the first and potentially life-threatening manifestation of sJIA, preceding its full clinical expression. In patients with severe systemic inflammation, hyperferritinemia, and persistent fever, sJIA should be considered even without overt rheumatologic features.

The coexistence of psoriasis and hidradenitis suppurativa suggests a shared inflammatory background, likely involving dysregulation of the IL-1, IL-6, and Th17 pathways. This overlap between autoinflammatory and immune-mediated diseases may influence both disease course and therapeutic response. Early recognition and timely targeted therapy are critical, particularly in patients with complex inflammatory conditions.

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Diagnostic challenges in an adolescent with type 1 diabetes and weight loss.

Barbara Pernak, Hanna Kuśmierczyk-Kozieł, MD, Arkadiusz Michalak, MD

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Introduction: Weight loss in children is an alarming symptom requiring a broad differential diagnosis. In children with type 1 diabetes, additional causes must be considered, including diabetes-related eating disorders and new, previously unrecognised autoimmune conditions. In those who present with weight loss and nutrient deficiencies, pernicious anemia (Addison-Biermer disease) should be suspected. This disorder is caused by autoimmune inflammation of the gastric mucosa that results in atrophic gastritis, deficiency of intrinsic factor and consequently impaired absorption of vitamin B12. Its prevalence in the general population is estimated at approximately 0.1%. In the pediatric population, the disease is extremely rare.

Case report: A 16-year-old girl with a 4-year history of type 1 diabetes treated with an insulin pump, and with a history of nephrolithiasis was admitted to the hospital in 2025 due to progressive weakness, postprandial nausea, vomiting, headaches, dizziness, and a 10-kg weight loss over last five months. On admission, her body weight was 49.6 kg (BMI 17.9 kg/m^2; 12th percentile). Review of diabetes devices suggested skipping meals. Initial history suggested a possible eating disorder, however, the patient denied intentional weight loss and reported that food intake triggered gastrointestinal symptoms. Psychiatric consultation and meal observation at the hospital excluded eating disorders as a potential cause of weight loss. Laboratory evaluation revealed microcytic anemia, leukopenia with neutropenia, deficiencies of iron, vitamin B12, and folic acid. Celiac disease, Helicobacter pylori infection, gastrointestinal bleeding, and thyroid, liver, and renal dysfunction were excluded. Hemolysis markers were within normal limits, while fecal calprotectin levels were slightly elevated within a normal range. Subsequent testing included measurement of antibodies against gastric parietal cells and intrinsic factor. Iron, vitamin B12, and folic acid supplementation were initiated. Follow-up results revealed the presence of antibodies against gastric parietal cells and intrinsic factor, raising suspicion of Addison–Biermer disease. The patient was referred to a gastroenterology department – gastroscopy was performed, and histopathology showed non-specific inflammatory changes (without atrophy) in the gastric mucosa without intestinal metaplasia. Despite the absence of the full histopathological picture typical of advanced pernicious anemia, the overall clinical and serological findings suggest an early stage of the disease.

Conclusions: This case highlights the importance of maintaining diagnostic vigilance in pediatric patients presenting with weight loss, cytopenias, and complex micronutrient deficiencies, particularly in the presence of coexisting autoimmune diseases.

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"With great bite comes great consequences" - facial nerve palsy as a result of neuroborreliosis

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Presenting author: Bartosz Godlewski

Work supervisor: dr Magdalena Żak, dr Katarzyna Mikołajczyk

Affiliations: Medical University of Lodz

Introduction: Lyme disease is the most prevalent tickborne infection in the US and Europe, it is caused by Borreliella (Borrelia) burgdorferi and transmitted by ticks of the Ixodes ricinus complex. The hallmark lesion is erythema migrans, but the infection can also involve the heart, joints, and nervous system. The most frequent extracutaneous manifestation is Lyme neuroborreliosis (LNB), which develops in about 15% of untreated patients. Neuroborreliosis is classified by symptom duration: when signs persist beyond six months it is considered chronic; the acute form presents with cranial neuropathies, lymphocytic meningitis, and radiculoneuritis, most often manifesting as unilateral facial nerve palsy

Case report: A 4-year-old boy was admitted with peripheral left-sided facial nerve palsy, vomiting, and fever (38.4°C). There was no reported tick exposure or erythema migrans, and meningeal signs were absent; nevertheless, the presentation suggested central nervous system infection. Laboratory tests showed low inflammatory markers (CRP 0.67 mg/dL). Cerebrospinal fluid analysis was pivotal: a multiplex PCR panel detected HSV-1 DNA, and serum serology demonstrated both IgM and IgG antibodies to Borrelia burgdorferi. Intrathecal Borrelia-specific IgG synthesis was confirmed by Western blot, establishing the diagnosis of neuroborreliosis and prompting initiation of appropriate therapy.

Conclusions: This case highlights that Lyme neuroborreliosis can present in children without a reported tick bite or erythema migrans and may be obscured by fever and non-specific systemic symptoms. Such atypical presentations, including overlapping laboratory or PCR findings, can mask the clinical picture and delay diagnosis. Clinicians should maintain a high index of suspicion for neuroborreliosis in pediatric patients with cranial neuropathies or other neurologic signs—even when epidemiological history is negative—to ensure timely diagnostic testing and appropriate treatment.

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Intramural duodenal hematoma – a rare complication following endoscopy in a child with Noonan syndrome: a case report

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Work supervisor: Mariusz Olczyk

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Introduction: Noonan syndrome is a rare genetic disorder belonging to the group of RASopathies, characterized by facial dysmorphism, congenital heart defects, hematological abnormalities, and growth delay. Short stature and low body weight may be persistent elements of the clinical picture and can constitute an indication for gastroenterological diagnostics.

Case report: An 8-year-old girl with Noonan syndrome was admitted to the Department of Gastroenterology, Allergology, and Pediatrics for evaluation of growth and weight deficiency. On admission, her general condition was good, and coagulation parameters were within normal limits. Several hours after undergoing gastroscopy, she developed vomiting with coffee-ground content and abdominal pain. Ultrasound revealed an intramural hematoma within the wall of the duodenum (58 × 37 mm) and a small amount of free fluid in the peritoneal cavity. Due to progressive anemia, transfusions of red blood cells, plasma, and platelets were administered, and pharmacological treatment was initiated. Despite this, abdominal pain persisted and abdominal circumference increased; a nasogastric tube was placed and parenteral nutrition was started. Abdominal CT showed a massive, long-segment hematoma involving D2–D4 and the proximal jejunum, along with a large amount of intraperitoneal fluid. Surgeons decided against operative intervention and recommended conservative management. In the following days, gradual clinical and radiological improvement was observed, allowing for dietary advancement and discontinuation of parenteral nutrition. After nearly one month, the patient was discharged in good condition.

Conclusions: Intramural duodenal hematoma is an extremely rare complication of endoscopy, and only isolated cases in patients with Noonan syndrome have been reported in the literature. This case highlights the need for careful qualification of such patients for endoscopic procedures and close post-procedural monitoring.

JUVENES PRO MEDICINA
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Unmasking Hidden Metabolic Disorders: Lessons from the clinical course of two pediatric patients

Divya thamizhini

Presenting author: Divya thamizhini

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Introduction: Ornithine Transcarbamylase (OTC) is one of the enzymes of the urea cycle – a pathway expressed only in periportal hepatocytes for the conversion of nitrogenous waste into water-soluble urea, playing a central role in the ammonia homeostasis. OTC deficiency is the most common Urea Cycle Disorder (UCD) with an X-linked inheritance and prevalence ranging from 1 in 14000 to 80000. While the usual subject is male neonate presenting symptoms of reduced intake and somnolence, this report follow the divergent clinical trajectories of a male and a female patient, both with late-onset OTC deficiency.

Case report: Case 1: 8 months-old male hospitalized due to vomiting, lethargy and oculomotor disturbances with a recent history of UTI and diarrhea resolved 3 weeks ago. Case 2: 4.5 years-old female with a history of protein aversion, found to have elevated liver enzymes incidentally before a scheduled adenoidectomy. In the course of diagnostic work-up, tests ranged from Head CT, routine lab tests, abdominal USG, plasma ammonia, urine organic acid profile, plasma amino acid profile, neurological consultation to genetic analysis. Both patients demonstrated significant hyperammonemia (Case 1: 433ug/dL; Case 2: 294umol/L) and pathogenic mutations in the OTC gene. Genetic analysis revealed a hemizygous c.386+5G>A mutation in Case 1 and a heterozygous c.605A>C (p.His202Pro) mutation in Case 2.

Conclusions: By documenting the different rationales for hospitalization and their subsequent clinical courses, we illustrate the heterogeneous landscape of late-onset OTC deficiency. Whether presenting as incidental transaminase elevation or acute post-infectious decompensation, ammonia testing can unmask critical metabolic etiologies. Such disorders must remain a central consideration in the differential diagnosis for any child presenting with unexplained gastric or neurological symptoms, regardless of age and gender. Increasing awareness of these diverse clinical presentations is essential to prevent the significant morbidity associated with missed metabolic crises in the post-neonatal population.

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“Congenital Multiple Joint Stiffness in a 12-Year-Old Boy – A Case Report with a Confirmed Mutation in the MYH3 Gene”

Gabriela Adamiak, Maria Bardziak

Presenting author: Gabriela Adamiak

Work supervisor: dr n. med. i n. o zdr. Ilona Jaszczuk

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Introduction: The development of skeletal muscle during the embryonic period is an exceptionally complex and multistep process that involves tightly regulated temporal and spatial expression of specific isoforms of contractile proteins, including unique myosin isoforms. Of particular importance are the embryonic and neonatal myosin heavy chains, encoded by the MYH3 and MYH8 genes, respectively, as well as the embryonic/atrial myosin light chain, whose expression is regulated by the MYL4 gene. In recent years, an increasing body of scientific evidence has clearly demonstrated that mutations in these genes play a crucial and direct role in the pathogenesis of various congenital musculoskeletal disorders. This group of conditions includes, among others, distal arthrogryposis syndromes, which are characterized by joint contractures, limited range of motion, and the presence of facial dysmorphisms.

Case report: In this study, we present the case of a 12-year-old boy diagnosed with congenital multiple joint stiffness, in whom Whole Exome Sequencing (WES) revealed the presence of two clinically significant genetic variants in the MYH3 gene: c.2806G>A and c.2749G>A. According to data available in the OMIM database, these variants are associated with joint contractures, cutaneous pterygia, and osseous fusions, features characteristic of an autosomal recessive pattern of inheritance. Additional genetic analysis performed in the parents confirmed the biparental origin of the MYH3 variants.

Conclusions: Our observations therefore underscore the essential role of the MYH3 gene in the proper formation, development, and subsequent function of the musculoskeletal system. Furthermore, they provide novel and valuable insights into the genetic basis of congenital multiple joint stiffness. The presented case also highlights the considerable diagnostic value of Whole Exome Sequencing in the identification of rare genetic disorders, as it enables the simultaneous analysis of multiple genes involved in musculoskeletal development, the detection of otherwise elusive variants, and the precise determination of inheritance patterns, which is of direct relevance for further clinical management and genetic counseling.

JUVENES PRO MEDICINA
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Sudden onset hemianopsia as a complication of ulcerative colitis - A case report.

Igor Karolczak, Julia Kot

Presenting author: Igor Karolczak

Work supervisor: lek. Natalia Lwow

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Introduction: Ulcerative colitis (UC) is a chronic inflammatory disease that is characterized by relapsing mucosal inflammation, which starts in the rectum and extends proximally into the colon. The pathogenesis of UC is yet to be completely discovered, however both genetic and environmental factors play a role in UC. The signs include diarrhea, hematochezia, abdominal pain, fever and loss of body weight. The possible complications of UC are haemorrhage, intestinal perforation or megacolon toxicum. UC therapy involves dietary interventions, amino salicylates, steroids, immunosuppressants and surgical treatment.

Case report: A 10-year-old female was admitted to the Gastroenterology, Allergology and Pediatrics Clinic due to one-week history of episodes of paroxysmal abdominal pain and bloody diarrhoea. The pain was occurring regardless of the time of day and food consumption and caused sleep disturbance. The patient has been previously hospitalised multiple times due to similar episodes combined with elevated liver enzymes and stool calprotectin with no definitive diagnosis. Laboratory tests revealed elevated liver enzymes, GGTP and stool calprotectin of 3700µg/g. Colonoscopy discovered ulcerative colitis (Mayo 2) with moderate disease activity (PUCAI 55) later confirmed by biopsy. The episode was managed with intravenous steroid therapy and oral mesalazine leading to hospital discharge. However, a week later the patient was admitted again due to diarrhoea and fever despite steroid and mesalazine therapy. Laboratory tests revealed mildly elevated CRP levels with normal procalcitonin. Stool PCR test detected EPEC. Consequently, amikacin antibiotic therapy was introduced later intensified with ceftriaxone. Due to lack of response, rising inflammatory parameters and fever, antibiotic therapy was changed to meropenem, vancomycin and fluconazole leading to a transient decrease of inflammatory markers which later increased with episodes of fever. Abdominal abscesses have been ruled out by CT scan. Therefore, an autoimmunological process was suspected. A few days into the hospitalisation the patient complained of right temporal hemianopsia. Both head CT and MRI revealed ischemic lesions within the vascular territory of left PCA secondary to vasculitis. TIA was diagnosed. Due to complicated clinical course, presence of cANCA, pANCA, anticardiolipin IgG and autoimmune vasculitis combined immunodeficiency disorder was suspected. Based on the overall clinical findings methylprednisolone pulses were introduced resulting in clinical improvement. The patient was discharged with immunosuppressive therapy and was ordered to report to a specialist care.

Conclusions: UC can lead to major complications. It is important to control the physical state of the patient during an acute episode. As portrayed by this case, even neurological events are possible. A thorough diagnostic process should be performed to properly plan the treatment of the patient.

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Beyond Renal Cysts: A Multisystem Case of 17q12 Microdeletion in Infancy

Joanna Jacuńska

Presenting author: Joanna Jacuńska

Work supervisor: prof. dr hab. n med. Kinga Musiał

Affiliations: Wroclaw Medical University

Introduction: The 17q12 microdeletion syndrome is a rare autosomal dominant genomic disorder associated with renal cysts and diabetes (RCAD syndrome). It is characterized by a highly variable phenotype, including structural and functional renal abnormalities, endocrine disorders such as maturity-onset diabetes of the young type 5, neurodevelopmental impairment, and immunological disturbances. Due to its heterogeneous presentation, early diagnosis may be challenging, particularly in infancy when symptoms are often nonspecific.

Case report: 13month-old girl with a confirmed microdeletion of chromosome 17q12 and bilateral cystic kidney disease. Was born at 37th week of gestation via uncomplicated delivery, with a birth weight of 2000g and an Apgar score of 9. Prenatal ultrasound revealed hyperechogenic kidneys and intrauterine growth retardation, raising suspicion of an underlying congenital condition and requiring verification by amniopunction. Prenatal genetic evaluation using array comparative genomic hybridization (aCGH) confirmed a pathogenic deletion encompassing the critical region associated with RCAD syndrome. Ultrasound revealed bilateral cortical hyperechogenicity and multiple small cysts, with preserved kidney size and no evidence of urinary tract obstruction. Postnatally, the patient exhibited mild psychomotor developmental delay and generalized hypotonia. Routine renal function assessment revealed normal serum creatinine, yet cystatin C level was already elevated. Biochemical parameters of calcium–phosphate metabolism remained within reference ranges. Urinalysis was normal, with no evidence of proteinuria or infection. Diagnostic imaging, including abdominal ultrasound, confirmed the presence of bilateral renal cysts and hyperechogenic parenchyma with preserved corticomedullary differentiation. Neuroimaging (CrUS and CT) didn't reveal structural abnormalities, despite initial suspicion of craniosynostosis. The clinical course was further complicated by hematological abnormalities not typical for RCAD, such as mild normocytic anemia, granulocytopenia, and immunoglobulin deficiency, which led to postponement of routine vaccinations and required hematological follow-up. Moreover, the patient was diagnosed with hypothyroidism and started on levothyroxine therapy. The patient remains under regular multidisciplinary follow-up involving pediatric nephrology, endocrinology, neurology, hematology, and clinical genetics.

Conclusions: This case highlights the importance of prenatal diagnostics in the case of intrauterine growth retardation. Postnatal multisystem involvement, extending beyond clinical picture typical for a defined syndrome, requires genetic re-evaluation with WES (whole exome sequencing). Given the risk of progressive kidney disease and later-onset endocrine complications such as MODY5 diabetes, a multidisciplinary approach is essential to optimize patient outcomes and ensure timely intervention.

JUVENES PRO MEDICINA
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Beyond Rickets: X-Linked Hypophosphatemic Rickets in a Child

Julia Klarycka

Presenting author: Julia Klarycka

Work supervisor: Ewa Gramatyka-Drążek, MD

Affiliations: University of Rzeszów

Introduction: Hypophosphatemic rickets is a rare disorder of phosphate metabolism causing impaired bone mineralization. The most common form, XLH, results from PHEX mutations leading to increased FGF23, reduced phosphate reabsorption, and altered vitamin D metabolism. It presents in early childhood with limb deformities, growth delay, and dental abnormalities.

Case report: A 7.5-year-old boy was admitted to the Department of Pediatric Endocrinology due to suspected hypophosphatemic rickets for further diagnostic evaluation. Anthropometric measurements at admission were: height 111 cm (<3rd percentile), body weight 20.5 kg, and BMI 16.64 kg/m². Parental heights were: mother – 156 cm, father – 168 cm. Physical examination revealed height below the expected range for the patient's age and genetic growth potential, abnormal body proportions (long trunk, short limbs), facial dysmorphic features (including prominent frontal bossing), genu varum, periapical dental abscesses, and dental caries. According to the perinatal history, the patient was the first child of the mother, born at 40 weeks of gestation with a birth weight of 3400 g. Laboratory tests revealed hypophosphatemia, decreased TmP/GFR, and normal serum calcium levels. A 24-hour urine collection demonstrated normal calciuria and increased phosphaturia. Radiographs of the knees and wrists showed changes characteristic of rickets. As part of the differential diagnosis, growth hormone deficiency and celiac disease were excluded as potential causes of short stature. Whole-exome sequencing was performed and revealed a hemizygous variant c.1768+173A>G in the PHEX gene, which is associated with X-linked hypophosphatemic rickets. The patient remains under the care of pediatric endocrinology and orthopedic outpatient clinics

Conclusions: This case highlights skeletal deformities and dental findings as key clues to phosphate metabolism disorders. Early diagnosis is essential to prevent progression and improve growth, although hypophosphatemic rickets remains heterogeneous and challenging to treat.

