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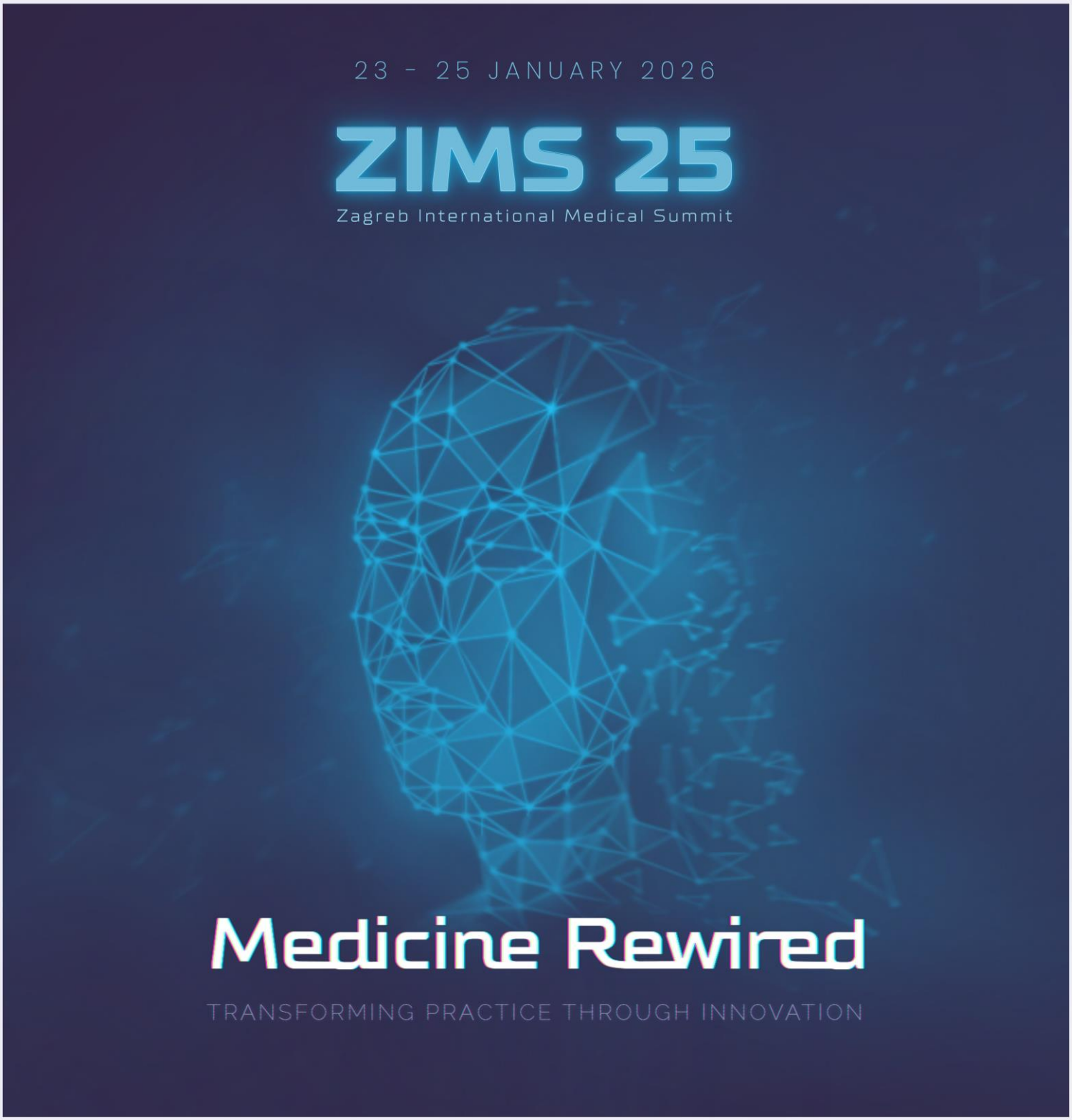

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ZIMS is an independent annual student congress organized by medical students from Zagreb University School of Medicine who are members of Croatian Medical Association – Student Section (SSCMA) and European Medical Students' Association Zagreb (EMSA Zagreb). Contributors from all fields of medicine and adjacent sciences are welcome to apply and post their Abstract, and Full-text articles for publishing

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https://doi.org/10.26800/LV-148-supl1-1

CR01 Hybrid Closed-Loop System as an Innovative Therapy in a Patient with Type 1 Diabetes and Gastroparesis: A Case Report

Daniela Vratonjić[1], Karla Šutalo[1], Anela Novak[2]
[1]School of Medicine, University of Split, Split, Croatia
[2]Division of Endocrinology, University Hospital Centre Split, Split, Croatia

Introduction: Achieving stable glycaemic control in patients with type 1 diabetes (T1D) and gastroparesis is particularly challenging due to unpredictable nutrient absorption and elevated hypoglycaemia risk. Hybrid closed-loop (HCL) systems represent a major therapeutic innovation, offering automated basal insulin delivery and improved safety. This report illustrates the clinical impact of the Medtrum TouchCare Nano system in a complex T1D case.

Case presentation: A 42-year-old man diagnosed with T1D in 2009, complicated by non-proliferative retinopathy, severe sensorimotor polyneuropathy and gastroparesis confirmed by gastric scintigraphy, was hospitalized in June 2025 for severe iatrogenic hypoglycaemia (1.1 mmol/L) following accidental administration of high doses of rapid-acting and long-acting insulin. Despite adherence to Tresiba and Fiasp therapy, glycaemic control remained suboptimal (time in range (TIR) 58%, time above range (TAR) 38%, time below range (TBR) 4%). Due to glycaemic instability, the Medtrum TouchCare Nano HCL system was initiated in September 2025 using Fiasp as the working insulin. During a control visit in November 2025, substantial improvement in glycaemic control was observed: TIR 88.6%, TBR 0.3%, glucose management indicator (GMI) 6.5%, coefficient of variation (CV) 26%. The patient reported reduced variability, better postprandial stability despite gastroparesis and a significantly increased sense of day-to-day safety.

Conclusion: This case demonstrates that HCL systems can achieve stable and safe glycaemic control even in highly challenging contexts such as diabetic gastroparesis. The Medtrum TouchCare Nano system reduced hypoglycaemia and significantly increased TIR, underscoring its value as an innovative therapeutic option in contemporary diabetology.

Keywords: Continuous Glucose Monitoring; Diabetes Mellitus, Type 1; Gastroparesis; Hypoglycemia; Insulin Infusion Systems

https://doi.org/10.26800/LV-148-supl1-2

CR02 **Ultrasound-Facilitated Catheter-Directed Thrombolysis: A Rapid and Effective Way to Treat Pulmonary Embolism**

Mia Kontuš[1], Zoran Miovski[2], David Gobić[1,2], Davorka Lulić[1,2]
[1]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[2]Clinic for Cardiovascular Diseases, Clinical Hospital Centre Rijeka, Rijeka, Croatia

Introduction: Ultrasound-assisted catheter-directed thrombolysis (USCDT) is an interventional procedure used to treat acute pulmonary embolism (PE) in selected patients. It combines low-energy ultrasound waves with local thrombolytic distribution, dissociating fibrin strands and enabling effective thrombolysis at lower doses. It rapidly reduces right ventricular strain and has a lower risk profile than systemic thrombolysis (ST), which carries major bleeding complications in up to 20% of cases. This case report highlights the importance of novel techniques in cardiopulmonary emergencies.

Case presentation: A 41-year-old previously healthy woman complained of a painful left calf. Examination revealed deep vein thrombosis of the left popliteal vein. Her pregnancy test was positive, and a gynaecological examination confirmed an 8-week intrauterine pregnancy. Low-molecular-weight heparin was introduced. On day three, she developed chest pain and presyncope, raising suspicion of PE. Invasive "low-dose" pulmonary angiography revealed thrombotic occlusions, and immediate USCDT was performed. Two infusion catheters were inserted, each primed with 2 mg of alteplase, followed by continuous infusion of 1 mg/h alteplase for 9 hours. The procedure was completed without complications and with minimal radiation exposure. Echocardiography showed no signs of right ventricular strain or increased pulmonary pressures. The patient ultimately decided to terminate the pregnancy. She was discharged on enoxaparin during pregnancy and was later switched to rivaroxaban.

Conclusion: Although ST is effective in high-risk patients, its benefits are limited by substantial bleeding risk. Pharmacomechanical approaches like USCDT aim to preserve therapeutic efficacy while reducing adverse events, especially in special circumstances such as pregnancy.

Keywords: Catheters; Mechanical Thrombolysis; Pregnancy; Pulmonary Embolism

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CR03 **An Unusual Cause of Hypokalemia in a Surgical Patient**

Laura Barta[1], Ivan Blaće[1], Leona Butijer[1], Ivan Gornik[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Emergency Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Nonsteroidal anti-inflammatory drugs (NSAIDs) are widely used for pain management and are generally considered safe. Rarely, prolonged high-dose use may lead to renal tubular dysfunction and hypokalemia, resulting in muscle weakness, cardiac arrhythmias, and other serious complications.

Case presentation: We report the case of a 56-year-old female who presented with an infected surgical wound following hip surgery, associated with pain, difficulty walking, and fever. The wound was drained, a swab was obtained, and antibiotic therapy was initiated. Routine laboratory tests revealed severe hypokalemia, prompting arterial blood gas analysis, which showed metabolic acidosis (pH 7.29) and hypokalemia (potassium 2.5 mmol/L). Further evaluation demonstrated preserved glomerular function. Detailed history revealed prolonged ibuprofen use, with a total of 60 tablets taken over the previous 20 days. Based on these findings, a diagnosis of renal tubular acidosis with hypokalemia secondary to ibuprofen toxicity was made. Aggressive potassium supplementation was initiated via a central venous catheter, with 154 mmol administered on the first day. Over the subsequent nine days, serum potassium was monitored daily and supplemented with gradually decreasing doses as tubular function recovered, resulting in a cumulative dose of 1480 mmol. Continuous ECG monitoring was maintained due to the risk of arrhythmias. At discharge, serum potassium was 3.5 mmol/L, and oral potassium supplementation was prescribed until follow-up with her primary care physician.

Conclusion: This case highlights a rare but serious complication of prolonged high-dose NSAID use, demonstrating the importance of electrolyte monitoring, timely potassium supplementation, and patient education to prevent potentially life-threatening outcomes.

Keywords: Acidosis, Renal Tubular; Anti-Inflammatory Agents, Non-Steroidal; Emergency Medicine; Hypokalemia

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CR04 Acute Memory Disturbance Associated with a Hippocampal Lesion in an Older Patient

Matea Kostić[1], Jana Jelinić[2], Andrea Kostić[3], Sven Lasta[4]
[1]Health Centre Zagreb – Istok, Zagreb, Croatia
[2]Andrija Štampar School of Public Health, Zagreb, Croatia
[3]Institute of Emergency Medicine of the Karlovac County, Karlovac, Croatia
[4]Department of Neurology, Clinical Hospital Dubrava, Zagreb, Croatia

Introduction: Hippocampal ischemia is an uncommon yet clinically significant cause of acute memory disturbance. Isolated hippocampal infarcts account for less than one percent of ischemic strokes and often present with impaired retrieval of recent episodic memories, while orientation and broader cognitive functions remain preserved. Early magnetic resonance imaging is essential, as these small lesions frequently remain undetected on computed tomography.

Case presentation: A 65-year-old woman was admitted after relatives observed an acute episode of confusion. During neurological examination, she was alert and oriented in time and place, with intact language and no focal neurological deficits. However, she displayed marked retrograde amnesia of recent events, unable to recall activities and interactions from the preceding days. Laboratory findings were largely unremarkable, except for mildly elevated blood lipids. Computed tomography of the brain showed no acute abnormalities. Magnetic resonance imaging revealed a four-millimeter hyperintense focus in the left hippocampal body, with diffusion restriction, consistent with an acute ischemic lesion of the hippocampus. Carotid ultrasonography demonstrated mild atherosclerotic plaque, without hemodynamically significant narrowing. Her confusion resolved during hospitalization, whereas partial memory impairment persisted. She was discharged with antiplatelet and lipid-lowering therapy and provided with recommendations for vascular risk management.

Conclusion: This case highlights that even small hippocampal ischemic lesions may cause disproportionate episodic memory disturbance while sparing orientation and general cognition, a pattern consistent with previously described isolated hippocampal infarcts. Early magnetic resonance imaging is crucial for accurate diagnosis in patients presenting with acute amnestic symptoms.

Keywords: Amnesia, Retrograde; Hippocampus; Ischemia; Magnetic Resonance Imaging

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CR05 Restoring Continence After Suppurative Meningitis: First Report in Croatia of Combined Sacral Neuromodulation and Intravesical Botulinum Toxin A Therapy

Lucija Vrbanc[1], Ema Vrdoljak[1], Mirko Bakula[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Urology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Suppurative meningitis (SM) is a bacterial infection of the meninges characterized by purulent inflammation within the subarachnoid space and cerebrospinal fluid. It may result in long-term neurological complications, including urinary (UI) and fecal incontinence (FI). These complications significantly impair patients' quality of life (QoL) and represent a therapeutic challenge, as standard treatment options are often insufficient. Sacral neuromodulation (SNM) is a modern technique that uses electrical stimulation of a sacral nerve root to modulate neural pathways and has shown promising results in refractory cases of incontinence.

Case presentation: A female patient with a history of SM subsequently developed severe UI, requiring up to eight pads per day. Urodynamic evaluation revealed detrusor overactivity associated with UI and a reduced bladder capacity of 100 mL. The patient also reported FI, which further impaired her QoL. Pharmacological treatment provided no significant benefit. In 2024, a permanent SNM device was implanted, resulting in significant improvement in UI, with pad use reduced to a maximum of two per day, and FI resolved completely. Additionally, intravesical botulinum toxin A (BoNT-A) injection was administered, leading to further improvement in UI. At follow-up, the patient reported complete resolution of UI and FI.

Conclusion: This case illustrates a rare neurological complication of SM resulting in combined UI and FI. To our knowledge, this is the first reported case in Croatia successfully treated with permanent SNM combined with intravesical BoNT-A. This therapeutic approach resulted in complete symptom resolution and a significant improvement in the patient's QoL.

Keywords: Botulinum Toxins, Type A; Electric Stimulation Therapy; Fecal Incontinence; Implantable Neurostimulators; Meningitis, Bacterial; Urinary Incontinence

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CR06 **Idiopathic Parkinson's Disease in a Patient with Bipolar Disorder**

Ivan Blaće[1], Laura Barta[1], Josip Bartaković[1], Leona Butijer[1], Ivana Jurjević[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Neurology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Idiopathic Parkinson's disease (PD) is a progressive neurodegenerative disorder caused by degeneration of dopaminergic neurons, leading to dopamine deficiency in the basal ganglia. Bipolar disorder (BD) is a chronic psychiatric illness characterized by mood and energy fluctuations, with dopaminergic dysregulation playing a key role. The shared involvement of dopamine makes treating patients with both conditions particularly challenging, as pharmacotherapy for one disorder may exacerbate the other.

Case presentation: A 64-year-old woman with a long-standing diagnosis of BD was referred for neurological evaluation after a neurosurgeon observed a shuffling gait during assessment for lumbosacral pain. Her current psychiatric treatment included lithium, lamotrigine and duloxetine. She had previously been treated with aripiprazole, after which she began to experience fatigue and muscle rigidity. Neurological examination revealed classic parkinsonian features, including micrographia, bilateral hand tremor and increased muscle tone in the left arm with cogwheel rigidity. A clinical diagnosis of PD was established, later confirmed by dopamine transporter single-photon emission computed tomography (DaTscan). Treatment with levodopa/carbidopa was initiated, with avoidance of antipsychotics except quetiapine and clozapine. Motor symptoms improved significantly following therapy. However, in recent months, the patient required more frequent hospitalizations due to BD exacerbations, prompting a slight reduction in levodopa/carbidopa dosage and close psychiatric and neurological follow-up.

Conclusion: This case underscores the importance of multidisciplinary collaboration and careful pharmacological balance in patients with PD and psychiatric comorbidities. Locomotor symptoms may initially lead patients to non-neurological consultations, delaying diagnosis. Given the contraindications of certain PD and psychiatric medications, regular coordinated follow-up is essential to optimize outcomes.

Keywords: Bipolar Disorder; Comorbidity; Drug Therapy; Interdisciplinary Communication; Parkinson Disease

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CR07 **Less is More: Bioresorbable Scaffolds in Coronary Occlusion**

Nika Šašić[1], Luka Leko[1], Jana Šinka[1], Jozica Šikić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Heart and Vascular Diseases, Clinical Hospital Sveti Duh, Zagreb, Croatia

Introduction: Metallic coronary stents have significantly improved the treatment of coronary artery disease by restoring vessel patency and relieving ischemic symptoms. Nevertheless, complications such as in-stent restenosis and stent thrombosis remain clinically relevant. For this reason, bioresorbable scaffolds (BRS) were developed to provide temporary mechanical vessel support followed by gradual resorption, thereby avoiding a permanent intravascular implant. Although earlier-generation bioresorbable vascular scaffolds were associated with inferior outcomes, newer-generation devices demonstrate improved safety, visibility, and mechanical performance.

