THIRD INTERNATIONAL CONGRESS

OF FACULTY
STUDENT
ASSEMBLY.

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380

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WELCOMING NOTES

INTRODUCTION

Dear colleagues and fellow future healthcare professionals,

It is our great pleasure to invite you to the Third International Congress of the Faculty Student Assembly, which will be held from October 16 to 18, 2025, in Skopje, North Macedonia.

This year's congress has been carefully designed to reflect the complexity and beauty of modern medicine. At the heart of our scientific program are panel discussions that tackle one clinical topic from multiple specialty perspectives, emphasizing the importance of the multidisciplinary approach in patient care. Through these sessions, we aim to spark critical thinking and open conversations that mirror real-life clinical decision-making.

In addition to our rich academic program, we are proud to offer 40 hands-on workshops, organized into 4 blocks of 10, covering a wide range of clinical and practical skills – from basic techniques to advanced simulations. Each workshop is led by experienced professionals eager to share their knowledge and inspire the next generation of clinicians.

One of the most exciting components of this congress is the Health and Science Fair – an interactive exhibition where leading medical and pharmaceutical companies, as well as student and professional organizations, will showcase the latest innovations, technologies, and products shaping the future of medicine.

We have also prepared a vibrant social program to help you unwind and connect. From a gala evening to themed parties and informal networking events, you can expect moments of joy, cultural exchange, and lasting friendships. Because we believe that true growth happens not only through learning, but also through meaningful human connection.

We look forward to welcoming you to Skopje this October, where science, innovation, and community will come together for a truly unique experience.

Warm regards,
The Organizing Team
3rd International Congress of the Faculty Student Assembly
Skopje 2025

LETTER FROM THE DEAN

Prof. Svetozar Antovikj, MD, PhD

Dear colleagues,

It is with great honor and sincere pleasure that I welcome you to the Third International Congress of Medical Students, organized by the Faculty Student Assembly of the Medical Faculty, Ss. Cyril and Methodius University in Skopje.

The Medical Faculty in Skopje stands as one of the pillars of higher medical education in the region, with a proud tradition of academic excellence, clinical experience, and continuous pursuit of scientific progress. For decades, our Faculty has been dedicated to shaping competent, ethical, and compassionate physicians who not only heal but also lead and inspire.

This Congress is yet another proof of that spirit — a reflection of our students' enthusiasm, creativity, and commitment to knowledge. The Faculty Student Assembly has once again demonstrated that when young minds unite around a shared vision, they can create an event of exceptional quality, bridging science, practice, and humanity.

I wish to extend my sincere congratulations to the Faculty Student Assembly for their initiative, professionalism, and devotion in organizing this congress, which strengthens the bridge between students and professors, between learning and innovation.

May this Congress be a source of new ideas, fruitful collaborations, and lasting friendships. I wish all participants inspiration, success, and memorable experiences that will guide you in your future medical careers.

Best Regards,
Prof. Dr. Svetozar Antovikj
Dean of the Medical Faculty
Ss. Cyril and Methodius University in Skopje

LETTER FROM THE OC-PRESIDENT

Nadica Tancheva

Dear colleagues,

It is my great honor and sincere pleasure to welcome you to the Third International Congress of Medical Students, organized by the Faculty Student Assembly of the Medical Faculty, Ss. Cyril and Methodius University in Skopje.

Each year, our congress grows — not only in numbers, but in purpose and vision. This year, we are proud to gather young minds and future healthcare professionals from around the world, united by one shared goal: to learn, connect, and inspire change. Through lectures from distinguished professors, interactive workshops, and the presentation of original student research, we aim to create a space where curiosity meets clinical excellence.

This congress is not merely an event — it is a celebration of knowledge, dedication, and the collective spirit that defines the medical profession. I invite you to take every opportunity to exchange ideas, to challenge yourselves, and to enjoy the unique academic and social atmosphere we have prepared for you.

On behalf of the entire Organizing Committee, I extend my warmest welcome to all participants. May this congress ignite your passion for medicine and remind us all that behind every study, every discovery, and every patient, there stands a purpose — to make a difference.

With appreciation and enthusiasm,
Nadica Tancheva
President of the Faculty Student Assembly
Medical Faculty, Ss. Cyril and Methodius University in Skopje

THE TEAM

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president

ANA KOTORCHEVIKJ
general secretary

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executive coordinator

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IGOR KLOPCHEVSKI

MIA CHICHKARIKJ

REGISTRATIONS

JOVAN KOSTADINOVSKI

ANGELA NACEVA

MEDMORPHOSIS 2025

PROGRAM INFO

DAY 1 — OCT 16

09:00 - 11:00	Registrations
12:00 - 13:00	Opening Ceremony
13:00 - 14:15	Cocktail and Lunch Break
14:30 - 15:45	Panel Session I
20:00	Gala Night

DAY 2 — OCT 17

08:00-10:30	Case Report Presentations
10:30-11:15	Coffee Break and Breakfast
11:30-13:00	Workshop Session I
13:00-13:15	Coffee Break
13:30-15:00	Workshops Session II
15:00-16:15	Lunch Break - Health & Science Fair
16:30-17:45	Panel Session II
18:00 - 19:00	Skopje City Tour
20:30 - 21:30	Quiz Game
21:30	Social Program

DAY 3 — OCT 18

08:00-10:30	Poster Presentations
10:30-11:15	Coffee Break and Breakfast
11:30-13:00	Workshop Session III
13:15-14:15	Panel Session III
14:15-15:20	Lunch Break - Game Fair
15:30-17:00	Workshops Session IV
17:00 - 17:45	Advanced Topics in Plastic &Reconstructive Surgery
21:00	Closing Ceremony

AWARDS

ACITVE PARTICIPANTS

CASE REPORTS

1st place	500€
2nd place	Trip to Budapest for 2
3rd place	Weekend getaway in Berovo

ACITVE PARTICIPANTS

POSTER PRESENTATIONS

1st place	500€
2nd place	Trip to Budapest for 2
3rd place	Weekend getaway in Berovo

THE CROWD'S FAVORITE

ACTIVE PARTICIPANTS

The most voted	Lunch for 2 in restaurant Bachilo

MED GAME FAIR

4 EPIC GAMES

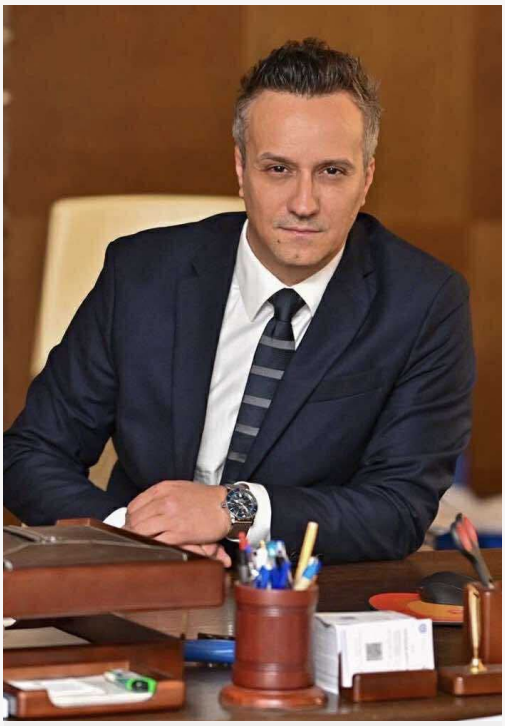
First 4 places	New Year's in Belgrade for 2

PANEL SESSIONS & LECTURES

MULTIDISCIPLINARY APPROACH

COLORECTAL CANCER

PROF. RUBENS JOVANOVIKJ, MD, PHD
UNIVERSITY INSTITUTE OF PATHOLOGY, SKOPJE



PROF. SVETOZAR ANTOVIKJ, MD, PHD
UNIVERSITY CLINIC OF DIGESTIVE SURGERY, SKOPJE

DEAN OF THE FACULTY OF MEDICINE, SKOPJE

PROF. SVETOZAR ANTOVIKJ MD, PHD
UNIVERSITY CLINIC OF RADIOTHERAPY & ONCOLOGY, SKOPJE

ASST. ANDREA NANCHEVA,
CITY GENERAL HOSPITAL "SEPTEMBER 8", SKOPJE

PROF. GJORGJI DERIBAN, MD, PHD
UNIVERSITY CLINIC OF GASTROENTEROHEPATOLOGY, SKOPJE

MULTIDISCIPLINARY APPROACH

BREAST CANCER

UNIVERSITY CLINIC OF PLASTIC AND RECONSTRUCTIVE SURGERY, SKOPJE

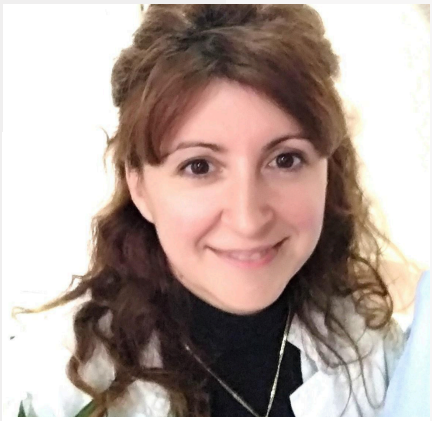
ASSOC. PROF. SOFIJA PEJKOVA, MD, PHD

UNIVERSITY CLINIC OF THORACIC AND VASCULAR SURGERY, SKOPJE

ASST. NATASHA TOLESKA DIMITROVSKA, MD

UNIVERSITY CLINIC OF RADIOTHERAPY & ONCOLOGY, SKOPJE

ASST. VALENTINA BOJOVSKA TRAJANOVSKA, MD



UNIVERSITY INSTITUTE OF PATHOLOGY, SKOPJE

ASSOC. PROF. MAGDALENA B. TODOROVSKA, MD, PHD

CONGENITAL AND ACQUIRED VALVULAR HEART DISEASE

UNIVERSITY CLINIC OF CARDIOLOGY, SKOPJE

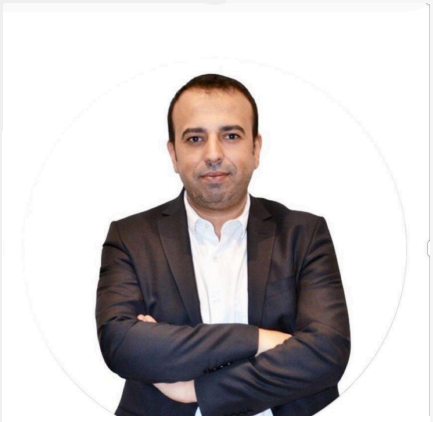
PROF. MARIJA VAVLUKIS, MD, PHD

UNIVERSITY CLINIC OF CARDIOLOGY, SKOPJE

PROF. HRISTO PEJKOV, MD, PHD

UNIVERSITY CLINIC OF CARDIOTHORACIC SURGERY, SKOPJE

ASSOC. PROF. VASIL PAPESTIEV, MD, PHD



MEDICANA INTERNATIONAL HOSPITAL ISTANBUL, BEYLIKDÜZÜ /

PROF. MUSTAFA KEMAL AVSAR, MD, PHD

PLASTIC &RECONSTRUCTIVE SURGERY

ADVANCED TOPICS

CLEFT LIP PALATE
SURGICAL ASPECTS

PROF. NATHALIE ROCHE, MD, PHD
UZ GHENT BELGIUM

"MIS"
SURGERY

PROF.SMILJA TUDJAROVA GJORGOVA, MD, PHD
UNIVERSITY CLINIC OF PLASTIC AND RECONSTRUCTIVE SURGERY, SKOPJE

THE SCIENCE OF BEAUTY:
AN INTRODUCTION TO PLASTIC AND AESTHETIC SURGERY

AMIN KALAAJ, MD, PHD
OSLO , NORWAY

WORKSHOPS

MICRO VISION, BIG DECISION

Assoc. Prof. Sofija Pejkova, MD, PhD

Plastic and reconstructive surgery unites science, precision, and compassion. It is a discipline where the smallest movements rebuild form, restore function, and revive dignity.

Practicing microsurgery is a privilege that demands focus, patience, perseverance, and a deep passion for making a difference. It constantly pushes you beyond your comfort zone, teaching you to embrace complexity with purpose.

As medical students, your journey will challenge and shape you—transforming hesitation into confidence, and doubt into strength. Growth begins where comfort ends.

Stay curious, stay committed, and let your passion guide you through difficulty.

"Never stay within your comfort zone. Step forward. Be brave".

3D SURGERY RELOADED

Asst. Stefan Arsenkov, MD

This workshop will provide students with an introduction to the clinical use and educational potential of 3D printed anatomical models.