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Rhabdomyolysis and cholestatic liver dysfunction

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Introduction: Cholestatic liver injury secondary to massive rhabdomyolysis is a rare clinical condition. Rhabdomyolysis involves the breakdown of skeletal muscle, leading to the release of intracellular components, including myoglobin and creatine kinase. Myoglobin metabolites are further processed into bilirubin in the liver. While clearance primarily burdens the kidneys, severe cases may also impair hepatic function. Hepatic dysfunction in rhabdomyolysis may result from systemic inflammation, metabolic stress, electrolyte abnormalities, and ischemia associated with critical illness. These mechanisms can disrupt bile secretion, leading to cholestatic liver injury, manifested by elevated bilirubin and cholestatic enzymes such as gamma-glutamyl transferase (GGT).

Case report: A 14-year-old female was admitted for spinal fusion due to severe scoliosis. During intraoperative repositioning from prone to supine, cardiac arrest occurred. Immediate cardiopulmonary resuscitation restored spontaneous circulation. She was subsequently transferred to the Intensive Care Unit, where rhabdomyolysis was diagnosed and treated with renal replacement therapy. During the clinical course, laboratory features of cholestatic liver injury and progressive jaundice were observed. The condition was most likely associated with cholestasis related to critical illness and severe rhabdomyolysis, reflected by elevated bilirubin and GGT levels. Gradual decreases in serum myoglobin and creatine kinase were noted during dialysis. The patient was transferred to the Gastroenterology Clinic for further evaluation and nutritional optimization. Genetic and metabolic investigations did not identify an underlying cause. After stabilization, she was referred for further neurosurgical management.

Conclusions: This case highlights cholestatic liver injury in the course of severe rhabdomyolysis in a pediatric patient. Markedly elevated muscle breakdown markers may contribute to hepatic metabolic stress and cholestasis. Importantly, the intraoperative setting in a specialized multidisciplinary center enabled rapid intervention, likely preventing a fatal outcome. Early recognition and multidisciplinary management are essential.

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Carbamazepine-induced DRESS syndrome in a 6-year-old child

Karolina Połubińska

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Introduction: DRESS syndrome (Drug Reaction with Eosinophilia and Systemic Symptoms) is a rare but severe and potentially life-threatening drug-induced hypersensitivity reaction, characterized by a constellation of clinical features including cutaneous eruption, eosinophilia, and internal organ involvement. The estimated incidence, particularly among patients receiving anticonvulsant therapy, ranges from 1 in 1,000 to 1 in 10,000.

Case report: A 6-year-old boy was admitted to the hospital in Grajewo with generalized erythema, yellow crusts at the corners of the mouth, low-grade fever, sore throat, and decreased appetite for 4 days. Initially, scarlet fever was suspected, and treatment with cefuroxime was initiated. Due to confluent rashes, edema of the feet, enlarged lymph nodes, and purpura on the legs, an unspecified viral infection and Stevens-Johnson syndrome were suspected. Medical history revealed that the patient had been treated with carbamazepine (Neurotop retard) for 4 months; the therapy was discontinued during hospitalization but resumed after discharge. Upon admission to the clinic in Białystok, examination revealed generalized erythema with skin peeling, edema of the eyelids and hands, small purpura on the feet, bruising below the knees and on the feet, yellow crusts at the corners of the mouth, oral aphthae and erosions, and multiple enlarged lymph nodes: occipital (larger on the right side), submandibular, cervical (anterior and posterior to the sternocleidomastoid), inguinal, and left axillary, the largest up to 2 cm. RegiSCAR score: 4–5 points. Laboratory tests showed eosinophilia 2.500/µl (24.9%), elevated ALT and GGTP activity, high concentration of D-dimers; CMV DNA in the blood and HRV RNA in nasopharyngeal swab were detected. Abdominal ultrasound revealed a normoechogenic, homogeneous liver measuring 124 mm — slightly enlarged. A diagnosis of DRESS syndrome secondary to carbamazepine was made. Treatment included systemic corticosteroids, antihistamines, topical therapy, oral care, intravenous hydration, and supportive agents. On hospital day 7, facial edema, pruritus, and erythema recurred — prednisone dose was increased to 1 mg/kg/day, resulting in improvement. On day 9, the severity of skin lesions decreased with residual lesions on the chest, back, and legs — corticosteroid dose reduction was initiated. Labs normalized except for mildly elevated GGTP activity; the number of eosinophils in blood smear decreased to 1.093/µl (6%) with leukocytosis 18.22 × 10^3/µl. Follow-up ultrasound showed normal liver and spleen (spleen 118 mm) with small lymph nodes (up to 9 × 5 mm).

Conclusions: This case highlights the diagnostic challenges of carbamazepine-induced DRESS syndrome in a child. Early recognition, high clinical suspicion, and prompt initiation of systemic corticosteroids and supportive care were key to clinical and laboratory improvement. Careful avoidance of the offending drug is essential to prevent recurrence.

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Fulminant onset of systemic lupus erythematosus with rapid progression to Class III nephritis in a 14-year-old boy

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Introduction: Systemic lupus erythematosus (SLE) represents a highly heterogeneous autoimmune syndrome characterized by unpredictable multisystem involvement. Although the incidence of pediatric-onset SLE is notably low in the male population (with a typical female-to-male ratio of 5:1), male patients are predisposed to a more severe clinical phenotype, predominantly driven by an increased frequency of renal pathology. This report highlights the case of a 14-year-old adolescent who developed a fulminant initial presentation of SLE, rapidly advancing to biopsy-proven Class III lupus nephritis.

Case report: A 14-year-old male with a previously unremarkable medical and family history was hospitalized for comprehensive diagnostic workup due to progressive urinary abnormalities and suspected renal involvement in the context of newly recognized SLE. The earliest clinical signs comprised a photosensitive malar rash, which was rapidly followed by profound systemic manifestations, including significant fatigue, unintended weight loss, fever, abdominal pain, and recurrent oral ulcerations. Initial laboratory workup demonstrated marked cytopenias (anemia and thrombocytopenia). Concurrently, immunological screening confirmed an exceptionally high inflammatory burden, evidenced by profound hypocomplementemia (C3: 63.5 mg/dL; C4: 4.7 mg/dL) and a critical SLEDAI-2K score of 29. Throughout subsequent clinical observations, a rapid decline in renal function became evident, characterized by persistent hematuria and a progressively worsening proteinuria (reaching a maximum of 960 mg/24 h). Consequently, a renal biopsy was performed, which unequivocally identified Class III (focal proliferative) lupus nephritis. To rapidly achieve disease control, induction immunosuppression was commenced with high-dose intravenous methylprednisolone pulses and hydroxychloroquine. Following the histopathological diagnosis, mycophenolate mofetil was integrated into the therapeutic regimen. This targeted approach facilitated a notable clinical recovery, alongside the normalization of hematological and renal profiles. Of note, an echocardiographic evaluation also disclosed an asymptomatic pericardial effusion. The patient continues to be closely monitored in a multidisciplinary outpatient setting, maintaining sustained immunosuppressive therapy to preserve renal function and prevent disease relapse.

Conclusions: Rapidly worsening hematuria and proteinuria in pediatric patients mandate immediate nephrological intervention, for which a kidney biopsy remains the gold standard diagnostic tool. Prompt recognition of the underlying SLE pathology and the swift initiation of targeted immunosuppression are critical to halting organ damage and improving overall prognosis.

JUVENES PRO MEDICINA
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Gallbladder Hypoplasia as a Novel Manifestation of 18q Deletion (De Grouchy Syndrome): A Case Report

Katarzyna Hajduk, Julita Klag, Laura Klencz

Presenting author: Laura Klencz

Work supervisor: dr n. med. Joanna Śliwka, dr n. med. Szymon Pawlak

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Introduction: De Grouchy syndrome is a rare condition involving abnormalities of chromosome 18. The second form of this syndrome, characterized by deletion of the long arm of chromosome 18 (18q deletion), occurs with a frequency of approximately 1 in 40,000 live births. Patients present with a broad spectrum of clinical features, including short stature, intellectual disability, cleft lip and palate, and congenital heart defects. This paper presents a previously unreported manifestation of 18q deletion associated with gallbladder hypoplasia.

Case report: A 16-month-old girl was admitted to a cardiology center for evaluation of a congenital heart defect, including a secundum atrial septal defect (ASD II) and valvular pulmonary stenosis, both diagnosed shortly after birth. During hospitalization, in addition to a systolic murmur along the left sternal border, facial dysmorphism was noted, including hypertelorism, mandibular retrognathia, a small saddle nose, and a high-arched palate. Genetic testing confirmed deletion of the long arm of chromosome 18. Further diagnostic work-up revealed additional abnormalities, including rocker-bottom feet, umbilical hernia, nasolacrimal duct obstruction, and gallbladder hypoplasia. The patient also developed epileptic flexion seizures during follow-up. At 23 months of age, surgical closure of the ASD II using an autologous pericardial patch was successfully performed. Subsequent diagnostics confirmed gallbladder agenesis. Despite the absence of gastrointestinal symptoms, this finding may be clinically relevant for future diagnostic and surgical management.

Conclusions: In patients suspected of having De Grouchy syndrome, clinicians should consider not only the commonly associated features but also possible abnormalities of the gastrointestinal system, including gallbladder hypoplasia or agenesis. Imaging studies are an effective tool for actively identifying such abnormalities following genetic diagnosis.

JUVENES PRO MEDICINA
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PURA Syndrome: The Importance of Early Whole-Exome Sequencing in Early-Onset Epileptic Encephalopathy Mimicking Acquired Brain Injury

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Introduction: Early-onset epileptic encephalopathies often present a significant diagnostic challenge due to considerable overlap with acquired brain injuries. PURA syndrome, an ultra-rare monogenic neurodevelopmental disorder caused by de novo pathogenic variants in the PURA gene, serves as a prime example of this pitfall. With an estimated incidence of 1 in 1,000,000 births and approximately 840 cases reported worldwide, it commonly manifests with neonatal hypotonia, severe global developmental delay, absent speech, and drug-resistant epilepsy.

Case report: We describe a 6-year-old boy with profound global developmental delay, axial and generalized hypotonia, and pharmacoresistant focal epilepsy from the first year of life. Serial EEG recordings showed focal temporo-parieto-occipital discharges with right-sided predominance and fluctuating activity. Brain MRI revealed nonspecific white matter abnormalities suggestive of delayed myelination, widened fronto-parietal CSF spaces, and skull asymmetry, without progression. Initial evaluations including chromosomal microarray, metabolic screening, and targeted SCO2 testing were negative. Whole-exome sequencing performed in 2022 identified a de novo frameshift mutation in the PURA gene (NM_005859.5:c.345_346del, p.(Asp116LeufsTer84)), establishing the diagnosis of PURA syndrome. The clinical course was complicated by recurrent seizure exacerbations during infections and neuromuscular junction dysfunction confirmed by repetitive nerve stimulation (15.2% decrement).

Conclusions: This case emphasizes the critical value of early whole-exome sequencing in children presenting with early-onset epileptic encephalopathy and nonspecific neuroimaging findings. PURA syndrome demonstrates how a genetic disorder can closely mimic acquired structural brain injury, frequently resulting in diagnostic delay. Prompt integration of genomic testing into the diagnostic pathway is essential to shorten the diagnostic odyssey, enable accurate counseling, and optimize patient management.

JUVENES PRO MEDICINA

Surgery I Case Reports

9th of May 2026

Coordinators:

Aleksandra Wojtera

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Jury:

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JUVENES PRO MEDICINA
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eTEP Repair of Rare Subxiphoid Incisional Hernia after CABG with Concomitant Diaphragmatic Hernia

Mohamed mudar alsomm, Marwan Zeini

Presenting author: Mohamed mudar Alsomm

Work supervisor: Dr Jakub Włodarczyk

Affiliations: Medical university of lodz

Introduction: Subxiphoid incisional hernias are a rare complication following cardiac surgery via median sternotomy, particularly in patients with multiple comorbidities. Their anatomical location makes surgical repair technically challenging. Minimally invasive approaches such as enhanced-view totally extraperitoneal (eTEP) repair may offer improved outcomes.

Case report: A 67-year-old male with a history of coronary artery disease, prior myocardial infarction, coronary artery bypass grafting (CABG), and implantable cardioverter-defibrillator (ICD) implantation was admitted for elective treatment of a progressively enlarging subxiphoid incisional hernia. His comorbidities included heart failure with reduced ejection fraction (EF 40%, NYHA II), type 2 diabetes mellitus, obesity, hypothyroidism, and dyslipidemia. The patient underwent eTEP repair with retromuscular mesh placement. Intraoperatively, a 5 × 3 cm subxiphoid defect was identified and reduced. Additionally, a small anterior diaphragmatic hernia containing adipose tissue was incidentally detected and managed during the same procedure. A 15 × 15 cm polypropylene mesh was implanted. The postoperative course was uneventful.

Conclusions: Subxiphoid incisional hernias remain a rare and technically demanding entity. The eTEP approach appears to be a safe and effective method in high-risk patients, allowing simultaneous management of concomitant defects while minimizing surgical trauma and supporting favorable postoperative recovery.

JUVENES PRO MEDICINA
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Necrotizing Enterocolitis in a Full-Term Neonate with Hypopituitarism and Dysgenesis of the Corpus Callosum: A Case Report

Olga Gryszkiewicz, Sylwia Pol

Presenting author: Olga Gryszkiewicz

Work supervisor: Marek Wolski, MD, PhD

Affiliations: Medical University of Warsaw

Introduction: Necrotizing enterocolitis (NEC) is an acquired inflammatory disease of the gastrointestinal tract, most commonly diagnosed in preterm infants with low birth weights, which emphasizes the role of intestinal immaturity in its pathogenesis. NEC also affects full-term newborns, especially those who suffer from major comorbidities such as perinatal asphyxia and endocrine insufficiency. It is characterized by severe intestinal inflammation and varying degrees of bowel tissue necrosis. Management of the disease depends on the Bell's criteria staging and may include gastric decompression, parenteral nutrition, broad-spectrum antibiotic therapy, and intestinal resection. Many patients, after surgical interventions, tend to become more susceptible to long-term complications such as short bowel syndrome, growth delay, and neurodevelopmental abnormalities. Additionally, the rapid and unpredictable progression and limited therapeutic strategies vastly contribute to the challenging nature of the disease.

Case report: We present the case of a full-term female neonate born at 39 weeks of gestation with prenatal diagnosis of corpus callosum dysgenesis and subependymal heterotopia. Postnatally, the patient developed hypoglycemia, thermoregulation issues, and metabolic instability. On the fourth day of life, the patient exhibited swift clinical deterioration, pointing to sepsis, metabolic acidosis, and gastrointestinal inflammation. Laboratory testing exposed various hematological issues, including thrombocytopenia, lymphocytopenia, anemia, and elevated inflammatory markers. Intensive care was implemented, consisting of broad-spectrum antibiotics, hemodynamic support, mechanical ventilation, and total parenteral nutrition. The disease progressed to an advanced stage of NEC (Bell's criteria) with intestinal necrosis and perforation. The patient required multiple laparotomies, including extensive bowel resections and gastrostomy. Postoperatively, the patient struggled with infections and was maintained on prolonged parenteral nutrition and further antimicrobial treatment. Clinical stabilization was achieved, and the patient was transferred to a referral center for further specialized therapy and management.

Conclusions: This case exemplifies the fulminant nature of early-onset NEC in a full-term newborn with coexisting endocrine and perinatal risk factors. Dynamic inflammatory parameters, thrombocytopenia, lymphocytopenia, and elevated lactate levels clearly correlate with the severity of the disease and often require surgical solutions. This report highlights the importance of early clinical assessment, thorough monitoring, and multidisciplinary management in improving outcomes and reducing the health risks associated with this illness.

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Is less more? Decreasing the risk of reoperation in patients with intestinal malrotation with Ladd's bands.

Julia Chodyniecka, Wojciech Białek

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Work supervisor: PhD in Medical Sciences Jan Sopiński

Affiliations: Medical University of Lodz

Introduction: Gastrointestinal malrotation during embryonic development may present with various clinical manifestations depending on its severity and malrotation variant. Malrotation results from defects in physiologic rotation of the intestines and, in many cases, is accompanied by bands of Ladd. These fibrous bands usually attach the cecum to the retroperitoneum causing extrinsic compression and obstruction of the duodenum. Clinical presentation of abnormalities in midgut rotation may occur at different stages of life and mostly includes bilious vomiting and abdominal pain. If left untreated it can lead to intestinal ischemia, necrosis and serious clinical complications. In most cases, it is diagnosed in early childhood. Surgical intervention called Ladd's procedure has been the treatment of choice for most patients.

Case report: A 22-year-old male presented to the emergency department with severe abdominal pain that had begun a few hours earlier. The pain initially started in the periumbilical region. The patient denied diarrhea or nausea. Pyrexia was not present. His medical history included an open Ladd's procedure at the age of 3, a reoperation several years later, and orchidopexy at the age of 10. An appendectomy had been performed during the first surgery. The patient admitted to experiencing similar symptoms a few years earlier, which were successfully treated with an enema. Preoperative CT revealed intestinal volvulus. During surgery, the cause of the patient's symptoms was identified as adhesions between segments of the small intestine and its mesentery, resulting in multiple volvuli and impaired intestinal patency. No signs of intestinal necrosis were observed. Approximately 170 cm of the proximal jejunum was carefully released. Tears in the intestinal serosa that occurred during dissection were repaired with single sutures. A distal segment of the small intestine could not be safely freed from adhesions. Therefore, a decision was made to create a double-barrel stoma. A loop of small intestine approximately 150 cm distal to the duodenum was brought out and ileostomy was created on the left mid-abdomen. A silicone drain was placed in the pelvis through an incision in the right lower quadrant.