Case presentation: A 76-year-old patient with a positive family history of myocardial infarction and sudden cardiac death presented with retrosternal chest pain. Electrocardiography confirmed non–ST-elevation myocardial infarction. Echocardiography revealed hypokinesis of the apicolateral segment with a left ventricular ejection fraction of 45%. Coronary angiography showed a thrombotic subocclusion of the mid-segment of the left anterior descending artery. Percutaneous coronary intervention (PCI) was performed using a Fantom sirolimus-BRS. Several months later, the symptoms recurred. Repeat coronary angiography showed patency of the previously implanted BRS and a „de novo" lesion in the proximal segment, requiring a second PCI with implantation of an additional Fantom scaffold. After one year, the patient was free of precordial chest pain. Repeat coronary angiography showed excellent patency of the implanted BRSs, optical coherence tomography (OCT) demonstrated early scaffold resorption without evidence of restenosis or thrombosis.

Conclusion: The "leave nothing behind" strategy using next-generation BRS aims to restore physiological coronary function, support long-term vascular healing, and reduce complications associated with permanent metallic implants in contemporary interventional cardiology.

Keywords: Absorbable Implants; Coronary Artery Disease; Drug-Eluting Stents; Percutaneous Coronary Intervention

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CR08 **Parotid Region Mass as the Initial Presentation of Human Papillomavirus-Associated Oropharyngeal Cancer**

Niko Grebenar[1], Katarina Domjanović[1], Filip Ivančan[2], Borna Kufner[1], Renata Božinović[3]
[1]Faculty of Medicine Osijek, J. J. Strossmayer University of Osijek, Osijek, Croatia
[2]Department of Gastroenterology and Hepatology, University Hospital Centre Osijek, Osijek, Croatia
[3]Department of Pulmonology, University Hospital Centre Osijek, Osijek, Croatia

Introduction: Squamous cell carcinoma is a malignant epithelial tumor that may involve the parotid gland as a metastatic rather than a primary lesion. Human papillomavirus–associated oropharyngeal squamous cell carcinoma may present with lymph node metastases while the primary tumor remains clinically occult. This case is significant because it demonstrates an uncommon initial presentation and diagnostic difficulty.

Case presentation: A 60-year-old woman presented with a tender left infraauricular mass. Ultrasound examination revealed a well-circumscribed, hypoechoic, vascularized lesion adjacent to the left parotid gland. Fine-needle aspiration cytology suggested a possible Warthin tumor; however, malignancy could not be excluded. Subtotal parotidectomy with level II lymph node removal was performed. Histopathological examination revealed poorly differentiated squamous cell carcinoma. Immunohistochemical analysis confirmed squamous differentiation, and the presence of surrounding lymphoid tissue suggested metastasis to an intraparotid lymph node rather than a primary parotid tumor. As no primary tumor was identified initially, further diagnostic evaluation was undertaken. Positron emission tomography combined with computed tomography revealed increased uptake of fluorodeoxyglucose in the left oropharyngeal region. Subsequent left tonsillectomy and modified radical neck dissection confirmed human papillomavirus–associated squamous cell carcinoma of the left tonsil with p16 positivity, staged as pathological tumor stage 1 with multiple cervical lymph node metastases. The patient received adjuvant radiotherapy with concurrent cisplatin chemotherapy. Follow-up ultrasound showed no evidence of disease recurrence.

Conclusion: Squamous cell carcinoma involving the parotid gland should prompt investigation for metastatic disease. Early use of positron emission tomography and multidisciplinary management is crucial in identifying occult human papillomavirus–associated oropharyngeal tumors.

Keywords: Carcinoma, Squamous Cell; Oropharyngeal Neoplasms; Papillomavirus Infections; Parotid Gland

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CR09 **No Trauma? More Drama! – A Case Report on Atraumatic Splenic Rupture**

Ana Prica[1], Anita Božičević Vadlja[1]
[1]Department of Emergency Medicine, University Hospital Centre Osijek, Osijek, Croatia

Introduction: Atraumatic splenic rupture (ASR) is a rare clinicopathological entity yet to be properly defined. ASR was first described by Rokitansky in 1861 in 2 leukemia patients. It is most commonly associated with infectious diseases, other times with hematologic or neoplastic disorders. ASR has been reported to present with thoracic spine visceral referral pain, abdominal pain with radiation to the back and hemodynamic instability.

Case presentation: A 41-year-old male patient presented to the emergency department in January 2023 with sudden onset pain under the left rib cage spreading to the lumbar region. He denies any physical trauma. During his examination, he collapsed on two occasions and was put under observation and monitored. An emergency X-ray of the thorax and abdomen was unremarkable; however, the laboratory blood test showed elevated D-dimer levels. Then, an emergency computer tomography of the aorta was recommended. It ruled out aortic dissection and rupture, but the radiologist found fluid collection around the spleen and liver alongside splenomegaly with possible splenic rupture. After receiving Plasmalyte and 40% Voluven intravenously, the on-call abdominal surgeon was consulted and emergency surgery was performed. A sample of the spleen parenchyma was sent for pathohistological analysis and Castleman's disease was confirmed. Later serological testing showed mononucleosis.

Conclusion: The prognosis of ASR is related to the underlying condition. ASR is considered an underrated cause of acute abdomen. In the emergency department, it is important to think of the "horses" of differential diagnoses and do both radiological and laboratory diagnostics in order to see the full picture.

Keywords: Abdominal Pain; Castleman Disease; Emergency Medical Services; Splenic Rupture

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CR10 **Life-Threatening Adenoviral Pneumonia Managed with Veno-Venous Extracorporeal Membrane Oxygenation in an Adult Patient: A Case Report**

Katarina Domjanović[1], Niko Grebenar[1], Maja Bogdan[2], Marijan Orlović[2], Damir Mihić[3]

[1]Faculty of Medicine Osijek, J. J. Strossmayer University of Osijek, Osijek, Croatia

[2]Department of Microbiology, Parasitology and Clinical Laboratory Diagnostics, Faculty of Medicine Osijek, J. J. Strossmayer University of Osijek, Osijek, Croatia

[3]Department of Pulmonology and Intensive Care of Internal Medicine Patients, University Hospital Centre Osijek, Osijek, Croatia

Introduction: Adenoviruses are common causes of respiratory infections, which in most cases have a self-limiting course. However, in rare situations, they can lead to severe pneumonia, acute respiratory distress syndrome (ARDS), and sepsis, requiring treatment in intensive care units.

Case presentation: This case presents a 35-year-old man with a history of type 2 diabetes mellitus and dyslipidemia who presented with a several-day history of febrile illness accompanied by dry cough, generalized weakness, and progressive dyspnea. Despite initial symptomatic treatment and empirical antibiotic therapy, the patient experienced rapid clinical deterioration and was hospitalized due to severe pneumonia and respiratory failure. On admission, hypoxemia and signs of systemic inflammatory response were noted, prompting initiation of broad-spectrum antibiotics and corticosteroids. Due to further deterioration of respiratory status, the patient was initially managed with non-invasive mechanical ventilation, followed by endotracheal intubation and invasive mechanical ventilation. Despite maximal ventilatory settings, he developed severe refractory hypoxemia with respiratory acidosis, fulfilling the criteria for ARDS. Molecular testing of bronchoalveolar lavage fluid confirmed adenovirus infection. Owing to the inability to achieve adequate oxygenation, veno-venous extracorporeal membrane oxygenation (VV-ECMO) was initiated and maintained for five days. During ECMO support, the patient was sedated, pharmacologically paralyzed, and mechanically ventilated. Following gradual improvement in respiratory function, the patient was successfully extubated, and further treatment resulted in complete clinical stabilization.

Conclusion: This case highlights the potentially severe and unpredictable course of adenoviral infection. Early recognition of clinical deterioration and timely implementation of advanced intensive care therapies, including ECMO, may be crucial for survival and favorable outcomes.

Keywords: Adenoviridae Infections; Extracorporeal Membrane Oxygenation; Pneumonia, Viral; Respiratory Distress Syndrome

https://doi.org/10.26800/LV-148-supl1-11

CR11 **Be Creative, Keep It Native: Right Atrial Appendage Valve in Tetralogy of Fallot**

Niko Jukić[1], Bruno Ban[1], Iva Predovan[1], Hrvoje Gašparović[2], Željko Đurić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Cardiac Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Tetralogy of Fallot (TOF) is the most common cyanotic congenital heart defect. It consists of a ventricular septal defect, overriding aorta, right ventricular outflow tract (RVOT) obstruction, and right ventricular hypertrophy. In patients with small pulmonary annuli and dysplastic pulmonary valves (PV), valve excision with transannular patch (TAP) is required to widen the RVOT. Chronic pulmonary regurgitation (PR) remains the biggest long-term risk for these patients. Herein, we describe a novel technique for creating PV in patients with TAP using right atrial appendage (RAA) tissue.

Case presentation: In three infants with TOF, complete correction was performed with TAP and neo-pulmonary valve. All patients had dysplastic, irreparable pulmonary valves. Following a median sternotomy, cardiopulmonary bypass was established, and the heart was arrested in diastolic cardiac arrest. The ventricular septal defect was closed using a bovine pericardial patch, and the RVOT obstruction was resected. After careful inspection, the pulmonary valve was deemed irreparable. Hence, leaflets were excised, and the incision was extended into the PV annulus. RAA was harvested, and the right atrial defect was closed with a running suture. A bileaflet, symmetrical valve was created from the RAA and sutured in the RVOT. TAP was used to close the RVOT. At one-year follow-up, all patients are free from moderate PV regurgitation and PV stenosis.

Conclusion: The treacherous fate of the PV in patients with TOF often requires multiple surgical interventions over their lifetime. This novel technique provides patients with an autologous, biological valve with excellent hemodynamics. Long-term results are yet to be reported.

Keywords: Atrial Appendage; Pulmonary Valve; Tetralogy of Fallot; Transplantation, Autologous

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CR12 **A Spinal Tumor or Tuberculous Spondylodiscitis: A Case Report**

Valentin Horvatić[1], Darko Perović[2]
[1]Specialist Practice in Family Medicine Suzana Kosovec, Zagreb, Croatia
[2]University Hospital Dubrava, Department of Orthopedics and Traumatology, Zagreb, Croatia

Introduction: Tuberculosis is an infectious disease caused by Mycobacterium tuberculosis. The most common form is pulmonary tuberculosis, but it can also affect other organs in an extrapulmonary form. Tuberculous spondylodiscitis is a spinal infection caused by hematogenous dissemination of tuberculosis bacilli.

Case presentation: A 48-year-old Asian man presented to the emergency room with pain in the thoracic region. Physical examination revealed tenderness on palpation at the thoracolumbar junction. Blood tests and a chest X-ray were normal and the patient had no respiratory symptoms. Computed tomography of the thorax, abdomen and pelvis revealed osteolytic lesions of the ninth (T9) and tenth (T10) vertebrae. A percutaneous vertebral biopsy as well as an open vertebral biopsy performed during surgical fixation of the thoracic spine did not reveal any tumor tissue. A few weeks later, the patient reported weight loss and fever at night without respiratory symptoms. Further diagnostic evaluation revealed edematous changes with gas inclusions in the paravertebral musculature and subcutaneous adipose tissue, raising suspicion of spondylodiscitis. Due to a newly developed lytic lesion of the T11 vertebral body, surgical removal of the previously placed fixation implant was necessary. Intraoperative tissue samples were analysed microbiologically and by polymerase chain reaction, confirming a Mycobacterium tuberculosis infection. A two-month course of four-drug antituberculous therapy was initiated. The patient is currently under regular follow-up.

Conclusion: Tuberculous spondylodiscitis should be considered in the differential diagnosis of spinal neoplasms, particularly in patients from countries with a high incidence of tuberculosis. This case demonstrates that tuberculosis can present even without respiratory symptoms.

Keywords: Biopsy; Mycobacterium tuberculosis; Polymerase Chain Reaction; Spinal Neoplasms; Tuberculosis, Spinal

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CR13 Advanced Non-Oral Treatment Method for Complex Parkinson's Disease Using a Levodopa/Carbidopa/Entacapone Pump

Anja Ritz[1], Lucija Ribić[1], Srđana Telarović[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Neurology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Parkinson's disease (PD) is a chronic, progressive neurodegenerative disorder characterized by motor and non-motor symptoms due to loss of dopaminergic neurons in the substantia nigra. Treatment is aimed at alleviating symptoms and improving functional ability through dopamine replacement or modulation of dopaminergic neurotransmission. In advanced stages of the disease, the classical approach using oral medications is replaced by more invasive systems of continuous dopaminergic stimulation. Among newer therapeutic options, the levodopa/carbidopa/entacapone (LCE) pump is used, enabling continuous intrajejunal drug administration and reducing motor fluctuations.

Case presentation: A 44-year-old man presented to the neurological outpatient clinic in 2015 with a resting tremor of the left hand and clumsiness of the left leg, present for approximately 10 years. After initiation of dopaminomimetic therapy (pramipexole, selegiline), he experienced improvement. However, due to subsequent disease progression, levodopa was introduced into the treatment regimen. Since then, he has been followed regularly, and in 2023 he reported worsening tremor of the left hand and gait difficulties. He also developed a resting tremor of the right hand, hypomimia, and bradykinesia. Due to progression of symptoms, an LCE pump was implanted in January 2023 via a PEG/PEJ tube, providing continuous drug administration. This was followed by significant clinical improvement.

Conclusion: The progressive nature of PD requires ongoing adjustment of therapy to maintain functional capacity and quality of life. The development of innovative therapeutic approaches, such as the LCE pump, enables more stable dopaminergic stimulation and more effective management of motor fluctuations in advanced stages of the disease.

Keywords: Carbidopa; Dopamine; Levodopa; Neurodegenerative Diseases; Parkinson Disease

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CR14 Successful Kidney Transplantation into a Pre-Existing Bricker Ileal Conduit: A Case Report

Jelena Mrkić[1], Matija Radizlović[1], Dean Markić[2]
[1]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[2]Department of Urology, University Hospital Centre Rijeka, Rijeka, Croatia

Introduction: Kidney transplantation into a pre-existing Bricker ileal conduit represents a viable surgical option for patients with end-stage renal disease (ESRD) and urinary diversion following cystectomy. Although technically demanding, this approach can provide effective urinary drainage and satisfactory long-term graft function when performed with appropriate surgical technique.

Case presentation: A 53-year-old male with ESRD, on hemodialysis since May 2017, was evaluated for kidney transplantation. His history included radical cystectomy with ileal conduit diversion (Bricker procedure) for infiltrative urothelial carcinoma. Pre-transplant assessment confirmed advanced renal impairment (serum creatinine 832 µmol/L). The next day patient underwent deceased donor kidney transplantation. The right kidney was placed heterotopically into the left iliac fossa. Vascular anastomoses were performed to the external iliac artery and vein. The transplant ureter was anastomosed directly to the existing ileal conduit using a terminolateral, non-refluxing technique. The postoperative course was uncomplicated from a surgical perspective. Immunosuppression followed a standard protocol, and antibiotic therapy was administered for a preoperative urine culture positive for Enterococcus faecium. Doppler ultrasonography demonstrated satisfactory graft perfusion with a resistive index of 0.65. Renal function improved promptly, with serum creatinine declining to 119 µmol/L, at which point the patient was discharged home in stable condition.

Conclusion: This case reinforces that kidney transplantation into a pre-existing ileal conduit is a safe and technically feasible procedure with excellent early outcomes. The successful graft function observed here argues for the equal prioritization and active inclusion of patients with urinary diversion on renal transplant waiting lists.

Keywords: Anastomosis, Surgical; Graft Survival; Kidney Transplantation; Urinary Diversion

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CR15 Next Generation Sequencing in Myelodysplastic Syndrome Treatment Decisions – New Era Has Come

Lana Paulić[1], Klara Pintarić[1], Inga Mandac Smoljanović[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Hematology, University of Zagreb, Zagreb, Croatia

Introduction: Myelodysplastic syndromes (MDS) are group of clonal hematopoietic stem cell disorders characterized by ineffective hematopoiesis, bone marrow dysplasia, and cytopenias, which can progress to acute myeloid leukemia. Genetic mutations, particularly in ASXL1 and FLT3, strongly influence prognosis and guide treatment decisions. Next-generation sequencing (NGS) is a valuable tool for detecting these mutations simultaneously, providing essential information for diagnosis, prognostication, therapy, and disease monitoring.

Case presentation: A 62-year-old male with multiple comorbidities underwent hematologic evaluation in December 2021. Bone marrow biopsy showed 44% sideroblasts, multilineage dysplasia, and 5% CD34+ immature cells, consistent with MDS with increased blasts-1 (MDS-IB-1). By June 2022, MDS-IB-1 persisted with a normal karyotype and low International Prognostic Scoring System (IPSS) risk; no treatment was started. The patient gradually became transfusion-dependent, requiring erythrocyte transfusions every 3–4 months, with persistent leukopenia and thrombocytopenia. Due to hematologic progression and higher transfusion burden, the patient underwent reevaluation. In March 2024, NGS identified high-risk somatic mutations (ASXL1 VAF 30% and FLT3 c.970G>A VAF 45.5%), upgrading his risk to high by IPSS-Molecular and intermediate by IPSS-Revised. He was evaluated for allogeneic stem cell transplantation (ASCT) and underwent haploidentical SCT from his son.