Participants will gain insight into the limitations associated with traditional two-dimensional imaging techniques and learn how three-dimensional models can improve spatial understanding and clinical decision-making. The session will include practical demonstrations and interactive group activities, emphasizing anatomical interpretation skills and reinforcing foundational clinical concepts. Students will engage directly with realistic anatomical models derived from medical imaging data, bridging the gap between theoretical knowledge and hands-on clinical application.

The workshop aims to enhance anatomical comprehension, critical thinking, and introduce participants to innovative technologies reshaping modern surgical practice.

"Reshape the modern surgical practice".

GENESIS SCOPE INSIGHTS

Asst. Natasha Stojkovska, MD

This interdisciplinary workshop offers medical students an integrated understanding of human genetics, histology, and embryology, with a clinical focus on male reproductive health and infertility.

The program will explore meiosis during spermatogenesis and oogenesis, emphasizing how errors in chromosomal pairing, recombination, or segregation can lead to aneuploidy and infertility in both sexes. Students will also be introduced to karyotyping techniques for identifying chromosomal abnormalities linked to infertility and genetic syndromes.

In addition, the workshop will cover embryonic development of the male genitalia, highlighting phases of differentiation, testicular descent, and common congenital anomalies.

The session will conclude with clinical discussions on male infertility.

"Integrate the genetic, anatomical, and developmental perspectives".

DON'T PANIC, PRIORITIZE

Asst. Nikola Brzanov, MD

This interactive course is designed for medical students who want to strengthen their decision-making and crisis management skills in high-pressure situations. Through realistic simulations of mass casualty incidents caused by fire and earthquake, participants will learn and apply modern principles of disaster medicine.

The course begins with a concise overview of triage systems, common injury patterns, and key ethical and communication challenges in disaster response. Students will then work in teams within simulated emergency units, performing scene evaluation, triage, urgent interventions, and coordination with response leaders.

With trained actors depicting victims, the scenarios create a dynamic and unpredictable environment where students must translate theory into practice. A debriefing session will follow, focusing on clinical performance, teamwork, and leadership.

"Gain valuable insight into emergency medicine and develop essential skills for future practice".

SPEECH MAPPING

Prof. Niki Matveeva, MD, PhD

This workshop examines the cortical foundations of language, emphasizing how specialized regions of the frontal and temporal cortex interact to support speech, comprehension, and expression. Participants will explore hemispheric lateralization, with focus on the predominance of the left hemisphere but also on individual variability in localization.

Through clinical examples, the session will explain how damage to specific cortical regions results in different types of aphasia, affecting either the ability to produce or to understand language.

The workshop will also address the critical period for language acquisition in children, underlining its importance for diagnosis, surgical planning, and rehabilitation.

"Never stay within your comfort zone. Step forward. Be brave".

NEEDLE &SKILL

Assoc. Prof. Andrej Nikolovski, MD, PhD

Suturing is not just a skill —it's a rite of passage in surgical training. This hands-on workshop is designed to introduce students to the essential techniques of suturing skin and subcutaneous tissue.

Participants will work on realistic models to gain confidence in handling surgical instruments, selecting appropriate suture materials, and mastering both interrupted and continuous sutures. Beyond the technical aspect, the workshop emphasizes precision, patience, and the tactile artistry behind every stitch.

Whether you are pursuing a career in surgery or simply aiming to strengthen your clinical competence.

"Train your hands and sharpen your mindset—one stitch at a time".

HANDS ON - BASIC OBSTETRIC SKILLS

Assoc. Prof. Kristina Skeparovska, MD, PhD

Basic skills for Managing Out-of-Hospital Deliveries Without an Obstetrician "When there's no OB in sight – here's how to do it right!"

A small portion of births occur outside of a hospital or en route to one, and are overseen by someone who is not an obstetrician. Although childbirth is a natural process, it can still be accompanied by complications for both the mother and the fetus, some of which may even be life-threatening.

Therefore, a basic understanding of the physiology of childbirth, as well as the ability to provide essential medical assistance during the process, represents an important part of the general medical knowledge expected of every healthcare worker.

The aim of this workshop is to demonstrate and teach simple manual techniques and basic principles, whose application can significantly reduce the risk of complications.

"Bridging the gap between an unexpected arrival and a safe outcome".

STAYIN' ALIVE

Prof. Jasminka Nancheva, MD, PhD

This hands-on workshop is designed to equip participants with essential knowledge and practical skills in cardiopulmonary resuscitation (CPR), basic life support (BLS), and advanced life support (ALS).

Through guided instruction and realistic simulation, students will perform key resuscitation procedures, including high-quality chest compressions, airway management, defibrillation with AEDs, and administration of emergency drugs.

The session will emphasize early recognition of cardiac arrest, effective team coordination during code situations, and structured responses to life-threatening arrhythmias and shock. Under expert supervision, participants will rotate through interactive stations, applying their knowledge in simulated clinical scenarios.

This workshop offers a comprehensive and immersive learning experience, aimed at building competence and confidence in critical emergency interventions.

"From simulation to resuscitation: mastering the hands-on skills that save lives".

NANOTECHNOLOGY - NOVEL FORMULATION

Asst. Emilija Shikole, MD

Nanotechnology, through carriers such as nanoparticles, nanoliposomes, nanomicelles, nanoemulsions, polymersomes, and nanogels, provides major therapeutic benefits by enabling targeted delivery, controlled release, and improved drug solubility, stability, and bioavailability while reducing adverse effects.

This workshop will introduce students to the principles and applications of nanotechnology in pharmaceutical formulations and dietary supplements. Participants will explore how nanosystems improve the pharmacological properties of active agents and examine real-world examples through a detailed case study.

By comparing conventional therapies with nanotechnology-based drugs, they will critically assess efficacy, safety, and the role of nanotechnology in advancing modern drug delivery systems.

"Explore the nano world—where tiny innovations lead to big breakthroughs in the future of medicine".

WAVE TO THE ABDOMEN

Prof. Beti Todorovska, MD, PhD, Asst. Prof. Emilija Trpchevska Nikolovska, MD, PhD

Abdominal ultrasound is a cornerstone in the non-invasive evaluation of abdominal organs, offering real-time imaging that aids in diagnosing a wide range of clinical conditions.

This workshop is designed for medical students and aims to provide both theoretical knowledge and hands-on experience. Participants will be introduced to the principles of ultrasound physics, image acquisition, and probe-handling techniques.

The theoretical part will cover normal abdominal anatomy, sonographic landmarks, and common pathological findings, including hepatobiliary, renal, and gastrointestinal conditions. In the practical session, students will apply scanning techniques on volunteers and discuss clinical case scenarios to reinforce learning.

By the end of the workshop, attendees will have a foundational understanding of abdominal imaging, fostering confidence in incorporating ultrasound into future clinical practice.

This workshop will introduce students to the principles and

"Unlock the power of ultrasound—see inside, learn by doing, and build skills that shape your clinical future".

ESCAPE ROOM - INFECTION DETECTION

Prof. Marija Cvetanovska, MD, PhD, Prof. Irena T. Kondova, MD, PhD

This educational simulation combines clinical reasoning, teamwork, and real-world infectious disease cases within an interactive escape room format.Students will work in teams to navigate a series of clinical scenarios—each representing a patient with non-specific symptoms and limited initial data.

Their task is to reach the correct diagnosis by interpreting history, physical findings, diagnostic tests, and epidemiological context.

Each solved "room"unlocks the next case, with time pressure, logical thinking, and medical knowledge playing a central role.

The cases span a range of infectious diseases, encouraging participants to practice differential diagnosis, apply laboratory tools rationally, and understand disease progression.

Following the simulation, a guided debriefing under faculty supervision will highlight clinical decision-making, diagnostic pitfalls, and evidence-based management strategies

"Team up, think fast, and master infectious disease diagnosis".

WHEN SECONDS MATTER

Prof. Aspazija Sofijanova, MD, PhD

This interactive workshop will provide a comprehensive overview of the most recent international Pediatric Life Support (PLS) protocols, with a strong focus on hands-on application in emergency scenarios.

Participants will engage in dynamic, simulation-based training designed to bridge the gap between theoretical knowledge and real-life action. A highlight includes a remote scenario—encountering an unresponsive infant in the woods—challenging participants to assess, respond, and manage the situation using structured, up-to-date resuscitation algorithms.

The workshop emphasizes decision-making under pressure, airway management, CPR techniques, and stabilization strategies tailored for pediatric patients. Through guided simulations and evidence-based instruction, attendees will strengthen their clinical reasoning, technical skills, and preparedness for pediatric emergencies in both clinical and out-of-hospital settings.

"Act swiftly and effectively - every second counts".

ECG GAMBIT

Bojana Uzelac MD

This interactive workshop will focus on the practical application of electrocardiography (ECG) through real clinical cases.

Designed for students and physicians with foundational ECG knowledge, the session will combine video case presentations with printed ECGs for both individual and group analysis.

Participants will be actively engaged in interpreting findings, discussing differential diagnoses, and reaching conclusions together. The workshop aims to foster collaborative learning, encourage critical thinking, and highlight the clinical relevance of ECG interpretation.

By creating an engaging and dynamic atmosphere, the session seeks to enhance diagnostic skills and promote a deeper understanding of electrocardiography in everyday medical practice.

"Read the rhythm, solve the case, and sharpen your ECG skills together".

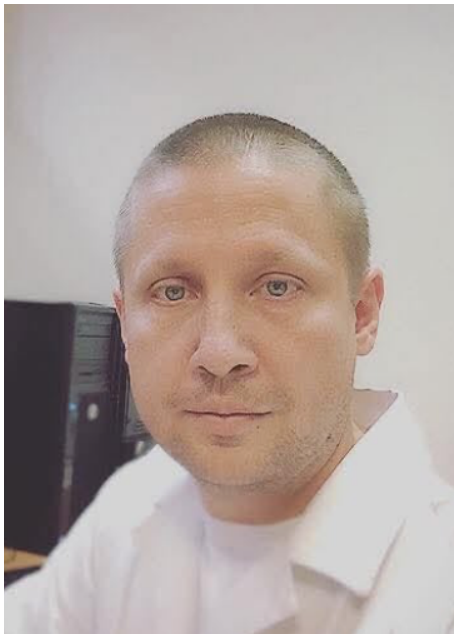
SCALPEL MEETS RADIOLOGY GUIDANCE

Prof. Sinisha Stojanoski, MD, PhD

Radioguided surgery using Technetium-99m (99mTc) nanocolloid is a minimally invasive technique that combines nuclear medicine with surgical oncology procedures.

It is most widely applied in sentinel lymph node (SLN) mapping, but also in the ROLL (radioguided occult lesion localization) technique. The SLN procedure begins with peritumoral, intratumoral, or intradermal injection of 99mTc-labeled nanocolloid—a radiopharmaceutical with particle size optimized for lymphatic uptake. Preoperative lymphoscintigraphy visualizes lymphatic drainage pathways and identifies the sentinel lymph node.

Intraoperatively, a handheld gamma probe detects gamma emissions from 99mTc, allowing precise localization and selective excision of the sentinel node with minimally invasive surgical techniques. This selective approach reduces operating time, minimizes postoperative morbidity, and preserves lymphatic function compared with conventional radical lymph node dissection.



"Guide with precision, operate with confidence, and heal with less harm".

KNOW YOUR BODY BIOIMPENDANCE

Prof. Jasmina Pluncevikj Gligorovska, MD, PhD

Body composition analysis represents the quantitative determination of body components. According to the multicomponent model, the body is composed of muscle, fat, and bone. With the advancement of medicine, methodologies for assessing body composition have evolved, and modern devices now enable detailed and precise evaluation of body composition and other anthropometric indicators.

In this workshop, students will be introduced to various methods used in sports anthropometry, the importance of body composition for athletes, differences in body composition across sports disciplines, and the classification of somatotypes in athletes.

In the practical part, participants will have the opportunity to learn the operating principles of the InBody 720—body composition analysis using bioelectrical impedance.

"Know the body, master the tools, and elevate athletic potential".

THE VISION SHOT

Fanka Gilevska, MD, PhD

Intravitreal therapy is the gold standard for managing a wide range of retinal diseases. This workshop will provide an overview of the most frequently used medications, including anti-VEGF agents (ranibizumab, aflibercept, bevacizumab, faricimab) and corticosteroid formulations (triamcinolone, dexamethasone implant).

Indications such as neovascular age-related macular degeneration, diabetic macular oedema, and retinal vein occlusion will be discussed, with emphasis on evidence-based drug selection and treatment protocols.