Conclusions: This case clearly demonstrates that intestinal malrotation with Ladd's bands may have lifelong consequences, and a single surgical intervention is often insufficient to address all associated complications. Preventing reoperation is an important factor in the management of this condition. In the era of rapidly advancing minimally invasive surgery, the laparoscopic approach has been reported as feasible and safe, however, its use in selected cases remains controversial. Despite many advantages of laparoscopic surgery, several studies suggest that performing the Ladd's procedure laparoscopically may increase the risk of future reoperation and complications, whereas the traditional laparotomy may carry a lower risk. It is also important to note that many surgeons choose to perform an appendectomy during the procedure to prevent future misdiagnosis, as in the process, the appendix is typically displaced to the left side of the abdomen.

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A rare progression of hand cellulitis to compartment syndrome and necrotizing fasciitis caused by Streptococcus pyogenes infection following transmission from a child with scarlet fever: a case report

Magdalena Rutkowska, Michał Piotrkowski MD

Presenting author: Magdalena Rutkowska

Work supervisor: Michał Piotrkowski MD, Robert Rokicki MD, PhD

Affiliations: Medical University of Lodz

Introduction: Skin and soft tissue infections (SSTIs) are among the most frequently encountered bacterial infections in clinical practice and are most commonly caused by group A streptococci (Streptococcus pyogenes). In certain cases, an exaggerated inflammatory response accompanied by progressive tissue edema may result in severe complications, including acute compartment syndrome (ACS) and necrotizing fasciitis (NF), the most aggressive and potentially life-threatening form of SSTI. The complexity of this pathophysiological cascade, its rare occurrence in the hand, and the potential for severe clinical consequences warrant a detailed analysis of the present case.

Case report: A 26-year-old previously healthy woman presented to the Emergency Department with progressive swelling of the right thumb and the first ray of the hand, without a history of trauma. Laboratory investigations revealed markedly elevated inflammatory markers. Although initially qualified for outpatient management, rapid clinical deterioration within 24 hours necessitated urgent hospitalization and surgical intervention. Decompressive incisions of the metacarpal region were performed, and microbiological specimens were obtained. Empiric broad-spectrum intravenous antibiotic therapy was initiated. During hospitalization, the patient required multiple surgical revisions with necrectomy, and negative pressure wound therapy was applied. During the hospital course, a maculopapular rash developed. Considering the morphology of the skin lesions, microbiological culture confirming Streptococcus pyogenes, and a history of recent household exposure to a child with scarlet fever, domestic transmission of the pathogen was considered the most probable source of infection. Despite intensive treatment, progressive necrosis of the thumb occurred, requiring amputation at the level of the interphalangeal joint. After infection control, the soft tissue defects were reconstructed with a pedicled flap, and rehabilitation was initiated. The patient was discharged in good general condition with preserved hand function within the achievable range.

Conclusions: This case illustrates a rare pathophysiological cascade involving progression from cellulitis to acute compartment syndrome and subsequently to necrotizing fasciitis. Early stages of NF may mimic severe cellulitis, potentially delaying diagnosis. The confined anatomy of the hand predisposes to rapid increases in intracompartmental pressure, impaired tissue perfusion, and extensive necrosis. The case underscores the crucial importance of maintaining a high index of clinical suspicion, early surgical intervention, and prompt initiation of broad-spectrum antimicrobial therapy to enhance clinical outcomes.

JUVENES PRO MEDICINA
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A Fracture That Would Not Heal: From Bike Crash to Chronic Non-Union

Marwan Zeini, Mohamed Mudar Alsomm

Presenting author: Marwan Zeini

Work supervisor: Dr. Wojciech Streubel

Affiliations: Medical University of Lodz

Introduction: Open fractures of the distal tibia are associated with high rates of complications due to limited soft tissue coverage, risk of infection, and impaired bone healing. These challenges become even greater when treatment is initiated in one healthcare system and continued in another. This case aims to highlight the difficulties of long-term fracture management, the complications associated with prolonged use of fixation devices, and the importance of coordinated care between multiple physicians.

Case report: We present a 48-year-old female who sustained an open distal tibial fracture during a bike accident in her holiday in Romania in July 2024. Initial treatment included external fixation and wound care; however, the patient was transferred to Łódź three weeks later due to skin necrosis and progressive wound complications. Despite antibiotic therapy and prolonged stabilization, imaging demonstrated delayed bone healing and distal tibial demineralization. Following removal of the external fixator, secondary stabilization with a bridging plate was performed. The postoperative course was complicated by wound dehiscence, fistula formation, and eventual hardware exposure, culminating in a severe infection requiring plate removal and surgical debridement. The patient subsequently underwent prolonged wound care, rehabilitation, and hyperbaric oxygen therapy.

Conclusions: This case illustrates that the management of open tibial fractures often extends far beyond fracture stabilization. Persistent wound complications, delayed union, and hardware-related infections can transform an acute injury into a prolonged multidisciplinary challenge. Raising awareness of these complications—and emphasizing the importance of coordinated long-term follow-up and clear communication between multiple treating physicians—may help improve outcomes for patients facing similarly complex orthopedic trajectories.

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The Vanishing Bone Enigma: Navigating Diagnostic and Therapeutic Challenges in Gorham-Stout Disease - a Case Report.

Jarosław Borowiec, Robert Rawicki, Patryk Cieloch

Presenting author: Jarosław Borowiec

Work supervisor: dr Katarzyna Muras-Szwedziak MD, PhD

Affiliations: Medical University of Lodz, Poland

Introduction: Introduction: Gorham-Stout disease (GSD), also known as vanishing bone disease, is an ultra-rare disorder of lymphatic origin characterized by progressive osteolytic bone lesions. The diagnosis is primarily established by the exclusion of other osteolytic syndromes. With fewer than 400 reported cases worldwide, the disease presents profound diagnostic and therapeutic challenges.

Case report: Case Report: A 41-year-old female patient, previously under the care of a Rare Disease Clinic at the Medical University of Łódź for GSD, was hospitalized for an expanded diagnostic evaluation. Her medical history was significant for a multitude of chronic conditions, including iron- and folate-deficiency anemia, gastroduodenitis, hematemesis, and chylothorax—a well-documented mortality risk factor in GSD. Upon admission, the patient presented with cachexia and reported severe pain in the pelvic, lumbar, and sacral regions. Computed tomography (CT) of the head and torso revealed multiple osteolytic bone lesions. Three lesions were localized in the skull, while others were disseminated throughout the spine, sacrum, bilateral hip bones, bilateral femurs, and the right scapula. The CT scan also confirmed the presence of pleural effusions. Cardiogenic causes for the effusions, as well as calcium-phosphate metabolism disorders, were ruled out. Interim diagnoses of hemorrhagic gastroduodenitis and sideropenic anemia were established. The patient received targeted treatment for these conditions alongside rigorous pain management. Following a comprehensive literature review, sirolimus was selected as the primary therapy for GSD, supplemented with cholecalciferol (vitamin D3) and calcium. Unfortunately, during subsequent follow-up appointments at the Rare Disease Clinic at the Medical University of Łódź, the patient's condition deteriorated, marked by the progression of severe cachexia.

Conclusions: Conclusion: While Gorham-Stout disease is not uniformly fatal, it is a highly debilitating condition that severely diminishes the quality of life due to chronic pain and the potentially disabling effects of massive osteolysis. The disease exhibits significant variability in both clinical presentation and severity. Currently, there are no high-quality meta-analyses to guide standardized treatment protocols; thus, therapeutic strategies must be meticulously tailored on a case-by-case basis. Alternative or adjunctive treatment options include radiotherapy, bisphosphonates, surgical intervention, and interferon alpha-2b.

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Fistula that Costs a Liver: Formalin Injection Leading to Chemical Cholangitis in Surgery for Echinococcal Cyst

Bolacin Hamza Yildirim

Presenting author: Bolacin Hamza Yildirim

Work supervisor: Professor Enrico Brunetti, MD

Affiliations: University of Pavia

Introduction: Cystic Echinococcosis (CE) is zoonotic helminthic disease that causes the formation of cysts in humans, the intermediate accidental hosts for the parasite. The cysts are mainly located in the liver. Management options range from Albendazole therapy to surgical resection of the cysts, to percutaneous treatments ending on the site and the stage of cysts. Amongst them, PAIR (Puncture, Aspiration, Injection, Re-aspiration), is a minimally invasive option for uncomplicated hepatic cysts, particularly CE1 and C3a (fluid-filled). Surgical or otherwise, the techniques involves the intracystic administration of scolicidal agents, that can cause chemical cholangitis if they get in contact with the biliary epeithelium through cysto-biliary fistulas. The main scolecidal agents are hypertonic saline and 95% alcohol, and before injecting anything one must exclude the existence of cystobiliary fistulas. Formalin has been abandoned many decades ago because of the potential for chemical cholangitis.

Case report: A 37-year-old Italian patient underwent surgery a in 1993 for an echinococcal cyst of the liver. The procedure involved intracystic injection of formalin followed by re-aspiration followed by a pericystectomy. The intracystic injection of formalin lead to chemical cholangitis and biliary strictures, due to a failure to discover a biliary fistula. Despite multiple interventions through ERCP and stent insertions stretching across almost two decades, in 2016 the situation culminated in severe biliary cirrhosis, necessitating a liver transplant. This procedure was unfortunately complicated by an embolization of a hepatic artery pseudoaneurysm, which lead to yet another liver transplant in the April of the same year. Further, a diagnostic lung resection for a lung nodule performed following a CT scan in 2023 revealed an echinococcal cyst of the lung. The lesion is currently being monitored , as the operational risk outweighs the benefit of the removal of the cysts due to the advanced age and the poor performance status of the patient.

Conclusions: Even though the surgical technique in question is now considered out of date, and formalin considered too hepatotoxic for treatment purposes, even modern techniques such as PAIR, with the use of hypertonic saline or ethanol, are not a free of the risk chemical cholangitis. This case presents an extreme wherein a better weighing of factors such as cyst size and position, both of which are important in consideration of a biliary fistula, could have helped avoid a devastating set of consequences for the patient. As such, extreme caution against these fistulas is advised in all scolicidal injections for the treatment of CE.

JUVENES PRO MEDICINA
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Approach to a Giant Anterior Cranial Fossa Meningioma in a 24-year-old patient – a case report

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Presenting author: Maja Mejza

Work supervisor: Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

Affiliations: Medical University of Lodz

Introduction: Meningiomas are considered the most common intracranial benign tumors, however atypical meningiomas (WHO grade II) can grow rapidly and present as moderately aggressive. Meningiomas with a diameter exceeding 5 cm are commonly referred to as “giant”. Their symptoms can range from focal neurological deficits to those of mass effect and elevated intracranial pressure. Current standard of care – gross total resection remains challenging in giant meningiomas due to their size and common proximity to critical structures. Moreover, these tumors are known to recur following resection.

Case report: A 24-year-old female was admitted to the Department of Neurosurgery for the continuation of treatment after partial tumor resection in 2023. On admission, she complained of headaches and reduced ability to smell that persisted for 3 months. The surgery was performed with the patient in a supine position using a Mayfield head clamp and neuronavigation. Following a bicoronal incision, an extended bifrontal craniectomy was conducted. A beige-grey tumor with attachments was successfully resected. The postoperative pathological examination confirmed a giant atypical meningioma. In the postoperative period, due to the signs of diabetes insipidus, the patient was placed on a desmopressin therapy. She was discharged with the instructions to continue the recovery process in the Department of Neurological Rehabilitation.

Conclusions: The treatment of giant meningiomas is complex due to their aggressive nature and high rate of recurrence. This case report highlights the need for an individualized and continuous approach for the successful neurosurgical management of these tumors.

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Tangled Vessels: Staged Embolotherapy of Pulmonary AVMs in a Patient with Concurrent JP/HHT and Marfan Syndromes

Stanisław Starzyński, Antoni Bolek

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Work supervisor: Adam Dobek

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Introduction: Pulmonary arteriovenous malformations (PAVMs) create abnormal right-to-left shunts that completely bypass the pulmonary capillary bed, carrying significant risks of hypoxemia, paradoxical stroke, cerebral abscess, and pulmonary hemorrhage. While 80–90% of PAVMs are associated with Hereditary Hemorrhagic Telangiectasia (HHT), Marfan Syndrome (MFS) typically affects large elastic arteries rather than pulmonary vessels. The concurrent presentation of both Juvenile Polyposis/HHT (JP/HHT) and MFS in a single patient is exceptionally rare, representing a unique convergence of genetic pathways that severely disrupts both vascular architecture and connective tissue integrity.

Case report: A 21-year-old male with a confirmed SMAD4 mutation (c.1081C>T) causing JP/HHT and concurrent Marfan Syndrome presented with multiple PAVMs and aortopulmonary collaterals. His medical history included the removal of three hyperplastic colonic polyps. Physical examination revealed classic marfanoid features, including tall stature (189 cm), an elongated face, clubbed fingers, downslanting palpebral fissures, and large, protruding auricles. To further evaluate his marfanoid features, genetic testing was performed using a 37-gene next-generation sequencing (NGS) panel for hereditary connective tissue disorders. This analysis identified a heterozygous variant of uncertain significance (c.64G>A) in the COL1A1 gene and a heterozygous carrier status for a pathogenic variant (c.1105C>T) in the CBS gene. Given the high embolic and hemodynamic risk from numerous bilateral PAVMs, the patient underwent a rigorous five-stage endovascular treatment plan spanning over three years. The interventions superselectively targeted the malformations using a combination of microvascular plugs (MVP-5, MVP-7, and MVP-9) and endovascular coils (Concerto and Ruby Coils). Despite the partial recanalization of one previously treated lesion, which required re-embolization, follow-up control angiographies confirmed the complete and successful occlusion of all targeted shunts.

Conclusions: This case highlights an extraordinary dual diagnosis of JP/HHT and Marfan Syndrome, presenting a complex clinical challenge characterized by severe, progressive vascular dysplasia. It demonstrates that a rigorous, multi-staged transcatheter embolization approach utilizing advanced microvascular plugs and coils remains a highly effective and safe strategy to neutralize the profound embolic risks of multiple PAVMs, even in patients burdened with overlapping genetic connective tissue disorders.

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Schwannoma in the Spinal Canal: Analysis of a Clinical Case and Surgical Intervention

Bartosz Wierzbicki, Michał Chwaściński, Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

Presenting author: Bartosz Wierzbicki

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Introduction: Schwannomas are typically sporadic, benign, encapsulated tumors of the peripheral nervous system. They originate from Schwann cells of the nerve sheath. Common locations include the roots of spinal nerves and the vestibular portion of the eighth cranial nerve. The main symptoms caused by these tumors result from compression of surrounding tissues, especially the nerves from which they arise. In cases involving nerve roots, surgery is most often performed via a posterior lumbar approach with tumor removal; however, this was not the case in our patient, which makes it unique. Accurate diagnosis and an individualized approach to the patient are crucial for the detection and effective treatment of such cases.

Case report: A 54-year-old female patient was admitted to the Department of Neurosurgery due to chronic pain in the lumbar region. An MRI of the lumbar spine was ordered, which revealed a tumor approximately 1.5 cm in diameter at the Th11 level within the spinal canal, located on its anterior surface. The patient was qualified for tumor resection using an unusual anterolateral approach via a right-sided posterolateral thoracotomy. The procedure was performed in collaboration with a thoracic surgeon, using an operating microscope and neuronavigation. It involved a partial oblique corpectomy of Th11, opening of the dura mater, and tumor resection. Tumor debulking was carried out using ultrasonic aspiration (CUSA), which enabled gradual separation of the lesion from adjacent structures and decompression of the spinal cord. The tumor originated from one of the nerve bundles; its attachment was coagulated and transected. The layers of the chest wall were closed wit placement of an active pleural drain. Following surgery, the patient reported improvement in neurological status, particularly resolution of pain. The postoperative wound healed properly, and the lung re-expanded correctly. After several days, the patient was discharged from the clinic in good general and neurological condition. The resected specimen was sent for histopathological examination, which confirmed the diagnosis of schwannoma.

Conclusions: Schwannomas may pose a significant challenge due to their location or size. In some cases, complex surgical approaches requiring a multidisciplinary strategy are necessary. An anterior approach to the spinal canal provides favorable conditions for the removal of pathological lesions while minimizing the risk of spinal cord injury.

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Cervical kyphosis- a surgical challenge. A 17-year-old case report.

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Presenting author: Agata Radke

Work supervisor: Weronika Lusa, MD, Agnieszka Pawełczyk, PsyD, Maciej Wojdyn, MD, PhD, Professor Maciej Radek, MD, PhD

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Introduction: Cervical kyphosis (CK) is a pathology with diverse etiology: congenital, traumatic, neoplastic. Patients with CK often suffer from pain in the cervical region and are at higher risk of neurological deficits, such as: myelopathy, radiculopathy, quadriparesis. Surgical treatment includes three approaches: anterior, posterior and combined, and depends on many factors.

Case report: A 17- year-old male patient was admitted to the Department of Neurosurgery for surgical treatment of compression fractures of the C3 and C4 vertebral bodies, accompanied by subluxation at the C2/C3/C4 levels and kyphotic deformity of the aforementioned vertebrae. Patient complained of limited movements in the cervical region of the vertebral column, paresthesia of the fingers of the hands and of the sacrococcygeal region. The X-ray and MR imaging exposed a massive cervical kyphosis, deformity of the C3 and C4 vertebral bodies, cervical stenosis and a residual syringomyelic cavity in the cervicothoracic segment. The patient has undergone a two-stage surgery. In the first stage, vertebrectomy of C3 and C4 was performed. Surgery was ended with stabilization using an anterior prosthesis, a cervical plate, and four screws. The second stage was performed nine days later. Posterior stabilization of C2–C3–C4–C6–C7–Th1 was performed, using C2 pedicle screws; C3–C4 lateral mass screws; C6–C7–Th1 transpedicular screws; two rods. Intraoperative control was performed with the O-arm system. After surgery, an improvement in the neurological condition was achieved. A control CT scan exposed correct positioning of the implants. The patient was discharged from the hospital in overall good condition.

Conclusions: Surgical management of CK might definitely be challenging, especially among young patients. It is a disease that may lead to severe complications and serious deterioration in patients' quality of life. Choosing surgical strategy isn't easy and should be individualized. This case report highlights the complexity of this issue, requiring two-stage surgery and extensive stabilization.