Conclusion: Effective management of MDS relies on comprehensive genetic profiling to identify high-risk mutations that inform prognosis and guide treatment decisions. NGS enables the simultaneous detection of these mutations, supporting accurate risk stratification and timely therapeutic planning. Given the disease's progressive and highly individualized course, a personalized treatment approach is essential because some patients may benefit from ASCT as the only curative treatment.

Keywords: High-Throughput Nucleotide Sequencing; Mutation; Myelodysplastic Syndromes; Stem Cell Transplantation

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CR16 **Attention Deficit Hyperactivity Disorder in a Child with Nijmegen Breakage Syndrome: A Rare Syndrome-Associated Presentation**

Jana Jelenić[1], Helena Vukoja[2], Martina Mičić[1], Dora Cesarec[1]
[1]Department of School and Adolescent Medicine, Andrija Štampar Teaching Institute of Public Health, Zagreb, Croatia
[2]Elementary School Retkovec, Zagreb, Croatia

Introduction: Nijmegen Breakage Syndrome (NBS) is a rare autosomal recessive disorder caused by NBN gene pathogenic variants, leading to defective DNA repair and chromosomal instability. Most prevalent in Slavic populations, NBS typically presents within the first year of life with microcephaly, growth retardation, and immunodeficiency. Patients frequently exhibit neurological and/or cognitive deficits and have a higher risk of malignancies. Behavioral manifestations such as hyperactivity and attention deficit are seldom described.

Case presentation: A 7-year-old male with NBS was evaluated prior to school enrollment. He was born at term following a complicated pregnancy with low birth weight. Combined immunodeficiency was detected at 3 months of age during a respiratory infection, and genetic testing confirmed NBS. Early life was characterized by frequent infections, now regulated with immunoglobulin therapy. He has undergone continuous habilitation since infancy. Clinical examination revealed microcephaly, growth retardation, absence of gross neurological deficits, and increased motor activity with inattention suggestive of attention deficit hyperactivity disorder (ADHD). The latter prompted further evaluation. Follow-up MRI revealed progressive bilateral frontal lobe atrophy with loss of gray and white matter, with physiological EEG. Psychological assessment showed average intellectual abilities, alongside hyperactivity, significant attention deficits, impulsivity, and emotional immaturity, consistent with ADHD diagnosis confirmed by a psychiatrist. He now attends regular school with special needs education program.

Conclusion: Neurological and cognitive impairments are prevalent in NBS, whereas ADHD-like features remain insufficiently quantified. This case describes ADHD within the clinical phenotype of NBS. Early recognition and multidisciplinary management of ADHD symptoms in NBS enhances quality of life and well-being.

Keywords: Attention; Attention Deficit Disorder with Hyperactivity; Cognitive Dysfunction; Neurodevelopmental Disorders; Neurologic Manifestations; Nijmegen Breakage Syndrome

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CR17 **Precision Technology in Use: Video-Assisted Thoracoscopic Surgery for an Aorta-Adherent Ganglioneuroma**

Katarina Toljan[1], Anamarija Tubikanec[1], Nora Vukoja Trošić[1], Marta Tučkar[1], Tomislav Bečejac[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Video-assisted thoracoscopic surgery (VATS) is a minimally invasive technique in thoracic surgery. It allows controlled dissection within narrow mediastinal spaces. It's especially valuable when treating tumours involving neurogenic structures where thoracotomy would carry higher risk. Challenging cases such as this one demonstrate how technology and surgery work together to improve precision.

Case presentation: A 54-year-old woman with a history of nephrolithiasis and partial left nephrectomy for pT1 clear-cell renal carcinoma, was referred for evaluation of a left posterior mediastinal mass. Given her oncologic history, the possibility of a syndrome-related or second primary tumour was considered. The lesion appeared benign on initial computed tomography (CT) scan, remained radiologically stable for six months, but later showed increased paravertebral uptake on positron emission tomography (PET/CT). A tumour board recommended left VATS resection. CT aortography confirmed a likely neurogenic origin and excluded vascular involvement, though the mass was tightly adherent to the descending thoracic aorta, raising concern for complications. Soon after, a left lateral VATS approach enabled complete excision of the 7-cm tumour. The procedure ended without complications or neurological deficits. The patient recovered quickly and was discharged from the hospital on postoperative day three. Pathology confirmed a ganglioneuroma.

Conclusion: This case illustrates how technology aids in the safe removal of complex mediastinal tumors. With less pain, fewer complications, faster recovery, and shorter hospital stay, VATS is the gold standard for benign neurogenic lesions such as this one. This is demonstrated here by a highly controlled excision performed without adverse events and with a rapid postoperative recovery.

Keywords: Ganglioneuroma; Mediastinal Neoplasms; Minimally Invasive Surgical Procedures; Thoracic Surgery, Video-Assisted

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CR18 **Expanding the Boundaries of Minimally Invasive Surgery: A Case of Robotic-Assisted Whipple Procedure**

Veronika Bičak[1], Marija Bačlija[1], Josip Basić[1], Petar Matošević[2], Emil Kinda[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Pancreaticoduodenectomy, or the Whipple procedure, is the standard surgery for tumors of pancreatic head and is considered one of the most complex operation in general surgery. Robotic platforms enhance visualization and dexterity and by that enable the performance of complex procedures with greater precision.

Case presentation: We present a case of a 56-year-old man with adenocarcinoma of the common bile duct and pancreatic head who underwent robotic-assisted Whipple procedure. Patient initially presented with painless jaundice, pruritus and excessive sweating. Imaging showed a stenosing process of distal choledochus with dilatation of intrahepatal and extrahepatal bile ducts as well as the pancreatic duct. Surgical procedure was indicated. Given the complexity of the case, the procedure was performed using the da Vinci robotic platform. A six-port configuration was selected: four 8 milimeter torcars were placed transversely above the umbilicus, one 10 milimeter assistant's trocar for AirSeal system and a 5 milimeter working trocar. Surgery lasted 10 hours. The pathological specimen was classified as pT2N0, G0, R0 with negative resection margins. The postoperative course in the intensive care unit was complicated by an acute pulmonary embolism, which resolved with anticoagulant therapy.

Conclusion: Minimally invasive surgery offers well-known advantages, including decreased need for blood products and postoperative analgesia, earlier mobilization, shorter hospitalization and a better cosmetic outcome. The design of the da Vinci system further enables precise resection while minimizing tissue trauma, making robotic-assisted pancreaticoduodenectomy a suitable and safe approach for patients with pancreatic head malignancies. Although complications may occur, they can be effectively managed.

Keywords: General Surgery; Pancreatic Neoplasms; Pancreaticoduodenectomy; Robotic Surgical Procedures

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CR19 **Eosinophils Unbound: A Rare Case of Late-Onset Hypereosinophilic Syndrome Unmasked by Progressive Respiratory Decline**

Ivona Vrbančić[1], Petra Forić[1], Marija Gomerčić Palčić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Pulmonology, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Hypereosinophilic syndrome (HES) encompasses a heterogeneous group of rare disorders characterized by persistent eosinophilia (>1500/μL) and eosinophil-mediated end-organ injury. Clinical presentation varies from nonspecific constitutional symptoms to cardiologic, pulmonary, dermatologic and neurologic involvement, depending on the extent of tissue infiltration.

Case presentation: A 74-year-old male with eosinophilic late-onset asthma presented with dyspnea, chronic cough, and periauricular subcutaneous lesion. Laboratory testing revealed marked eosinophilia (5000/μL). Serology for parasitic infections was negative, whereas Epstein–Barr virus (EBV) serology indicated active infection. Spirometry demonstrated reduced forced expiratory volume in 1 second (57%). Thoracic computed tomography showed bilateral segmental and subsegmental bronchial dilatation with wall thickening and intraluminal secretions. A prominent "tree-in-bud" pattern in the right lower lobe suggested small-airway inflammation. Bone marrow biopsy confirmed HES. Treatment was intensified to triple inhaler therapy (Corticosteroids/Long-Acting Beta-Agonists/Long-Acting Muscarinic Antagonists) alongside oral corticosteroids (OCS), resulting in significant clinical improvement. However, OCS therapy precipitated EBV reactivation and consequent severe immune thrombocytopenia, which was effectively treated with intravenous immunoglobulins and avatrombopag. After tapering OCS, eosinophil counts rose, spirometry declined and dry cough reappeared. Mepolizumab (100 mg subcutaneously every 4 weeks) was subsequently initiated, achieving complete eosinophil suppression, normalization of spirometry, platelet counts and resolution of periauricular lesion. This is the first documented case in Croatia in which mepolizumab was used for HES.

Conclusion: This case illustrates the diagnostic and clinical complexity of HES, particularly when compounded by viral reactivation and treatment-related complications. The patient's robust response to mepolizumab highlights the importance of targeted biologic therapy as a highly effective and organ-sparing strategy.

Keywords: Asthma; Eosinophilia; Interleukin-5; Thrombocytopenia

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CR20 When Chemotherapy Mimics Acute Coronary Occlusion: Paclitaxel-Induced ST Elevation Myocardial Infarction (STEMI)

Petra Kolundžić[1], Marta Koren[1], Dora Domijan[1], Jana Vidić[1], Ivana Jurin[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Division of Cardiology, Department of Internal Medicine, University Hospital Dubrava, Zagreb, Croatia

Introduction: Paclitaxel is a taxane chemotherapeutic agent widely used to treat various solid malignancies, including lung, breast, and ovarian cancer. Common side effects include myelosuppression, peripheral neuropathy and hypersensitivity reactions. It may also affect the cardiovascular system through suspected mechanisms such as drug-induced coronary vasospasm, endothelial dysfunction, autonomic imbalance, and direct myocardial injury. These effects can lead to sinus bradycardia and other arrhythmias, myocardial ischemia, acute coronary syndromes, and, rarely, heart failure and sudden cardiac death.

Case presentation: An 80-year-old woman with squamous cell lung carcinoma was admitted due to the acute onset of typical chest pain, dyspnea, and generalized weakness. The patient had received a cycle of chemotherapy, including paclitaxel, five days prior. Upon admission, the electrocardiogram revealed ST-segment elevation in the inferoposterior leads. Urgent coronary angiography revealed normal coronary arteries without obstruction, thrombosis, plaque rupture, dissection, or embolism. Laboratory testing showed elevated high-sensitivity troponin (>27,000 ng/L), confirming extensive myocardial injury. Transthoracic echocardiography revealed preserved left ventricular systolic function, with no regional wall motion abnormalities. The patient was treated with standard anti-ischemic and antithrombotic therapy and remained hemodynamically stable. Further oncological treatment was reassessed in collaboration with the oncology team.

Conclusion: Paclitaxel-associated acute myocardial infarction is a rare but serious complication of chemotherapy. This case demonstrates that inferoposterior STEMI may occur in the absence of obstructive coronary artery disease, most likely due to coronary vasospasm or direct myocardial toxicity. Such presentations fall within the spectrum of myocardial infarction with non-obstructive coronary arteries (MINOCA) and represent a diagnostic and therapeutic challenge.

Keywords: Antineoplastic Agents; Coronary Vasospasm; MINOCA; ST Elevation Myocardial Infarction

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CR21 Paradoxical Psoriasis Induced by Adalimumab in Axial Spondyloarthritis: A Case Report

Antonio Perišić[1], Mia Marija Šalov[1], Lucija Vargović[1], Filip Mirić[2], Srđan Novak[2]
[1]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[2]Department of Rheumatology and Clinical Immunology, University Hospital Centre Rijeka, Rijeka, Croatia

Introduction: Axial spondyloarthritis is a chronic inflammatory disease primarily affecting the sacroiliac joints and spine, characterized by inflammatory back pain and stiffness, and may be associated with extra-articular manifestations. Tumor necrosis factor-α (TNF-α) inhibitors, such as adalimumab, are effective biologic therapies widely used in the treatment of axial spondyloarthritis, improving disease activity, function, and quality of life. Despite their efficacy, TNF-α inhibitors may rarely induce paradoxical immune-mediated adverse effects, including new-onset or worsening psoriasis.

Case presentation: A 28-year-old patient initially presented with recurrent iridocyclitis and episcleritis, after which he tested positive for HLA-B27 but did not report joint pain or stiffness. Three years later, joint-related symptoms developed, and the disease became radiologically evident. After meeting all diagnostic criteria, the patient was switched from NSAID therapy to biologic treatment with adalimumab, a TNF-α inhibitor. The therapy initially produced satisfactory results; however, one year later, the patient developed genital and scalp psoriasis as a paradoxical reaction to biologic therapy. Subsequently, ixekizumab, an IL-17 inhibitor, was chosen as a replacement for adalimumab but proved ineffective in controlling the psoriasis, as the disease continued to progress. Finally, treatment with bimekizumab was successful in managing both axial spondyloarthritis and paradoxical psoriasis.

Conclusion: This case highlights paradoxical psoriasis as a rare but clinically relevant adverse effect of TNF-α inhibition in axial spondyloarthritis. It underscores the importance of early recognition, careful therapeutic reassessment, and individualized biologic selection. Successful disease control may be achieved by switching to alternative targeted therapies when paradoxical reactions occur in appropriate clinical contexts.

Keywords: Adalimumab; Axial Spondyloarthritis; Iridocyclitis; Psoriasis

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CR22 **Endoscopic Ultrasound-Guided Gallbladder Drainage With Lumen-Apposing Metal Stent Placement**

Karlo Bukvić[1], Ivan Benčić[1], Tajana Pavić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Division of Gastroenterology and Hepatology, Department of Internal Medicine, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Pancreatic cancer is a type of neoplasm with advanced disease progression at the time of presentation. Low overall survival rate is associated with limited therapeutic options, especially in elderly patients, with the only option often left being palliative supportive care.

Case presentation: An 86-year-old patient was hospitalized due to obstructive icterus and suspected choledocholithiasis. Ultrasound findings described changes consistent with acute calculous cholecystitis and superimposed cholangitis, along with a hypoechoic mass in the head of the pancreas. Esophagogastroduodenoscopy revealed a black-based infiltrative lesion with active bleeding on the anterior duodenal wall. After thermocoagulation and follow-up endoscopy, histopathological analysis revealed duodenal infiltration by underlying pancreatic adenocarcinoma, which was later confirmed via CT imaging. Due to the inability to pass the duodenoscope through the infiltrative-stenosing duodenal process, ERCP-guided drainage through the papilla or endoscopic ultrasound (EUS)-guided choledochoduodenostomy could not be performed. Therefore, cholecystogastrostomy was created under EUS guidance for bile drainage, with placement of a Lumen-Apposing Metal Stent (LAMS) (Hot Axios 15/10). Laboratory tests showed a regressive trend in cholestatic parameters. The patient declined further oncological treatment and was discharged home with further recommendations for palliative care. Four months following the procedure, the patient remains alive, without any additional interventions.

Conclusion: This case is the first practical application of EUS-guided gallbladder drainage with LAMS in a patient with malignant distal biliary obstruction in our country. This method is an effective and safe biliary decompression rescue therapy when other standard methods have failed, with much more favorable outcomes than percutaneous transhepatic biliary drainage.

Keywords: Endosonography; Pancreatic Neoplasms; Stents; Ultrasonography, Interventional

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CR23 Immune-Related Endocrinopathies Following Adjuvant Pembrolizumab Therapy: A Case of Addison's Disease and Thyrotoxicosis

Josipa Vlahović[1], Antonija Gračanin[1], Ivana Kraljević[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Endocrinology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Immune checkpoint inhibitors, such as pembrolizumab, enhance anti-tumor immune responses but may trigger immune-related adverse events affecting various endocrine organs. This report presents a case of sequential adrenal insufficiency and thyrotoxicosis after pembrolizumab treatment in a patient with renal cell carcinoma.

Case presentation: A 76-year-old woman with a history of arterial hypertension and hyperlipidemia underwent nephrectomy for left renal cell carcinoma. Adjuvant immunotherapy with pembrolizumab was initiated. After the first cycle, she developed symptoms consistent with adrenal insufficiency. Laboratory evaluation revealed hyperkalemia (6.1 mmol/L), hyponatremia (129 mmol/L), markedly elevated adrenocorticotropic hormone (ACTH, 363.0 pmol/L), and low morning cortisol levels (<29 nmol/L), findings consistent with primary adrenal insufficiency (Addison's disease). Hydrocortisone therapy was introduced with subsequent clinical improvement. Following the second pembrolizumab cycle, the patient developed symptoms of hyperthyroidism. Tests showed suppressed thyroid-stimulating hormone (TSH, 0.01 mIU/L) and elevated free triiodothyronine (FT3, 13.35 pmol/L), free thyroxine (FT4, 283 pmol/L), accompanied by clinical symptoms including rapid weight loss, heart palpitations, and sweating. She was treated with propranolol and thiamazole. Both endocrine disorders were attributed to pembrolizumab-induced immune activation.