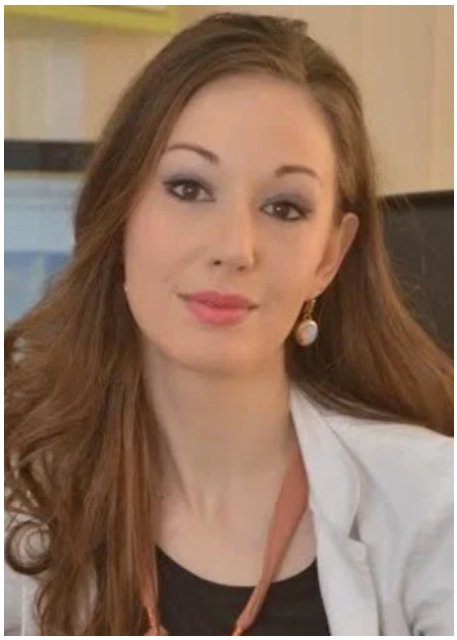
The methodology of safe injection techniques will be demonstrated, covering aseptic preparation, anaesthesia, injection site selection, and post-procedure monitoring. Participants will gain practical insights into optimising treatment regimens while minimising complications.

By the end of the workshop, attendees will be better equipped to apply intravitreal therapy effectively and safely in daily practice.

"Restore vision, brighten lives".

DEMENTIA LABYRINTHS

Assoc. Prof. Gabriela Novotni, MD, PhD



This workshop, delivered by Assoc. Prof. Gabriela Novotni from the University Clinic of Neurology, Medical Faculty, Ss. Cyril and Methodius University of Skopje, North Macedonia, explores the complexities of dementia with a special focus on Dementia with Lewy Bodies (DLB)—a condition characterized by progressive cognitive decline, visual hallucinations, and parkinsonism.

The session will cover the history, clinical features, diagnosis, and treatment of DLB, highlighting the importance of recognizing its symptoms and the challenges in management. Through case studies and historical context, the workshop aims to provide a comprehensive understanding of DLB and its profound impact on patients and caregivers.

By examining the symptoms of dementia, participants will also gain valuable insights into the most intricate functions of the human brain.

"Peel back the layers of the mind to reveal new understanding and hope in dementia care".

IMMUNE MYSTERIES

Assoc. Prof. Meri Kirijas, MD, PhD

The immune system has a vital role in the human body: it protects against foreign substances and pathogens while preserving the body's own cells. It recognizes "self" and "non-self" antigens, and through the process of maturation, it learns to react only to "non-self." Autoimmunity arises when the immune system mistakenly targets "self" antigens, demonstrated by the presence of circulating autoantibodies or self-reactive T lymphocytes.

This workshop introduces medical students to risk factors, pathogenesis, and immunological markers of autoimmune diseases. Participants will become familiar with key diagnostic tests such as ELISA, immunoblot, and immunofluorescence, with emphasis on translational immunology—applying basic principles to clinical practice.

Through interactive demonstrations and case-based discussions, attendees will solve immunological diagnostic challenges and understand the importance of immunological concepts and tests in routine clinical work.

"Decoding the immune mystery to unlock better diagnosis and care".

STIS UCOVERED: FROM DIAGNOSIS TO PREVENTION

Asst. Viktor Simeonovski, MD, Rsch. Assoc. Marko Kostovski, MD

In recent years, North Macedonia has seen a rise in sexually transmitted infections (STIs), particularly gonorrhea, chlamydia, and syphilis. Once nearly under control, these diseases now pose a significant public health challenge, driven by factors such as antibiotic resistance, limited screening, changing sexual behaviors, and persistent social stigma.

STIs represent a complex issue with a wide range of clinical manifestations—from asymptomatic infections that often go undetected to serious complications including infertility, congenital disorders, and chronic inflammatory conditions. Limited sexual education, mistrust in the healthcare system, and reluctance to seek medical help further contribute to delayed recognition and treatment.

This workshop will provide medical students with both theoretical knowledge and practical experience through real clinical cases.

Key aspects of diagnostics, modern therapeutic approaches, and preventive measures will be addressed, including safer sexual practices, screening programs, and the role of PrEP.

"Through awareness, we prevent and heal".

LAPAROSCOPY IN FOCUS

Assoc. Prof. Igor Aluloski, MD, PhD

Laparoscopic surgery, or minimally invasive surgery, is a cornerstone of modern surgical practice. It offers patients significant benefits, including reduced postoperative pain, shorter hospital stays, faster recovery, and improved cosmetic outcomes compared to traditional open surgery.

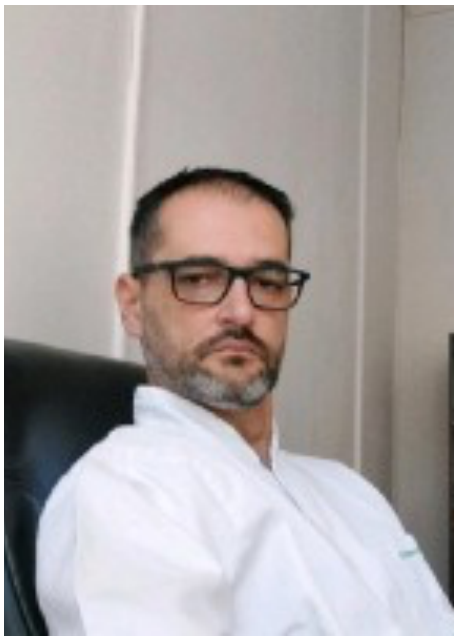
For students, understanding the basic principles of laparoscopic surgery is essential to building a foundation for future clinical practice. This overview outlines the essential components of laparoscopic technique, including safe access to the abdominal cavity, maintenance of pneumoperitoneum, ergonomic positioning, visualization strategies, and tissue-handling methods. Emphasis is placed on surgical safety, complication prevention, and adherence to established procedural standards.

Mastery of these principles provides the basis for developing technical skills and advancing toward surgical competence.

"Precision today builds the surgeons of tomorrow".

CRIME SCENE ANALYSIS

Assist. Prof. Miroslav Milic, MD, PhD



Almost all doctors, regardless of workplace, are often required to assess bodily injuries for judicial purposes and to write corresponding medical reports. While various medical forms exist, there is no standardized format that guides doctors in preparing reports in a forensic-medical manner.

A properly drafted forensic medical report is vital both medically and legally. It should include personal data of the injured person, circumstances of injury, applied treatment, and detailed description of the type and severity of injuries. Such information is essential for judicial authorities, especially prosecutors, in initiating investigations and criminal proceedings.

Writing these reports requires knowledge of mechanical injuries, qualifying criteria for injury severity, and relevant legal frameworks. By accurately documenting and evaluating injuries, doctors help verify reported circumstances and support expert analysis of injury mechanisms.

The goal of this workshop is to train doctors to apply their knowledge systematically in documenting medical facts and assessing injury severity according to established forensic criteria.

"Clear, precise reports build the bridge between medicine and justice".

FORENSIC AUTOPSY

Prof. Aleksandar Stankov, MD, PhD

A forensic autopsy is a central component of medicolegal investigations, carried out to establish the cause, manner, and circumstances of death.

It is performed in cases of sudden, unexpected, violent, or suspicious deaths and serves a dual purpose: advancing medical knowledge while also providing evidence for the justice system. The procedure involves a careful external examination of the body, a systematic study of the internal organs, and, when needed, additional tests such as toxicology, histology, microbiology, or molecular analysis.

Beyond determining the cause and manner of death, a forensic autopsy assists in identifying the deceased, documenting injuries, reconstructing events, and detecting underlying natural diseases that may have led to sudden death.
Its findings are valuable not only in legal proceedings but also in public health monitoring and epidemiological research. .

"Science guides law, medicine honors life".

INSIDE THE WOMB

Assoc. Prof. Ana Daneva Markova, MD, PhD

This hands-on surgical workshop offers medical students and young doctors a unique opportunity to explore the principles and techniques of heart valve replacement in a controlled environment. Using porcine hearts as high-fidelity anatomical models, participants will gain practical experience in key surgical steps, including incision, valve excision, suturing, and prosthetic valve implantation.

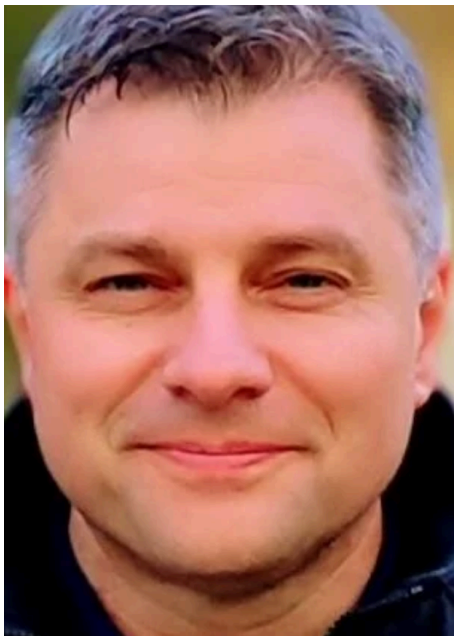
The workshop emphasizes not only technical proficiency but also the understanding of cardiac anatomy, surgical decision-making, and the challenges encountered in real clinical practice. Under the guidance of experienced cardiovascular surgeons, attendees will practice precise instrument handling, accurate and consistent suture placement, and coordination during complex procedures.

Through simulation-based training, participants will refine manual dexterity, develop confidence in surgical workflows, and deepen their appreciation of the balance between precision and speed in heart surgery.

"Training hands, shaping hearts".

RESTORING THE FLOW

Assist. Prof. Nikola Gramatnikovski, MD , PhD



This hands-on workshop is designed to provide participants with practical skills in vascular surgery, focusing on the fundamental techniques of creating vascular anastomoses. Under expert guidance, attendees will practice suturing end-to-end and end-to-side anastomoses on vascular graft models, simulating real operative conditions.

The workshop emphasizes precision, proper handling of delicate vascular tissue, and the use of fine surgical instruments. Through step-by-step demonstrations and supervised individual practice, participants will gain confidence in performing essential procedures that are central to vascular surgery.

This interactive format aims to bridge theoretical knowledge with technical expertise, offering an invaluable opportunity for medical students and young doctors interested in surgery to develop core skills in vascular reconstruction.

"Hands that weave life's delicate threads, shaping paths where hope and healing meet".

LITTLE PATIENTS

BIG DIAGNOSIS

Prof. Nikolina Zdraveska, MD, PhD

Patient presentations are an essential part of medical training, as they integrate communication skills with knowledge of disease manifestations in clinical scenarios.

This interactive workshop aims to provide a realistic view of how to approach various pediatric conditions. Each case will begin with a common presentation and will guide participants step by step through the diagnostic process and management.

Through clinical reasoning, you will learn to structure your thoughts, consolidate essential knowledge and clinical experiences, and approach patients as a pediatrician.

Selecting relevant information and presenting it efficiently requires organization and practice, but it is a skill that can be learned.

"Step by step through the diagnosis".

MIRACLE OF LIFE

Assoc. Prof. Irena Kostadinova Petrova, MD, PhD

The beginning of a new life is a miraculous and precisely coordinated process in nature. For the beginning of a new life in a person, it seems that two are needed - a man and a woman. SIMPLE.

In this workshop, we will delve deeper into the analysis of this everyday, but fascinating process through a presentation of the reproductive systems in men and women, the creation of sex cells-gametes, the state of the genome, changes in hereditary material, fertilization and fetal development.

Modern medicine provides assistance in this natural process of creating a new life through the development of restorative reproductive medicine, which overcomes obstacles for married partners in achieving pregnancy.

Through a different case studies, students will be able to understand the nature of creating a new life with the help of assisted reproduction techniques.

"New life begins with two, guided by nature and supported by medicine".

CUT, STITCH REPLACE

Asst. Vangel Zdraveski, MD, PhD

This hands-on surgical workshop offers medical students and young doctors a unique opportunity to explore the principles and techniques of heart valve replacement in a controlled environment. Using porcine hearts as high-fidelity anatomical models, participants will gain practical experience in key surgical steps, including incision, valve excision, suturing, and prosthetic valve implantation.

The workshop emphasizes not only technical proficiency but also the understanding of cardiac anatomy, surgical decision-making, and the challenges encountered in real clinical practice. Under the guidance of experienced cardiovascular surgeons, attendees will practice precise instrument handling, accurate and consistent suture placement, and coordination during complex procedures.

Through simulation-based training, participants will refine manual dexterity, develop confidence in surgical workflows, and deepen their appreciation of the balance between precision and speed in heart surgery.

"Hands on the heart, skill in the making".