JUVENES PRO MEDICINA
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Successful surgical management of intracardiac metastasis of melanoma

Filip Parysek, Krzysztof Badura, Aleksander Baszkowski

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Work supervisor: Maciej Nadel, MD, PhD, prof. Jarosław Drożdż, MD, PhD

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Introduction: Although rare, metastatic neoplasms of the heart are the most common heart tumors with the incidence of 0.7-3.5% in general population with melanoma among the most frequently encountered cardiac metastases. Typically, cardiac metastases remain asymptomatic, which hinders the diagnosis and management. In most cases of the metastatic disease management is based on systemic treatment and/or radiotherapy. We present the case report of a patient with metastatic disease which was successfully treated by surgical metastasectomy.

Case report: A 77-year-old female with melanoma in remission for 3 years was admitted to the department of cardiology due to incidentally found mass in right atrium (RA) during routine abdominal ultrasound examination. The patient reported four syncopial episodes shortly before hospitalization. Transthoracic echocardiography confirmed the heterogeneously echogenic, pediculated, mobile mass with dimensions of 43x32 mm arising from interatrial septum. Considering the high risk of embolisation and the proximity of the heart conducting system, the Heart Team decided to qualify the patient for surgical management of the tumor. On the 4th day the surgery was performed from the right minithoracotomy as a surgical approach. The protruding tumor located in the right atrium in the proximity of patent foramen ovale was localized and resected with surgical margins. During the post-operative period, the patient was stable and received standard postoperative care requiring only low dose of vasopressors. On the 3rd day after surgery, the patient developed atrial fibrillation with periodical symptomatic sinus bradycardia. Therefore, permanent single-chamber pacemaker was implanted and the patient was discharged in good general condition on day 12. Histological study revealed melanoma metastasis with Ki-67 index of 70%. The patient was referred to the department of oncology.

Conclusions: Diagnosis of cardiac metastases constitutes a challenge due to its asymptomatic or non-characteristic clinical course and no specific manifestations in routine evaluation. Symptomatic tumors often present as shortness of breath, chest pain, syncope or fatigue, whereas the most common complications include arrhythmias, conduction disorders, heart failure and pericardial effusion. The risk of arrhythmia is greater when the tumor is located close to the conduction system. Our case emphasizes that patients, even when oncological treatment is successful, require close monitoring, including regular cardiovascular work-up. As presented in our report, syncope may constitute the early manifestation of the cardiac metastases. Although there is no evidence that metastatectomy improves overall survival in patients with melanoma cardiac metastases, in certain cases it can improve patient's quality of life by relieving symptoms and minimizing the risk of adverse events of the intracardiac mass.

JUVENES PRO MEDICINA

Surgery II Case Reports

9th of May 2026

Coordinators:

Adam Placek

Jan Owczarek

Zuzanna Kaczor

Jury:

Prof. dr hab. n. med. Marek Zadrożny

dr hab. n. med. Piotr Hogendorf

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JUVENES PRO MEDICINA
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Beyond the reconstructive ladder: combining microsurgical and conventional techniques in complex trauma

Adam Pochodyła

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Work supervisor: Mateusz Gabryszewski PhD

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Introduction: Complex extremity injuries are highly variable and often present with multiple coexisting defects requiring an individualized approach despite similar mechanisms. While the reconstructive ladder provides a framework for decision-making in reconstructive surgery, optimal management requires a selective, tissue-oriented approach tailored to trauma and the patient's functional needs.

Case report: A 32-year-old male sustained a complex right forearm injury following entrapment in agricultural machinery, resulting in two distinct injuries: a crush injury of the dorsal surface of the forearm and a full-thickness volar burn. The dorsal wound presented with skin avulsion with extensive damage to the extensor apparatus, including EDC II-V, ECU, EPL and APL muscles with associated tendon defects and partial cortical loss of the radial shaft. Doppler US confirmed adequate blood flow in the ulnar and radial arteries. After initial surgical debridement and Negative Pressure Wound Therapy (NPWT) for the crush injury and sterile dressing for the burn, the patient was transferred to a Hand Surgery Unit. Following further debridement and NPWT, he was referred to the Plastic surgery unit in Łódź for reconstructive treatment. The dorsal defect required well-vascularized tissue due to exposed bone. A fasciocutaneous anterolateral thigh (ALT) flap was selected, providing appropriate tissue for tendon gliding for future tendon transfer and did not require sacrificing muscle in a physically active patient. A two-team approach was implemented for simultaneous flap harvest and recipient site preparation to reduce the operative time. Microvascular reconstruction included an end-to-side microsurgical anastomosis of the perforator artery to the radial artery as well as two venous anastomoses achieving full reperfusion. In contrast, the volar burn being more superficial, was covered with a split-thickness skin graft (STSG). The flap survival was monitored daily with stable perfusion and complete survival. After NPWT removal, a secondary procedure with repeat debridement and STSG was required due to partial graft loss. Following an uneventful postoperative course, the patient was discharged to the Hand Surgery Clinic in good general and local condition awaiting further functional reconstruction.

Conclusions: This case highlights the importance of selective tissue-oriented decision-making in reconstructive surgery due to lack of universal algorithms for complex trauma. Importantly, an individual trauma approach enables successful treatment based on unit capabilities, patient condition and occupation.

JUVENES PRO MEDICINA
06-09/05/2026 Łódź, Poland

Beyond the reconstructive ladder: combining microsurgical and conventional techniques in complex forearm trauma.

Adam Pochodyła

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JUVENES PRO MEDICINA
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Unusual Presentation of Hydronephrosis in a Horseshoe Kidney: Surgical Management in an Adolescent

Aleksandra Szabla

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Introduction: Hydronephrosis results from impaired urinary drainage, causing distension of the pelvicalyceal system. It typically manifests as a clinical symptom and may arise from various etiologies, including pelvi-ureteric junction narrowing, a frequently observed congenital anomaly of the pediatric urinary tract. This condition can increase intrapelvic pressure, damage nephrons, and reduce glomerular filtration. Clinical features may include flank or abdominal tenderness, fever, vomiting, and a spectrum of urinary output reduction from oliguria to anuria. Acute management involves urgent decompression via percutaneous nephrostomy or ureteral stenting (double-J catheter). Definitive treatment depends on the underlying cause and may include endoscopic procedures or reconstructive surgery such as pyeloplasty.

Case report: A 15-year-old female with a history of adjustment disorder and a complex psychosocial background, including prenatal exposure to alcohol and nicotine, a history of foster care, and paternal substance abuse, was referred by her general practitioner to a psychiatric unit. The referral was made due to suspected substance use and behavioral disturbances. On psychiatric evaluation she appeared apathetic, with increased sleepiness; however, toxicology screening was negative, and the patient denied any use of psychoactive substances. On the same day, she was transferred to a pediatric department for further evaluation, potential detoxification, and monitoring of somatic status. On admission, she was in poor general condition, with significant dehydration, and oliguria. Laboratory tests revealed markedly elevated renal parameters (creatinine 281.2 µmol/L, urea 20.7 mmol/L), leukocytosis (WBC 13.56 $\times 10^3/\mu L$), CRP (278 mg/L), hyponatremia (127.7 mmol/L), and massive leukocyturia on urinalysis. Abdominal ultrasonography raised suspicion of a horseshoe kidney, measuring approximately 150×50 mm, with evidence of significant urinary stasis in the pelvicalyceal system.She was diagnosed with acute pyelonephritis and acute kidney injury. Initial management included urgent percutaneous nephrostomy. During hospitalization, progressive abdominal distension, increasing peritoneal fluid and acute oliguria, necessitated peritoneal drainage and implantation of bilateral double-J ureteral stents. Subsequently, she underwent delayed reconstructive surgery with pyeloplasty of the horseshoe kidney, resulting in clinical improvement.

Conclusions: In patients with complex psychiatric history and challenging social circumstances, there is a risk of initial misidentification of the underlying condition and delayed diagnosis, which may postpone appropriate management in serious illnesses. This case highlights the importance of avoiding superficial assessments based on psychiatric or social background and emphasizes the need for basic laboratory testing and thorough clinical evaluation.

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Epidural Catheter-Assisted produced Nanofat Lipofilling Combined with Rigotomy for Chronic Lower-Leg Cicatricial Pain: A Case Report

Antoni Basinski (1,2)

Presenting author: Antoni Basinski (1,2)

Work supervisor: Iselin Saltvig MD (1), Prof. Nicco Krezdorn MD, PhD (1), Frederik Penzien Wainer Mamsen MD, PhD (1), Taiba Alrasheed MD, MSc, FRCS, FEBOPRAS (1)

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Introduction: Chronic cicatricial pain following multiple lower-leg reconstructions presents a significant therapeutic challenge. Regenerative techniques, including rigotomy and nanofat lipofilling, offer promising options for pain relief, scar remodeling, and functional improvement.

Case report: A 35-year-old otherwise healthy male was referred to the department of plastic surgery in October 2022 following a chronic wound located at the mediodorsal distal part of the lower left leg. The wound etiology resulted from postoperative complications following elective fasciotomy for chronic exertional compartment syndrome. Prior to referral, the patient had undergone 21 surgical revisions, including multiple split-thickness skin grafts (STSG), complicated by delayed wound healing, recurrent Staphylococcus aureus infections, and repeated graft failure. The most recent STSG had been performed in May 2022. Upon examination the wound measures 8 × 2.5 cm with crusting and distal lymphatic edema. The surrounding tissue presented with tense skin tethering during ankle movement. The patient reported persistent pain impairing ambulation and distal paresthesias suggestive of saphenous nerve involvement. Free-flap reconstruction was proposed but declined by the patient subsequent to discussions. Conservative management, including wound optimization and compression therapy, was initiated. After intralesional Depo-Medrol with lidocaine injections, the patient reported worsening tension and burning pain in the cicatricial tissue. In October 2024, rigotomy combined with nanofat lipofilling was performed. Nanofat was mechanically produced by filtering dry lipoaspirate through an 1µm epidural catheter 30 times. The nanofat was delivered by the St'rim nano cannula 19G around the scar tissue and under the STSG. We applied a PICO-Vac (75mmHg) to the area treated for 7 days post operatively. At four-month follow-up, the patient reported immediate and sustained pain relief with approximately 70% improvement. A repeat nanofat was performed in April 2025 with further benefit, although residual symptoms persisted distally around the left ankle. Later, a focal point of radiating pain was identified along the anterior border of the medial gastrocnemius muscle, proximally and distally to the skin graft. Ultrasound revealed fibrotic scar tissue. In December 2025, repeat nanofat grafting with surgical excision of the fibrotic scar tissue was performed. The postoperative course was complicated by seroma and localized abscess formation at the level of the fibrotic scar. Pain further improved. The patient remains under regular follow-up in the plastic surgery outpatient clinic.

Conclusions: Nanofat grafting combined with rigotomy can provide significant and sustained pain relief in complicated wounds. Our low-fi approach may serve as a cost efficient and reliable alternative to more extensive reconstructive procedures, improving function and symptoms while preserving local tissue.

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THE ROLE OF CEUS IN THE DIAGNOSIS OF FOCAL LIVER LESIONS—A CASE WITH AN UNUSUAL CLINICAL PRESENTATION”

Antoni Knera

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Work supervisor: Wojciech Ciesielski, MD, phD

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Introduction: Contrast-enhanced ultrasound (CEUS) is a valuable tool in the diagnosis of focal liver lesions, allowing dynamic assessment of perfusion using gas microbubbles. This method is highly sensitive in differentiating pathological liver lesions. However, the presented case demonstrates that under specific clinical conditions, it can lead to misleading diagnostic conclusions, which, combined with an atypical clinical presentation, poses a significant challenge for the clinician.

Case report: Case history: A 51-year-old patient was admitted to the hospital with a 10-centimeter liver lesion described in a prehospital CT scan, without any symptoms suggestive of infection, such as fever, sudden weight loss, or elevated inflammatory markers. The medical history revealed no history of previous infections, trauma, surgical procedures, or endoscopic procedures, indicating no potential source for a liver abscess. After initiating empirical antibiotic therapy, clinical improvement was observed, which seemed to confirm an infectious etiology. The patient underwent a full endoscopic evaluation, and tumor markers were measured—the results were negative for malignancy. Test results: Computed tomography (CT) revealed a single lesion in the liver with features suggestive of an abscess. An ultrasound performed on admission showed a picture of neoplastic growth. However, a subsequent CEUS examination in the surgical ward confirmed the absence of enhancement within the lesion, which was considered definitive confirmation of the presence of fluid/necrotic content (abscess). Treatment: A drain was successfully implanted into the lesion under ultrasound guidance, but no purulent discharge was obtained. Due to suspicion of a proliferative nature of the lesion, a percutaneous ultrasound-guided core-needle biopsy was performed, yielding representative specimens. Histopathological examination revealed necrotic masses, and the biopsy was deemed non-diagnostic. While awaiting re-verification via biopsy, a sudden, spontaneous perforation of the lesion into the peritoneal cavity occurred, necessitating urgent surgical intervention. Histopathological examination of the intraoperative specimen revealed the presence of purulent exudate, which ultimately confirmed the diagnosis of a liver abscess.

Conclusions: Despite the unusual course and diagnostic difficulties (no clear source of infection, conflicting imaging and biopsy results), the final outcome of surgical treatment was successful, and the patient was discharged in good condition.

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A Large Pancreatic Tumour in a 26-Year-Old Female

Ewa Machniewicz

Presenting author: Ewa Machniewicz

Work supervisor: dr n med Anna Grzegory dr n med Wojciech Ciesielski

Affiliations: UMED Łódź

Introduction: Solid pseudopapillary neoplasm (SPN) of the pancreas is currently recognized as a low-grade malignant tumour that is frequently observed in females. The median age of affected females is 28 years. It constitutes 0.9-2.7% of all pancreatic cancers, but the proportion of SPN among all pancreatic neoplasms in females under 40 is around 30%.

Case report: A 26-year-old female was electively admitted to the Clinic of General and Transplantation Surgery of University Clinical Hospital for distal pancreatosplenectomy. On CT imagining ,in retroperitoneal space, mass showing features of necrosis was visible. The dimensions were 113 x137x 157 mm . The mass did not invade the vessels. Laparotomy was performed on 16 October 2025. No liver metastases were detected. Signs of well-developed collateral circulation consistent with portal hypertension were present. A huge retroperitoneal mass was identified. (approximately 25 cm in diameter). The mass involved and eroded the inferior vena cava, the celiac trunk with its branches and the superior mesenteric artery. The tumour was considered unresectable. A post-laparotomy triphasic CT scan with angio-CT was performed on 28 October 2025. The vessels of the celiac trunk and the superior mesenteric artery were noticeably altered, without signs of infiltration or contrast leakage. The splenic vein and the superior mesenteric vein were also significantly narrowed before confluence. Patient was referred to the Botton-Champalimaud Pancreatic Cancer Center, where the operation was performed by a team led by Professor Markus W. Büchler.

Conclusions: Solid pseudopapillary neoplasm is a rare pancreatic tumour with generally favourable prognosis; however, it may present as a large, locally aggressive mass. This case highlights the importance of early detection, as advanced disease can be unresectable. Multidisciplinary management is essential when surgical treatment is more challenging.

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hanna stec posterior mediastinal cyst adjacent to the esophagus: when imaging fails to provide a definitive diagnosis - case report

Hanna Stec

Presenting author: Hanna Stec

Work supervisor: dr n. med. Joanna Lipińska

Affiliations: Medical University of Łódź

Introduction: Introduction: Bronchogenic cysts are rare congenital malformations originating from abnormal embryogenesis of the bronchial tree during early fetal development. They are most commonly located around tracheobronchial tree in the mediastinum, many remain asymptomatic and are discovered incidentally on imagining studies. Similarly, esophageal cysts are rare congenital malformations occurring as duplication in nature, often presenting with symptoms such as periodic dysphagia. For both types of cysts, a definitive diagnosis can be confirmed through histopathological examination.

Case report: Case report: Patient, male, age 42 with a history of 20 pack-years of smoking was admitted to thoracic surgery department due to the discovery of a posterior mediastinal lesion adjacent to the esophagus on computed tomography (CT). The patient's only clinical symptom was periodic dysphagia. The CT scan revealed a well-circumscribed lesion measuring 31 x 23 x 41 mm, located to the right of the esophagus, with a density of approximately 20 HU and no significant contrast enhancement. The lesion was adjacent to the esophageal wall and caused slight compression of it. The patient was qualified for surgical resection of a cyst. A right-sided video-assisted thoracoscopic surgery (VATS) was performed via a biportal approach. Intraoperatively, a subpleural posterior mediastinal cyst measuring approximately 4-5cm was identified running along the esophagus. The lesion was completely excised, with no observed communication with the esophageal lumen. Additionally lymph node sampling was performed (stations 5, 7 and 9). The postoperative course was uneventful.

Conclusions: Conclusion: Cystic lesions of the posterior mediastinum adjacent to the esophagus may pose a diagnostic challenge. Imaging findings are often non-specific and may suggest multiple differential diagnoses, including bronchogenic or an esophageal cysts. In such cases, thoracoscopic treatment (VATS) is not only a safe and effective therapeutic method but also a vital diagnostic tool, offering excellent visualization of mediastinal structures while maintaining minimal invasiveness for the patient.

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Robotic-assisted excision of a rare, low-located presacral tumor

Jakub Nowacki

Presenting author: Jakub Nowacki

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Introduction: The presacral (retrorectal) space is a complex potential space located between the fascia propria of the rectum and the sacrum. Due to its unique embryology, it can host a variety of neoplasms, including congenital (tailgut) cysts, neurogenic lesions, and mesenchymal tumors. Among these, the Solitary Fibrous Tumor (SFT) is a rare type of mesenchymal sarcoma. These tumors can grow to an exceptionally large size before becoming symptomatic, often presenting with gluteal pain or compressive symptoms. Surgical management is technically demanding due to the narrow pelvic inlet and the proximity of the pelvic autonomic nerves and major vessels. While more radical, perineal approaches were preferred for distal lesions, the robotic platform now enables a sophisticated abdominal approach providing a modern solution for these difficult-to-access sarcomas.