Conclusion: Pembrolizumab may cause multiple, sequential endocrine immune-related adverse events, including primary adrenal insufficiency and thyrotoxicosis. Clinicians should be aware of those complications to ensure timely recognition, early intervention, and management.

Keywords: Addison Disease; Adrenal Insufficiency; Immune Checkpoint Inhibitors; Immunotherapy; Thyrotoxicosis

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CR24 Laser Ablation as a Minimally Invasive Treatment for Rare Umbilical Pilonidal Sinus: First Reported Case

Dora Bedenić[1], Ana Milković[1], Lana Barlović[1], Nina Beluhan[1], Branko Bogdanić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Pilonidal disease is commonly found in the sacrococcygeal region, although Umbilical Pilonidal Sinus (UPS) is an often overlooked variant with an occurrence of 0.1–0.6%. Its rarity combined with subtle presentation often results in misdiagnosis. UPS is now considered to be an acquired condition, in which penetrating hairs cause a foreign body reaction and sinus formation. This case represents a rare type of pilonidal disease and introduces the first documented use of laser ablation for UPS in the world, highlighting the role of minimally invasive innovation in modern medicine.

Case presentation: A 36-year-old male presented with a 6-month history of umbilical pain, swelling, and purulent discharge. Previous conservative measures, including antibiotics and shaving, provided temporary benefit. Examination revealed deep umbilicus with a single sinus opening containing hair. Under local anesthesia in the day surgery department, a minimally invasive procedure was performed. Following pit picking and complete hair removal, a radial diode laser fiber (1470 nm, 12 W) was inserted into the sinus and 280 J was delivered. The patient was discharged on the same day, returned to work on the third postoperative day and fully healed within three weeks. Importantly, this approach preserved the natural contour of the umbilicus, as loss of the umbilicus can cause serious mental illness.

Conclusion: This case represents the first reported use of laser ablation for UPS, offering simple, effective, cosmetically superior alternative to traditional surgical techniques. Without recurrence after five years, this approach underlines how the adoption of innovative technologies extends and transforms treatment options for rare conditions.

Keywords: Lasers; Laser Therapy; Pilonidal Sinus; Umbilicus; Wound Healing

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CR25 Enteropathy-Associated T-Cell Lymphoma as a Severe Complication of Untreated Celiac Disease: A Case Report

Ivan Benčić[1], Karlo Bukvić[1], Julija Žanetić[2], Leon Palac[3], Dominik Kralj[3]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Health Centre Zagreb – Zapad, Zagreb, Croatia
[3]Department of Internal Medicine, Division of Gastroenterology and Hepatology, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Enteropathy-associated T-cell lymphoma (EATL) is a rare and aggressive form of T-cell non-Hodgkin lymphoma that primarily affects the small intestine. It often arises as a severe complication of long-standing, untreated or poorly controlled celiac disease (CD). With an estimated incidence of 0.10 per 100,000 inhabitants per year, EATL may present with symptoms such as weight loss, bowel obstruction, diarrhea and fever.

Case presentation: A 77-year-old female patient, without previously known gastrointestinal disease, was admitted to the emergency department due to substantial weight loss, diarrhea, and persistent fever up to 38.8 °C over the previous six months. Laboratory tests revealed a CRP of 166 mg/L and computed tomography demonstrated focal thickening of the jejunal wall with mesenteric lymphadenopathy. Initial antibiotic treatment resulted in transient improvement, followed by a recurrence of fever. Intestinal ultrasound identified a 14 millimeter-thick jejunal segment with a hypoechoic wall and moderate vascularity. Subsequent enteroscopy showed mucosal features indicative of CD and confluent ulcerations in the jejunum spanning 3–4 cm followed by circumferential necrosis of a short distal segment. Given the severely impaired intestinal passage, urgent surgery was performed, resulting in resection of the affected segment and formation of an enteroenteric anastomosis. Postoperative histopathological examination of the resected tumor revealed morphological and immunohistochemical features characteristic of EATL associated with celiac disease. The patient is currently undergoing active chemotherapy.

Conclusion: Celiac disease presents with diverse clinical symptoms and can manifest at any age. This case highlights its significance and the potential for developing life-threatening complications when diagnosis or management is delayed.

Keywords: Celiac Disease; Enteropathy-Associated T-Cell Lymphoma; Lymphoma, Non-Hodgkin; Neoplasms

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CR26 Challenges of Glucose Regulation in Diabetic Gastroparesis: A Case of Successful Treatment with a Hybrid Closed-Loop System

Tea Drndelić[1], Sanja Klobučar[2,1]
[1]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[2]Department of Internal Medicine, Clinical Hospital Centre Rijeka, Rijeka, Croatia

Introduction: Diabetic gastroparesis is a debilitating and often unrecognized complication of diabetes mellitus that significantly impairs quality of life, nutritional status, and glycaemic control. Due to unpredictable gastric emptying, a mismatch arises between nutrient absorption and insulin action, resulting in significant glucose variability.

Case presentation: We present a 33 year old male with type 1 diabetes mellitus diagnosed at age 18. His therapy included fast-acting insulin aspart adjusted to carbohydrate intake and 26 IU of basal insulin degludec daily. Due to progressive weight loss and severe gastrointestinal symptoms, extensive gastroenterological evaluation was performed (abdominal ultrasound, gastroscopy, colonoscopy, and coeliac disease screening), all of which showed no pathological findings. Laboratory parameters (HbA1c 11%) and ambulatory glucose profile based on continuous glucose monitoring indicated extremely poor glycaemic control (mean glucose 17.1 mmol/L, glucose management indicator (GMI) 12.4%, time in range (TIR) 16%, and time above range (TAR) 84%). Gastric emptying scintigraphy confirmed delayed gastric emptying, and symptom severity assessment using the GCSI index (28/45) supported the diagnosis of diabetic gastroparesis. Dietary adjustments and nutritional support were initiated, followed by transition to insulin delivery via the MiniMed 780G hybrid closed-loop system, which resulted in significant improvement in glycaemic control (mean glucose 8.4 mmol/L, GMI 6.9%, CV 31.6%, TIR 75%, TAR 24%, TBR 1%).

Conclusion: The hybrid closed-loop system may represent a valuable strategy for improving glycaemic control in patients with diabetic gastroparesis.

Keywords: Diabetes Mellitus; Gastric Emptying; Gastroparesis; Pancreas, Artificial

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CR27 Transoral Robotic Surgery as a New Treatment Modality in Otorhinolaryngology – A Case Report

Laura Pervan[1], Borna Gabrijel Fijember[1], Tony Rumora[2], Tihana Pisk[1], Boris Bumber[3]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]School and Adolescent Medicine Division, Teaching Institute for Public Health dr. Andrija Štampar, Zagreb, Croatia
[3]Department of Otolaryngology and Head and Neck Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Transoral robotic surgery (TORS) is an advanced technique used to perform minimally invasive head and neck procedures. Although the technique has been used abroad since 2009 for oropharyngeal carcinoma and later for hypopharyngeal, parapharyngeal, tongue base, and supraglottic areas, it was introduced at University Hospital Centre Zagreb in October 2025 for the first time.

Case presentation: A 62-year-old patient, who underwent conservative removal of localized squamous cell carcinoma of the tongue (SCC) in 2019, presented with asymptomatic suspected recurrence of malignant disease in the mucosa of the tongue base. During a regular check-up in 2023, a suspected tumor formation of the epiglottis was observed – laryngomicroscopy and epiglottidectomy with a CO2 laser were performed, while pathohistological diagnostics confirmed SCC of the left half of the epiglottis and the right ventricular fold. In September 2025, a hypervascular area was detected at the base of the tongue during Narrow Band Imaging (NBI) endoscopy, after which he underwent surgery using the TORS technique. Pathohistology determined that it was benign scar tissue formation and only further monitoring was indicated.

Conclusion: The application of the TORS technique allows for minimally invasive procedures in anatomically narrow and difficult-to-reach areas with wider technical capabilities, 3D visualization of the working space, reduced tremor and without spatial limitations of the operator's hands. Consequently, patients have a faster and simpler recovery, a lower risk of complications, a smaller incision and greater success of the procedure with a lower chance of developing postoperative infections.

Keywords: Narrow Band Imaging; Oropharyngeal Neoplasms; Patient Outcome Assessment; Robotic Surgical Procedures

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CR28 **ICG (Indocyanine Green) Guided Liver Tumor Surgery**

Klara Balog[1], Petra Kolundžić[1], Ivan Štironja[2], Tomislav Bubalo[2], Ivan Romić[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Abdominal Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: ICG (indocyanine green) fluorescence imaging is increasingly being used in laparoscopic and robotic liver resections. Its clinical value derives from the ability to visualize lesions intraoperatively, reduce the risk of positive surgical margins, and achieve high specificity for hepatocytes. In hepatobiliary surgery, ICG benefits include visualization of extrahepatic biliary ducts, liver lesions, and the demarcation line after the occlusion of hepatic inflow

Case presentation: A 27-year-old woman with subcostal pain was admitted for elective surgery due to a 6 cm lesion suspicious for FNH (focal nodular hyperplasia) that was detected on MRI. Over the past 2 years, the lesion has shown progressive growth of 2.1 cm. Laparoscopic resection of segment VI was planned. Preoperatively, ICG was administered intravenously 24 hours before the procedure. During surgery, following the right liver mobilization, the ICG imaging mode on the camera was used, and the lesion was clearly visualized. Parenchymal transection was done with an ultrasonic knife without the use of the Pringle manoeuvre. Estimated blood loss was 200 ml. The postoperative recovery was uneventful. FNH was confirmed on histopathology.

Conclusion: Indocyanine green is selectively taken up by hepatocytes and retained within the lesion with impaired biliary excretion, enabling improved lesion detection. In this case, a novel clinical solution was utilized, demonstrating the practical value of ICG imaging. Additional visual information serves as support for accuracy and anatomical orientation, improving spatial understanding of complex liver anatomy.

Keywords: Focal Nodular Hyperplasia; Hepatocytes; Indocyanine Green; Liver Neoplasms; Surgery, Computer-Assisted

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CR29 **Clinical Implications of Modern Surgical Technology**

Lea Radočaj[1], Hana Rajić[1], Tomislav Jukić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Ophthalmology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Pierre Robin sequence (PRS) is a congenital condition defined by the triad of micrognathia, glossoptosis, and cleft palate. It is frequently accompanied by ophthalmic abnormalities that can seriously endanger eyesight. Management is often complicated by craniofacial dysmorphism and the challenges inherent to pediatric care.

Case presentation: In 2021, a 13-year-old patient with PRS presented to the Emergency Department following vision loss in the left eye. One month prior, the patient sustained blunt ocular trauma. Unaware of the severity, he sought medical attention only when initial blurriness progressed to complete blindness. Clinical examination revealed iridodonesis, traumatic semimydriasis, partial hemovitreus, traumatic cataract, and partial retinal detachment. The patient underwent small-gauge pars plana vitrectomy (PPV), phacoemulsification, membranectomy, and endolaser treatment. Due to the delayed presentation, silicone oil was utilized as an initial tamponade, later surgically exchanged for C3F8 gas. In 2024, the patient presented with a new, atraumatic, acute retinal detachment in the right eye, accompanied by vitreous liquefaction. Having recognized the symptoms early, he sought immediate help. A second PPV and phacoemulsification were performed with endodrainage, endolaser, and C3F8 insufflation. These procedures utilize specialized small-gauge trocars (23G or 25G), which allow for precise incisions, minimize surgical trauma and hemorrhage, and obviate suturing. In Croatia, such technology is currently restricted to highly specialized centers, though efforts are underway to introduce those systems into secondary centers.

Conclusion: This case highlights how implementing modern surgical technologies and educating patients on early symptom recognition facilitates quicker recovery and reduces trauma in complex patients.

Keywords: Microsurgery; Phacoemulsification; Pierre Robin Syndrome; Retinal Detachment; Vitrectomy

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CR30 **Gravity Hits Back: Multifragmentary Proximal Humerus Fracture Triggered by Bungee Jumping**

Filip Jakov Klisović[1], David Glavaš Weinberger[2], Ivan Benčić[2], Dinko Vidović[1,2,3]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Clinic for Traumatology, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia
[3]School of Dental Medicine, University of Zagreb, Zagreb, Croatia

Introduction: Proximal humerus fractures, in younger active patients, typically arise from high-energy trauma, usually from motor vehicle collisions, contact sports, or significant blunt-force mechanisms. Multifragmentary fractures of the proximal humerus are particularly rare in otherwise healthy young adults and present a greater challenge due to the usual high demands of young patients and the implications for long-term shoulder function.

Case presentation: A 26-year-old otherwise healthy female patient presented to the emergency department after a bungee jumping accident. She reported sudden pain in her left shoulder at the bottom of the jump. Radiographic evaluation with X-ray and Computed Tomography (CT) confirmed a multifragmentary fracture of the proximal left humerus. Following preoperative assessment, surgical management was performed under regional anesthesia using a scalene block. A deltoid-split approach was used. Open reduction and internal fixation were performed with a minimally invasive plate osteosynthesis (MIPO) technique. Postoperative imaging demonstrated optimal fracture reduction and implant position. A shoulder sling was applied postoperatively. Radiographs at 3 months showed complete fracture healing. She has now regained range of motion in abduction and elevation to 100 degrees and has limitations in activities of daily living, such as pain after physical work and during weather changes, which are managed with rest and ibuprofen.

Conclusion: Although femoral shaft fractures of the bound lower limb and spinal facet dislocations have previously been reported, to our knowledge, this is the first reported instance of a bungee-related fracture distal to the harness attachment point, seemingly unrelated to the expected chain of shock-absorbing joints engaged during deceleration.

Keywords: Athletic Injuries; Fracture Fixation, Internal; Humeral Fractures; Minimally Invasive Surgical Procedures

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CR31 Multidrug-Resistant Enterococcus faecium Bacteremia After Hepaticojejunostomy for Klatskin Tumor: A Pharmacological Approach to Tigecycline–Fosfomycin Combination Therapy

Tin Trtanj[1], Vjeran Tomljenović[1], Robert Likić[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Clinical Pharmacology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Vancomycin-resistant Enterococcus faecium (VRE), particularly linezolid-resistant strains, poses a rising threat in postoperative and oncology patients. Effective management requires a pharmacologically guided approach integrating microbiology, infection site and drug pharmacokinetics.

Case presentation: A 42-year-old female with a complex history (Klatskin tumor, bilateral renal cell carcinoma post-nephrectomy, thyroid carcinoma, prior myocardial infarction) underwent hepaticojejunostomy (Roux-en-Y). Postoperatively, she developed bacteremia from E. faecium resistant to ampicillin, vancomycin, teicoplanin, and linezolid (VRE, LZD-R). CT showed a 4.5-cm subhepatic fluid collection near the biliary anastomosis. Laboratory findings revealed elevated ALP (642 U/L) and GGT (518 U/L), mild anemia (Hb 110 g/L), normal renal function and decreasing inflammatory markers (CRP 34.8 mg/L, PCT 0.21 µg/L). Given the multidrug resistance (MDR) profile, antimicrobial therapy was optimized to tigecycline (100 mg IV loading dose, then 50 mg IV every 12 h) combined with fosfomycin (6 g IV every 8 h) for synergistic activity against VRE. Zavicefta (ceftazidime/avibactam) and metronidazole were continued for broad coverage of Gram-negative and anaerobic pathogens, addressing the persistent intra-abdominal collection. This regimen offered complementary pharmacodynamics, extensive biliary penetration and potential synergy in eradicating mixed infections. After therapy optimization, the patient became afebrile, inflammatory markers declined, liver function tests stabilized. Microbiological clearance and clinical improvement were achieved without adverse effects.

Conclusion: This case illustrates the value of individualized, pharmacokinetically informed strategies for MDR postoperative infections. Complex hepatobiliary infections caused by MDR E. faecium require personalized and pharmacologically guided therapy. The tigecycline-fosfomycin combination, with Zavicefta and metronidazole continuation, demonstrates an effective approach for vancomycin- and linezolid-resistant enterococcal bacteremia.

Keywords: Cholangiocarcinoma; Drug Resistance; Enterococcus faecium; Fosfomycin; Tigecycline; Vancomycin

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CR32 From Silence to Structure: Integrating the Nagata Technique with a Bone-Anchored Hearing Implant in Advanced Ear Reconstruction

Dora Domijan[1], Klara Balog[1], Lucija Gracin[1], Anamarija Bronzan[1], Andro Košec[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Otorhinolaringology and Head and Neck Surgery, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Congenital microtia is a rare and severe developmental anomaly of the external ear, often associated with atresia or hypoplasia of the external auditory canal, causing conductive hearing loss. Severe bilateral cases, especially with a complete absence of the canal on one side and hypoplasia on the other, present significant challenges for reconstructive surgery and hearing rehabilitation. The Nagata technique, using autologous costal cartilage, allows precise replication of auricular anatomy. Integration of bone-anchored hearing aids (BAHA) provides functional auditory restoration. This report presents a staged bilateral auricular reconstruction combining the Nagata technique with BAHA, demonstrating surgical and technological innovative synergy.