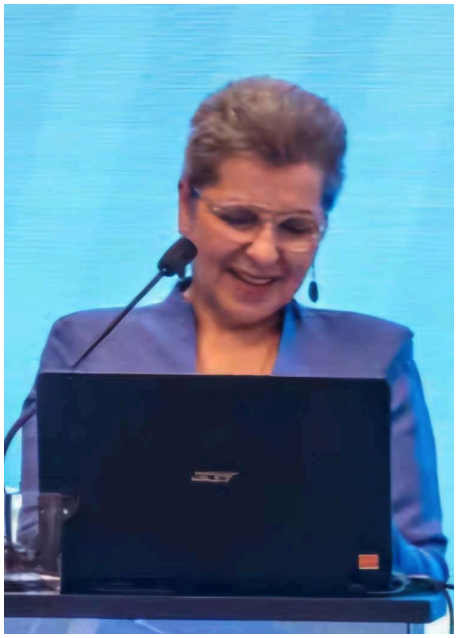
CARDIAC MASTERY

Prof. Marija Vavlukis, MD, PhD

This interactive cardiology workshop invites participants to step beyond routine clinical practice and engage with rare, intricate, and diagnostically complex cardiovascular cases. Through detailed case reports, attendees will collaboratively analyze and discuss patient scenarios that demand critical thinking and multidisciplinary perspectives.

The session will focus on nuanced differential diagnoses, individualized therapeutic strategies, and the latest advances in pharmacological and interventional cardiology. By tackling cases that defy textbook patterns, participants will gain deeper insights into clinical reasoning, risk–benefit assessment, and evidence-based decision-making in high-stakes scenarios.

This workshop is designed for those ready to challenge their clinical intuition and explore the full spectrum of possibilities in contemporary cardiovascular care.



"Where every heartbeat tells a tougher story".

THORACIC DRAIN TRAINING

Asst. Natasha Toleska Dimitrovska, MD

This specialized chest drainage workshop will teach students, our future healthcare professionals, the skills needed to perform and manage chest drain insertion. This course typically combines theoretical knowledge with hands-on training using simulation mannequin.

This comprehensive workshop will cover:

- Indications and contraindications: Understanding when chest drain insertion is necessary and when it is not appropriate.
- Procedural techniques: Mastering the steps for inserting drains, including patient positioning, local anesthetic administration, incision, and drain placement.
- Procedural safety: Addressing crucial safety measures to minimize patient risk, such as identifying the correct insertion site to avoid injury to the neurovascular bundle.
- Complications and management: Recognizing and managing potential complications, such as a persistent air leak, re-expansion pulmonary edema, and accidental drain removal.
- Post-procedure care: Learning the proper management of the chest drainage system, including monitoring for drainage, checking for air leaks, and knowing when to clamp and

"Build the skills today that will save lives tomorrow.".

POINTS OF CARE &PHLEBOTOMY

Asst. Hristina Ampova, MD, Asst. Melda Emin, MD

Point-of-care testing (POCT) provides rapid diagnostic results that support timely clinical decisions and improve patient outcomes. This workshop offers medical students an introduction to the principles, applications, and limitations of POCT in diverse clinical settings, from emergency care to primary practice. Participants will learn about common POCT uses, including rapid infectious disease tests, pregnancy testing, drug monitoring, and biochemical urine analysis, while addressing key aspects of quality control and regulatory standards.

Special focus will be placed on proper specimen handling, device operation, and interpretation of results to reduce diagnostic errors. Through practical demonstrations and interactive discussions, attendees will develop essential skills for integrating POCT effectively and safely into everyday medical practice.

Accurate blood collection is the foundation of reliable laboratory testing and quality patient care. This interactive workshop equips medical students with essential phlebotomy skills, blending theory with hands-on practice.

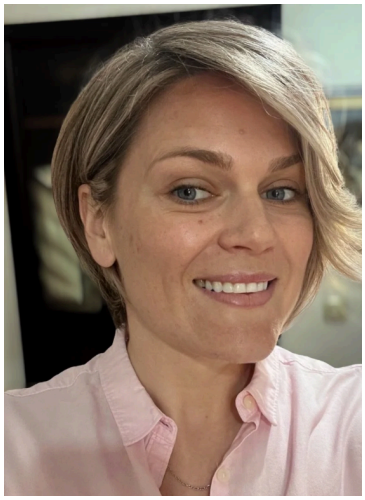
Key topics include anatomy for venipuncture, patient identification and preparation, equipment selection, and step-by-step techniques for venous and capillary draws. Participants will also learn strategies to prevent pre-analytical errors, maintain infection control, and manage challenging cases such as pediatric or geriatric patients.

By the end of the session, participants will be prepared to perform phlebotomy with confidence precision, and patient-centered care.

"Test, collect, and care - fast & accurate results for every patient".

THE FIRST PATIENT - THE ONE WHO CHANGES YOU FOREVER

Asst. Biljana Gagachovska, MD, Asst. Simona Kochoska Krstevska, MD



This workshop offers a practical, empathic, and reflective space for future physicians encountering the depth and vulnerability of a psychiatric patient for the first time.

Through a structured set of experiential activities—including role-play based on clinically inspired scenarios, self-reflective exercises, and facilitated group dialogue—students explore what it truly means to be present as a doctor.

The central aim is to enhance awareness of professional boundaries, the emotional resonance of clinical encounters, and the early shaping of one's professional identity.

Emphasis is placed on integrity, critical empathy, and self-care as foundations for the care of others.

The workshop is facilitated by a psychiatrist with extensive experience in education and psychotherapy and is designed as a safe and supportive environment in which every participant is invited to connect with their own motivation for becoming a doctor.

"Deepening empathy, shaping the future physician".

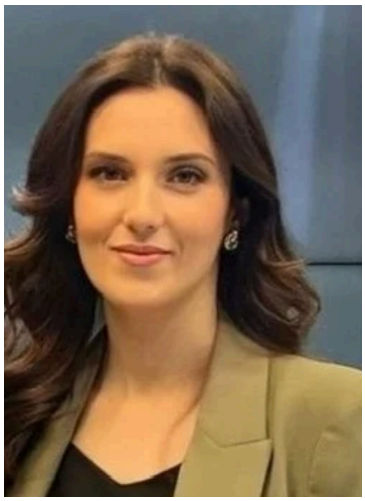
ECHO UNDER PRESSURE

Asst. Prof. Valentina Andova, MD, PhD, Asst. Elif Vrajnko, MD

Emergency Echocardiography provides state-of-the-art reviews on the role of cardiac ultrasound in emergency clinical settings. International experts discuss its use in acute coronary syndromes, native and prosthetic valve disease, cardiac tamponade, great vessel pathology, cardiac embolism, cardiac arrest, chest trauma, and cardiogenic shock.

Specific problems in the emergency room and ICU, as well as the role of portable echo machines, are addressed. Since echocardiography is part of most cardiac emergency algorithms, contributors emphasize its diagnostic power while also noting its limitations. The potential of advanced techniques, such as transesophageal echocardiography, is included where appropriate.

Examples cover echocardiography in acute chest pain—outlining its role in coronary syndromes, infarction complications, pulmonary embolism, pericardial effusion, and acute aortic syndromes—as well as structured evaluation of patients with acute or subacute dyspnea in acute care.



"Echo at the bedside turns uncertainty into clarity".

DIAGNOSTIC POWER OF SMEARS

Assoc. Prof. Svetlana Krstevska Balkanov, MD, PhD, Assoc. Prof. Fatma Demir YENİGÜRBÜZ, MD, PhD

Peripheral blood smear examination is a key diagnostic technique in hematology. A drop of blood is thinly spread on a clean glass slide, air-dried, and stained with May–Grünwald-Giemsa to produce a well-contrasted film for microscopic evaluation.
Correct preparation ensures even cell distribution, allowing detailed assessment of red blood cell morphology for detection of anemia types, hemoglobinopathies, and hemolysis.

White blood cell count, maturation stage, and abnormal forms can be observed, assisting in the diagnosis of infections, leukemias, and other hematologic disorders.

Platelet number and structure are also evaluated for thrombocytopenia or platelet dysfunction.

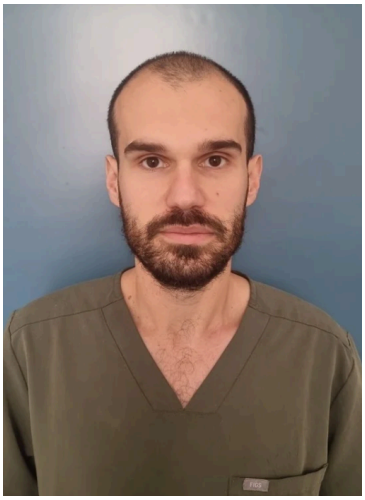
Importantly, the smear can demonstrate intracellular parasites such as Leishmania donovani, the causative agent of visceral leishmaniasis (kala-azar), by revealing amastigotes within macrophages. Despite widespread use of automated hematology analyzers, the May–Grünwald-Giemsa–stained peripheral smear remains indispensable because it provides direct morphological evidence that instruments cannot capture, guiding accurate diagnosis and clinical management.

"In every drop, a story unfolds".

BEYOND

SPINAL TAP

Assoc. Prof. Vladimir Rendevski, MD, PhD, Dimitar Davidovikj, MD



This interactive workshop is designed to provide participants with hands-on training in lumbar puncture, one of the most commonly performed and highly valuable diagnostic and therapeutic procedures in neurosurgery and neurology.

Under the guidance of experienced specialists, attendees will be introduced step by step to the correct technique, anatomical landmarks, and essential aseptic preparation.

Special emphasis will be placed on the clinical indications for lumbar puncture, such as suspected meningitis, subarachnoid hemorrhage, multiple sclerosis, and other neurological conditions, as well as the contraindications, including raised intracranial pressure, coagulopathy, and local infection at the puncture site.

Through practical exercises on training models, each participant will have the opportunity to independently perform the procedure and build confidence in its application.

The workshop provides an excellent opportunity to strengthen practical skills, deepen clinical knowledge, and enhance professional confidence in performing this critical procedure.

"Step boldly into the art of lumbar puncture".

ORGAN PARALLELS

Asst. Anamarija Paunkoska, MD, Dimitar Bozhinovski, DVM

This interactive workshop, organized in collaboration between the faculty of veterinary medicine and the department of anatomy at the faculty of medicine, will explore the fascinating field of comparative anatomy and techniques for organ preservation.

By examining similarities and differences across species, participants will gain a deeper understanding of structural and functional correlations that enrich medical and veterinary knowledge.

The session will also introduce practical approaches to organ preservation, highlighting the importance of education, research and clinical application.

Designed to foster interdisciplinary learning, this workshop offers a unique perspective that bridges human and veterinary medicine, providing participants with valuable insights into anatomical science.

"Where medicine and veterinary science unite".

DYALISIS ESSENTIALS

Elena Babalj Banskolieva, MD, Katerina Spaseska Gjurovska, MD, Mario Naneski, MD

Dialysis is never just a medical procedure—it is a personal journey. Every patient is different, and every treatment is unique. For doctors, it is not enough to understand the machine; we must also understand the person behind it—their struggles, fears, and resilience.

At the same time, the art of medicine must be combined with the power of innovation. New technologies, smarter software, and advanced equipment are not just tools; they are opportunities to provide safer, more effective, and more dignified care. This session is designed to offer both: a strong grasp of the basics and a window into the new possibilities shaping the future of dialysis.

Participants will explore real-life challenges dialysis patients face, common mistakes doctors make inside and outside the unit, and the lessons that matter most in practice.

The goal is simple: to see that dialysis care is about more than machines and protocols—it is about patients.

"We don't just manage kidney failure - we change lives".

LIFE IN SECONDS

Margareta Atanasovska Tripunoska, MD, Sashka Janevska, MD, Natalija Shaurek Aleksandrovska, MD

This workshop is designed to train participants to recognize the signs and symptoms of anaphylactic shock, apply immediate interventions, and work effectively as a team in emergency situations. Through a combination of theory and practice, attendees will gain a solid understanding of the pathophysiology and clinical presentation of anaphylaxis, including cutaneous, respiratory, cardiovascular, and gastrointestinal symptoms.

The practical component focuses on the emergency management of anaphylaxis: first-line treatment, patient positioning, oxygen administration, IV fluids, and the systematic ABCDE approach. Participants will be actively involved in interactive, scenario-based simulations, working in small groups on realistic cases such as a child with peanut ingestion or an adult stung by a wasp.

With an emphasis on hands-on experience, teamwork, and realistic scenarios, this workshop provides the essential skills and confidence needed to manage anaphylactic emergencies effectively.

"Recognize, respond, and save".

STRONG BONES, STRONGER TEAM

Prof. Slavica Kostadinovska Kunovska, MD, PhD, Prof. Violeta Vasilevska Nikodinovska, MD, PhD, Prof. Milan Samrdziski, MD, PhD

Although tumors of the skeletal system represent a small fraction of all neoplasms, their clinical significance is substantial due to the high rates of morbidity and mortality.

Primary malignant bone tumors are uncommon, with osteosarcoma affecting only a few individuals per million annually. The combination of non-specific symptoms and limited awareness frequently results in delayed recognition, which may negatively affect prognosis.

This presentation will address the diagnostic and therapeutic challenges of bone tumors, with emphasis on integrating radiologic, histopathological, surgical, and oncologic perspectives.