Case report: A 32-year-old previously healthy female, three months postpartum, presented with gluteal pain radiating to the feet. Physical examination revealed a palpable, cohesive mass behind the posterior rectal wall. Multimodal imaging including contrast-enhanced CT, EUS, and pelvic MRI identified an exceptionally large, 56x45x75 mm mass in the distal part of presacral space. The lesion showed signs of neoangiogenesis and diffusion restriction, adhering to the posterior rectal wall without sacral infiltration. Laboratory findings were unremarkable, with a marginal elevation in CA 19-9 (31.7 U/mL). The patient underwent robotic-assisted radical excision using the Da Vinci Xi system. Intraoperatively, the tumor was meticulously liberated from the surrounding mesorectal and presacral tissues. The robotic platform allows for selective coagulation of feeding vessels, ensuring minimal intraoperative blood loss. The tumor mass was placed in an Endobag and evacuated through a Pfannenstiel incision. Histopathology confirmed a low-grade Solitary Fibrous Tumor (SFT), showing characteristic CD34 and STAT6 expression. A radical R0 resection was achieved. The patient's postoperative course was uneventful, and she was discharged without complications.

Conclusions: This case highlights the advantages of the robotic-assisted abdominal approach for complex low located retrorectal sarcomas. The primary benefit of the robotic platform is its superior 3D magnification, where small nerve fibers become exceptionally visible within the deep pelvis. This high-definition visualization allows for the meticulous sparing of the pelvic autonomic nerves, preserving functional outcomes while ensuring an oncologically sound R0 excision. Despite the exceptionally large size of the SFT, the precision of the robotic instruments and the use of abdominal approach provided a safe and controlled surgical environment, confirming robotic surgery as a superior alternative to traditional approaches for rare low-located presacral pathologies.

JUVENES PRO MEDICINA
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Leiomyosarcoma of the Inferior Vena Cava Requiring Multiorgan Resection and Vascular Reconstruction: A Case Report.

Joanna Hołdakowska

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Work supervisor: Jerzy Leszczyński MD, PhD

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Introduction: Leiomyosarcomas are rare malignant soft tissue cell tumours and primary vascular leiomyosarcoma is an even more uncommon subset of these tumours. They usually affect middle-aged and elderly adults, especially women. Symptoms are often nonspecific or entirely absent, which results in delayed diagnosis, leading to a generally poor prognosis, largely due to local invasion of surrounding organs, major blood vessels and high risk of distant metastases. Complete tumour resection, often requiring vascular reconstruction, serves as the most effective treatment option.

Case report: A 64-year-old woman was referred to the surgical department due to a rapidly growing mass located in the right retroperitoneal space in the area of the right adrenal gland. She also suffered from hormonally inactive left adrenal adenoma, primary hyperparathyroidism, hypertension, autoimmune hypothyroidism, cyst of the right lobe of the liver, and spondylosis. On admission, the general condition and sensation of the patient were good. The patient was obese, with no other clinical signs of hypercortisolism or hyperandrogenism on physical examination. ACTH, DHEAS levels, and testosterone were within normal limits; the cortisol circadian rhythm was normal. The right open adrenalectomy was performed. The tumour surrounded the right adrenal gland and infiltrated the right renal capsule, invading between the vessels of the renal hilum and the inferior vena cava (IVC), narrowing its lumen by approximately 50–60% and causing destruction of the posterior wall of the IVC. This resulted in resection of its approximately 8 cm segment, replaced by a silver knitted 18 mm vascular graft implanted using an end-to-end anastomosis. The left renal vein was anastomosed end-to-side to the graft. The tumour was removed from the right retroperitoneal space. Due to suspected infiltration of the right renal vein and the necessity of right renal artery ligation, the surgery was extended to right nephrectomy. Removed tissues were sent for histopathological analysis, which revealed a right retroperitoneal leiomyosarcoma, Grade 3 (FNCLCC), arising from the IVC wall and infiltrating surrounding adipose tissue. It extended to the right adrenal gland, surrounding it without infiltrating its tissue. The maximum diameter of the tumour was 9.5 cm. Residual tumour tissue remained (R1).The surgical wound healed properly. During the postoperative period, transient hemodynamic disturbances and renal insufficiency occurred. The patient was discharged in good condition after 11 days.

Conclusions: The aforementioned case reveals that vascular reconstructions play a crucial role in managing non-standard, demanding multiorgan resection situations. IVC reconstruction allows for tumour resection. However, further oncological treatment is crucial when complete surgical resection is impossible because of the involvement of adjacent structures.

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A Blessing in Disguise: A Rare Complication of Laparoscopic Adhesiolysis

Joanna Kolano

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Introduction: TAPP (transabdominal preperitoneal repair) is a minimally invasive laparoscopic technique commonly used for the treatment of abdominal hernias. In the presented case, the TAPP procedure was performed simultaneously with laparoscopic adhesiolysis (following previous operations - incisional hernia repairs). Adhesiolysis carries a significant risk, including bowel perforation, which can lead to severe complications or even death. In this case, we observe a relatively rare course of such a postoperative complication: instead of the more life-threatening diffuse fecal peritonitis, fecal content leaked from the adherent bowel through the trocar sites into the abdominal wall, subsequently causing abdominal wall phlegmon.

Case report: A 39-year-old female patient was electively admitted to the Department of General Surgery due to a recurrent incisional hernia, following a cesarean section and two subsequent hernia repairs. The patient underwent laparoscopic surgery. Intraoperatively, adhesiolysis of postsurgical adhesions was performed, followed by laparoscopic hernia repair with mesh implantation using the TAPP technique. On postoperative day 2, the patient required reoperation due to small bowel perforation, localized fecal peritonitis, and leakage of fecal content into the abdominal wall on the right side. Adhesiolysis was performed, along with resection of a segment of the small intestine and a side-to-side mechanical anastomosis. Peritoneal lavage and drainage were carried out, as well as incision and drainage of the abdominal wall phlegmon. During the postoperative course, intensive irrigation of the drained abdominal wall was conducted, along with evacuation of the abdominal wound abscess and continued wound drainage with irrigation. The patient received a transfusion of two units of pRBCs due to a decrease in hemoglobin levels during the hospital stay. After removal of the drains and normalization of laboratory parameters, the patient was discharged home in a good general condition with further recommendations.

Conclusions: Adhesiolysis during laparoscopic hernia repair significantly increases the risk of bowel injury; however, the way this presents in patients can vary. In this case, the rare route of infection spread - to the abdominal wall rather than the peritoneal cavity - paradoxically increased the patient's chances of survival. The location of the infection is of critical importance for the prognosis: involvement of the abdominal wall is associated with better survival rates than diffuse fecal peritonitis. It’s important to remember that a more uncommon presentation can have a less dire prognosis- simply put, a blessing in disguise.

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When aggressive thyroid cancer allows long-term survival and motherhood: a case of poorly differentiated thyroid carcinoma

Katarzyna Biedrzycka

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Introduction: Poorly differentiated thyroid carcinoma (PDTC) is a rare and biologically aggressive thyroid malignancy, representing an intermediate entity between well-differentiated and anaplastic thyroid carcinoma. According to the literature, PDTC is associated with an unfavorable prognosis, limited response to radioiodine therapy, and relatively short overall survival.

Case report: In 2016, a 36-year-old woman of reproductive age underwent total thyroidectomy with central neck lymph node dissection. Histopathological examination revealed PDTC, staged as pT1bN0Mx. In February 2017, during hospitalization for radioiodine ablation, neck ultrasonography demonstrated no residual thyroid tissue and no suspicious lymph nodes. During follow-up, the patient developed metastatic disease involving the skeletal system and the liver. Radiotherapy of the right femur was administered with a total dose of 45 Gy (Gray, the unit of absorbed radiation dose), and surgical resection of a hepatic metastatic lesion was performed. A further metastatic focus originating from the primary thyroid malignancy was identified in the region of the right iliac vessels and was treated surgically. In 2022, the patient underwent right nephrectomy for renal cell carcinoma (NOS, G2), followed by systemic chemotherapy. In November 2025, metastatic oncocytic carcinoma to a right inguinal lymph node was surgically removed. Despite a multifocal, recurrent, and metastatic disease course requiring prolonged multidisciplinary treatment, the patient remains alive more than nine years after the initial diagnosis of PDTC. Notably, she conceived and gave birth to a healthy child during her metastatic disease, highlighting the relevance of this case in the context of oncofertility and long-term quality of life.

Conclusions: This case demonstrates an unusually prolonged clinical course of PDTC, differing from its typically aggressive behavior. Modern multidisciplinary treatment may not only prolong survival but also preserve quality of life and enable fulfillment of reproductive plans, underscoring the importance of individualized management even in patients with unfavorable prognoses.

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When Open Surgery Fails: Endovascular Treatment of a Surgically Inaccessible High Cervical Internal Carotid Artery Aneurysm - A Case Report

Krzysztof A. Żak, Paweł Michalski, Łukasz Znaniecki MD

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Introduction: Extracranial internal carotid artery (ICA) aneurysms are rare vascular lesions associated with risks of thromboembolism, rupture, and cranial nerve compression. Open surgical repair remains the standard treatment; however, aneurysms located high in the cervical segment or associated with fragile vessel walls may be difficult or unsafe to reconstruct. In such cases, endovascular treatment with a covered stent offers a minimally invasive alternative.

Case report: A 36-year-old male presented with several weeks of left-sided neck pain and a one-week history of headache without focal neurological deficits, transient ischemic attacks, visual disturbances, or loss of consciousness. His medical history included arterial hypertension, obesity, hypothyroidism, depression, and previous left knee arthroscopy. On admission he was in good general condition with preserved cardiovascular and respiratory function and no cranial nerve or sensorimotor deficits. Computed tomography angiography demonstrated a saccular aneurysm of the proximal left internal carotid artery measuring 31 × 17 × 18 mm with partial mural thrombosis, peripheral calcifications, and preserved distal flow. Surgical exploration was performed; however, intraoperative findings revealed a high cervical aneurysm with a fragile vessel wall and intramural distal ICA course, preventing safe distal control and reconstruction. The procedure was abandoned. Two months later, definitive endovascular treatment was performed via right femoral access. A covered stent (Viabahn 5 × 50 mm) was deployed across the aneurysmal segment. Completion angiography confirmed complete aneurysm exclusion with preserved antegrade LICA flow and no endoleak. The patient remained neurologically intact and was discharged in good condition on dual antiplatelet therapy.

Conclusions: Management of extracranial ICA aneurysms should be individualized according to anatomy and technical feasibility of repair. High cervical lesions may limit surgical exposure and increase the risk of vascular or cranial nerve injury. This case demonstrates the value of intraoperative decision-making and staged treatment when open reconstruction is unsafe. Covered-stent implantation enabled effective aneurysm exclusion while preserving arterial flow and avoiding neurological morbidity. These findings support endovascular repair as a safe alternative in anatomically challenging extracranial carotid aneurysms.

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Staphylococcus epidermidis in plastic surgery – (a)physiological microflora? A series of three cases.

Maciej Rybicki, Anna Kasielska-Trojan

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Introduction: Staphylococcus epidermidis, classified as a coagulase-negative staphylococcus (CoNS), is commonly regarded as a benign commensal forming part of the skin's natural physiological flora. Nevertheless, when the integrity of the skin barrier is compromised, it poses a growing threat as an opportunistic pathogen. In plastic surgery, where the primary goal is an optimal aesthetic outcome and uncomplicated healing, infections caused by S. epidermidis can lead to serious complications, undermining the surgeon's efforts. This risk is particularly relevant in procedures involving implants, delicate tissues, and confined surgical fields. The aim of this study is to highlight the destructive potential of this microorganism based on a series of three cases involving female patients following plastic surgery.

Case report: Case reports: This article presents a series of three case reports concerning women who underwent various plastic surgery procedures: blepharoplasty, abdominoplasty and breast augmentation. All patients developed symptoms of postoperative wound infection, manifesting as increased pain, localised redness and delayed healing. In the case of blepharoplasty, the patient had eyelash extensions attached with adhesive, which prevented proper disinfection of the surgical site. In the case of abdominoplasty, the patient was a smoker. Both patients developed significant pus accumulation, requiring urgent intervention and the removal of the accumulated pus via drainage. The third case concerned a patient who had undergone breast augmentation; shortly after the operation, she contracted a viral infection, which led to exposure of the implant and its subsequent loss; interestingly, there was no pus present. Due to worsening inflammatory symptoms, wound swabs were taken twice from each patient. In all three cases, microbiological tests unequivocally confirmed S. epidermidis infection. In each of the above cases, ciprofloxacin was administered at an increased dose.

Conclusions: These cases demonstrate that S. epidermidis should not be dismissed as mere contamination, particularly in plastic surgery, where biofilm formation, implant infection and subtle wound complications can significantly impact treatment outcomes. Although the treatment process was significantly prolonged in the patients and, in one case, required a more aggressive approach, the wounds ultimately healed completely, leaving a satisfactory and acceptable cosmetic outcome. The key to success in cases of CoNS infections is vigilance, early microbiological verification and the rapid implementation of appropriate antibiotic therapy, combined with surgical intervention where necessary.

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Beyond the Routine: Isolated Neurofibromatosis of the Appendix

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Presenting author: Maja Janowska

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Introduction: Neurofibromatosis (NF) includes a group of autosomal dominant genetic disorders. Gastrointestinal involvement in NF is exceedingly rare and is typically located in the stomach or intestines. Statistically, the appendix is one of the least likely sites for neurofibromatosis to develop. This report describes a surprising histopathological diagnosis following an appendectomy performed for acute appendicitis, thereby highlighting the potential atypical etiologies of acute appendicitis.

Case report: A 48-year-old female was admitted to the hospital presenting with lower abdominal pain, nausea and a persistent low-grade fever occurring for seven days. Gynecological etiologies were successfully excluded during the clinical diagnostic course. Abdominal ultrasonography revealed a thickened appendiceal wall with features indicative of acute inflammation. The patient was admitted to the I Department of General and Endocrine Surgery for definitive management and underwent an uncomplicated laparoscopic appendectomy. The excised appendix was submitted for routine histopathological evaluation. Unexpectedly, the microscopic examination revealed histological changes characteristic of neurofibromatosis, despite the patient's complete lack of typical clinical symptoms associated with the condition. To facilitate further systemic evaluation, risk stratification and specialized care, the patient was subsequently referred to a Genetic Counseling Clinic.

Conclusions: This case serves as a vital reminder that the etiology of acute appendicitis extends beyond simple fecalith obstruction, requiring a broad diagnostic perspective during clinical evaluation. It is imperative to conduct thorough histopathological analysis, as inflammatory symptoms may occasionally be driven by underlying malignancies or rare conditions like neurofibromatosis.

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A Benign Tumor with a Malignant Course: Radical Resection of a Ligament of Treitz Desmoid - a Case Report.

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Introduction: Desmoid-type fibromatosis is a rare soft-tissue tumor characterized by local aggressiveness and the absence of metastatic potential. However, it may infiltrate adjacent organs, compress vascular structures, and cause bowel obstruction, leading to difficult therapeutic decisions.

Case report: A 62-year-old man was diagnosed with a large intra-abdominal mass. Computed tomography revealed a well-circumscribed mesenteric lesion measuring 121 × 83 × 134 mm, compressing the superior mesenteric artery and causing partial obstruction of adjacent bowel loops. Further evaluation revealed a giant retroperitoneal tumor located near the ligament of Treitz. The lesion caused multilevel gastrointestinal obstruction and involved 80–85% of the proximal small bowel. After complications following duodenal stenting and subsequent clinical deterioration, relaparotomy was performed. The procedure included en bloc resection of the tumor with the proximal small bowel, leaving approximately 70 cm of ileum, as well as resection of two-thirds of the distal transverse colon and the splenic flexure with formation of an end colostomy. Histopathological examination confirmed desmoid-type fibromatosis infiltrating the mesentery, small bowel wall, and pancreas. The postoperative course was complicated by intraperitoneal bleeding, cardiac arrest, enterocutaneous fistula, and the need for long-term total parenteral nutrition.

Conclusions: This case demonstrates that desmoid-type fibromatosis, despite its non-metastatic nature, may lead to life-threatening complications and require highly extensive surgery with major permanent functional consequences. Treatment planning should consider not only technical resectability, but also the expected nutritional and metabolic burden, particularly the risk of short bowel syndrome and chronic intestinal failure. Multidisciplinary management is essential in patients with advanced intra-abdominal desmoid tumors.

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Oncology Case Reports

9th of May 2026

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JUVENES PRO MEDICINA
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Clear cell sarcoma mimicking metastatic melanoma

Agata Bartczak (1)

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Introduction: Clear Cell Sarcoma (CCS) is a malignant neoplasm that typically arises in the tendons and aponeuroses of young adults. It poses a diagnostic challenge, because of its melanocytic phenotype, demonstrated by the expression of characteristic markers such as SOX10, S100, HMB-45 and Melan-A. Anti-PRAME immunostaining is crucial in the differential diagnosis, as it is diffusely positive in melanomas and negative in CCS. However, as it is shown in this case, anti-PRAME immunostaining showed to be misleading, what lead to the challenging diagnostic process.

Case report: A 66-year-old man presented with an extensive chest tumor. Imaging studies revealed a large mass, that involved the left fifth rib, as well as multiple metabolically active lesions in the subcutaneous tissue, osseous structures, and the left adrenal gland. The patient underwent diagnostic video-assisted thoracoscopic surgery with surgical biopsy of the tumor and resection of the left lung nodule. Histopathological examination of the lesion revealed a malignant neoplasm composed of spindle and epithelioid cells with vesicular nuclei and prominent, eosinophilic nucleoli. Foci of necrosis and high mitotic activity were present. Immunohistochemical analysis was negative for CKAE1/AE3, p63, p40, CK7, CK20, TTF, PSA, CD45, STAT6 and CD34, but positive for SOX10, S100, Melan-A and HMB-45. These findings were most suggestive of metastatic melanoma. Anti-PRAME staining revealed strong, diffuse positivity, further supporting this interpretation. However, the unusual clinical presentation and lack of identifiable primary melanocytic lesion prompted extended molecular diagnostics. FISH analysis demonstrated rearrangement of the EWSR1 gene in 20% of tumor cells, consistent with characteristic translocation t(12;22)(q13;q12) (EWSR1-ATF1/EWSR1-CREB1), thereby establishing the final diagnosis of clear cell sarcoma. One month post-procedure the patient developed left-sided numbness. MRI revealed two pathological masses in the brain. Surgical excision of the larger lesion located in the right cerebral hemisphere was performed. The patient died shortly thereafter.