Case presentation: A female patient presented with bilateral microtia, absent left canal and hypoplastic right canal. In 2019, left auricular reconstruction was performed: cartilage from the 6th-9th ribs was harvested and sculpted according to Nagata's method, then implanted subcutaneously. In 2020, the right ear was reconstructed similarly. Following the second stage of rehabilitation, a BAHA device was implanted to correct conductive hearing loss. Postoperative follow-up showed symmetric, natural-appearing auricles, stable cartilage frameworks and significantly improved hearing function. The patient reported high satisfaction with both esthetic and auditory outcomes; no major complications occurred.

Conclusion: The Nagata technique enables anatomically accurate and esthetically satisfactory auricular reconstruction in complex bilateral microtia. Combined BAHA implantation addresses conductive hearing loss, illustrating the importance of integrating reconstructive surgery with audiologic technology. Multidisciplinary collaboration is essential for optimal outcomes in patients with severe congenital ear anomalies. This approach demonstrates that functional and esthetic rehabilitation can be achieved safely and effectively.

Keywords: Congenital Microtia; Ear, External; Hearing Loss, Conductive; Plastic Surgery Procedures

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CR33 When an Apparently 'Non-Compliant' Presentation Signals Something Else: Telemedicine Identification of Dementia

Nika Miladin[1], Jelena Marušić[1], Helena Šandro[2], Katarina Šodan[1], Ana Mašić Prpić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Health Centre Zagreb – Centar, Zagreb, Croatia

Introduction: Telemedicine is now a key part of modern family medicine, allowing clinicians to care for more patients within the same schedule. Yet, medication non-adherence remains a major challenge, with about half of patients not taking therapy as prescribed. This case highlights how telemedicine enabled early detection of both medication non-adherence and cognitive impairment in an elderly patient with multiple comorbidities.

Case presentation: Our patient is a 77-year-old male with a medical history significant for primary hypertension, a malignant upper respiratory tract mass, chronic cervical and lumbar spine pain, long-term alcohol use, and neurological issues. His prescribed therapy consisted of Concor 5 mg once daily and Tritazide (5 mg + 25 mg) once daily, both to be taken in the morning. The family physician contacted the patient's wife via email seeking clarification regarding the correct medication schedule and dosages, as she had noticed that her husband was not adhering to the prescribed regimen. In response, the physician scheduled an in-person appointment to evaluate the situation. During the clinical examination, the patient reported taking 10–12 different medications per day, although only 2–3 chronic medications were listed in his medical records. A Mini-Mental State Examination indicated mild cognitive impairment.

Conclusion: This case shows that telemedicine is an effective tool for early detection of medication non-adherence and cognitive impairment, especially thanks to quick communication with caregivers. However, it cannot replace direct clinical assessment. Telemedicine enables timely intervention, but any uncertainty must be confirmed in person to ensure patient safety and proper care.

Keywords: Dementia; Family Practice; Primary Health Care; Telemedicine

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CR34 **Cutaneous Metastasis of Oesophageal Squamous Cell Carcinoma: A Case Report**

Sara Dolički[1], Emili Dragaš[1], Branko Bogdanić[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Oesophageal squamous cell carcinoma (ESCC) is an aggressive malignancy with a high propensity for lymphatic and hematogenous spread. Its common metastatic sites include liver, lungs and bones, while cutaneous metastases are rare, occurring in less than 1% of cases. When present, they typically indicate a widespread disease. These lesions often resemble benign dermatological or infectious conditions; early recognition is crucial.

Case presentation: A 45-year-old male with a history of moderately differentiated ESCC, diagnosed in September 2023, presented with a new abdominal wall lesion in December 2024. His disease course included pulmonary, hepatic, and vertebral metastases, prior chemoradiotherapy and ongoing immunotherapy with pembrolizumab. This lesion developed near a previously placed gastrostomy site. Multi-Slice Computed Tomography (MSCT) showed that the lesion is non-contiguous, involves the skin and subcutaneous tissue and has doubled in volume. On examination, two elevated, partially ulcerated nodules measuring 4,6 cm and 0,9 cm were noted. Surgical excision "in toto" with gastrostomy revision was performed on January 17, 2025. Histology showed reactive epidermal changes and invasive keratinizing squamous nests in the dermis and subcutis. Tumor cells were p40- and p63-positive. Margins were clear (0.3 cm peripheral, 0.1 cm deep). Together with imaging, findings confirmed metastatic ESCC.

Conclusion: This case highlights a rare presentation of ESCC with cutaneous metastasis to the abdominal wall. In patients with established oesophageal carcinoma, new or rapidly growing skin lesions should raise concerns for metastatic spread. Prompt biopsy and histopathological confirmation are essential for management and prognosis, as cutaneous involvement usually indicates late-stage, disseminated disease.

Keywords: Carcinoma, Squamous Cell; Esophageal Neoplasms; Esophageal Squamous Cell Carcinoma; Neoplasm Metastasis

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CR35 The Chain of Grafts: Endovascular Management of Recurrent Aortic Pathology in Marfan Syndrome

Hana Rajić[1], Lea Radočaj[1], Nermin Lojo[1,2], Predrag Pavić[1,2], Tomislav Meštrović[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Vascular Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Connective tissue disorders (CTDs), such as Marfan syndrome, compromise vascular wall integrity, increasing the risk of acute complications and making endovascular procedures typically avoided.

Case presentation: We report a 55-year-old patient with Marfan syndrome and a complicated aortic history. At age 43, the patient was treated for a Stanford B aortic dissection through thoracic endovascular aortic repair (TEVAR) and a carotid-to-subclavian bypass. A post-interventional endoleak type IB required a second TEVAR. By age 51, the patient underwent reconstruction of the aortic valve and ascending aorta for an aneurysm and valve insufficiency. A recurring type IB endoleak and a thoracoabdominal aortic aneurysm developed by age 54. To resolve these, an inner branched endovascular aortic repair (iBEVAR) was performed, sealing the aneurysm while ensuring flow to vital branch vessels. The patient also developed a symptomatic abdominal aortic aneurysm by age 55, which necessitated an aorto-uniiliac stent-graft to the left iliac artery, along with the occlusion of the right iliac artery and a femorofemoral crossover bypass to restore blood flow to the right leg.

Conclusion: This sequential, chain-link strategy leveraged existing stent-grafts to support additional grafts, avoiding diseased aortic wall. This innovative approach challenges conventional guidelines, showing that endovascular solutions can yield exceptional outcomes in CTD patients with complex pathologies.

Keywords: Aortic Dissection; Aortic Aneurysm, Abdominal; Aortic Aneurysm, Thoracic; Marfan Syndrome; Stents

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CR36 Netherton Syndrome in a Neonate: Severe Erythroderma and Life-Threatening Complications Confirmed by SPINK5 Genetic Analysis

Mirela Kolak[1], Nada Sindičić Dessardo[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Neonatology and Neonatal Intensive Care, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Netherton syndrome is an extremely rare (incidence ~1 in 200,000 live births), multisystem, autosomal recessive genodermatosis defined by congenital ichthyosis, immune dysregulation, and hair shaft anomalies. Caused by SPINK5 mutations leading to LEKTI protein deficiency, this results in a severe skin barrier defect. Neonatal presentation includes respiratory distress syndrome, hypernatremic dehydration, recurrent severe infections, and failure to thrive.

Case presentation: We report a male infant (37+2 weeks) admitted to the NICU UHC Zagreb on day two of life with respiratory distress and marked congenital erythroderma with scaling. Family history was notable for maternal psoriasis. Following resolution of respiratory distress, the persistent skin barrier defect resulted in a Coagulase-negative Staphylococci infection, treated with vancomycin. However, the newborn suffered from severe systemic issues such as failure to thrive, diarrhea, and hypernatremic dehydration (peak Na = 158 mmol/L). Laboratory results revealed high eosinophilia (maximum 6940/µL) and elevated total IgE (14.4 kIU/L). The Netherton syndrome was strongly indicated by the clinical and laboratory picture. Genetic testing validated the diagnosis by identifying compound heterozygous SPINK5 mutations: c.1431-12G>A and c.1916del, p.(Leu639Cysfs*76). Dermatology and immunology teams were included in the comprehensive evaluation.

Conclusion: This case demonstrates that Netherton syndrome must be included in the differential diagnosis of congenital erythroderma and suspected skin infections in newborns. Early diagnosis, obtained through multidisciplinary collaboration and genetic testing, is critical for effective therapy and prevention of potentially fatal consequences.

Keywords: Genes; Immunity; Neonatology; Skin

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CR37 When Common Symptoms Hide a Rare Diagnosis: Identifying Wilkie's Syndrome

Ema Vrdoljak[1], Lucija Vrbanc[1], Mirna Natalija Aničić[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Division of Gastroenterology, Department of Pediatrics, Hepatology and Nutrition, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Wilkie's syndrome, also known as superior mesenteric artery syndrome, is a rare condition caused by compression of the duodenum between the superior mesenteric artery and the aorta. This results in duodenal obstruction, which leads to symptoms such as post-prandial abdominal pain, bloating, nausea, vomiting, and weight loss. The non-specific nature of its presentation often leads to delayed recognition or misdiagnosis.

Case presentation: The patient is a 16-year-old girl who presented with nonspecific gastrointestinal symptoms lasting for 9 months. She complained of post-prandial epigastric pain, bloating, and swelling under the left costal margin, which would subside after an hour. She has lost 5 kilograms and looked asthenic. She was initially diagnosed with gastritis and prescribed a proton pump inhibitor, which she stopped taking after 2 months due to no apparent improvement. Subsequently, she came to University Hospital Centre Zagreb, where her symptoms raised suspicion of intestinal obstruction. A barium swallow demonstrated significantly impaired passage through the duodenum, with narrowing at the D3 segment and pre-stenotic dilatation of D2 and the D2/3 junction up to 4 cm, while an abdominal CT with angiography confirmed an aortomesenteric angle of 18° and an aortomesenteric distance of 4 mm. These findings were consistent with Wilkie's syndrome, and surgical treatment was suggested.

Conclusion: Wilkie's syndrome remains a rare and often under-recognized cause of proximal intestinal obstruction. Although uncommon, clinicians should consider this possibility in patients presenting with unexplained gastrointestinal symptoms. Awareness of this condition allows for timely diagnosis and appropriate intervention.

Keywords: Abdominal Pain; Computed Tomography Angiography; Duodenal Obstruction; Superior Mesenteric Artery Syndrome

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CR38 Targeted Therapy Driven by Comprehensive Genomic Profiling Can Overcome Endocrine Resistance in HR+/HER2- Metastatic Breast Cancer: Case Report

Nina Jokić[1], Ana Vlatković[1], Tajana Silovski[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Oncology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Hormone receptor positive, human epidermal growth factor receptor-2 negative (HR+/HER2-) metastatic breast cancer (mBC) is the most common mBC subtype and is primarily treated with endocrine therapy (ET). Until recently, this generally meant chemotherapy. Next-generation sequencing (NGS) tumor profiling can enable biomarker-guided targeted therapy.

Case presentation: A 37-year-old woman with early HR+/HER2- breast cancer (T1N0, low risk) underwent quadrantectomy with ipsilateral axillary lymph-node dissection, followed by adjuvant radiotherapy and anastrozole after surgical castration. In year five of ET, metastases developed in cervical, axillary, mediastinal and abdominal lymph nodes. Infraclavicular node biopsy confirmed HR+/HER2- disease with progesterone-receptor negativity, low HER2 expression and no PIK3CA mutation. First-line metastatic therapy was fulvestrant and ribociclib (cyclin-dependent kinase 4/6 inhibitor). After one-year, extensive peritoneal dissemination developed, and weekly paclitaxel was started. Concurrently, liquid biopsy was performed for comprehensive genomic profiling by NGS, which revealed an AKT1 mutation. Treatment was then continued with the targeted agent capivasertib, while ET with fulvestrant was maintained. After 6 months of treatment, due to further central disease progression, stereotactic irradiation of brain metastases was performed, and systematic treatment continued. Given low HER2 expression, trastuzumab deruxtecan was started, which the patient has been receiving for 3 months with a good response.

Conclusion: In rapidly progressive HR+/HER2- mBC with early endocrine resistance, liquid biopsy and comprehensive genomic profiling can identify actionable mutations, enabling targeted, individualized therapy and potentially prolonging overall survival compared with that expected with chemotherapy.

Keywords: Breast Neoplasms; Molecular Targeted Therapy; Neoplasm Metastasis; Receptors, Estrogen

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CR39 Rewiring Pediatric Orthopedics: Bio-Compression Fixation in Osteochondritis Dissecans

Lorena Pavlović[1], Paula Pietri[1], Mislav Jelić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Orthopedics, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Osteochondritis dissecans is a localized disorder of the subchondral bone and cartilage that predominantly affects the pediatric and adolescent population. If untreated, the condition can progress to pain, mechanical symptoms, and long-term joint damage. While treatment has traditionally ranged from conservative approach to surgical stabilization, recent advances in biologically active fixation systems and minimally invasive techniques have significantly improved outcomes. This pathology has therefore become a model for how innovation is actively changing contemporary pediatric orthopedic practice.

Case presentation: A 10-year-old boy presented to the orthopedic clinic with gradually progressive medial knee pain, intermittent limping, and limited knee flexion, with no clear history of trauma. Magnetic resonance imaging confirmed osteochondritis dissecans of the medial femoral condyle. After six weeks of unsuccessful conservative treatment, surgical intervention was indicated. Arthroscopic evaluation of the knee was performed. Initial stabilization of the lesion was achieved with Kirschner wires inserted through the sclerotic zone, followed by anterograde drilling to stimulate revascularization of the subchondral bone. Definitive fixation was achieved using biocompression screws, specially designed to create controlled compression between the osteochondral fragment and its bed, thereby optimizing biological healing conditions.

Conclusion: This case shows how the integration of innovative bio-compression implants with minimally invasive arthroscopic techniques can redefine standard practice in the treatment of osteochondritis dissecans. The timely use of technologically advanced fixation systems provides improved fragment stability, accelerates recovery and preserves joint function in the pediatric population, which is a clear example of how modern orthopedic practice is being "reshaped" through innovation.

Keywords: Adolescent; Arthroscopy; Knee Joint; Osteochondritis Dissecans

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CR40 A New Treatment Method for Advanced Parkinson's Disease – the Produodopa® Pump

Lucija Ribić[1], Anja Ritz[1], Srđana Telarović[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Neurology, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Parkinson's disease (PD) is a progressive neurodegenerative disorder caused by the loss of dopaminergic neurons in the substantia nigra. Levodopa remains the gold standard of PD therapy, but long-term use often results in reduced efficacy, motor fluctuations, and dyskinesias. Consequently, patients with advanced PD often require additional treatment. Foslevodopa/foscarbidopa (PRODUODOPA®) is the first 24-hour continuous subcutaneous infusion therapy based on levodopa, administered via a small portable pump which allows for personalized dosing based on individual needs.

Case presentation: A 75-year-old male patient presented in 2008, at the age of 58, with a right hand tremor, and was subsequently diagnosed with PD. In the early stages, symptoms were successfully managed with standard oral dopaminergic therapy. Over time the disease progressed, including motor fluctuations and the "on–off" phenomenon, which resulted in the introduction of the apomorphine pump therapy in 2021. For several years, this form of therapy was sufficiently effective, however, in 2024, despite polytherapy with an apomorphine pump, the patient developed significant motor symptom fluctuations. Therefore, treatment with continuous subcutaneous infusion of foslevodopa/foscarbidopa via the Produodopa pump was initiated. Compared with oral levodopa/carbidopa therapy, it provides more stable dopamine levels and reduces "on–off" periods and dyskinesias, and ultimately provides satisfactory control of motor symptoms.

Conclusion: Advanced PD remains a clinical challenge due to progressive motor symptoms and limited effectiveness of standard therapy. In such cases, continuous subcutaneous infusion of foslevodopa/foscarbidopa via the Produodopa pump represents an effective, new non-surgical option for improving quality of life when standard therapy is no longer effective.

Keywords: Levodopa; Neurodegenerative Diseases; Parkinson Disease; Infusions, Subcutaneous

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CR41 Too Loose to Hold- A Challenging Elbow Dislocation and Why We Need Treatment Protocols

Luka Hanulak[1], Petra Bašić[1], Sara Vulama[1], David Glavaš[2], Marko Matoic[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Traumatology, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Elbow dislocation is the second most common large joint dislocation. It's often accompanied by fractures, nerve and blood vessel injury. After reduction, it is necessary to assess ligamentous stability, as this mandates surgical repair. There is still no consensus on the algorithm of management of elbow dislocation with concomitant injuries. We report the case of a patient whose elbow dislocation and failed closed reduction and percutaneous pinning (CRPP) ultimately required collateral ligament reconstruction.

Case presentation: A 47-year-old male patient came to emergency department with a dislocated left elbow. Initial X-ray revealed posterolateral elbow dislocation with multifragmentary coronoid process fracture. He reported paresthesia along the radial nerve. After reduction and casting, a dorsal gap was still visible on X ray. The patient underwent initial fixation of ulnar collateral ligament (UCL) with suture anchors and percutaneous pinning with 2 K-wires as temporary arthodesis. 2 months later, following wire removal, he had another dislocation. This time reconstruction of both UCL and radial collateral ligament (RCL) were performed with gracilis tendon autograft. Initial bracing was followed by intensive physiotherapy and indomethacin treatment for calcification prevention. He still had a limited range of motion (ROM) and some stiffness. 10 cycles of acupuncture were prescribed. This resulted in a 10° increase in ROM, and now after 2 procedures he has excellent ROM (130°/10° flexion and extension).