The value of a multidisciplinary team—spanning primary contact physicians, radiologists, pathologists, orthopedic surgeons, and oncologists—will be underlined, alongside strategies to minimize diagnostic delays.

Adherence to evidence-based guidelines and effective interprofessional communication remain key to improving patient outcomes.

"Train your hands and sharpen your mindset—one stitch at a time".

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ASST. ANAMARIJA PAUNKOSKA, MD

ABSTRACTS - CASE REPORTS

Spotted fever presenting as rapidly progressive sepsis

Abstract ID: 3-1/15

Authors: ANA GEORGIEVA, Dejan Jakimovski

Institution: University Clinic for Infectious Diseases and Febrile Conditions, North Macedonia Clinical Medicine Task Force, Balkan Association for Vector-Borne Diseases

Introduction: Mediterranean spotted fever (MSF), caused by Rickettsia conorii, is a tick-borne disease which presents with fever, maculopapular rash, and eschar at the bite site. In severe cases, it can progress to potentially life-threatening complications such as sepsis.

Case Presentation: A 48-year-old male was admitted at the Clinic for Infectious Diseases in Skopje with a 4-day history of fever, myalgia, dysuria and occasional cough. Prior to hospitalization, he received amoxicillin/clavulanic acid for three days without improvement. On admission he was febrile, hypotensive, tachycardic with laboratory findings showing thrombocytopenia, elevated C-reactive protein, elevated aminotransferases and bacteriuria. The patient was started on ceftriaxone, yet his condition worsened, leading to respiratory failure, acute renal insufficiency and sopor. By day three, intensive care unit admission was required with mechanical ventilation and meropenem plus vancomycin were started for broader coverage. On the same day, a generalized macular rash was noted, prompting thorough physical examination that revealed an eschar on the left upper leg. This indicated a possible rickettsial infection and doxycycline was included in the therapeutic approach. Microbiological tests available yielded no results, so a blood sample was preserved at −80 °C for future analysis. Despite intensive treatment, refractory hypotension developed on day five, resulting in a fatal outcome. Retrograde microfluidic real-time PCR detected R.conorii in the blood, confirming septic shock caused by R.conorii.

Discussion: Low awareness for MSF among clinicians, results in underrecognition, underreporting and delayed initiation of pathogen-specific treatment. This creates an environment in which there is no perceived need to establish diagnostic capacities for such infections, thereby closing the circle of underrecognition across disciplines.

Conclusion: To enable timely detection and treatment of MSF cases in North Macedonia, it is essential to identify endemic zones and to establish a surveillance system that supports case reporting and clinical characterization.

Keywords: mediterranean spotted fever

Bereavement-triggered relapse and persistent alcohol use during opioid agonist therepy: a longitudinal case

Abstract ID: 3-2/15

Authors: ALEKSANDRA MILUNOVIĆ, Milan Petkovic

Institution: Medical Faculty University of Niš, Serbia

Centre for Mental Health Protection, University Clinical Center Niš, Serbia

Introduction: Co-occurring alcohol use disorder (AUD) in people receiving opioid agonist therapy (OAT) raises morbidity and relapse risk, especially around major stressors and custody transitions. We report a multi-year course highlighting management pitfalls and solutions.

Case Presentation: A 37-year-old man first presented in 2016 for AUD. After inpatient care in 2017 he achieved brief abstinence, then began daily heroin insufflation. In December 2018 he enrolled in buprenorphine 8 mg/day with good adherence. Deterioration followed his father's illness (September 2019) and death (February 2020), with intermittent heroin relapse. He was switched to methadone in June 2020 and detoxified in July. Lost to follow-up until February 2022, he reported heroin, non-prescribed buprenorphine, and alcohol use; buprenorphine 10 mg/day was restarted until a 20-day detention in November 2022, when methadone was administered. Post-release he stopped OAT. In August 2023 he sought only symptomatic prescriptions while continuing alcohol. In November 2023 he re-engaged on buprenorphine 8 mg/day, increased to 12 mg/day in F,ebruary 2024. In May 2024 urine screening was methadone-positive; he reported stolen medication and self-treatment with illicit methadone. Per protocol buprenorphine was continued. Currently he attends regularly on 12 mg/day but persists with harmful alcohol use and episodic disinhibition. Concomitant drugs: sertraline, valproate, lorazepam, pregabalin.

Discussion: Bereavement and custodial transitions repeatedly destabilized OAT in the context of AUD. Sedative co-prescribing (benzodiazepines/pregabalin) heightens overdose risk and merits review. Priorities include integrated dual-diagnosis care (AUD-focused psychosocial treatment; consideration of acamprosate or supervised disulfiram), grief-focused psychotherapy, contingency management, supervised dosing to reduce diversion, and—where available—long-acting injectable buprenorphine to improve adherence and continuity.

Conclusion:Integrated, harm-reduction strategies with attention to grief and active AUD treatment can stabilize OAT, improve retention, and reduce injury/overdose risk.

Keywords: opioid use disorder; buprenorphine; alcohol use disorder; bereavement; continuity of care

Secondary upper limb lymphoedema post-mastectomy: an overlooked clinical challenge

Abstract ID: 3-3/15

Authors: ANDA KASAPI, Blagoja Srbov

Institution: University Clinic of Plastic and Reconstructive Surgery, Skopje, North Macedonia.

Introduction: Lymphoedema is a chronic and progressive condition characterized by the accumulation of protein-rich interstitial fluid due to impaired lymphatic drainage. It may be primary (congenital) or secondary, the latter commonly associated with oncologic surgery, radiotherapy, or infection. Secondary upper limb lymphoedema following mastectomy develops in 15–30% of patients. It, however, represents one of the most disabling long-term complications, with a significant impact on quality of life.

Case Presentation: We report a 76-year-old female with a history of right radical mastectomy (1991) for invasive breast carcinoma. Routine imaging between (2015–2017) confirmed stable post-surgical findings without recurrence. Beginning in 2020, the patient developed local ulcerative axillary metastasis, which was treated operatively. Within the same year, progressive swelling of the right upper extremity appeared. Initially, she was treated as: deep vein thrombosis (DVT), delaying correct management and initiating complications such as recurrent infections and prolonged antibiotic therapy. Despite conservative measures with analgesics, antibiotics and DOAC, the symptoms persisted. CT angiography (2024) demonstrated soft-tissue edema but no sign of thrombosis in the venous phase. ICG lymphography (2025) demonstrated lymphatic stasis, therefore concluding the diagnosis of lymphedema. Following the correct diagnosis, initiation of a compression therapy regime led to significant clinical improvement, gradual reduction in swelling and sustained remission.

Conclusion: Lymphoedema remains a lifelong complication for many cancer survivors, but comprehensive management, especially compression therapy, can significantly improve outcomes and reduce morbidity. This case emphasizes the critical importance of early symptom recognition, comprehensive understanding of the disease pathophysiology, and timely intervention, which are essential to facilitating the patient's return to normal daily activities.

Keywords: Lymphoedema, Breast carcinoma, Mastectomy, ICG lymphography, Compression therapy

Bereavement-triggered relapse and persistent alcohol use during opioid agonist therepy: a longitudinal case

Abstract ID: 3-2/15

Authors: ALEKSANDRA MILUNOVIĆ, Milan Petkovic

Institution: Medical Faculty University of Niš, Serbia

Centre for Mental Health Protection, University Clinical Center Niš, Serbia

Introduction: Co-occurring alcohol use disorder (AUD) in people receiving opioid agonist therapy (OAT) raises morbidity and relapse risk, especially around major stressors and custody transitions. We report a multi-year course highlighting management pitfalls and solutions.

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Discussion: Bereavement and custodial transitions repeatedly destabilized OAT in the context of AUD. Sedative co-prescribing (benzodiazepines/pregabalin) heightens overdose risk and merits review. Priorities include integrated dual-diagnosis care (AUD-focused psychosocial treatment; consideration of acamprosate or supervised disulfiram), grief-focused psychotherapy, contingency management, supervised dosing to reduce diversion, and—where available—long-acting injectable buprenorphine to improve adherence and continuity.

Conclusion:Integrated, harm-reduction strategies with attention to grief and active AUD treatment can stabilize OAT, improve retention, and reduce injury/overdose risk.

Keywords: opioid use disorder; buprenorphine; alcohol use disorder; bereavement; continuity of care

The brain's self-regulation: the role of neurofeedback in treatment-resistant depression

Abstract ID: 3-5/15

Authors: DRAGANA TERZIKJ, Aleksandar Risteski

Institution: University Clinic of Psychiatry, Skopje, Republic of North Macedonia

Introduction: The effects of neurofeedback as an augmentation treatment on depressive symptoms are evaluated in a patient with treatment-resistant depression (TRD).

Case Presentation: A 28-year-old male patient diagnosed with recurrent severe major depression disorder (F33.2) is presented in this case report. Standard therapy of pharmaceutical treatment has been administered. No significant improvements have been noted after 3 months of SSRI, followed by 3 months of SNRI treatments. The patient is then administered a combination of neurofeedback treatment and SNRI.

With the neurofeedback treatment, the patient is taught self-control, by measuring brain waves using electroencephalography (EEG) and providing a feedback signal. The underlying principle is the well-known punishment and reward system. For this patient an alpha/theta protocol is used. During each of the 10 sessions, the patient is receiving visual and auditory feedback based on their real-time measurements. They are trying to self-regulate their brain waves (through positive and negative reinforcements), with no interference from the psychiatrist. The Encephalan Software is used.

Discussion: The direct insight into the patient's brain activity combined with the low risk and the non-invasive nature makes neurofeedback a rare treatment in psychiatry. The self-regulation fosters changes in neural circuits implicated in mood regulation, offering a pathway to improvement even when conventional treatments have failed. The scope is much larger than the presented TR depression and the active research gives hope for further clinical applications.

Conclusion: The results of the neurofeedback treatment are measured using standardized tests in psychiatry. The scores of PHQ-9 and HAM-D have seen improvements in the patient, after the administered sessions. The long-term effects of neurofeedback are yet to be proven and the efficacy in certain patients still remains unclear. In conclusion, neurofeedback stands as a reasonable complementary treatment in many brain dysfunctions.

Keywords: brain waves, neurofeedback, TRD, psychiatry

From radical to rational: sentinel lymph node biopsy redefining the future of melanoma surgery

Abstract ID: 3-6/15

Authors: DUSKO JANEV, Gordana Georgieva

Institution: University Clinic for Plastic and Reconstructive Surgery, Skopje, Republic of North Macedonia

Introduction: Melanoma is the most common skin cancer with an incidence that has been rapidly increasing in the past decades. Radical surgical excision remains the cornerstone of primary treatment, ensuring local control. The management of regional lymph nodes poses a clinical decision point, whether to perform extensive lymph node dissection or a less invasive sentinel lymph node biopsy (SLNB). This case highlights the importance of SLNB in guiding rational surgical decisions, minimizing patient morbidity, and providing precise prognostic information, illustrating a practical approach to melanoma care at a crucial clinical crossroads.

Case presentation: A 28-year-old female presented with a pigmented lesion on the lower-left back, measuring approximately 6×6mm, with irregular borders, heterogeneous pigmentation and an uneven surface. Dermoscopic and clinical evaluation raised suspicion for melanoma. The lesion was excised with radical margins and the defect was reconstructed using a KDPIF type C flap. Histopathology confirmed invasive superficial spreading melanoma with preserved melanin production, 2mm Breslow thickness, Clark's level IV. The surgical margins were clear and biochemical markers, including LDH and S-100, were within normal limits. Following multidisciplinary consultation, bilateral axillary sentinel lymph node biopsy was performed. Of four nodes examined, no metastatic deposits were identified, only reactive changes. The patient remains under follow-up with no evidence of recurrence.

Discussion: SLNB offers a minimally invasive and reliable alternative to radical lymph node dissection, providing precise prognostic information while significantly reducing surgical morbidity. In this case, SLNB accurately staged the disease, avoiding unnecessary radical surgery. The findings strongly support current literature advocating SLNB for clinically node-negative melanoma, demonstrating its clear utility in rationalizing interventions at a critical clinical decision point.

Conclusion: Sentinel lymph node biopsy provides a patient-centered approach for melanoma staging, enabling rational decisions at the clinical crossroads, optimizing prognostic assessment, minimizing morbidity, guiding follow-up strategies, and supporting individualized, evidence-based management for improved clinical outcomes.

Keywords: melanoma, sentinel lymph node biopsy (SLNB), lymphatic staging, radical excision, surgical planning

From cervical spine injury to airway reconstruction: a case report

Abstract ID: 3-7/15

Authors: ELENA STOJAN, Dejan Zdravkovski, Ana Micevska

Institution: University Clinic for Traumatology, Orthopedics, Anesthesia, Reanimation, and Intensive Care and Emergency Medicine (TOARILUC), Skopje, Republic of North Macedonia

Introduction: Polytrauma involving the cervical spine and thoracoabdominal organs often requires prolonged ventilatory support. Subsequent airway complications, such as tracheal stenosis, remain a serious challenge requiring timely diagnosis and surgical intervention.