Conclusions: This case highlights a significant diagnostic pitfall, as diffuse PRAME expression—exceptional in CCS—may closely mimic melanoma and lead to misclassification. It underscores the critical role of integrating morphology, immunophenotype and molecular testing in diagnostically ambiguous cases. Importantly, this case serves both as a cautionary diagnostic lesson and as an indication that the molecular biology of clear cell sarcoma may be more complex than currently understood, warranting further investigation.

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The application of adaptive radiotherapy in re-radiation of the head and neck cancer -based on the first clinical experiences in Poland –a case report.

Aleksandra Nasiek, Anna Kozub

Presenting author: Aleksandra Nasiek

Work supervisor: Paweł Polanowski, MD, PhD; Tomasz Rutkowski, MD, PhD; Sławomir Blamek, MD, PhD, Assoc. Prof.

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Introduction: Squamous cell carcinoma of the head and neck (HNSCC) ranks as the sixth most commonly diagnosed cancer worldwide. The increasing incidence is particularly evident in developed countries and is strongly associated with tobacco use, alcohol consumption, and human papillomavirus infection. HNSCC is also considered a risk factor for second primary cancer (SPC) in this region, and the risk increases with time. A recurrence or SPC in a previously treated area poses a therapeutic challenge and requires an individual approach. Adaptive radiotherapy (ART) is a modern technique in which radiotherapy (RTH) plans are dynamically adjusted to account for anatomical and spatial changes during treatment. By optimizing dose distribution, preserving target coverage, and minimizing exposure to organs at risk, ART may enable safe re-irradiation in patients previously treated with radiotherapy.

Case report: A 75-year-old male patient with a long smoking history presented with throat pain and unintentional weight loss. In 2013 he was treated abroad for SCC of the larynx (T1N0M0, SCC G2) with RTH (55 Gy in 20 fractions). In 2020 he was diagnosed with prostate cancer (cT2N0M0, Gleason 4+3) and underwent radical RTH to the prostate and seminal vesicles (78 Gy in 39 fractions) followed by hormonotherapy. After 11 years of observation, computed tomography revealed a tumor of the right piriform sinus and aryepiglottic fold. Histopathological examination confirmed SCC G2 consistent with SPC involving the hypopharynx and larynx. The patient was qualified for ART to a total dose of 36 Gy in 9 fractions.

Conclusions: The use of ART in a patient with SPC in a previously irradiated area resulted in complete response while minimizing treatment-related toxicity. ART may be considered a salvage therapy in selected cases.

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When risks outweigh benefits - unusual life-threatening adverse effects of targeted antineoplastic agent

Hanna Pietruszewska

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Introduction: Urothelial carcinomas are the second most common urological tumours in developed countries. They may be localised in the upper (pyelocaliceal cavities and ureter) or lower part of the urinary tract (urethra/bladder). Urothelial cancer of the upper urinary tract (UTUC) accounts for about 5–10% of all urothelial cancers. The incidence of UTUC is higher in men than in women. Early symptoms indicating its development are haematuria and lumbar pain. Treatment options involve surgery, radiotherapy or systemic therapy and depend on disease staging, patient's performance status and comorbidities. FDA approved enfortumab vedotin (first-in-class Nectin-4-directed antibody-drug conjugate) as a second- or third-line treatment, especially for patients with locally advanced or metastatic urothelial cancer who were previously treated with platinum-based chemotherapy and programmed death receptor-1/programmed death ligand-1 (PD-1/PD-L1) inhibitor. This conjugate is associated with many dermatological problems due to the expression of Nectin-4 in epidermal keratinocytes and skin appendages.

Case report: A 71-year-old woman with metastatic urothelial carcinoma of the renal pelvis, after right-sided nephrectomy in April 2025 and first-line treatment (platinum-based chemotherapy and anti-PD-1 antibody from July to December 2025) with disease progression confirmed with computed tomography, was admitted to the Clinical Oncology Clinic for qualification for the next line of treatment. She was eligible for second-line treatment with enfortumab vedotin (December 2025). After the first administration of the drug in the first cycle, she reported skin lesions – vesicular rash on the erythematous base and itching exacerbating at night which were alleviated with clemastine and hydroxyzine. On the fifteenth day of the first cycle she was admitted to hospital due to significant weakness, hypotension, fever, skin lesions and xerostomia. During hospitalisation, laboratory tests revealed pancytopaenia, hyponatraemia and systemic inflammation. Despite the implementation of broad-spectrum antibiotic therapy, systemic and topical steroids, the patient's condition did not improve. Since dermatological complications progressed, toxic epidermal necrolysis (TEN) was suspected. The patient did not respond positively to administration of intravenous immunoglobulins and died.

Conclusions: The introduction of targeted antineoplastic agents was a therapeutic breakthrough as it increased patients' chances for longer progression-free survival, overall survival and improved the quality of life. However, it is worth monitoring possible adverse effects of newly introduced medicaments, particularly those interacting with various tissues. Thus, continuing research on toxicity of these drugs is necessary to avoid life-threatening complications like Stevens-Johnson syndrome or TEN.

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Myeloid Sarcoma - a Rare Extramedullary Manifestation of Leukemia

Izabela Betcher

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Introduction: Myeloid sarcoma (MS) is a rare and aggressive tumor that develops from myeloid precursor cells and represents an extramedullary manifestation of acute leukemia. Its incidence in the pediatric population is approximately 0.7 cases per million children per year. MS may occur at the same time as acute myeloid leukemia (AML), precede its diagnosis, or appear during relapse. The tumor can involve almost any part of the body, which makes its clinical presentation diverse and diagnostically challenging.

Case report: A 16-year-old boy was admitted to the Department of Pediatric Oncology and Hematology for diagnosis and treatment of a tumor located in the nasopharynx and paranasal sinuses. His medical history revealed chronic rhinitis and headaches for about 6 months, and progressive left eye proptosis for 2 months. At admission, the patient also reported intermittent discharge from the left nasal cavity. Physical examination showed left-sided proptosis, swelling of the left orbital region, bulging of the hard palate, generalized lymphadenopathy, and multiple firm subcutaneous nodules distributed throughout the body. Laboratory tests did not show significant abnormalities. Whole-body MRI revealed a large solid mass involving the nasopharynx and paranasal sinuses, as well as numerous subcutaneous nodules, most prominent in the pelvic and thigh regions. Ultrasound examination showed infiltration of the testes. Bone marrow biopsy confirmed the diagnosis of AML. Histopathological examination of the facial tumor biopsy demonstrated infiltration by myeloid blasts. Based on these findings, AML with concurrent MS was diagnosed. The patient received intensive chemotherapy according to the pediatric AML treatment protocol. He has now completed consolidation therapy, achieving hematological remission in the bone marrow and regression of extramedullary lesions.

Conclusions: The chronology of symptoms suggests that this case represents a very rare clinical form of MS, presenting initially as an isolated extramedullary disease before the development of AML. The non-specific symptoms and normal laboratory results at the early stage may have delayed the diagnosis. This case highlights the importance of considering MS in the differential diagnosis of extramedullary tumors in children, even in the absence of typical leukemia findings in peripheral blood. It also underlines the role of early histopathological diagnosis in enabling prompt treatment.

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A Race Against Progression: Retroperitoneal Leiomyosarcoma Case Report

Julia Arct, Kamila Milewska

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Introduction: Retroperitoneal leiomyosarcoma (RLMS) is a rare, malignant smooth muscle tumor. It accounts for fewer than 15% of soft tissue sarcomas, with 5-year survival of approximately 40% and median survival of 18 months in unresectable cases. The retroperitoneal location facilitates asymptomatic growth of the tumor to a considerable size. Furthermore, diagnosis is often incidental due to nonspecific symptoms or their absence. This case highlights the diagnostic challenges of unresectable RLMS treated with four sequential systemic therapy lines, complicated by severe thromboembolic events.

Case report: A 63-year-old male presented at the emergency department with acute abdominal pain and no additional symptoms. CT scan revealed a retroperitoneal mass (51×96×105 mm) next to the inferior vena cava. Biopsy and histopathological report confirmed leiomyosarcoma. During treatment, three thromboembolic events occurred within 3 months – pulmonary embolism, massive proximal right lower-limb superficial and deep vein thrombosis (DVT) and right upper-limb DVT – requiring escalated-dose low-molecular-weight heparin. Despite escalated anticoagulation, bilateral common iliac vein thrombosis progressed after 10 months. Four sequential systemic treatment lines were administered over 13 months. First-line ADIC chemotherapy was complicated by febrile neutropenia with S. aureus bacteremia. Second-line was gemcitabine and docetaxel – after 6 cycles, assessment showed stabilization, but it continued with primary tumor enlargement to 192×145 mm (later assessed as progression). Third-line trabectedin achieved stable disease over five cycles, but afterwards CT revealed progression with new hepatic metastases and pulmonary nodule growth. Fourth-line pazopanib was started but rapidly overshadowed by progressive cachexia, dysphagia from exterior gastric compression (tumor size: 250×150 mm) and anatomical inability to place a percutaneous endoscopic gastrostomy. All of the above caused the need for parenteral nutrition. Total disease duration from diagnosis to terminal decline was 14 months.

Conclusions: 1. Symptoms of RLMS are nonspecific and often result from compression of close structures by the expanding tumor. Adaptability of the retroperitoneal space allows tumors to grow silently to large sizes before becoming symptomatic, making diagnosis even more difficult. 2. Progressive retroperitoneal tumor growth can cause exterior gastric compression, making enteral nutrition impossible. Early nutritional assessment and introduction of parenteral nutrition are essential components of supportive care in advanced RLMS. 3. This case confirms the unfavorable prognosis and limited efficacy of currently available systemic treatments of RLMS. It underscores the need for early multidisciplinary approach and appropriate transition to best highly specialized care in patients with this rare disease.

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Physical Trauma, Metastases, or Psychosomatic Pain? A Case Report of IgA Kappa Multiple Myeloma as the Great Mimicker

Julia Jaremek

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Introduction: Multiple Myeloma (MM) is mainly diagnosed in older adults, with a median age at diagnosis of 65–70 years, typically presenting with the classic CRAB criteria (hypercalcemia, renal failure, anemia, bone lesions). However, atypical presentations in younger individuals can pose a profound diagnostic challenge. When complicated by coincidental physical trauma and an absence of systemic laboratory abnormalities, MM can mimic mechanical injuries, psychosomatic disorders, or metastatic Carcinoma of Unknown Primary (CUP). This case report highlights how cognitive biases and unusual disease variants can profoundly complicate the diagnostic process.

Case report: A 54-year-old highly athletic male presented in November 2022 with multiple rib fractures secondary to severe, high-impact mechanical trauma. Initially, the skeletal injuries were considered clinically proportional to the trauma mechanism. However, the patient developed severe bone pain persisting well beyond the physiological healing period. Routine laboratory workup, including complete blood count (Hb 14.8 g/dL) and renal panel (creatinine 0.88 mg/dL), revealed no abnormalities. Given negative rheumatological screening (RF, anti-CCP), the persistent pain was temporarily attributed to a psychosomatic etiology. In January 2023, the clinical course was complicated by the occurrence of new-onset, seemingly spontaneous rib fractures. Subsequent imaging via chest CT and whole-body PET-CT in March 2023 demonstrated disseminated osteolytic lesions and multiple pathological fractures. Radiologically interpreted as skeletal metastases, these findings prompted an extensive, invasive workup for Carcinoma of Unknown Primary (CUP), including abdominal ultrasonography, gastroscopy, and colonoscopy. The absence of typical CRAB manifestations (specifically anemia, hypercalcemia, and renal impairment) obscured the underlying hematological malignancy. Following these extensive diagnostic procedures, a basic total serum protein assay was eventually performed. It revealed marked hyperproteinemia (9.17 g/dL), immediately redirecting the diagnostic pathway. Subsequent serum protein electrophoresis (SPEP) and immunofixation confirmed an IgA kappa monoclonal gammopathy. A bone marrow trephine biopsy demonstrated 60% clonal plasma cell infiltration. The patient was definitively diagnosed with multiple myeloma and subsequently treated with induction chemotherapy followed by an autologous hematopoietic stem cell transplantation (auto-HSCT).

Conclusions: Multiple myeloma can easily masquerade as mechanical trauma or metastatic solid tumors, particularly in younger, fit patients lacking classic systemic symptoms. A history of severe injury can easily distract clinicians from an underlying hematological malignancy. Ultimately, this case proves one simple rule: performing a basic, cheap test like total serum protein early in the diagnostic process can save patients from unnecessary invasive exams and quickly point to the correct diagnosis.

JUVENES PRO MEDICINA
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A WOMAN DIAGNOSED WITH FOUR CANCERS. IS THE MUTATION ONLY TO BLAME?

Karolina Potemska

Presenting author: Karolina Potemska

Work supervisor: Sylwia Dębska-Szmich, M.D., Ph.D., Magdalena Sobczak, M.D.

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Introduction: CHEK2 mutation is one of the most common inherited genetic mutations in Poland. It causes cancer predisposition syndrome with the risk of breast cancer of over 20% during lifetime, and with higher risk of ovarian cancer, prostate cancer, and pancreatic cancer. It is estimated that women with CHEK2 mutation who have been diagnosed with breast cancer have an almost 10% risk of developing a secondary breast cancer within 10 years. This is the reason that some CHEK2-positive patients choose bilateral mastectomy to prevent the development of cancer, but this isn't recommended generally for carriers of this moderate-risk gene mutation. We present the case of a CHEK2-positive woman diagnosed twice with breast cancer and also with endometrial cancer and polycythemia vera.

Case report: In February 2026, a 57-year-old woman had a breast ultrasound, which revealed a lump in the right breast (29 mm). A biopsy was performed, no distant metastases were identified on imaging. The patient was diagnosed with triple-negative breast cancer cT2N0M0. In the end of February, the patient was admitted to the Department of Clinical Oncology for systemic perioperative treatment with chemotherapy and pembrolizumab. In physical examination, there was a palpable, movable mass of 4 cm in the right breast with no axillary lymphadenopathy. The patient denied any other symptoms. The neoadjuvant chemoimmunotherapy with paclitaxel and carboplatin sequentially with doxorubicin (until the total dose exhaustion) and cyclophosphamide plus pembrolizumab started. In 2015, at the age of 46, the patient was treated due to estrogen-positive HER2-negative cancer of the right breast, pT2N1. She had breast-conserving surgery, lymphadenectomy, adjuvant chemotherapy (anthracycline and taxoid based) and adjuvant hormonotherapy with tamoxifen. Young onset of breast cancer led to genetic testing, that revealed the CHEK2 110delC mutation. In 2018 she had a prophylactic bilateral ovariectomy. In 2023 she was diagnosed with JAK2-positive polycythemia vera. She was treated with interferon, that was discontinued when she was diagnosed with breast cancer. In 2025 the patient had hysterectomy because of endometrial cancer (pT1aN0, pMMR, POLE-, p53-).

Conclusions: Although the CHEK2 mutation doesn't increase the risk of endometrial cancer, it should be noted that the patient was treated with tamoxifen for 7 years. Tamoxifen is a selective estrogen receptor modulator and due to its estrogen-like effects on uterus, the risk of developing endometrial cancer is higher, especially in postmenopausal women. We haven't found any data supporting relationship between CHEK2 mutation nor exposure to anthracycline and polycythemia vera.

JUVENES PRO-MEDICINA
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Acute Kidney Injury and Metastatic HPV-related cervical Squamous Cell Carcinoma – A Case Report

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Work supervisor: prof. dr hab. n. med. Katarzyna Nabrdalik, dr hab. n. med. Hanna Kwiendacz, prof. ŚUM

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Introduction: Acute kidney injury (AKI) is a common clinical condition with diverse etiologies, most often related to hemodynamic disturbances, nephrotoxicity, or intrinsic renal disease. In rare cases, however, AKI may represent the initial manifestation of an underlying malignancy, e.g myeloma.

Case report: A 38-year-old woman presented with severe AKI, acompanied with anuria, metabolic acidosis, hyperkalemia, serum creatinine (5.13 mg/dL, eGFR 7 mL/min/1.73 m²) was admitted to the nephrology department. Initial symptoms included right lower abdominal discomfort and progressive edema of the right lower limb with enlarged inguinal lymph nodes. Laboratory evaluation demonstrated normocytic anemia, thrombocytosis and elevated inflammatory markers. Conservative management, including fluid optimization and correction of electrolyte disturbances, failed to improve renal function, requiring initiation of hemodialysis. Imaging studies — including high-resolution chest CT, pelvic MRI, and PET-CT — revealed generalized lymphadenopathy and multiple osteolytic lesions, initially raising suspicion for hematologic malignancy. Ultrasound examination of the thyroid incidentally identified enlarged supraclavicular lymph nodes. Biopsy of a supraclavicular node revealed metastatic keratinizing squamous cell carcinoma with strong p16 expression, consistent with an HPV-related malignancy. PET-CT revelad the primary presenting in the cervix. The patient was referred to an oncology center for further evaluation and treatment; however died 3 months later.

Conclusions: This case illustrates a rare presentation of CUP(Cancer of Unknown Primary) in which AKI was the first and dominant clinical manifestation. HPV-related squamous cell carcinoma points to a likely origin in the head and neck or anogenital region. The case highlights the importance of considering malignancy in unexplained AKI and emphasizes the value of thorough and sometimes incidental findings in establishing the diagnosis.

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UTROSCT in an Adolescent: A Rare Diagnostic Challenge

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Introduction: Uterine tumors resembling ovarian sex-cord tumors (UTROSCT) are rare mesenchymal neoplasms that predominantly occur in perimenopausal women. Although these tumors typically follow an indolent course, some cases demonstrate the capacity for recurrence and metastatic spread.