Conclusion: Standardized algorithms or evidence-based guidelines for the management of elbow dislocation should be mandatory, as reliance on individual surgeon experience alone can significantly influence patient outcomes, particularly for such a common injury.

Keywords: Closed Fracture Reduction; Elbow Fractures; Joint Dislocations; Suture Anchors; Ulnar Collateral Ligament Reconstruction

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CR42 Trauma and Altered Consciousness: Aspiration or Subarachnoid Hemorrhage?

Zoa Majić[1], Luka Mataković[1], Mirjam Lovaković[1], Mate Lerga[2]
[1]University of Rijeka, Rijeka, Croatia
[2]Emergency department, Clinical Hospital Centre Rijeka, Rijeka, Croatia

Introduction: Subarachnoid hemorrhage (SAH) is an acute, life-threatening neurovascular event in which blood accumulates between the arachnoid and pia mater, most commonly caused by trauma or rupture of an intracranial aneurysm. This condition requires prompt neuroimaging and early neurosurgical management, and can result in serious, permanent disability.

Case presentation: A 51-year-old woman was brought to the emergency department by ambulance after a traffic accident. Upon admission she presented with impaired consciousness (Glasgow Coma Scale 3), requiring intubation and mechanical ventilation. Notably, the patient was found in her car unconscious with two hard candies on her shoulder, which initially raised suspicion of foreign-body aspiration. Physical examination was unremarkable, while inspiratory rales additionally supported the possibility of aspiration. Bronchoscopy revealed no foreign bodies. Whole-body computed tomography (CT) identified no traumatologically significant injuries. Non-contrast cranial CT revealed extensive hemorrhage consistent with high-grade SAH. CT angiography visualized two saccular aneurysms, each 6 millimeters in diameter, in the left middle cerebral artery and right internal carotid artery. The patient was then transferred to the intensive care unit where external cerebrospinal fluid drainage system and intracranial pressure monitoring were initiated, alongside pharmacotherapy including nimodipine. Neurosurgical clipping was planned, but the patient unfortunately did not survive.

Conclusion: A presumed foreign-body aspiration can delay identification of aneurysmal SAH, a medical emergency in which patient's survival greatly depends on timely diagnosis and early intervention. Once SAH was identified, the patient was transferred for definitive treatment, but unfortunately didn't survive. This case highlights how premature diagnostic closure in trauma may cost irreplaceable time.

Keywords: Accidents, Traffic; Aneurysm, Ruptured; Foreign Bodies; Subarachnoid Hemorrhage

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CR43 Second Time's the Charm: Revision Reconstruction of the Anterior Cruciate Ligament Injury

Lara Dragić[1], Leo Gulan[2]
[1]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[2]Department of Orthopedics and Physical Medicine, Lovran Orthopedic Clinic, Lovran, Croatia

Introduction: The anterior cruciate ligament (ACL) is essential for proper mechanical function and knee stability. ACL injuries are highly prevalent and most commonly result from sudden changes of direction. This case describes a secondary revision reconstruction following the rupture of a previously implanted graft.

Case presentation: A 23-year-old male patient presented with knee pain and instability following a rotational injury. Six years prior, he had sustained an injury to the ACL of the same knee, which was reconstructed using a hamstring graft. An MRI scan revealed a complete graft rupture and a suspected bucket-handle tear of the medial meniscus; consequently, he was referred for arthroscopy and revision reconstruction. Before reconstruction, a multislice CT scan with 3D reconstructions was used to localize prior bone tunnels and plan the placement of the new ones. During arthroscopy, the articular cartilage was found to be well-preserved, and a complete rupture of the primary graft was confirmed. Furthermore, intraoperative findings revealed that the meniscal injury was a RAMP lesion rather than a bucket-handle tear, requiring two additional portals for repair. The middle part of the quadriceps tendon was used as a graft. Additionally, a lateral extra-articular tenodesis (LET) was performed due to the patient's age and significant instability.

Conclusion: This case shows that every detail matters in knee reconstructions, especially revisions. During arthroscopy, it is crucial to actively look for RAMP lesions, as they are easily overlooked. Finally, the patient's age should guide the decision to add LET - a non-standard but potentially beneficial procedure in complex cases.

Keywords: Anterior Cruciate Ligament Reconstruction; Arthroscopy; Knee Injuries; Tenodesis

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CR44 **Disseminated Anaplastic Meningioma: A Case Report**

Filip Lovasić[1], Jasna Radić[1,2], Nikola Bulj[1,3], Kata Ćorić[3], Pavao Mioč[3]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Oncology and Nuclear Medicine, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia
[3]Department of Cardiology, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Meningiomas are the most frequent intracranial neoplasms in adults and are usually known for their benign nature. However, in 0.1% of cases, they can present as extracranial metastases, most commonly in the liver, lungs, bones, and lymph nodes.

Case presentation: A 57-year-old patient was admitted with right-sided hemiparesis, tinnitus, ataxia, and dysarthria. An MSCT scan was performed and revealed a mass in the left frontal region of the skull, compressing the brain and infiltrating the parietal bone—a finding consistent with meningioma. The patient was hospitalized for further diagnostics and was soon treated successfully with surgical resection and adjuvant radiotherapy. One year later, due to neck pain, an MRI of the cervical spine was conducted and showed lesions from the C2 to C6 segments. A PET-CT scan confirmed dissemination of the disease in the cervical spine, as well as a lesion in the right atrium and multiple lesions in the lungs, which were confirmed as metastases of anaplastic meningioma by bronchoscopy. Treatment with the tyrosine kinase inhibitor sunitinib was initiated and resulted in partial regression of the spinal and pulmonary lesions, but progression of the atrial metastasis, which is now causing difficulty breathing. The patient is currently continuing sunitinib therapy, supported by lutetium-177-dotatate peptide receptor radioligand therapy (PRRT), which has yet to demonstrate its effectiveness.

Conclusion: In conclusion, due to its rarity, metastatic meningioma often lacks prompt diagnostics and effective treatment options, resulting in a poor prognosis. Additional efforts should be directed toward identifying more effective treatments for this disease.

Keywords: Brain Neoplasms; Lutetium; Meningioma; Neoplasm Metastasis

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CR45 Management of Acute Myocardial Infarction Complicated by Cardiogenic Shock Using Peripheral Veno-Arterial Extracorporeal Membrane Oxygenation Support

Nino Petroci[1], Marijan Pašalić[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Cardiovascular Diseases, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Cardiogenic shock remains one of the major causes of mortality in patients with acute myocardial infarction, and the importance and optimal timing of VA-ECMO (Veno-Arterial Extracorporeal Membrane Oxygenation) support is still not clearly defined.

Case presentation: A 42-year-old man presented with severe chest pain, bilateral arm paresthesia and dizziness. He had no significant past medical history, except for active smoking. No signs of infarction were present on electrocardiogram, cardiac enzymes were within normal limits, and therapy with nitrates helped ease the pain. Two hours later the pain returned and now there were signs of anterosepto-lateral infarction with ST elevation. During interhospital transport, the patient experienced cardiorespiratory arrest requiring four defibrillation attempts to restore stable cardiac rhythm. Upon admission, the patient was somnolent, hypotensive, and tachypneic. We initiated immediate sedation, endotracheal intubation, and mechanical ventilation. Unfortunately, the rhythm instability soon returned, progressing to cardiac arrest and thereby requiring cardiopulmonary resuscitation. Due to refractory ventricular fibrillation resulting in an electrical storm, initiation of VA-ECMO support became imperative. Within 20 minutes of initiation cardiopulmonary resuscitation, we successfully established VA-ECMO support and the patient achieved hemodynamic stability. Following echocardiographically confirmed impaired myocardial dysfunction, urgent coronary angiography was performed with an implantation of a drug-eluting stent. After successful revascularization, the patient stabilized definitely and was discharged without major complications.

Conclusion: This case highlights the important role of VA-ECMO support as a bridge to revascularization as a definitive solution for patients suffering from cardiogenic shock caused by refractory ventricular arrhythmias.

Keywords: Cardiopulmonary Resuscitation; Extracorporeal Membrane Oxygenation; Myocardial Infarction; Shock, Cardiogenic; Ventricular Fibrillation

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CR46 **Anaplastic Lymphoma Kinase (Alk)-Positive Lung Adenocarcinoma: Case Report**

Anđela Krišto[1], Vide Popović[1,2]
[1]School of Medicine, University of Split, Split, Croatia
[2]University Hospital Centre Split, Clinic for Respiratory Disease, Split, Croatia

Introduction: Anaplastic lymphoma kinase (ALK) is a tyrosine kinase aberrantly expressed in several tumor types. In approximately 3-5% of cases of non-small cell lung cancer (NSCLC), including adenocarcinoma, a mutation of the ALK gene can be found. In NSCLC therapy, multiple generations of ALK inhibitors (crizotinib, alectinib, and lorlatinib) target ALK signaling to suppress tumor growth and promote regression with limited toxicity.

Case presentation: A 74-year-old non-smoker was hospitalized in poor general condition due to cough and dyspnea caused by a right-sided pleural effusion in May 2019. Diagnostic evaluation confirmed ALK-positive disseminated lung adenocarcinoma, and treatment with the second-generation ALK inhibitor, alectinib, was started. After 4 months of therapy, follow-up chest MSCT showed subtle regression of the intrathoracic disease status, and continuation of alectinib therapy was recommended. In November 2025, six years after the initial diagnosis, the patient remains on the same therapy, which is well tolerated with no reported adverse effects. At that time, the follow-up MSCT scan showed stationary findings. The patient reports no adverse effects except for mild shortness of breath on exertion and feels subjectively well.

Conclusion: In this case, we present the efficacy of alectinib, a second-generation ALK inhibitor, in achieving long-term tumor control in a patient with ALK-positive disseminated adenocarcinoma even when initially presenting in poor clinical condition. ALK tyrosine kinase inhibitors show statistically and clinically significant benefits in ALK-positive lung adenocarcinoma, resulting in prolonged time to progression and overall survival, along with good drug tolerability and maintenance of quality of life.

Keywords: Adenocarcinoma of Lung; Anaplastic Lymphoma Kinase; Carcinoma, Non-Small-Cell Lung; Tyrosine Kinase Inhibitors

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CR47 **Bioactive glass granules used as a bone substitute in mastoid obliteration: a case report**

Emili Dragaš[1], Sara Dolički[1], Andro Košec[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Otorhinolaryngology and Head and Neck Surgery, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Introduction: Cholesteatoma involves squamous epithelium invasion and growth in the tympanic cavity and mastoid, definitively treated surgically. Mastoid obliteration is a technique designed to combine the advantages of the canal wall up, preserving middle-ear anatomy, and the canal wall down technique, allowing for better exposure. Bioactive glass serves as an innovative filler material due to its osteoconductive and anti-bacterial properties. We present its use in the surgical treatment of a recurrent invasive cholesteatoma.

Case presentation: A 26-year-old patient presented with a recurrent right-sided cholesteatoma, previously treated surgically. Multi-Slice Computed Tomography and Magnetic Resonance Imaging indicated the cholesteatoma occupied the mastoid, exposed the sigmoid sinus, and possibly invaded the dura. The patient was scheduled for a tympanomastoidectomy with canal wall reconstruction and mastoid obliteration, where the imaging findings were confirmed. The cholesteatoma occupied the epitympanum and the tegmen tympani, eroded the lateral and superior semicircular canals, and exposed the dura of the posterior cranial fossa. Furthermore, the sigmoid sinus was found to be completely dehiscent. Following the complete removal of the cholesteatoma and invaded structures, the canal wall and the tympanic membrane were reconstructed using cartilage and temporal fascia. The sigmoid sinus was covered with cartilage. The mastoid was obliterated using bioactive glass, now effectively used as mastoid filler material. A vascular flap and Palva were used over the obliteration to support healing and enhance biologic integration.

Conclusion: This case illustrates the use of bioactive glass as a bone substitute in the treatment of cholesteatoma, emphasizing its biocompatible and anti-bacterial properties in mastoid obliteration.

Keywords: Biocompatible Materials; Bone Substitutes; Cholesteatoma; Mastoidectomy; Otologic Surgical Procedures; Tympanoplasty

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CR48 **Inflammatory, Malignant or Zoonotic? When There's More to It Than Just a Crohn Disease Flare-up**

Vjeran Tomljenović[1], Borna Katić[1], Ana Žibrat[1], Tin Trtanj[1], Marko Brinar[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Division of Gastroenterology and Hepatology, Department of Internal Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Crohn disease is a chronic inflammatory disorder of the gastrointestinal tract, characterized by flare-ups that may present with diarrhea, fever, fatigue, bloody stools, and weight loss. Many of these symptoms can be nonspecific, even in a patient with a previously diagnosed case of Crohn disease; therefore, an alternative etiology should always be considered.

Case presentation: A 60-year-old man was diagnosed with Crohn disease in 2012. Due to active disease in June 2023, biological therapy with infliximab was initiated. In 2024, he presented with a low-grade fever persisting for more than a month and progressive weight loss. The primary differential diagnoses included a flare of Crohn disease, infection, or an occult neoplasm. The patient was admitted, and a colonoscopy was performed, revealing no signs of inflammation or other pathology. Additional investigations, including esophagogastroduodenoscopy and a CT scan of the chest, abdomen, and pelvis, showed no significant findings. Empiric antibiotic therapy was initiated during hospitalization, but it had no effect on the fever. Due to persistent fever, multiple blood cultures were drawn, and eventually, Brucella melitensis was isolated. The patient subsequently underwent specialized treatment of brucellosis and was successfully managed.

Conclusion: Although the patient's symptoms initially suggested a relapse of Crohn disease or a malignant process, brucellosis was ultimately confirmed. While rare, this diagnosis was supported by the patient's occupational and geographical history—living in Bosnia and Herzegovina and working in a slaughterhouse. This case underscores the critical importance of comprehensive history-taking in the differential diagnosis of nonspecific symptoms in patients with chronic inflammatory diseases.

Keywords: Brucellosis; Crohn Disease; Fever; Weight Loss

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CR49 From Palliative Hyperfractionation to Complete Remission: Management of Metastatic Cervical Cancer With Maintenance Bevacizumab

Klara Piskač[1], Toma Perko[1], Tin Plaftak[1], Anastazija Aleksandrova Stanojević[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Gynecological Cancer Centre, Clinic for Women's Diseases and Obstetrics, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Hyperfractionation in radiotherapy means delivering smaller radiation doses more than once per day to improve symptom control while limiting late toxicity. In advanced cervical cancer, this approach can be used when urgent bleeding control is needed. Adding bevacizumab to chemotherapy improves survival in patients with metastatic cervical cancer.

Case presentation: We present a 47-year-old woman admitted in 2018 with life-threatening vaginal bleeding after three months of irregular discharge. Examination showed an exulcerated cervix with anterior vaginal wall infiltration; vaginal tamponade was required for two weeks. Biopsy confirmed poorly differentiated squamous cell carcinoma. MSCT (multi-slice computed tomography) revealed a 9.4-cm cervical mass with uterine and nodal enlargement, right ureteric involvement and a 7-mm lung metastasis. Dose-dense paclitaxel–carboplatin was started but stopped because of persistent vaginal bleeding. Urgent hyperfractionated palliative pelvic radiotherapy: 40 Gy/32 fractions/5 days/week over 3 weeks (16 work days), with weekly cisplatin, achieved fast bleeding control. The patient then received three-weekly paclitaxel–carboplatin without bevacizumab because of local necrosis and high fistula risk. Restaging showed residual uterine and nodal disease but good local control and clearance of necrosis. Second-line paclitaxel–topotecan plus bevacizumab induced complete radiological remission, followed by 23 cycles of maintenance bevacizumab, discontinued due to persistent proteinuria. She remains in complete remission with a good quality of life.

Conclusion: This case illustrates how hyperfractionated palliative pelvic radiotherapy, integrated with systemic therapy and later maintenance bevacizumab, can convert an initially unstable metastatic cervical cancer presentation into durable remission with an outstanding life quality.

Keywords: Bevacizumab; Maintenance Chemotherapy; Neoplasm Metastasis; Radiotherapy; Uterine Cervical Neoplasms

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CR50 Acute Limb Ischemia Due to Popliteal Artery Aneurysm Thrombosis in the Setting of Suspected Prostate Cancer Recurrence

Julija Žanetić[1], Ana Vučković[2], Vjekoslav Cvitković[1]
[1]Health Centre Zagreb – Zapad, Zagreb, Croatia
[2]School of Medicine, University of Zagreb, Zagreb, Croatia

Introduction: A popliteal artery aneurysm (PAA) is defined as an enlargement of the artery to 1.5 times the average diameter, corresponding to a diameter of ≥1.5 cm. Thrombosis of a PAA is a relatively rare condition, with an estimated incidence of 0.1–2.8%.