Case presentation: A young male patient sustained multiple injuries as a passenger in a motor vehicle accident. On admission, he was hemodynamically stable and fully conscious, but presented with paraplegia and upper limb paresthesias. Imaging revealed C4–C5 spondylolisthesis, bilateral pulmonary contusions, segment VIII liver laceration, and head trauma. He underwent surgical stabilization of the cervical spine and required prolonged intensive care with mechanical ventilation, sedation, and inotropic support. Repeated extubation failures led to tracheostomy. Multiple bronchoscopies, transfusions, and multidisciplinary care were provided. After stabilization, he was successfully weaned from ventilation and the tracheostomy cannula removed. During follow-up, he developed progressive respiratory compromise. Flexible endoscopy and bronchoscopy revealed tracheal stenosis with granulation tissue, so he underwent surgical resection of two tracheal segments. The postoperative course was uneventful, with restoration of spontaneous breathing and no further need of ventilatory support.

Conclusion: This case highlights the complexity of managing polytrauma complicated by paraplegia and prolonged airway dependence. Early recognition, definitive surgical intervention, and multidisciplinary management were essential to achieving a favorable functional and respiratory outcome.

Keywords: cervical spine injury, polytrauma, surgical stabilization

Dellon decompression for diabetic neuropathy

Abstract ID: 3-8/15

Authors: EMINE CHIKO, Sofija Tusheva, Sofija Pejkova

Institution*:* University Clinic for Plastic and Reconstructive Surgery , Faculty of Medicine, University Ss.Cyril and Methodius – Skopje

Introduction: Diabetic neuropathy frequently leads to chronic, non-healing foot ulcers due to impaired sensory function and reduced perfusion.

Case Presentation: We present a case where Dellon decompression of the four medial ankle tunnels was performed to enhance blood flow and promote ulcer healing in a patient with diabetic neuropathy. A 65-year-old male with longstanding diabetic neuropathy and a chronic plantar foot ulcer (18 months, size 10.5 cm^2) presented with severe sensory deficits, a positive Tinel sign at the tarsal tunnel, and reduced posterior tibial artery blood flow (1.74 cm^3/sec on Doppler ultrasonography). The patient had well-controlled diabetes and no significant vascular occlusive disease. Pre- and postoperative assessments included Tinel sign, Michigan Neuropathy Screening Instrument (MNSI) score, two-point discrimination, Doppler ultrasonography for posterior tibial artery flow, and DMIST scale for ulcer characterization. Dellon decompression was performed to relieve tibial nerve compression. At 9-month follow-up, the patient showed significant improvements: MNSI decreased from 12 to 5, Tinel sign intensity reduced (VAS: 7 → 2), and posterior tibial artery blood flow improved (1.74 → 2.52 cm^3/sec; $p<0.0001$). By this time, the ulcer had completely healed, with no new ulcerations or infections.

Discussion: This case highlights the role of chronic nerve compression in microvascular insufficiency and delayed ulcer healing in diabetic neuropathy. The patient's longstanding ulcer and sensory deficits indicated that conservative management was insufficient. Dellon decompression relieved pressure on the tibial nerve and its branches, improving both neural function and blood flow. Objective improvements in posterior tibial artery perfusion, MNSI, and Tinel sign demonstrate that decompression can restore plantar sensibility and enhance circulation. The complete ulcer healing within nine months supports surgical nerve decompression as an effective adjunct in refractory diabetic foot ulcers. While larger studies are required, this case suggests that addressing nerve compression may provide neurological and vascular benefits, reducing recurrent ulceration and infection.

Conclusion: This case highlights the potential benefits of Dellon decompression in improving blood flow, restoring plantar sensibility, and promoting ulcer healing in diabetic neuropathy. The results suggest that chronic nerve compression contributes to microvascular insufficiency and delayed healing in diabetic foot ulcers. Given the positive outcomes observed, Dellon decompression may be an effective adjunct for managing diabetic foot ulcers resistant to conventional treatments and may offer a promising therapy for similar patients.

Keywords: diabetic neuropathy, dellon decompression, tarsal tunnel, blood flow improvement, ulcer healing, sensory function

Rapidly progressive dementia in a 56-year-old woman diagnostic and therapeutic challenges

Abstract ID: 3-9/15

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Introduction: Rapidly progressive dementia (RPD) represents a clinical syndrome characterized by accelerated cognitive decline, often accompanied by neuropsychiatric, extrapyramidal or cerebellar manifestations. Etiologies are heterogeneous, including neurodegenerative, autoimmune, metabolic, infectious, and prion-mediated disorders. Early recognition is crucial for accurate diagnosis and management.

Case Presentation: We report a 56-year-old female presenting with a 10-month history of progressive neurological deterioration. Initial manifestations include insomnia, anxiety, and intermittent tremor of all four extremities, evolving into persistent, activity-exacerbated tremor. Subsequently, she developed severe gait instability with frequent backward falls, vertigo associated with emesis, profound cognitive decline, disorientation, vivid visual and auditory hallucinations, emotional dysregulation, olfactory disturbances, constipation, and refractory, photo-sensitive headaches. During two hospitalizations, comprehensive investigations and sequential pharmacological trials including antidepressants, benzodiazepines, antiepileptics, antipsychotics, dopaminergic agents, and corticosteroids failed to yield clinical improvement. Relevant past medical history included bilateral mastectomy with adjuvant chemotherapy, cholecystectomy, distal radius fracture, hypertension, hypothyroidism, and chronic gastritis. The patient became bedbound, dependent, severely cognitively impaired, and exhibited parkinsonian-ataxic features. Cerebrospinal fluid analysis revealed positive 14-3-3 protein (sensitivity 96% for Creutzfeldt-Jakob disease), and referral for genetic testing was initiated to evaluate for hereditary variants.

Discussion: This case underscores the diagnostic complexity inherent in RPD, particularly when prodromal features mimic psychiatric or extrapyramidal disorders. Integrating clinical progression with biomarker assessment is critical for early recognition of prion-mediated pathology.

Conclusion: Creutzfeldt-Jakob disease (CJD) constitutes a definitive etiology of RPD. Early, high-index suspicion, supported by specific biomarkers, is essential for accurate diagnosis, prognostication, and informed genetic counseling**.**

Keywords: Rapidly Progressive Dementia (RPD), Creutzfeldt-Jacob disease (CJD), Prion disease,14-3-3 protein

Beneath the pigmented veil, a silent aneurysm reveals the hidden vascular face of NF1

Abstract ID: 3-10/15

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Introduction: Neurofibromatosis type 1 (NF1) is widely recognized for its iconic dermatological tapestry —café-au-lait spots and neurofibromas that cloak the skin like enigmatic heralds of an underlying genetic storm . Yet beneath this pigmented veil lies a silent, sinister force: a vascular shadow that often escapes the clinician's gaze until calamity strikes. This report unravels the stealthy vascular narrative of NF1, challenging to rethink the disease's ominous breadth beyond its superficial guise.

Case Presentation: A 35-year-old female with a known history of NF1 presented asymptomatically during routine surveillance. Incidentally, imaging revealed a cerebral aneurysm concealed beneath extensive caféau-lait macules and neurofibromas. Despite the absence of neurological symptoms, vascular imaging uncovered a saccular aneurysm measuring 7 mm in the middle cerebral artery, prompting preemptive intervention. The patient's vascular anomalies, congruent with NF1-associated arteriopathy, underscored a silent but perilous pathology.

Discussion: The vascular landscape in NF1 is a treacherous terrain shaped by mutations in the NF1 gene, which disrupt neurofibromin's regulatory grip on vascular cell proliferation and integrity. This genetic mischief leads to dysplasia of the arterial wall, predisposing to aneurysms that lurk unnoticed until rupture. Literature from cutting-edge oncology and neurology sources affirms this silent vascular threat, urging clinicians to transcend the traditional focus on skin and nerves. Multimodal imaging and vigilant surveillance emerge as vital weapons in unveiling and disarming this hidden peril.

Conclusion: This case compels the medical community to lift the veil concealing NF1's vascular face—an aspect too often eclipsed yet profoundly consequential. As we peer beneath the skin's pigmentary armor, we must ask: should routine vascular screening become an unequivocal standard in NF1 care, transforming silent threats into survivable stories.

Keywords: neurofibromatosis type 1, silent aneurysm, vascular dysplasia, cerebral aneurysm, genetic arteriopathy

Limb-sparing management of recurrent undifferentiated pleomorphic sarcoma of the lower leg

Abstract ID: 3-11/15

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Introduction: Undifferentiated pleomorphic sarcoma (UPS) is a rare, aggressive soft tissue malignancy that accounts for approximately 5–7% of all adult soft tissue sarcomas. When located in the lower leg, management is particularly challenging due to limited soft tissue coverage. In such cases, reconstruction often involves the use of local muscle flaps such as the medial or lateral gastrocnemius to provide soft tissue coverage and facilitate wound healing. Wide excision is the golden standard in the treatment, and if necessary, reconstruction to restore limb integrity and function.

Case Presentation: A 73-year-old male presented with suspected local recurrence of UPS in the left lower leg. MRI confirmed local recurrence, while staging with CT of thorax, abdomen and pelvis revealed no evidence of distant metastases. After tumor board discussion, neoadjuvant radiotherapy was administered, followed by wide excision with periosteal stripping of the tibia. Temporary defect coverage was achieved using negative pressure wound therapy. Histopathology confirmed recurrent UPS with negative surgical margins. Defect reconstruction was performed in a second stage using a medial gastrocnemius muscle flap and a split-thickness skin graft (Thiersch method). At 6-month of follow-up, there was no clinical or radiologic evidence of local recurrence or distant metastasis, and no postoperative complications were observed.

Discussion: Recurrent UPS of the lower leg poses significant reconstructive challenges due to limited soft tissue coverage and the need for wide excision. The pedicled gastrocnemius muscle flap has been established as a reliable standard of care for reconstruction of defects around the knee region following sarcoma resection.

Conclusion: This case demonstrates the importance of a coordinated, individualized multidisciplinary approach in managing recurrent UPS. Neoadjuvant radiotherapy combined with reconstructive surgery enabled margin-negative resection and preserved limb function, highlighting the value of comprehensive multidisciplinary approach in complex sarcoma **cases**.

Keywords: undifferentiated pleomorphic sarcoma, recurrence, radiotherapy, limb-sparing surgery, reconstruction

Infanticidum or accident

Abstract ID: 3-12/15

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Introduction: Infanticide remains a tragic and complex medical and legal issue, one that often involves concealed pregnancies and denial of delivery. Forensic autopsy plays a critical role in establishing the circumstances and cause of death.

Case Presentation: A female neonate was found deceased in a rural toilet following the mother's concealed pregnancy and unassisted delivery. The placenta was recovered nearby. The infant, weighing 3100 g and measuring 49 cm, was delivered at term with normal development and capacity for independent life. External examination revealed traces of fecal contamination over the body and multiple minor abrasions. Internal examination demonstrated fecal material in the nasal passages, oral cavity, trachea, and bronchi. The lungs were atelectatic and devoid of air, confirmed by a negative hydrostatic test. Histopathological analysis showed alveolar collapse with intraluminal fecal material.

Discussion: The autopsy findings confirmed asphyxia due to aspiration of fecal masses as the cause of death. The presence of fecal matter throughout the airways and lungs excluded resuscitative or postmortem contamination. Such findings indicate a violent death mechanism consistent with infanticide. This case highlights the medical and legal importance of detailed neonatal autopsy, including hydrostatic testing, histology, and placental examination, in distinguishing live birth from stillbirth and clarifying the circumstances of death.

Conclusion: This case underscores the role of forensic medicine in identifying infanticide through comprehensive autopsy. Establishing live birth, viability, and the cause of death is essential for legal investigation and justice in such sensitive cases.

Keywords: infanticide, forensic autopsy, neonatal death, asphyxia, fecal aspiration

Fatal anaphylactic shock caused by ceftriaxone: a forensic autopsy case report

Abstract ID: 3-13/15

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Introduction: Anaphylactic shock is an unexpected event that occurs in up to 75% of patients with no prior history of allergy. Symptoms are serious, rapidly developing and can affect vascular permeability, smooth muscle of blood vessels and bronchi with activation of the systemic inflammatory cascade.