Case report: A 16-year-old female presented with two weeks of heavy menstrual bleeding and persistent intermenstrual spotting. Ultrasound identified a 59×42 mm uterine mass, and surgical enucleation was performed. Histopathology was consistent with a uterine tumor resembling ovarian sex-cord tumor (UTROSCT). She was referred for further management, where mild iron-deficiency anemia (HGB 7.2 g/dL) and depression were noted. MRI revealed a polycyclic intramural lesion with septations and no evidence of metastasis or lymphadenopathy. Multidisciplinary evaluation was unremarkable. PET-CT demonstrated active proliferation, and core needle biopsy confirmed UTROSCT. The patient subsequently underwent laparotomy with removal of the uterine tumor. Follow-up ultrasound imaging in December 2025 identified new nodules suggestive of recurrence. MRI in January 2026 showed multiple lesions in the uterine fundus, posterior wall, and pelvis. Exploratory laparoscopy confirmed recurrence with an ESR1:CITED2 gene fusion, indicating an aggressive variant. By February 2026, MRI demonstrated enlarged lesions, while chest CT remained normal. Systemic therapy with two cycles of BEP chemotherapy was initiated. Post-treatment imaging showed stabilization after the first cycle and reduction of lesion size following the second.

Conclusions: This case highlights an atypical early-onset presentation of a rare disease in a young patient. This is evidenced by UTROSCT accounting for less than 0.5% of all uterine malignancies. Additionally, the disease typically presents in perimenopausal or menopausal women, with a median age of 52 years, indicating that the disease may present in patients outside the usual age demographic. Furthermore, the case showcases an atypical aggressive clinical course characterized by recurrence and malignant transformation, highlighting the importance of cytogenetic testing in the identification of aggressive variants and facilitating early clinical intervention. From a clinical standpoint, emphasis should be placed on careful long-term care and monitoring of disease even in conditions initially considered benign.

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Solid Manifestation of a Liquid Cancer: A Rare Case of PICALM::MLLT10 Positive Acute Myeloid Leukemia with Mediastinal Myeloid Sarcoma.

Kinga Stanek

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Introduction: Myeloid Sarcoma (MS) is a rare presentation of acute myeloid leukemia (AML) and refers to an extramedullary mass of myeloblasts. MS may occur at various sites, most frequently in lymphoid tissues, central nervous system, lungs, kidneys and gastrointestinal tract. We present an unusual case of MS organized in mediastinum.

Case report: A 25-year-old male patient, initially presented with symptoms of respiratory tract infection and treated unsuccessfully with antibiotics, was admitted to Hematologic Clinic with superior vena cava syndrome, dysphagia, paroxysmal cough, intermittent dyspnea, and general weakness. Computed tomography of the chest revealed a pathological mass occupying the entire anterior mediastinum measuring 99x88x116 mm, causing tracheal narrowing to 8 mm. A videothoracoscopic biopsy confirmed MS. Bone marrow (BM) aspiration confirmed 30% myeloblasts, while complete blood count did not show deep abnormalities. GTG-banding revealed a complex hypotetraploid karyotype, and FISH showed a t(10;11)(q13;q21) translocation, corresponding to the PICALM::MLLT10 fusion gene, a rare abnormality associated with AML, typically in younger patients and in extramedullary locations. Next-generation sequencing detected NRAS, PHF6, EZH2, PICALM, and MLLT10 mutations, and the cytogenetic-molecular risk was classified as adverse according to ELN 2022. After initial MS diagnosis, emergency treatment with cytarabine and steroids was initiated, followed by first-line intensive treatment with daunorubicin, cytarabine, and cladribine (DAC). Complete remission was not achieved; thus, second induction treatment containing cladribine, cytarabine, filgrastim, and mitoxantrone (CLAG-M) was applied. It resulted in significant BM blasts and MS size reduction, leading to partial remission. The patient was qualified for allogeneic hematopoietic cell transplantation (allo-HCT); unfortunately, the BM assessment before the procedure revealed progression. Due to the chemo-refractoriness and initial aggressive course, an individual treatment strategy was undertaken. Two-stage myeloablation was implemented, consisting of high-dose melphalan, followed by regular fludarabine-treosulfan conditioning, finalized with HLA-matched sibling donor allo-HCT. On day +30, 100% donor chimerism was achieved, and the patient was referred to adjuvant radiotherapy. Four months later, the patient developed cervical lymphadenopathy, which was further diagnosed as extramedullary relapse. Third-line treatment with azacitidine and venetoclax, and lymph nodes radiotherapy was applied, but failed to achieve remission. Finally, the disease progressed to central nervous system involvement, and the patient was referred to palliative treatment.

Conclusions: This case illustrates the highly aggressive nature of AML with mediastinal MS associated with PICALM::MLLT10 fusion, characterized by resistance to personalized treatment strategy, early relapse, and poor overall survival, underscoring the need for novel therapeutic strategies.

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“Catheter-Related Infection and Recurrent Pneumothorax in a Patient with Stage II Breast Cancer: A Case Report”

Klaudyna Zając, Stella Zając, Antonina Wędrychowska, Anna Czerwonka

Presenting author: Klaudyna Zając

Work supervisor: Prof. dr hab. n. med. Tadeusz Pieńkowski

Affiliations: Casimir Pulaski Radom University

Introduction: Adverse effects associated with cancer therapy are a common reason for patients’ reluctance and delays in presenting for oncological treatment. Although cancer therapies have improved, adverse effects still constitute a substantial clinical problem. This case describes a patient with clinical stage II breast cancer who developed a vascular port infection leading to catheter-related severe infection and recurrent left-sided pneumothorax.

Case report: A 62-year-old female patient with triple-positive breast cancer (ER+, PR+, HER2 +) clinical stage II, was treated with curative intent. Due to suspected infection of the vascular port after six cycles of chemotherapy, the patient was transferred to the Pulmonology Hospital in Czerwona Góra. On admission, the patient was in a severe condition (WHO performance status 4), somnolent with poor verbal and logical contact. Decreased breath sounds were noted at the level of scapula on the right side and slightly lower on the left side, accompanied by crackles and rhonchi. The heart rate was approximately 100 beats per minute with normal heart sounds. The skin was pale, without petechiae. Laboratory tests revealed CRP 292 mg/L, procalcitonin (PCT) 70 ng/mL, and grade 2 hypercalcemia. The Combo test was negative. The patient was treated with intravenous vankomicin and meropenem. Within one month, four pleural drainages were performed due to a recurrent pneumothorax. Treatment included pleural drainage, passive high-flow oxygen therapy, combined antibiotic therapy, thromboprophylaxis, systemic glucocorticosteroids, intensified supportive treatment, and nutritional support with an industrial diet. With improvement in the patient’s general condition, rehabilitation was introduced. As a result of ongoing pleural drainage, gradual reduction of the pneumothorax was achieved. The patient’s clinical condition, well-being, and physical performance improved progressively during hospitalization. During the hospital stay, pneumonia developed and was treated with additional empirical intravenous antibiotics. A culture from the pleural drain after completion of pleural drainage showed no bacterial growth.

Conclusions: This case report highlights the severe and potentially life-threatening complications associated with vascular access device infections in patients undergoing cancer therapy. Prompt recognition and aggressive multidisciplinary management, antibiotic and respiratory support, were crucial for patient stabilization. Recurrent pneumothorax required repeated interventions but was successfully controlled with systematic pleural drainage. Despite complications such as pneumonia, comprehensive supportive care led to gradual clinical improvement. The case underscores the importance of early detection of infections and coordinated care in high-risk oncological patients.

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Beyond the Blood Smear: Navigating the Diagnostic Challenges of Atypical Multiple Myeloma

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Introduction: Multiple myeloma is a malignant neoplasm characterized by the clonal proliferation of plasma cells. Its incidence is 5.5 cases per 100,000 individuals in Europe. The disease predominantly affects adults aged 65 to 70 years. It exhibits a heterogeneous presentation that often mimics other conditions.

Case report: A 52-year-old male was referred for megaloblastic anemia evaluation. Prior empirical supplementation with oral folic acid (5mg per dose) and subcutaneous injections of vitamin B12 (100µg per dose) yielded negligible improvement. His clinical portrait was disconcertingly complex, encompassing progressive asthenia, osseous and radicular pain, dysuria, dysgeusia, pyrexia, and weight loss. Examination revealed marked hepatomegaly and lymphadenopathy. Investigations demonstrated pancytopenia: macrocytic anemia (8.2 g/dL), leukopenia (2.5 G/L), thrombocytopenia (110 G/L). Blood smear evaluation showed marked rouleaux formation. This, alongside an elevated sedimentation rate (56 mm/h) , suggested a monoclonal gammopathy. CT imaging unveiled six disseminated osteolytic lesions within the vertebrae, ribs, and skull. Bone marrow aspiration revealed hypercellularity, with 71.4% neoplastic plasma cells. Flow cytometry confirmed their aberrant nature, demonstrating CD38+/CD138+ expression and CD19/CD20 absence. Assays revealed hyperproteinemia (94 g/L) and immunofixation identified an IgG monoclonal protein. Profiling indicated hypercalcemia (2.72 mmol/L) and renal insufficiency (eGFR 46.7). Thus, symptomatic multiple myeloma was diagnosed per SLIM CRAB criteria. VTD induction chemotherapy (bortezomib, thalidomide, dexamethasone) was administered. The response culminated in complete remission with marrow plasmacytosis below 5%. Following mobilization, the patient underwent autologous stem cell transplantation after melphalan conditioning. He is maintained on lenalidomide.

Conclusions: Myeloma diagnosis necessitates vigilance, frequently masking itself behind non-specific abnormalities like refractory megaloblastic anemia. This case highlights critical insights: erythrocyte rouleaux in severe anemia warrants investigation to rule out monoclonal gammopathies. Clinicians must recognize routine urinalysis dipsticks predominantly detect albumin and yield false-negative results for gamma globulins, delaying cast nephropathy recognition. Sensitive modalities like serum and urine immunofixation are indispensable for accurate monoclonal protein characterization. Differentiating neoplastic cells mandates flow cytometry to detect the aberrant CD19-/CD20-/CD38+/CD138+ phenotype. Ultimately, managing transplant-eligible patients dictates prompt initiation of proteasome inhibitor-based regimens to bridge toward autologous stem cell transplantation.

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Dermatological and Ocular Toxicity as a Limiting Factor in Anti-EGFR Therapy: A Case Report of Metastatic Rectal Adenocarcinoma

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Introduction: Colorectal cancer (CRC), particularly rectal adenocarcinoma, remains a significant oncological challenge globally. In locally advanced stages, the standard of care involves preoperative radiochemotherapy to achieve tumor downstaging. For metastatic disease (Stage IV), systemic treatment with cytotoxic doublets such as FOLFOX-6 is combined with targeted therapies. In patients with KRAS/NRAS/BRAF wild-type tumors, anti-EGFR monoclonal antibodies like panitumumab are indicated. However, these therapies are frequently associated with specific adverse effects, primarily dermatological and ocular toxicities, due to EGFR expression in skin keratinocytes and ocular tissues.

Case report: A 51-year-old female diagnosed with left-sided rectal adenocarcinoma (G2, cTxN(+)M0) underwent neoadjuvant radiochemotherapy (50.4 Gy and 3 cycles of 5FU/LV). Following TEM resection, histopathology confirmed ypT3NxM0 stage. Four months after completing neoadjuvant therapy, recurrence of adenocarcinoma has been found in the sections from the scar. Imaging (PET/CT and CT) subsequently revealed disease progression to Stage IV with pulmonary and para-aortic lymph node metastases. Due to the KRAS/NRAS/BRAF wild-type status , first-line palliative treatment with FOLFOX-6 plus panitumumab was initiated. After the 3rd cycle, the patient developed Grade 1 skin toxicity (papulopustular rash) and Grade 1 conjunctivitis in accordance with CTCAE guidelines. Management with oral doxycycline, topical fluticasone, and ofloxacin eye drops has been implemented. Due to dermal and ocular side effects panitumumab was withheld during the 4th cycle. Currently, despite supportive care the patient presents with systemic disease progressionand significant neoplastic cachexia, evidenced by a 34 kg weight loss over the past year. Follow-up CT confirms an increase in the size and number of pulmonary metastases, with notable necrotic changes within the nodules. Progressive lymphadenopathy is also observed, particularly in the para-aortic region. Due to escalating abdominal pain and prior dose-limiting toxicities, the patient has been transitioned to second-line palliative chemotherapy with the FOLFIRI (folinic acid, fluorouracil, irinotecan) regimen. Despite a wild-type genetic profile, the clinical course remains highly aggressive.

Conclusions: While dermatological toxicity is often viewed as a surrogate marker for anti-EGFR efficacy, this case demonstrates that even prompt management of such side effects may not prevent rapid metabolic and structural progression in aggressive phenotypes. This case underscores the complexity of treating metastatic CRC, where even a favorable molecular profile does not preclude dose-limiting toxicities that complicate the delivery of optimal targeted therapy.

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1 in 10 million. A case of adult-onset neuroblastoma.

Marcin Kusiński, Maciej Slipko

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Introduction: Neuroblastoma is a rare (1:1,000,000) malignancy typically seen in early childhood (median age of 2 years). Adult-onset neuroblastoma is exceedingly rare, with an incidence of approximately 1 in 10,000,000. Due to its rarity and lack of established therapeutic regimens in adults, it presents a significant clinical challenge. Failure to identify the tumor preoperatively precludes an accurate assessment of the risk of metastatic progression.

Case report: A 31 year-old male patient was referred to the radiology imaging unit for evaluation of an incidental USG finding - a 10 cm spheroid suprarenal mass. CT imaging revealed 101x85.5x97 mm mass with slight contrast enhancement. Given the patient's chronic hypertension (partially resistant to treatment with amlodipine, telmisartan, and doxazosin) and elevated serum normetanephrine levels (445 ng/l), the lesion was initially treated as a secreting pheochromocytoma. The patient underwent an adrenalectomy with lymphadenectomy (R0 resection). Histopathological examination, however, identified a differentiating subtype of neuroblastoma. According to the International Neuroblastoma Pathology Classification (INPC), the prognosis was deemed unfavorable due to the very late onset and a Mitosis-Karyorrhexis Index (MKI) of 50/5000. Postoperative remission was brief. In July 2023, PET imaging revealed multiple inoperable metastatic lesions in the abdominal cavity, thoracic cavity, and bones. The patient was started on a 10-cycle CAV regimen (Cyclophosphamide, Doxorubicin, Vincristine). Despite including 4 cycles over the initially established limit, the therapy had been well-tolerated. Seven months later, the patient presented to the Emergency Department with lower back and abdominal pain. Although initially suspected, thromboembolic disease was excluded via negative D-dimer levels and ultrasound. A second-line chemotherapy regimen consisting of cisplatin and etoposide was initiated in November 2024 and concluded in July 2025 The patient developed a progressive, symmetrical sensory polyneuropathy, manifested by distal paresthesia and neuropathic pain following the administration of neurotoxic chemotherapy. Presently, the patient remains under observation. Despite the strenuous treatment history, he maintains a relatively high quality of life, with neuropathy being the only persisting adverse effect.

Conclusions: The management of adult metastatic neuroblastoma remains a significant therapeutic hurdle due to the lack of standardized protocols. While aggressive surgical resection and salvage chemotherapy (CAV and Cisplatin/Etoposide) can achieve stabilization, they carry a high burden of cumulative toxicity, most notably permanent peripheral neuropathy. This case highlights the necessity of a multidisciplinary approach that balances intensive oncological intervention with the preservation of quality of life in survivors of rare adult malignancies.

JUVENES PRO MEDICINA
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Disseminated Lesions Revealing Two Independent Primary Tumors: A Case Report

Wiktoria Woźniacka

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Work supervisor: MD PhD Sylwia Dębska- Szmich, MD PhD Rafał Czyżykowski

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Introduction: The coexistence of two independent primary malignancies is rare and may pose a significant diagnostic challenge. We present a case in which disseminated pulmonary and hepatic lesions initially suggested metastatic disease; however, further evaluation revealed hepatocellular carcinoma, while the pulmonary lesions resolved spontaneously. The subsequent clinical course led to the diagnosis of a second primary malignancy: stomach carcinoma.

Case report: A 68-year-old patient was admitted to the Internal Medicine Department with pneumonia and pleural effusion. The medical history was significant for weight loss, chronic fatigue and dyspnoea on exertion. Computed tomography revealed multiple disseminated lesions in the basal parts of the lungs and in the liver, suspected to represent metastases. Initial diagnostic evaluation (abdominal CT and ultrasound, colonoscopy, liver biopsy) did not identify the malignancy; therefore, the patient was discharged for further ambulatory management. Later, hematemesis prompted gastroscopy revealing a gastric lesion, while an atypical finding in the form of elevated AFP levels in blood tests led to a repeat liver biopsy. Histopathological analysis established the co-occurrence of two independent primary malignancies: tubular gastric adenocarcinoma and hepatocellular carcinoma. To determine the origin of the pulmonary metastases (gastric or hepatic), a biopsy was considered; however, the lesions resolved spontaneously. The patient subsequently underwent gastrectomy and is currently awaiting further management for hepatocellular carcinoma.

Conclusions: This case underscores the diagnostic challenges posed by multiple malignancies. It highlights the need for comprehensive diagnostic evaluation and vigilance for the presence of multiple independent primary tumors, even in patients presenting with extensive neoplastic involvement and complex clinical presentation.

JUVENES PRO MEDICINA
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Three Diagnosis, One Disease: A Challenging Diagnostic Pathway in Neuroendocrine Prostate Carcinoma

Zuzanna Bartosiak

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Work supervisor: lek. Julia Sołek, dr. n. med. Konrad Szymczyk, dr. n. med. Jacek Musiał, dr. n. med. Marcin Braun

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Introduction: Prostate adenocarcinoma is one of the most common solid cancer in the male population. Usually, PC metastases localize in regional lymph nodes and bones (especially as osteoblastic lesion in vertebrae). Peritoneal and intestinal metastases without bone involvement are extremely rare. One of the possible reasons of the exceptionally aggressive course might be a neuroendocrine differentiation within the tumour, which tends to constitute a huge diagnostic challenge, especially when diagnostics are based on prostatic oligobioptates. Here we present a complicated diagnostic path, the patients went through, to reach the final diagnosis of prostatic adenocarcinoma.