Case presentation: A 71-year-old male patient presented to a family medicine clinic with right foot and calf pain lasting 4 days. The examination revealed that the area was colder, livid in color, tender on palpation, with palpable femoral pulses but absent distal pulses. His medical history includes atrial fibrillation, hypertension, hypertensive cardiomyopathy, and prostate adenocarcinoma diagnosed 18 months earlier, treated with radical prostatectomy. He is a smoker and is taking antihypertensive therapy and rivaroxaban. Due to suspected acute arterial ischemia, he was referred to and admitted to the emergency department. Computed tomography (CT) angiography confirmed a thrombosed fusiform PAA measuring 2.2 cm, with no contralateral aneurysms. An in situ femoropopliteal bypass was performed. On postoperative day two, a right thigh hematoma developed, requiring additional surgery. After recovery, a Positron emisson tomography/CT scan will be performed because prostate-specific antigen (PSA) levels had risen from 0.16 ten months earlier to 0.31 five months earlier and 0.83 at presentation, indicating a rapid PSA doubling time.

Conclusion: This case highlights the importance of rapid diagnosis of PAA thrombosis as a cause of acute limb ischemia. An additional diagnostic and clinical dilemma arises from the concomitant rise in PSA levels and suspected malignancy recurrence, suggesting a possible paraneoplastic or prothrombotic role of active malignancy.

Keywords: Ischemia; Popliteal Artery Aneurysm; Prostatic Neoplasms; Thrombosis

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CR51 **Precocious Puberty in Neurofibromatosis Type 1**

Cyrine Ferchichi[1], Nour Chabbouh[1], Dhia Allah Lazreg[1], Sandra Stankovic[1]
[1]Endocrinology Department, Paediatrics Clinic in Niš, Niš, Serbia

Introduction: Neurofibromatosis type 1, also called von Recklinghausen disease, is an autosomal dominant disorder caused by a mutation in the neurofibromin gene, leading to tumor suppressor failure and uncontrolled RAS protein activation. Beyond its multisystem effects, central precocious puberty is a common endocrine complication in NF1, often secondary to optic nerve gliomas compressing the hypothalamus and triggering premature GnRH release.

Case presentation: We present the case of an 8-year-old girl, born prematurely at 32 weeks of gestation (birth weight: 950 g) due to preeclampsia, who was diagnosed with NF1 at birth. She was evaluated for the onset of pubic hair and breast development at the age of six. Clinical assessment revealed multiple café-au-lait spots and bilateral exophthalmos. Anthropometric measurements showed significant overgrowth, with a weight of 37 kg (P98) and a height of 147 cm (>P99, SD +3.95). Pubertal status was classified as Tanner stage 3 for pubarche and stage 3–4 for thelarche. Endocrine analysis confirmed early central activation, with a basal LH level of 0.3 IU/L and an LH/FSH ratio of 0.18. To exclude peripheral etiologies, investigations demonstrated a prepubertal testosterone level (0.25 ng/mL) and normal prolactin (337.1 mIU/L) and cortisol (488.9 nmol/L) levels. The diagnosis of NF1-associated central precocious puberty was confirmed, and treatment with a GnRH analogue (Diphereline) was initiated, administered intramuscularly every 28 days.

Conclusion: This case highlights the importance of early screening for endocrine complications in patients with NF1. Timely recognition and treatment with GnRH analogues are crucial to prevent premature epiphyseal closure and optimize final adult height.

Keywords: Gonadotropin-Releasing Hormone; Neurofibromatosis 1; Optic Nerve Glioma; Puberty, Precocious

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CR52 **Spleen Ahoy! Inadvertent Splenic Injury as a Complication of Thoracocentesis**

Vedran Vuglić[1], Điđi Delalić[2], Višnja Nesek Adam[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Emergency Department, University Hospital Sveti Duh, Zagreb, Croatia

Introduction: Iatrogenic splenic injury secondary to thoracocentesis is a very rare complication, with the incidence of circa 0,8%, according to the literature. This case report describes a case of inadvertent splenic injury following thoracocentesis resulting in emergency splenectomy.

Case presentation: A 51-year-old male presented to the Emergency Department with a chief complaint of fever and dyspnea. The patient's initial SpO2 was 92% on room air, therefore supplementary oxygen support was applied. The laboratory workup results showed an elevated white blood cell count with relative neutrophilia and elevated C-reactive protein (CRP), while the chest x-ray demonstrated a left sided pneumonic infiltrate and a pleural effusion. The pleural effusion was confirmed by ultrasound and was suspected to compromise adequate oxygenation, therefore a left sided thoracocentesis was performed by the on-call pulmonologist, using the Seldinger technique with a central line kit. Following the procedure, the patient reported abdominal pain and a hemorrhagic return was noted on the inserted catheter. An emergency computed tomography (CT) of the chest and abdomen was performed, demonstrating iatrogenic splenic injury, with the catheter positioned inside the spleen. An emergency splenectomy was conducted and the patient recovered without further complications following a short stay in the surgical intensive care unit and the abdominal surgery ward.

Conclusion: While iatrogenic splenic injury secondary to thoracocentesis is extremely rare, caution should be exercised to prevent it, including the use of ultrasound-guided technique in real-time for "low-lying" effusions as well as avoiding puncture sites below the 8th intercostal space.

Keywords: Iatrogenic Disease; Pleural Effusion; Splenectomy; Thoracentesis

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CR53 **Retransplantation of a Heart after Endocarditis and Vasculopathy**

Aya El-Hajj[1], Paula Đozić[1], Jure Jakovljević[1], Ivan Rudež[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Cardiosurgery, University Hospital Dubrava, Zagreb, Croatia

Introduction: Heart transplantation remains the definitive treatment for end-stage heart failure; however, long-term survival is limited by complications such as infective endocarditis and cardiac allograft vasculopathy (CAV). Management of these conditions is challenging, and in selected cases, cardiac retransplantation may present as the only life-saving option.

Case presentation: A 35-year-old patient presented to the emergency room after developing severe bilateral pneumonia. He was diagnosed with biventricular cardiomyopathy with marked left ventricular dilation, reduced ejection fraction (25%), and a mural apical thrombus, complicated by splenic and right renal embolic infarctions. Heart transplantation was subsequently performed, and histopathology confirmed non-compaction cardiomyopathy. Two years later the clinical course was complicated by tricuspid valve endocarditis caused by Staphylococcus epidermidis, requiring reoperation with implantation of a mechanical tricuspid valve and epicardial pacing leads. After activation of the implantable cardiac defibrillator, progressive cardiac allograft vasculopathy was documented, necessitating modification of immunosuppressive therapy and repeated percutaneous coronary interventions, including intravascular ultrasound-guided treatment of the circumflex artery. Despite preserved graft systolic function (LVEF 60%), the patient developed stable angina attributable to graft vasculopathy and was relisted for heart retransplantation, which was done three years later.

Conclusion: This case highlights the complex interplay between infection, chronic rejection, and vasculopathy in heart transplant recipients. Infective endocarditis can accelerate graft injury and contribute to the development of CAV, ultimately leading to graft failure. In carefully selected patients, heart retransplantation remains a viable and potentially life-saving option when irreversible graft dysfunction occurs despite optimal medical therapy.

Keywords: Allografts; Cardiomyopathies; Endocarditis; Reoperation

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CR54 **Lung Transplantation in Inborn Error of Immunity**

Matea Raboteg[1], Tony Rumora[2], Boris Karanović[3]
[1]University of Zagreb, School of Medicine, Zagreb, Croatia
[2]School and Adolescent Medicine Division, Teaching Institute for Public Health dr. Andrija Štampar, Zagreb, Croatia
[3]Department of clinical immunology and rheumatology, Department of Internal Medicine, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Nowadays, lung transplantation is the standard form of care for patients with advanced non-malignant lung diseases. A 53-year-old patient's undiagnosed congenital immune disorder led to recurrent pneumonias, progressive loss of respiratory function, and ultimately, lung transplantation.

Case presentation: The patient experienced frequent respiratory infections from early childhood, which led to bronchiectasis, centrilobular emphysema, chronic respiratory insufficiency, and pulmonary hypertension. Despite repeated hospitalizations and long-term medical management, the patient's respiratory status progressively deteriorated, resulting in increasing oxygen dependence and limited functional capacity. Heart failure, pulmonary embolism, and recurrent pneumonias further complicated the clinical course. Genetic testing revealed a homozygous pathogenic variant in the C2 component complement gene, as well as heterozygous mutations in the C5 gene (a probable pathogenic variant and a variant of uncertain significance). Variants of uncertain significance were also identified in the CFB and C8B genes. Further deterioration of respiratory function led to bilateral lung transplantation, which significantly improved the patient's lung function and quality of life.

Conclusion: Congenital immune disorders are often diagnosed too late, when chronic complications have already developed. Because hypocomplementemia is incurable, the focus is placed on the prevention of infections through the use of pneumococcus and meningococcus vaccines, including prophylactic antimicrobial therapy. This case highlights the importance of timely recognition of congenital immune disorders in patients with recurrent infections, which may result in fewer complications and reduced use of invasive treatment methods.

Keywords: Genetic Diseases, Inborn; Genetic Testing; Hereditary Complement Deficiency Diseases; Lung Transplantation; Pneumonia; Primary Immunodeficiency Diseases

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CR55 Advancing Intrauterine Treatment of Fetal Complete Atrioventricular Block and Postnatal Outcome: A Case Report

Klara Pintarić[1], Lana Paulić[1], Rajka Lulić Jurjević[2,3,4]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Cardiology and Fetal Diagnostics, Children's Hospital Srebrnjak, Zagreb, Croatia
[3]Faculty of Medicine, University of Rijeka, Rijeka, Croatia
[4]School of Medicine, University of Split, Split, Croatia

Introduction: Complete congenital atrioventricular block (CAVB) is a rare but potentially life-threatening condition in which fetal heart block occurs due to maternal autoantibodies.

Case presentation: A 47-year-old primigravida was referred at 24 weeks of gestation for suspected fetal bradycardia. She conceived via in vitro fertilization with an oocyte donor and tested positive for antinuclear antibodies, SSA, and SSB. Initial ultrasound showed right-ventricle dominance with increased myocardial echogenicity and hypertrophy. The structural anatomy of the heart was completely normal. There were no signs of cardiomegaly or decompensation, although severe bradycardia was present. The patient was admitted, and after consulting a rheumatologist, hydroxychloroquine was started to treat her autoimmune condition, along with dexamethasone to manage fetal bradycardia. Follow-up ultrasounds showed worsened findings, prompting an increase in dexamethasone dosage and administration of IV immunoglobulin (IVIG) to reduce maternal antibodies and minimize fetal heart damage. After heart rate decreased, salbutamol was added. The fetal condition stabilized, and the pregnancy was managed in utero. At 36 weeks, Doppler studies showed fetal hypoxia, prompting an emergency cesarean. The infant was born with bradycardia but no other abnormalities, and underwent pacemaker implantation at three weeks. At two years, the child is doing well with routine follow-up.

Conclusion: CAVB is typically diagnosed via fetal echocardiography between 16th and 24th week. Corticosteroids and beta blockers are used to reduce inflammation and improve contractility, but most infants will still require pacemakers early in life. Despite advances in neonatal care, the prognosis for these infants remains poor, emphasizing the need for better early management strategies.

Keywords: Atrioventricular Block; Autoantibodies; Bradycardia; Pacemaker, Artificial; Prenatal Diagnosis

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CR56 **Protected PCI with Impella CP in the Treatment Multivessel Coronary Artery Disease – Case Report**

Marija Magdalena Purgar[1], Petra Guljaš[1], Doris Barunčić[1], Dražen Mlinarević[1,2], Damir Kirner[1,2]
[1]Faculty of Medicine Osijek, J.J. Strossmayer University of Osijek, Osijek, Croatia
[2]Department of Cardiology, University Hospital Centre Osijek, Osijek, Croatia

Introduction: Impella CP is a percutaneously placed mechanical circulatory support device providing temporary hemodynamic stabilization. This microaxial pump delivers up to 4.3 L/min of blood flow, reducing left ventricular workload and improving organ perfusion. It is utilized in cardiogenic shock, high-risk percutaneous coronary interventions (HR-PCI), and acute decompensated heart failure as a bridge to recovery or transplantation. A recent study indicated a 12% lower 30-day mortality compared to standard care in cardiogenic shock due to acute myocardial infarction. Potential complications include vascular injuries (10-15%), hemolysis, and thrombosis.

Case presentation: A 77-year-old male with coronary artery disease, ischemic cardiomyopathy (Left Ventricular Ejection Fraction (LVEF) 30%), moderate aortic stenosis, diabetes, and a history of hemorrhagic stroke (2022.), presented with an acute NSTEMI. Coronary angiography revealed multivessel disease, including significant stenoses of the left main (LM), left anterior descending (LAD), left circumflex (LCX) arteries, and moderate right coronary artery (RCA) stenosis. Following a multidisciplinary Heart Team discussion, HR-PCI of the LM/LAD/LCX bifurcation was performed with Impella CP support and intravascular ultrasound guidance. The clinical course was complicated by bleeding from the left common femoral artery, which was treated successfully by vascular surgery. Follow-up echocardiography showed improved LVEF (49%) and reduced mitral regurgitation. The patient was discharged home on prolonged dual antiplatelet therapy.

Conclusion: This case demonstrates successful HR-PCI with Impella support in a patient with severe coronary artery disease and comorbidities. Mechanical circulatory support with the Impella pump facilitates complex PCI, while rapid identification of complications is crucial for ensuring optimal procedural and patient outcomes.

Keywords: Coronary Artery Disease; Heart-Assist Devices; Myocardial Infarction; Percutaneous Coronary Intervention

REVIEWS

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R01 **Cytokine Adsorption: A New Way of Treating Sepsis**

Tin Plaftak[1], Kristina Jurakić[1], Marko Plivelić[1], Katarina Židov[1], Daniela Bandić Pavlović[1,2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Clinic for Anesthesiology, Reanimatology, Intensive Care and Pain Management, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Sepsis is a life-threatening condition caused by an inappropriate response to infection and may progress to septic shock and lead to death. Cytokine adsorption is an extracorporeal blood purification therapy that uses porous polymer cartridges to filter and remove excessive pro-inflammatory cytokines from the blood.

Materials and methods: PubMed was searched using the keywords "cytokine adsorption" and "sepsis". Only meta-analyses and randomized controlled trials published between 2020 and 2025 were considered. Additional filtration was done based on relevance to the topic.

Results: Wang, Guizhong et al. found that the use of the oXiris filter in sepsis lowers 7-, 14-, and 28-day mortality rates, as well as intensive care unit length of stay. Additionally, lactate levels, norepinephrine requirements, and Sequential Organ Failure Assessment (SOFA) score were also lowered. These findings were supported by Broman, Marcus E et al., who reported a reduction in pro-inflammatory cytokines and endotoxin levels with oXiris treatment. CytoSorb is another adsorption device used in the treatment of sepsis. Hawchar, Fatime et al. showed a reduction in norepinephrine requirements and procalcitonin levels. However, Becker, Sören et al. found no significant effect on mortality. Yamamoto, Takashi et al. provided an in vitro and in vivo study in rats and reported that TKM-101 lowers pro-inflammatory cytokines and mortality.

Conclusion: Cytokine adsorption represents a new, innovative way of treating sepsis and provides new therapeutic options for critically ill patients. Further studies are necessary to evaluate the advantages of cytokine adsorption and to develop standardized guidelines for implementing it in clinical practice.

Keywords: Cytokines; Hemofiltration; Intensive Care Units; Sepsis

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R02 **Literature Review; Liver Machine Perfusion**

Andro Franković[1], Ivona Frljak[1], Maša Gašparović[1], Hrvoje Silovski[2], Ivan Romić[2]
[1]School of Medicine Zagreb, University of Zagreb, Zagreb, Croatia
[2]Department of Surgery, University Hospital Centre Zagreb, Zagreb, Croatia

Introduction: Liver machine perfusion (LMP) is one of the most promising methods of active organ management with the potential to enhance graft quality and decrease ischemia-reperfusion injury while improving transplantation success rates and increasing the number of available livers.

Materials and methods: This review is based on the analysis of a recent study of liver machine perfusion, that was published in the international peer-reviewed journal Biomedicines. The original article summarized evidence from numerous experimental and clinical studies, including randomized trials, meta-analyses, and guidelines. Hypothermic (HMP), subnormothermic (SMP), normothermic (NMP), and controlled oxygenated rewarming (COR) strategies were evaluated with respect to their physiological principles, technical characteristics, indications, and clinical outcomes.

Results: LMP has demonstrated significant benefits compared with static cold storage, particularly in high-risk grafts. HMP reduces ischemia–reperfusion injury and biliary complications while NMP is best at imitating physiological conditions using oxygenated blood-based solutions to perfuse the liver at body temperature. SMP offers partial metabolic activity, although clinical evidence is scarce. COR provides a gradual transition to normothermia and may reduce rewarming injury, although its clinical role is still under evaluation. Despite encouraging short-term outcomes, differences in protocols and viability criteria limit direct comparison among techniques.