Case Presentation: After ceftriaxone injection, the patient collapsed. Autopsy showed cerebral edema and emphysematous, overdistended lungs with edema, congestion, foamy fluid and microthrombi. The heart revealed mild hypertrophy and fibrosis, without acute infarction. Other findings included passive liver congestion, interstitial nephritis, chronic colitis, diverticulosis and acute reactive splenitis. Toxicology detected no drugs, sedatives, narcotics, or pesticides. Laboratory results showed markedly elevated IgE (322 IU/mL; normal <100), supporting hypersensitivity. Histology confirmed pulmonary edema, vascular stasis, microthrombosis, splenic reactivity, chronic nephritis, and cerebral atherosclerosis. No trauma, intoxication, stroke, or infarction was identified. Signs of medical intervention, including ECG electrodes, endotracheal tube and intravenous injection sites were present.

Discussion: This case illustrates a classic example of death caused by a drug-induced allergic reation. Recognition of clinical signs and laboratory markers, such as elevated IgE, was crucial. The spleen showed signs of acute reactive splenitis—enlarged and inflamed—which indicates systemic immune activation. This finding helps demonstrate that there was a widespread immune response typical for anaphylaxis, even if there were no external signs. Autopsy findings ruled out other causes such as trauma, poisoning, heart attack, stroke or suffocation. Although death was natural and cardiovascular and respiratory collapse resulted from a hypersensitivity reaction, contributing factors include emphysema, cerebral atrophy, nephritis, myocardial fibrosis.

Conclusion: Drug-induced anaphylaxis is a rare but life-threatening complication of therapy. In this case, the allergic reaction occurred immediately following ceftriaxone administration. Awareness of drug-induced hypersensitivity is essential, and caution is advised when prescribing beta-lactam antibiotics, such as penicillins and cephalosporins, particularly in elderly patients or those with a history of allergies.

Keywords: anaphylactic shock, IgE, beta-lactam, hypersensitivity

Intra-operative extracorporeal irradiation and reimplantation of the proximal humerus in a case of ewing sarcoma: a pioneering experience in North Macedonia

Abstract ID: 3-14/15

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Introduction: Primary pediatric bone sarcomas are aggressive neoplasms requiring prompt multidisciplinary management. Considering the high mortality and limitation of targeted therapies, we present the first reported national case of extracorporeal irradiation as an alternative treatment option in Ewing sarcoma.

Case Presentation: This case presents a 16-year-old female patient with right shoulder pain. X-ray, bone scan with Tc99m and MRI revealed an osteolytic lesion in the right proximal humerus with a soft tissue component. Biopsy confirmed Ewing sarcoma. Thoracic, abdominal, and pelvic CT scans showed no evidence of distant metastasis and the patient received neoadjuvant chemotherapy. The single surgical approach consisted of a wide 13-cm resection of the humerus, extracorporeal irradiation of the bone with 50 Gy, followed by reimplantation of the bone and fixation. The postsurgical period was uneventful and adjuvant chemotherapy was administered. At the last follow-up one year after the surgery, there was no evidence of distant metastasis or local recurrence.

Discussion : The management of Ewing sarcoma requires a multimodal approach, with priority given to limb-salvage techniques whenever feasible. Extracorporeal irradiation with reimplantation of bone offers both structural and biological advantages over prosthetic replacement or allografts. The most common complications of using this technique described in the literature as non-union, infection, and local recurrence were not observed at the most recent follow-up, one year after the surgery. In developing countries, such as North Macedonia, where access to endoprosthetic reconstruction is limited, this method represents a highly practical alternative for limb preservation, especially in young, active patients.

Conclusion: The early treatment of Ewing sarcoma in children and adolescents with extracorporeal irradiation with reimplantation of bone represents a safe and effective limb-salvage

technique, performed in a single operative setting, that achieves tumor control. This successful outcome of the case highlights its value as an alternative in developing countries.

Keywords: Ewing sarcoma; extracorporeal irradiation; autograft; limb-salvage;

Hyper IgD syndrome with a novel MVK variant

Abstract ID: 3-15/15

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Introduction: Hyperimmunoglobulinemia D syndrome (HIDS) is a rare autosomal recessive disorder caused by pathogenic variants in the gene encoding the mevalonate kinase enzyme. These mutations disrupt isoprenoid metabolic pathways, resulting in their deficiency. Consequently, defective prenylation of small GTPases occurs, with RhoA being particularly affected in phagocytes and monocytes. Unprenylated RhoA fails to suppress inflammasome activation, which becomes strongly upregulated upon detection of PAMPs or DAMPs. As a result, excessive amounts of IL-1 are produced, causing systemic inflammatory manifestations.

Case Presentation: A 17-year-old male presented with a lifelong history of inflammatory episodes characterized by recurrent fever, pharyngotonsillitis, cervical lymphadenopathy, and marked elevation of inflammatory markers (CRP, ESR). History also included multiple episodes of aphthous stomatitis, macular rash, and abdominal pain associated with nausea and vomiting. The patient had previously received multiple courses of antibiotics and symptomatic therapy, including a tonsillectomy at the age of five, which did not prevent the recurrence of episodes. Laboratory investigations revealed mildly elevated IgA, G, and M levels, while tests for anti-CCP, ANA, and RF were negative. Targeted NGS covering 44 genes linked to autoinflammatory syndromes was performed using an AmpliSeq panel, and variants were interpreted according to ACMG guidelines. Two bi-allelic pathogenic variants in the MVK gene were identified: c.1129G>A (p.V377I), a well-established founder mutation reported in the majority of HIDS patients, and c.564G>A (p.W188*), a rare nonsense variant predicted to disrupt normal protein function, confirming the diagnosis of HIDS.

Discussion: In this patient, the coexistence of the common founder mutation (p.V377I) and the rare nonsense variant *(p.W188**) may help explain the lifelong, recurrent inflammatory episodes and severity of symptoms. These genetic combinations contribute to phenotypic variability in HIDS. Recognition of such genetic combinations can aid early diagnosis and inform targeted therapy.

Conclusion: This case highlights the importance of early diagnosis, as delayed recognition limits therapeutic options and imposes a significant psychological burden on the patient.

Keywords: Hyper IgD syndrome, MVK, recurrent fever, IL-1, NGS

ABSTRACTS - POSTER PRESENTATIONS

Ventral hernia repair using TAR (transversus abdominis release) technique after previous surgery for colorectal adenocarcinoma

Abstract ID: 3-1/7

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Background: Ventral hernias are a frequent complication after abdominal surgeries, particularly in patients with previous oncological resections. *Hernia ventralis per magna* are challenging to manage due to the presence of adhesions, impaired abdominal wall integrity, and the risk of recurrence. The *transversus abdominis release* (TAR) technique has emerged as a significant advancement, enabling tension-free hernia repair and improving outcomes.

Objective: The aim of this case report is to highlight the effectiveness of TAR procedure in the surgical treatment *hernia ventralis per magna* and to demonstrate its clinical benefits for postoperative recovery and recurrence prevention.

Material and methods: We present a patient with a history of adenocarcinoma of the rectosigmoid colon, previously treated surgically, who was admitted with a diagnosis of *hernia ventralis per magna*. The patient underwent re-laparotomy mediana with adhesiolysis and local hernioplasty with prolene mesh using the TAR technique.

Results: The surgical and postoperative course were uneventful, with no complications. The patient was discharged in good general condition, with stable local findings.

Conclusion: The TAR procedure allows safe and effective repair of complex ventral hernias by creating adequate retro-muscular space for mesh placement and minimizing tissue tension. This technique is especially valuable in patients with previous abdominal oncological surgery, as it reduces recurrence risk and improves quality of life. Our case demonstrates the importance of TAR in achieving durable and favorable surgical outcomes.

Keywords: hernia ventralis, transversus abdominis release, hernioplasty, colorectal adenocarcinoma

Validation of Prepfiler Express™ and Prepfiler Express Bta™ Forensic Dna Extraction Kit for extraction of biological samples with Automate Express Forensic DNA extraction System

Abstract ID: 3-2/7

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Background: DNA typing, with its high power to differentiate human beings, often involves samples that are degraded, contaminated, or from multiple unknown sources. It is essential to understand the limits of each DNA typing method under such circumstances.

Objective: To determine the degree of sensitivity, stability, reproducibility, applicability to different types of forensic samples, and contamination from biological material.

Material and methods: DNA extraction from blood, saliva, semen, and buccal swab samples was performed with the PrepFiler Express Forensic DNA Extraction Kit, and DNA extraction from bone, tooth, chewing gum, and cigarette butt samples was performed with the PrepFiler Express BTA Forensic DNA Extraction Kit. The DNA was quantified with the Quantifiler® Trio DNA Quantification Kit on the Applied Biosystems 7500 Real-Time PCR System. DNA amplification was performed with the Globalifler PCR Amplification Kit, in 25 µl (full volume) and 12.5 µl (half volume) reactions. DNA from 0.025, 0.1, 0.25, 1.0, and 5.0 µL of whole blood was extracted with the PrepFiler Express™ Kit. For samples <1 µl, the blood was first diluted with saline, with 5 µl of the dilution being equivalent to the required volume. All samples were extracted in duplicate.

Results: DNA yields of up to 0.65 ng were obtained across dilutions, confirming the declared sensitivity. Profiles from all tested samples were concordant between two analysts, fulfilling reproducibility criteria. Samples exposed to inhibitors and external influences produced complete profiles in replicates, meeting stability criteria. Negative controls showed fewer than six drop-in peaks, satisfying acceptance standards.

Conclusion: The AutoMate Express™ instrument does not cause cross-contamination between the samples being processed. A complete DNA profile was obtained from all types of samples examined, which is considered to have met the set criteria, i.e., that the Prepfiler kits are suitable for DNA extraction from all listed forensic biological materials.

Key words: Validation, DNA extraction, biological forensic samples, reproducibility, evidence

Gut microbiota – a driving force in brain homeostasis

Abstract ID: 3-3/7

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Background: The gut-brain axis is an extremely important two-way communication that unites the gastrointestinal and central nervous system, linking their functions in a way that dictates homeostasis. The gut microbiota, guided by numerous mediators, plays a significant role in the control of brain activity, modulating its development, behavior and mental health. Dysbiosis of the gut microbiota has often been considered as a non-exclusive factor in the etiopathogenesis of many neurological and neuropsychiatric disorders such as anxiety, depression, schizophrenia and Parkinson's disease, which makes it a very attractive field of study in medical science.

Objective: This review aims to reflect the essential importance of the connection between these two systems, emphasizing the development of disorders of this nature and the way they suppress. By unifying the causes and possible mechanisms of occurrence of these changes in the brain, an important mission is encouraged to treat these disorders with alternative approaches, such as probiotic supplementation.

Material and methods: Relevant scientific literature was reviewed using PubMed and Clinicaltrials.gov, paying attention to studies from the past five years. Integrating the gut-brain axis, gut microbiota, neural disorders and probiotics as key concepts and targets of interest, the significance of certain bacterial species and their mediators has been studied.

Results: The results confirm the neurobiological capacity of certain bacterial species from the gut microbiota to modulate the state of the brain. Bifidobacterium longum manifests its anxiolytic effects through inhibition of the hypothalamic-pituitary-adrenal axis, triggered by stress. Lactobacillus rhamnosus, through the vagus nerve, corrects the work of GABA receptors in certain areas of the brain and thus alleviates depressive behavior.

Conclusion: The bidirectional gut-brain axis through the potential of the gut microbiota, offers significant strategies for addressing neuropsychiatric disorders and establishing brain homeostasis. The power of probiotics is an essential component in the management of some of the most common disorders today.

Keywords: gut-brain axis, gut microbiota, probiotics, anxiety, depression

Randomised, Two-Way Crossover Bioequivalence Study of a two Formulation of Cefadroxil Monohydrate (250 mg/5 ml) following Single Dose Administration to Healthy Male Participants under Fasting Conditions

Abstract ID: 3-4/7
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Background: Cefadroxil Monohydrate is a first generation oral cephalosporin used for the treatment of bacterial infections. It belongs to the **β-lactam** class of antibiotics and it works by inhibited bacterial cell wall synthesis, leading to cell lysis and death. It is active against many Gram-positive bacteria (Streptococcus and Staphylococcus) and some Gram-negative bacteria (Escherichia coli, Klebsiella, Proteus Mirabilis).

Objective: The purpose of this study was to assess and compare the relative bioavailability and hence the bioequivalence of a test formulation of Cefadroxil Monohydrate (250 mg/5 ml) against a reference formulation of the same strength, following a single dose administration under fasting conditions.

Material and methods: The study design included a pre-study screening (within two weeks prior to first dosing), two treatment periods, and a post-study follow-up (one day after the final dose). Each treatment period lasted 1.5 days, beginning the evening before dosing (Day -1) and concluding 24 hours after dosing on Day 2. The investigational product was administered on the morning of Day 1 after an overnight fast. Pharmacokinetic samples were obtained prior to dosing and at 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 2.5, 3, 4, 6, 8, 10, 12, and 16 hours after dosing. Safety assessments were conducted at predefined time points throughout the study. A 7-day washout period separated dose administrations.
Plasma concentrations of cefadroxil monohydrate were analyzed using an LC/MS/MS technique.