Case report: A 56-year-old male presented with symptoms suggestive of renal colic. MRI revealed a large pelvic mass involving the rectum and sigmoid colon, infiltrating adjacent organs, as well as a prostate lesion scored as PIRADS 5 with suspected rectal wall invasion. The patient was initially qualified for surgery for presumed rectal cancer; however, due to extensive intraoperative disease, only a peritoneal sample was obtained. Further diagnostics included colonoscopic biopsy of the rectal lesion and core needle biopsy of the prostate.Each specimen (peritoneum, rectum, prostate) was evaluated independently by different pathologists. Importantly, pathologists assessing the peritoneal and rectal samples were informed only of a rectal malignancy, while the pathologist evaluating the prostate biopsy received clinical information limited to a PIRADS 5 lesion. Histopathological diagnoses were discordant: peritoneum – small cell carcinoma; rectum – atypical cells of uncertain malignant potential; prostate – adenocarcinoma, Gleason score 8 (4+4). Due to these discrepancies, all materials were subsequently reviewed by a single pathologist with access to the full clinical and radiological context, including the lack of histological confirmation of primary rectal cancer. Integration of findings and additional immunohistochemical staining (including PSA) led to the final diagnosis of poorly differentiated prostate adenocarcinoma with rectal wall infiltration and peritoneal metastasis.

Conclusions: This case demonstrates the atypical and aggressive clinical course of focal neuroendocrine prostate carcinoma which posed a tremendous diagnostic challenge. Even though all three diagnoses were initially correct, the lack of close cooperation and communication, turned them to be incomplete and inconclusive for the patient. This case highlights the importance of precise description and interpretation of the material in correlation with clinical and radiological findings to establish a definitive, sometimes unexpected, diagnosis.

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A Rare Neurological Complication of Brentuximab Vedotin in Lymphoma Treatment - A Case Report

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Introduction: Brentuximab vedotin is an antibody-drug conjugate commonly used to treat CD30-positive lymphomas. Peripheral axonal neuropathy is a well-recognized adverse effect of chemotherapy, usually presenting as a sensory axonal neuropathy. Demyelinating polyneuropathy is exceptionally rare and may create diagnostic and therapeutic challenges.

Case report: A 39-year-old man was admitted to the Neurology Department with a 2-month history of rogressively worsening limb weakness. He had been recently treated for Hodgkin lymphoma, for which he had completed six cycles of A-AVD chemotherapy, including brentuximab vedotin, 3 months before admission. A Positron Emission Tomography (PET) scan performed one month before the onset of neurological manifestations demonstrated complete metabolic remission. Neurological symptoms began approximately one month after completion of chemotherapy and progressed gradually. On examination, the patient exhibited distal muscle weakness, more pronounced in the lower limbs than in the upper limbs. He also reported paresthesia in the hands, although superficial sensation and proprioception were preserved. Deep tendon reflexes were absent, and moderate gait ataxia was noted. Electroneurography (ENeG) demonstrated generalized axonal damage affecting both motor and sensory fibers. Additionally, features of demyelination were observed in motor fibers, most prominently in the right fibular nerve. Cerebrospinal fluid analysis (CSF) revealed no abnormalities, with no evidence of central nervous system involvement by lymphoma. A comprehensive diagnostic workup excluded other potential causes of polyneuropathy, including metabolic, infectious, and paraneoplastic etiologies. Given the temporal relationship to chemotherapy and the electrophysiological findings, a diagnosis of chemotherapy- induced sensorimotor polyneuropathy with secondary demyelination was established. Intravenous methylprednisolone was initiated, resulting in clinical improvement. The treatment was well tolerated, and the patient with slight improvement in muscle strength, was discharged home with a recommendation for continued outpatient therapy with oral corticosteroids.

Conclusions: Demyelinating polyneuropathy should be considered in patients developing progressive neurological deficits during brentuximab vedotin therapy. Electrophysiological assessment is essential for diagnosis and may guide further treatment. This case expands the neurological spectrum of brentuximab vedotin toxicity and supports the hypothesis that beyond cumulative axonal injury, immune-mediated demyelination may occur in selected patients. Early electrophysiological evaluation is crucial in patients with atypical or rapidly progressive neuropathy during anti-CD30 therapy, as timely therapeutic intervention may improve neurological outcome.

JUVENES PRO MEDICINA

Dentistry and Maxillofacial Surgery Case Reports

9th of May 2026

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JUVENES PRO-MEDICINA
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Severe Cranio-Maxillofacial Trauma With Globe Avulsion and Bilateral Subdural Hematomas: Reconstructive Challenges and Postoperative Alcohol Withdrawal

Andrew Nowak, Olesya Marushko, Olena Marushko, Aya Kraiz

Presenting author: Andrew Nowak

Work supervisor: Aleksy Nowak MD, Łukasz Słowik DDS

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Introduction: Complex cranio-maxillofacial fractures are uncommon and demanding, especially when associated with ocular loss and intracranial hemorrhage. Wooden projectiles add difficulty because they are contaminated, prone to fragmentation, and may be radiologically inconspicuous. We report a saw-ejected wooden projectile injury highlighting management sequencing and reconstructive planning in oral and maxillofacial surgery.

Case report: A 40-year-old man with chronic alcohol use sustained facial trauma after being struck by a saw-ejected wooden block during woodworking. He presented alert (GCS 15) but intoxicated, with a left facial wound, cheek scalping, complete left globe avulsion without light perception, and hemoglobin 7.8 g/dL requiring transfusion. CT and 3D imaging demonstrated bilateral Le Fort I-II fractures with left Le Fort III craniofacial disjunction, naso-orbito-ethmoid and zygomaticomaxillary complex fractures, comminuted orbital rim and floor fractures, bilateral maxillary sinus and palatal fractures, a mandibular coronoid process fracture, tooth 25 root displacement into the left maxillary sinus, and bilateral subdural hematomas measuring 4 mm each. After tetanus prophylaxis, intravenous ceftriaxone, transfusion, and tertiary transfer, he underwent a 3-hour single-stage reconstruction under general anesthesia with submental intubation. Treatment included debridement, removal of wooden fragments, enucleation of the non-salvageable globe, and fixation using 11 titanium miniplates and 50 screws. Intermaxillary fixation screws with 6 oz heavy elastics were applied despite partial edentulism complicating occlusal guidance. Reconstruction prioritized symmetry and prosthodontic and ocular rehabilitation. Intraoperative 3D CBCT confirmed reduction, symmetry, and plate positioning, while postoperative imaging demonstrated stable alignment and hardware placement. On postoperative day 2, severe alcohol withdrawal with delirium and tonic-clonic seizures required ICU management. CT on day 3 showed stable fixation and regressing hematomas. He was transferred in stable condition on day 8; long-term follow-up was unavailable because he did not attend scheduled outpatient visits.

Conclusions: This case illustrates that the principal challenge in severe cranio-maxillofacial trauma is the management of competing priorities. Wooden projectile injuries should be approached as high-contamination trauma with retained-fragment risk, mandating meticulous debridement. Submental intubation may preserve surgical access and facilitate single-stage reconstruction when midfacial exposure and occlusal assessment are required. Operative planning should extend beyond skeletal stabilization to restoration of symmetry and rehabilitation, particularly when partial edentulism limits occlusal guidance. Although fixation was technically stable, early morbidity remained significantly influenced by systemic complications, particularly alcohol withdrawal.

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Progressive Supernumerary Tooth Formation in a Patient With TNXB-Related Classical-Like Ehlers-Danlos Syndrome: A Case Report

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Introduction: Multiple supernumerary teeth are uncommon and, when present in a syndromic pattern, may provide an important clue to an underlying genetic disorder. Their reported prevalence ranges from 0.04% to 2.29%, and they occur more often in syndromic than non-syndromic patients. TNXB-related classical-like Ehlers-Danlos syndrome (clEDS) is very rare; although its exact prevalence is unknown, Orphanet classifies classical-like EDS type 1 as having a prevalence of less than 1 per 1,000,000, and GeneReviews reported 56 affected individuals from 44 families in the literature at the time of that review. Oral manifestations of EDS are recognized, but the dental phenotype of TNXB-related clEDS remains poorly defined. We report a 19-year-old patient in whom serial orthodontic imaging demonstrated progressive development of distomolars, prompting syndromic evaluation and molecular confirmation of clEDS.

Case report: A 19-year-old male underwent prolonged orthodontic treatment for transverse maxillary deficiency, crowding, distocclusion, and excessive overbite. Early treatment with a Schwarz appliance for 5 years was followed by 34 months of fixed appliance therapy. Initial panoramic imaging after Schwarz treatment showed normal eruption of permanent teeth and developing third molars, without supernumerary teeth. After 15 months of fixed treatment, bilateral maxillary distomolars became apparent, together with abnormal bony congestion behind tooth 28. By the end of active treatment, a third supernumerary tooth, a horizontally developing right mandibular distomolar, was visible. Orthodontic correction of the maxillary and mandibular arches was achieved and retention was instituted; however, the supernumerary teeth raised concern for future impaction, crowding, and relapse. Further assessment identified generalized joint hypermobility, skin hyperextensibility, thin translucent skin, easy bruising, and a Beighton score of 8/9. These combined dental and systemic findings prompted next-generation sequencing using a connective-tissue disorder panel, which confirmed TNXB-related classical-like EDS. Surgical management included closed extraction of tooth 28 without postoperative bleeding or delayed socket healing, while the remaining supernumerary teeth were scheduled for further staged management.

Conclusions: This case shows that multiple supernumerary teeth may represent more than an incidental orthodontic finding and can serve as a diagnostic trigger for an underlying hereditary connective-tissue disorder. The longitudinal radiographic course is particularly instructive because the supernumerary teeth were not detectable initially and declared themselves only during follow-up. For clinicians, the main lessons are that serial imaging matters, unexplained supernumerary teeth should prompt broader phenotypic assessment, and patients with TNXB-related clEDS may require coordinated orthodontic, surgical, and genetic management with prolonged surveillance.

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Treatment Planning and Management in a Complex Traumatic Dental Injury to an Immature Tooth 21

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Introduction: Traumatic dental injuries (TDIs) in immature permanent teeth present complex treatment planning and management considerations. Intrusive luxation, although uncommon, is among the most severe forms of TDI and is associated with a high incidence of pulpal necrosis, root resorption, and premature tooth loss. Diagnostic complexity increases when intrusive luxation occurs with crown-root fractures, which together occur even less frequently. Achieving a favourable prognosis while preserving aesthetics and function in growing paediatric patients requires long-term planning and a multidisciplinary approach involving conservative, surgical, orthodontic, and prosthodontic care.

Case report: A seven-year-old female presented to the clinic six months after a traumatic impact with concrete which resulted in intrusive luxation of the immature permanent maxillary left central incisor (tooth 21). A follow-up protocol was implemented to monitor for spontaneous extrusion. Upon extrusion of 21, a fracture line became visible on the palatal surface of the crown. Cone Beam Computed Tomography (CBCT) confirmed a fracture involving the palatal wall, root, and apex with extension into the pulp chamber. Despite the poor prognosis, endodontic treatment was performed, during which pulp canal obliteration was detected. Follow-up examinations revealed external replacement root resorption, however, this condition stabilized over time. Signs of chronic infection eventually developed, including fistula formation, increased mobility, periodontal deterioration, and loss of pulp vitality. Current treatment planning includes apical surgery or extraction followed by space maintenance, and future prosthetic or implant rehabilitation.

Conclusions: Combined intrusive luxation and crown-root fractures in immature teeth present significant diagnostic and management challenges. This complex TDI case demonstrates the importance of early dental intervention, careful clinical and radiographic monitoring, and collaboration among multiple dental specialties. The use of CBCT was particularly valuable as it allowed for detection of longitudinal fractures extending into the pulp that were not evident during initial assessment. Careful treatment planning, strict follow-up, patient cooperation, and an interdisciplinary approach are essential. The current treatment plan aims to preserve oral health, allow completion of craniofacial development, and restore dental function and aesthetics.

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Comprehensive Management of Concomitant Dental Subluxation and Extensive Caries in a Pediatric Patient: A Case Report

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Introduction: Traumatic dental injuries and early childhood caries are common findings in paediatric practice, yet their simultaneous occurrence presents diagnostic and therapeutic challenges. Coordinated management is essential to preserve pulp vitality, maintain arch integrity, and support normal development of the mixed dentition. This case report describes the comprehensive management of a child presenting with subluxation of the maxillary permanent incisors and extensive caries affecting multiple primary molars, highlighting the importance of staged treatment and long-term follow-up.

Case report: An 8-year-old male patient presented following a school-related trauma to the maxillary anterior region. Clinical examination revealed increased mobility of the permanent maxillary central incisors (11 and 21), with localized soft tissue swelling and tenderness. No extra-oral injuries were detected, and the patient was systemically healthy. Radiographic assessment demonstrated no crown or root fractures, root resorption, or alveolar bone injury. Pulp vitality tests were positive for both incisors, confirming a diagnosis of subluxation. Intraoral examination also identified extensive carious lesions in primary molars (54, 55, 64, and 65), with signs of pulpal involvement in selected teeth. Management of the traumatic injury was conservative and included irrigation with sterile saline and application of chlorhexidine gel (Elugel®). The patient was advised to maintain a soft diet and optimal oral hygiene. Carious primary molars were treated over several visits, incorporating pulpotomy procedures where indicated, followed by definitive restoration with glass-ionomer cement. Clinical and radiographic follow-up appointments were scheduled to monitor pulp vitality of the permanent incisors and periodontal healing.

Conclusions: The coexistence of dental subluxation and extensive caries requires careful prioritization and interdisciplinary planning. Immediate conservative management of subluxation, combined with systematic restorative and pulp therapy for primary teeth, enabled preservation of permanent incisor vitality and restoration of function. The use of antimicrobial topical support and glass-ionomer restorations contributed to favorable healing and caries control. Continuous clinical and radiographic monitoring remains essential in mixed dentition to detect late complications and ensure optimal long-term outcomes. This case underscores the importance of early intervention, comprehensive assessment, and structured follow-up in paediatric dental care.

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Recurrent Inflammatory Infiltration of the Nasal and Cheek Regions Caused by a Compound Odontoma: A Case Report

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Introduction: Ectopic and supernumerary teeth located within the nasal cavity are rare developmental anomalies that may present with nonspecific rhinological symptoms and therefore remain undiagnosed for prolonged periods. Their clinical manifestation may mimic inflammatory diseases of the nose and paranasal sinuses, which often delays the correct diagnosis. Odontomas are benign odontogenic hamartomas and according to the WHO classification they are divided into compound odontomas and complex odontomas.

Case report: A 49-year-old woman presented with recurrent inflammatory infiltration of the skin and soft tissues of the nasal dorsum and the left cheek. The patient was admitted urgently with a three-day history of progressive pain, swelling, erythema, and a sensation of pressure in the nasal and orbital regions accompanied by frontal headache. Laboratory tests demonstrated elevated inflammatory markers. The patient's medical history included ulcerative colitis, previously treated in a clinical trial involving a vedolizumab biosimilar, as well as steroid dependence and hypercholesterolemia. The patient also reported allergy to sorbitol and inhalant allergens, resulting in allergic rhinitis. Regular medication included mesalazine. The patient had previously undergone aesthetic procedures in the nasal region, including injections of botulinum toxin and poly-L-lactic acid. Physical examination revealed board-like swelling of the nasal pyramid with poorly demarcated erythema and gravitational edema without local warmth. Differential diagnosis included delayed inflammatory or immunological reaction, biofilm-related reaction, chronic granulomatous reaction, and actinomycosis. Computed tomography excluded traumatic lesions. CBCT revealed persistent paranasal sinus inflammation and a necrotic ectopic supernumerary tooth (mesiodens) at the base of the nasal septum, partially penetrating the hard palate and left nasal cavity, with crown hypoplasia. The lesion was surgically removed via an endoscopic intranasal approach, and histopathology confirmed a compound odontoma.

Conclusions: Ectopic supernumerary teeth within the nasal cavity are rare and often present with nonspecific inflammatory symptoms, which may delay diagnosis, especially in immunocompromised patients. Regular dental follow-up and the absence of detectable odontogenic inflammatory foci do not exclude the presence of ectopic teeth located outside the dental arch. Imaging, particularly cone-beam computed tomography (CBCT), is essential for identifying atypical odontogenic sources of sinonasal inflammation. Early diagnosis and surgical removal are crucial to prevent further complications.

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Recurrent luxations of an individual implant replacing the temporomandibular joint after resection due to rare periosteal chondroma – a case report.

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Introduction: Reconstruction of the mandibular condylar process is one of the most challenging procedures in maxillofacial surgery due to the complex anatomy of the temporomandibular joint and the proximity of the facial nerve. These difficulties are further amplified in cases involving proliferative lesions that require radical resection. Periosteal chondroma is a rare, benign mesenchymal tumor that only exceptionally affects the craniofacial region, yet may cause significant functional and aesthetic disturbances.

Case report: A 39-year-old male presented with progressive facial asymmetry and limited mouth opening. Radiological examination revealed marked enlargement of the left mandibular condyle. The patient underwent resection of the affected condylar process with immediate reconstruction using a patient specific temporomandibular joint endoprosthesis. The postoperative course was complicated by recurrent dislocations of the implant and transient facial nerve dysfunction. Management required repeated reductions, occlusal stabilization with intermaxillary fixation and individualized occlusal splint, intensive physiotherapy, and long-term follow-up. Histopathological examination confirmed the diagnosis of periosteal chondroma. Over time, gradual improvement in mandibular function, facial nerve recovery, and occlusal stability was achieved without evidence of tumor recurrence.

Conclusions: The temporomandibular joint plays a crucial role in mastication, speech and daily routine therefore, precise reconstruction after condylar resection is essential. Traditional autogenous grafts are limited by risks such as necrosis, ankylosis, unpredictable bone growth, and fracture. Advances in digital technologies, including CAD/CAM (Computer Aided Desig/Computer Aided Manufacturing) and virtual surgical planning, have enabled patient-specific TMJ implants that accurately restore anatomy and mandibular function, with long-term favorable outcomes reported. However, individualized implants remain associated with complications such as implant dislocation. Comprehensive rehabilitation, including physiotherapy and facial nerve monitoring, is crucial to optimize functional recovery and guarantee long-term success. Conclusions: Successful reconstruction of the mandibular condylar process after tumor resection requires meticulous preoperative planning, stable occlusal support, and coordinated collaboration among surgeons, prosthodontists, physiotherapists, and other specialists.