Conclusion: Liver machine perfusion represents a paradigm shift in liver graft preservation, offering improved graft utilization and early outcomes, especially for marginal donors. Although no single perfusion strategy has proven superior to the others, a tailored application based on donor risk appears to be most effective. The different methods of LMP should be viewed as complementary approaches, rather than interchangeable alternatives.

Keywords: Graft Survival; Organ Preservation; Reperfusion Injury; Transplantation

ORIGINAL RESEARCH

https://doi.org/10.26800/LV-148-supl1-59

OR01 **Determinants of Skeletal Muscle Mass in Young Medical Students: The Role of Biological, Behavioral, and Psychosocial Factors**

Kamil Górecki[1], Katarzyna Witczak[1], Jakub Banaszek[1], Michalina Boruch[1], Jakub Gołacki[2]
[1]Student's Scientific Society at the Department of Endocrinology, Diabetology and Metabolic Diseases, Medical University of Lublin, Lublin, Poland
[2]Department of Endocrinology, Diabetology and Metabolic Diseases, Medical University of Lublin, Lublin, Poland

Introduction: Body composition is an important determinant of metabolic health, with skeletal muscle mass playing a key role in glucose metabolism. Medical students represent a specific group of young adults exposed to high academic stress while remaining largely free from chronic metabolic diseases. Data on the relative influence of biological, lifestyle, and psychosocial factors on body composition in this population are limited.

Aim: The aim of this study was to assess the determinants of skeletal muscle mass in medical students, with particular emphasis on the relative role of biological factors, lifestyle behaviors, and psychosocial stress.

Materials and methods: This cross-sectional study included 202 students of medical faculties aged 19–26 years. Body composition, including skeletal muscle mass, was assessed using bioelectrical impedance analysis performed under standardized conditions. Physical activity levels, sedentary behavior, sleep quality, and dietary habits were evaluated using validated self-administered questionnaires. Psychosocial stress was assessed using standardized instruments measuring symptoms of depression, anxiety, and stress.

Results: The analysis included 202 medical students. Skeletal muscle mass differed significantly between sexes and was strongly associated with biological parameters related to body size. Physical activity showed a modest but significant independent association with skeletal muscle mass. Psychosocial stress indicators were not independently associated with skeletal muscle mass after adjustment for biological and behavioral factors and did not increase the explained variance in regression models.

Conclusion: In young medical students, skeletal muscle mass is primarily determined by biological and lifestyle-related factors, while psychosocial stress appears to have limited independent influence at this early, preclinical stage of life.

Keywords: Body Composition; Exercise; Muscles; Students

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OR02 **Ultrasound Assessment of the Nutritional Status of Surgical Patients in the Intensive Care Unit**

Nikolina Božić[1], Lea Atlagić[1,2], Domagoj Kretić[1,3], Slavica Kvolik[1,2]
[1]Faculty of Medicine Osijek, J.J.Strossmayer University of Osijek, Osijek, Croatia
[2]Department of Anesthesiology, Intensive Care and Resuscitation, University Hospital Centre Osijek, Osijek, Croatia
[3]Department of Radiology, University Hospital Centre Osijek, Osijek, Croatia

Introduction: The nutritional status of patients is a potential predictor of treatment outcome. Nutritional status in the intensive care unit (ICU) is determined by clinical and laboratory indicators including Body Mass Index (BMI), Clinical Frailty Scale (CFS), lactate, hemoglobin and albumin and may be quantified using Nutritional Risk Screening (NRS).

Aim: The aim is to examine the correlation between muscle echogenicity measured by ultrasound and laboratory indicators of nutritional status (hemoglobin, albumin, lactate).

Materials and methods: After approval from the Ethics Committee approval was obtained, a total of 15 surgical ICU patients (11 male, 5 female, 63.6 ±12.5 years) were recruited for this prospective observational study. Demographic data, laboratory findings, CFS, and NRS were registered. The thickness of the muscles and the overlying fat tissue was measured for the vastus intermedius, and rectus femoris using ultrasound. Muscle echointensity was determined using the ImageJ program.

Results: A significant correlation was found between muscle thickness and CFS for both vastus intermedius, and rectus femoris ($P<0.05$), and between the rectus femoris and hemoglobin ($r=0.597$, $P=0.019$). A correlation was registered between CFS and echogenicity of the vastus intermedius ($r=0.593$, $P = 0.033$). The echogenicity of the vastus intermedius was negatively correlated with the thickness of the adipose tissue above it ($r=-0.531$, $P=0.042$). NRS was associated with muscle thickness of the rectus femoris ($r= -0.602$, $P=0.030$).

Conclusion: Ultrasound measurements may be useful in assessing nutritional status in the ICU. A larger study could provide more precise confirmation of the importance of muscle echogenicity in the assessment of nutritional status.

Keywords: Intensive Care Units; Nutritional Status; Postoperative Care; Risk Assessment; Ultrasonography

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OR03 **Association Between Visceral Adiposity and Liver Fibrosis in Women with Obesity**

Katarzyna Witczak[1], Kamil Górecki[1], Jakub Gołacki[2]
[1]Student's Scientific Society at the Department of Endocrinology, Diabetology and Metabolic Diseases, Medical University of Lublin, Lublin, Poland
[2]Department of Endocrinology, Diabetology and Metabolic Diseases, Medical University of Lublin, Lublin, Poland

Introduction: Metabolic dysfunction-associated steatotic liver disease is highly prevalent among individuals with obesity, while access to standard diagnostic tools for liver steatosis and fibrosis remains limited. Therefore, practical non-invasive markers are needed for early risk assessment in routine clinical care.

Aim: To evaluate associations between body composition parameters, anthropometric measurements, and indices of hepatic steatosis and fibrosis in women with overweight or obesity.

Materials and methods: This cross-sectional retrospective study included 1,492 adults with overweight or obesity, of whom 1,164 were women. Anthropometric measurements included body mass index and waist circumference. Body composition was assessed using bioelectrical impedance analysis, providing percent body fat and visceral fat rating (VFR). Liver-related indices calculated from routine laboratory tests included the Aspartate Aminotransferase–to–Platelet Ratio Index, Fibrosis-4 Index (FIB-4), Lipid Accumulation Product, body mass index–aspartate aminotransferase to alanine aminotransferase ratio–diabetes score, De Ritis ratio, triglyceride-to-high-density lipoprotein cholesterol ratio, and neutrophil-to-high-density lipoprotein cholesterol ratio. Associations were analyzed using rank correlation and linear regression analyses.

Results: Women with FIB-4 values above 1.3 had significantly higher VFR, percent body fat, waist circumference, and body mass index. VFR showed a positive correlation with FIB-4 and was the strongest independent predictor. Waist circumference was the main predictor of the Lipid Accumulation Product and liver enzyme levels. Percent body fat showed weaker associations, whereas body mass index was not predictive.

Conclusion: Measures of visceral adiposity, particularly VFR and waist circumference, are more closely associated with markers of hepatic steatosis and fibrosis than general adiposity indicators, supporting their use in early metabolic liver risk stratification.

Keywords: Body Composition; Fatty Liver; Fibrosis; Obesity

WORKSHOPS

Surface Electromyography: A Non-Invasive Assessment of Muscle Function

Mario Cifrek[1], Gašpar Dončević[1], Matea Čunović[1]
[1]Department of Electronic Systems and Information Processing, Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia

Summary: The participants will learn the basic principles of measuring muscle activity and how to interpret the results. After the theoretical concepts, the workshop will present the applicability of sEMG for diagnostics, rehabilitation and research in medicine. During the practical part of the workshop, sEMG of four volunteers' triceps activity will be recorded during a simple exercise until muscle fatigue. The elements of fatigue on electromyographic recording will be analysed interactively. At the end of the practical session, interested participants will be given the opportunity to try out a muscle rehabilitation game controlled by muscle activity recorded using an sEMG probe and to try to beat the high score.

Keywords: Diagnostic Techniques and Procedures; Electromyography; Muscles; Rehabilitation.

Out-of-Hospital Delivery Workshop

Ana Milković[1], Nika Šašić[1], Sara Dolički[1], Vita Guljaš[1]; Elena Cahun[2]
[1]Student society for Gynaecology and Obstetrics, School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department of Gynecology and Obstetrics, University Hospital Centre Sestre milosrdnice, Zagreb, Croatia

Summary: How to respond when childbirth occurs outside the hospital? This workshop prepares medical students for situations in which they may need to manage an out-of-hospital birth once they become young physicians—whether in the field, on an island, or in an ambulance. Using a childbirth teaching model, participants will learn to recognize all stages of labor and how to safely manage delivery. They will also practice key procedures for stabilizing both the mother and the newborn. With guidance from a specialist in gynecology and obstetrics, this workshop will help future doctors learn how to react in critical moments and remain calm and focused in real-life situations where their role will be crucial.

Keywords: Emergencies; Gynecology; Infant, Newborn; Labor, Obstetric

Cut & Rotate: Local Flap Workshop

Anamarija Tubikanec[1], Lucija Grbić[1], Veronika Bičak[1], Magda Horvat[1], Nina Beluhan[1], Ivan Kralj[1], Matija Borovička[1], Josip Jaman[2]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia
[2]Department for Plastic, Reconstructive and Aesthetic Surgery, Clinical Hospital Dubrava, Zagreb, Croatia

Summary: Fundamentals of Skin Flaps and Grafts in Plastic Surgery is a hands-on workshop designed to introduce students to the basic principles of flap and graft classification, clinical indications, and aesthetic considerations in reconstructive surgery. Through a focused theoretical overview, participants will learn proper flap selection according to defect type, vascular principles, and incision planning in relation to lines of minimal skin tension.

During the practical session, students will perform key local flap techniques, including elliptical excision, Z-plasty, Limberg (rhomboid) flap, rotational flap, and intradermal continuous suturing. Emphasis will be placed on preserving vascularity and achieving optimal functional and aesthetic outcomes using realistic simulation models.

Organized as part of the ZIMS 2025 congress, this workshop provides students with an opportunity to strengthen their surgical skills under peer leadership with mentorship support. Participation is limited to 12 students to ensure high-quality, individualized instruction.

Keywords: Plastic Surgery Procedures; Surgery, Plastic; Surgical Flaps; Wound Closure Techniques

Fix & Flex: Functional Taping of the Shoulder and Knee

Luka Hanulak[1], Katarina Toljan[1], Petra Vita Kasović[1], Leon Kožić[1]
[1]School of Medicine, University of Zagreb, Zagreb, Croatia

Summary: The shoulder offers extreme mobility at the cost of stability, while the knee bears the brunt of daily physical stress. Both are highly prone to injury and dislocation. Join our workshop to master clinical stability assessments and learn effective kinesio taping techniques to enhance joint support and recovery

Keywords: Athletic Tape; Joint Dislocations; Knee; Orthopedics; Physical Examination; Shoulder

Innovative Pharmacotherapy for Insomnia - Towards Personalized Treatment

Ana Palavra[1], Jakov Zorić[1]
[1]Faculty of Pharmacy and Biochemistry, University of Zagreb, Zagreb, Croatia

Summary: The workshop focused on the clinical management of complex insomnia cases from a clinical pharmacist's perspective, emphasizing structured, guideline-based decision-making.

Participants actively analyzed real clinical scenarios and applied current evidence-based treatment strategies. In addition, the session explored innovative approaches, including the integration of pharmacogenetics into insomnia therapy. By the end of the workshop, participants demonstrated strengthened clinical reasoning skills and greater confidence in assessing and managing pharmacotherapy cases in their future professional practice.

Keywords: Drug Therapy; Pharmacogenetics; Precision Medicine; Sleep Initiation and Maintenance Disorders

Traumatic Brain Injury

Ante Sekulić[1], Marijana Matas[1]
[1]University Hospital Centre Zagreb, Croatia

Summary: Strengthen your ability to manage critical head trauma cases with confidence and control. This workshop emphasizes early recognition of crucial clinical signs, timely and targeted interventions, and steady decision-making in high-pressure environments. Build the skills and composure needed to treat traumatic brain injuries effectively while optimizing patient outcomes.

Keywords: Anesthesiology; Brain Injuries, Traumatic; Endoscopy; Intubation

LECTURES

Robot-Assisted Total Knee Replacement

Ivan Putica[1]
[1]Special Hospital Akromion, Zagreb, Croatia

This lecture will provide an overview of total knee replacement with emphasis on the role of robotic-assisted technology in contemporary knee surgery. It will start with a brief review of standard total knee arthroplasty, including basic surgical principles, implant positioning, and expected outcomes of conventional techniques. Particular attention will be given to the indications for robot-assisted knee replacement and patient selection, highlighting situations in which robotic systems may offer potential advantages. The lecture will then outline the operative workflow, from preoperative planning and intraoperative guidance to implant placement and soft-tissue balancing. Finally, current clinical results and available evidence on accuracy, functional outcomes, and patient satisfaction following robot-assisted total knee replacement will be discussed.

Pressurized Intraperitoneal Aerosol Chemotherapy (PIPAC): A Novel Approach in Peritoneal Carcinomatosis

Branko Bogdanić[1,2]
[1]University Hospital Centre Zagreb, Zagreb, Croatia
[2]School of Medicine, University of Zagreb, Zagreb, Croatia

The lecture explores the PIPAC technique as a minimally invasive treatment for patients with peritoneal carcinomatosis, outlining procedural steps, patient selection criteria, and reported success rates. It emphasizes its role as a therapeutic option for patients with advanced disease, in whom PIPAC often represents a last-line treatment. The lecture also highlights the recent introduction of this method in Croatia, where it has been performed for about six months, with University Hospital Centre Zagreb currently being the only clinical centre in Southeast Europe where the PIPAC procedure is performed.

The Cutting Edge of Facial Plastic and Reconstructive Surgery

Matija Mamić[1,2]
[1]Department of Maxillofacial Surgery, University Hospital Dubrava, Zagreb, Croatia
[2]School of Medicine, University of Zagreb, Zagreb, Croatia

This lecture explores the applications of advanced surgical techniques and digital technologies in maxillofacial surgery, highlighting their transformative impact on complex head and neck oncosurgical procedures, where precision, functionality, and aesthetics are equally critical. Furthermore, the lecture showcases the use of 3D modelling softwares in reimagining and successfully performing demanding orthognatic procedures, thereby demonstrating how essential functions such as speech, mastication, and breathing, with minimal disruption of facial harmony. Finally, a comprehensive overview of the way modern planning tools and patient-specific solutions enhance both surgical accuracy and long-term outcomes is provided.

Interpretative Challenges in Medical AI: A Case Study on Major Depressive Disorder

Nikolina Frid[1]
[1]Department of Electronics, Microelectronics, Computer and Intelligent Systems, Faculty of Electrical Engineering and Computing, University of Zagreb, Zagreb, Croatia

The lecture will explore the topic of the development of interpretable machine learning models for use in medicine. This presentation will familiarize the participants with the researcher's own project, developing a model for discovering major depressive disorder based on EEG signals. The goal of such models is to give insight into factors that account for the model's decision-making, with high prediction accuracy. This insight should be clinically grounded, for example, it can be defined by characteristics of an EEG recording of specific brain areas, specific EEG frequency bands and similar parameters. Models with such characteristics, except for their use in predicting the diagnosis, would give the clinicians insight into observed patterns in the data, which can be useful in clinical thinking: for comparison with similar cases or recognizing otherwise relevant patterns. The wider goal of such an approach is to increase the clinicians' trust into AI driven decision making. This may, in the future, lead to easier and more meaningful integration of AI systems into everyday medical practice.

Oncofertility Procedures in Reproductive Medicine

Davor Ježek[1,2]
[1]University Hospital Centre Zagreb, Zagreb, Croatia
[2]Dept. of Histology and Embryology, School of Medicine, University of Zagreb, Zagreb, Croatia

This lecture provides an overview of fertility preservation in male patients with cancer, with particular focus on the increasing incidence of testicular cancer and its impact on spermatogenesis. Conditions such as oligospermia and azoospermia, which may be present before or after oncological treatment, will be discussed, along with strategies for preserving fertility in men who have lost a testis due to their diagnosis. Key topics include semen cryopreservation as the standard and most effective method for safeguarding future reproductive potential, as well as counseling and timely referral to reproductive specialists. The lecture will also review non-invasive and invasive techniques for obtaining sperm samples in patients with compromised sperm production, including their indications and clinical relevance. Emphasis will be placed on a multidisciplinary approach and early intervention to optimize reproductive outcomes in male oncology patients.

Ovarian Tissue Cryopreservation and Transplantation

Magdalena Karadža[1]
[1]University Hospital Centre Zagreb

This lecture will address fertility preservation in patients undergoing treatment for malignant diseases, with particular emphasis on the depletion of ovarian reserve caused by chemotherapy and other gonadotoxic therapies. The impact of cancer treatment on reproductive potential and long-term endocrine function will be briefly reviewed. An overview of available fertility preservation strategies will be presented, including established methods such as embryo cryopreservation. The lecture will then focus on the newer approach of ovarian tissue cryopreservation, outlining its indications, basic principles, and clinical relevance. Special attention will be given to the transplantation of cryopreserved ovarian tissue after completion of oncologic therapy, including its potential to restore hormonal function and enable future pregnancy. The session aims to provide a concise but comprehensive overview of current and emerging options for preserving fertility in patients facing cancer treatment.

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