Results: The test formulation of cefadroxil monohydrate (250 mg/5 ml) demonstrated bioequivalence to the reference formulation in terms of the primary pharmacokinetic parameters (Cmax, AUC0-t, and AUC0-∞) after a single oral dose. Both formulations were well-tolerated, with no serious adverse events observed.

Conclusion: The test formulation of cefadroxil monohydrate (250 mg/5 ml) is bioequivalent to the reference formulation under fasting conditions. In view of the clinical use, both formulations are exchangeable without restrictions.

Keywords: cefadroxil, bioavailability, bioequivalence study, single-dose.

DRESS Syndrome

Abstract ID: 3-5/7

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Background: Drug reaction with eosinophilia and systemic symptoms (DRESS) is a rare but severe hypersensitivity reaction, often triggered by medications such as antiseizure drugs, allopurinol, sulfonamides, and minocycline. This syndrome manifests within 2–8 weeks of drug initiation, typically presenting with a skin rash, eosinophilia, and multi-organ involvement, with liver injury being the most common complication.

Objective: To present a clinical case of DRESS syndrome induced by allopurinol in a 70-year-old woman, focusing on early recognition, diagnostic process, and treatment outcomes.

Material and methods: A 70-year-old woman with newly diagnosed hyperuricemia, treated with allopurinol for 4 weeks, developed a maculopapular rash, pruritus, oral ulcers, and conjunctivitis. Clinical evaluation included laboratory tests, histopathological examination, and liver function assessment. Upon diagnosis of DRESS, allopurinol was promptly discontinued, and the patient was treated with corticosteroids, antibiotics, and supportive local care.

Results: Despite initial supportive care, the patient's symptoms progressively worsened. Histopathology revealed a lymphocytic infiltrate in the dermis, confirming DRESS. Following discontinuation of allopurinol, the patient was initiated on 100 mg of prednisolone daily, tapering over two months. After this course, her rash completely resolved, and liver enzyme levels returned to normal.

Conclusion: DRESS syndrome, though rare, is a potentially life-threatening condition that demands prompt drug withdrawal and early intervention. In this case, allopurinol-induced DRESS was effectively managed with corticosteroid therapy, leading to a full recovery. Early recognition and treatment are crucial to prevent severe complications and ensure favorable outcomes.

Keywords: DRESS syndrome, allopurinol, drug hypersensitivity, corticosteroids, liver injury

Immunizaton with HPV Vaccine – effective measure for disease control

Abstract ID: 3-6/7

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Background: Human papillomavirus (HPV) is a prevalent DNA virus from the *Papillomaviridae* family, primarily transmitted through sexual contact. The risk of infection typically begins with the onset of sexual activity. While most HPV infections are asymptomatic and self-limiting, persistent infection, particularly with high-risk types such as HPV-16 and HPV-18, can lead to genital warts, precancerous lesions, and malignancies, including cervical, anogenital, and oropharyngeal cancers. Despite effective vaccines and screening programs, HPV-related diseases remain a global public health challenge.

Objective: To underscore the role of HPV immunisation in the prevention of HPV-related diseases and to highlight the importance of vaccination as a primary public health strategy in reducing the burden of HPV-associated morbidity and mortality.

Material and methods: This study utilised retrospective data from the Department of Preventive Health Care for Students and Adolescents (2009–2024). Additional data were extracted from medical records of gynecology and dermatovenerology outpatient clinics to assess the incidence and clinical presentation of HPV-associated diseases. The analysis focused on trends in HPV prevalence, vaccination coverage, and outcomes relevant to public health prevention efforts.

Results: HPV infections and related diseases are common among adolescents, with increased incidence linked to unprotected sexual activity. Although exposure risk is similar across genders, women show higher seropositivity (18% vs. 9%) and antibody titers. Vaccination significantly reduces infection risk and associated complications. Data indicate a steady annual increase in vaccine coverage, excluding the COVID-19 pandemic period. Continued public health efforts, including awareness campaigns, are essential to further reduce HPV transmission.

Conclusion: HPV vaccination remains the most effective strategy for preventing HPV-related complications. Increased coverage through sustained public health initiatives is critical to reducing the long-term health burden of HPV.

Keywords: human papillomavirus, cervical cancer, infection, HPV vaccination.

Serum amyloid A as a biomarker: diagnostic relevance and clinical association with acute ischemic stroke

Abstract ID: 3-7/7

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Background: Serum amyloid A (SAA) is an acute-phase protein that circulates at low levels bound to high-density lipoproteins (HDL). During inflammation, its concentration rises sharply, altering HDL composition, lipid transport, and cholesterol metabolism. These changes contribute to vascular pathology, particularly atherosclerosis. Owing to its multifunctional role, SAA has gained attention as a potential biomarker in cardiovascular and cerebrovascular diseases, although its role in acute ischemic stroke (AIS) remains insufficiently clarified.

Objective: The aim of this study was to evaluate serum SAA concentrations in patients with AIS compared to healthy controls and to explore its potential diagnostic significance as an inflammatory biomarker in cerebrovascular disease.

Material and methods: This cross-sectional study enrolled 30 patients (aged 35–70 years) diagnosed with AIS and hospitalized at the University Clinic of Neurology, along with 30 age-matched healthy volunteers from the Institute of Preclinical and Clinical Pharmacology and Toxicology in Skopje, North Macedonia. Serum SAA concentrations were measured in all participants using chemiluminescence immunoassay (CLIA) on the Maglumi 800 analyzer under standardized laboratory conditions.

Results: Serum SAA concentrations were significantly higher in AIS patients compared with the healthy control group ($p<0.01$). Values in the AIS group frequently exceeded the reference limit (<10 µg/mL) and showed a broader distribution, while control values consistently remained within the normal range.

Conclusion: Elevated SAA concentrations are associated with AIS, suggesting its value as a sensitive biomarker of inflammation. SAA may contribute to improving diagnostic accuracy, supporting patient monitoring, and guiding therapeutic strategies in cerebrovascular disease.

Keywords: acute ischemic stroke, serum amyloid A, biomarker

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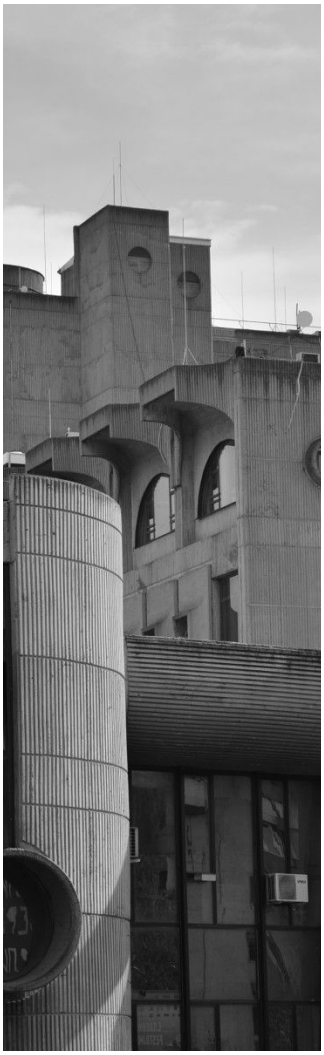
CASE REPORTS (CR) & POSTER PRESENTATIONS (PP)

HOW TO GET AROUND SKOPJE?



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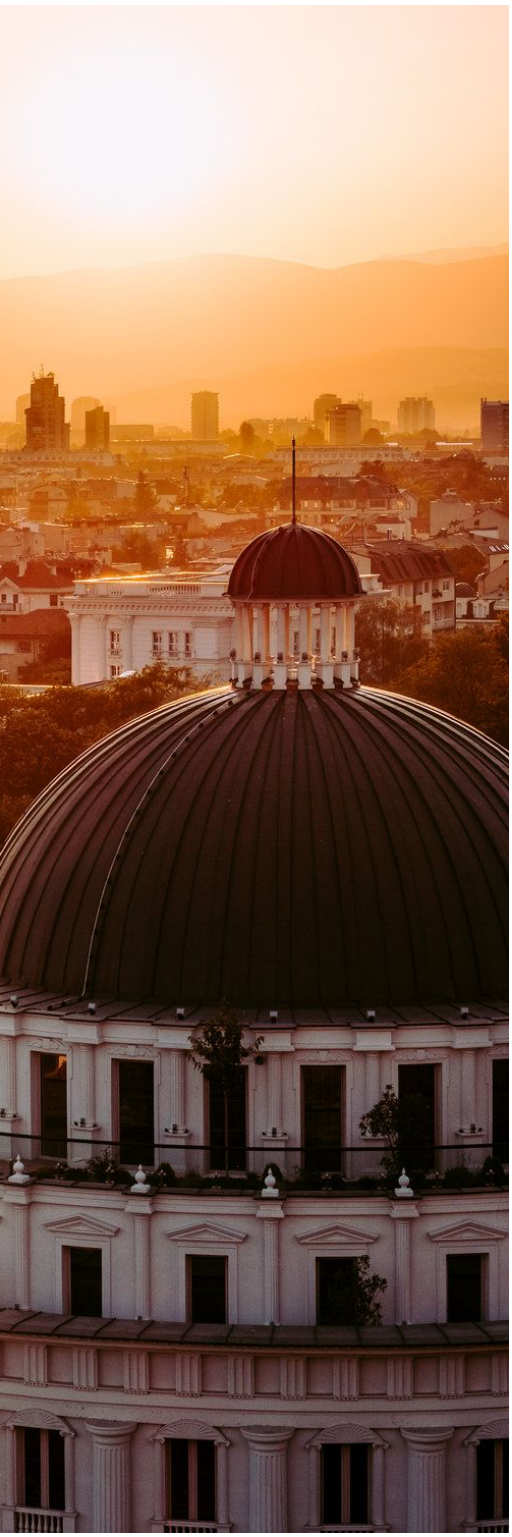

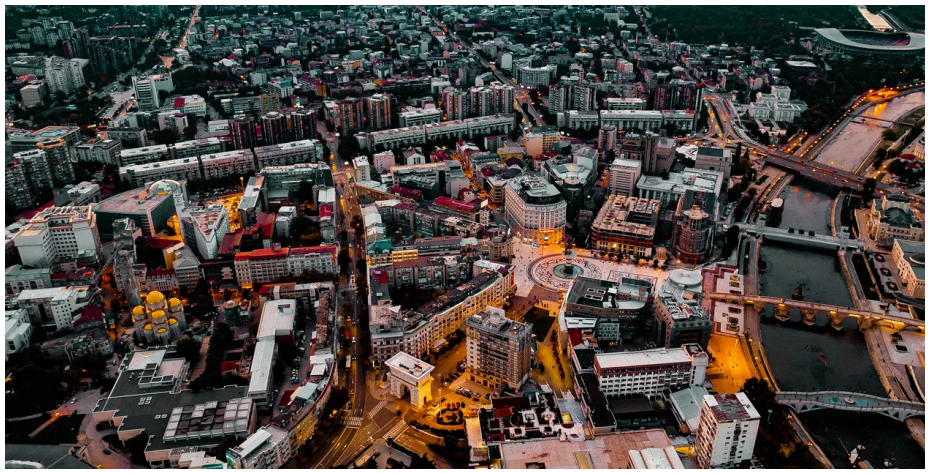

SKOPJE: BOLDLY TIMELESS.

Skopje boasts several famous landmarks that capture its rich history and vibrant culture.

The ***Kale Fortress***, dating back to at least the 5th century, overlooks the city from a hilltop, offering panoramic views and glimpses of historic churches.

The Stone Bridge, an iconic 15th-century Ottoman structure, spans the ***Vardar River***, connecting the ***Old Town*** with the ***New Town*** and symbolizing Skopje itself.

At the city's heart lies ***Macedonia Square***, home to the striking ***Alexander the Great statue*** and surrounded by important governmental buildings.

The Old Bazaar offers a lively atmosphere with Ottoman-era architecture, narrow alleys, shops, and traditional restaurants.

Other notable sites include the ***Millennium Cross*** on ***Mount Vodno***—the world's largest cross—and the ***Mother Teresa Memorial House***, honoring the famous humanitarian born in Skopje.

GET READY FOR A STROLL

Planning a trip to Skopje? Here are three handy tips to make your visit smooth and memorable:

- Wear Comfortable Shoes: Skopje's main attractions like Macedonia Square, Stone Bridge, and the Old Bazaar are best explored on foot. Expect to walk a lot, so comfy footwear is a must.
- Savor the Local Flavors: Don't miss trying traditional Macedonian dishes such as burek, shopska salad, and kebapi. The city's diverse food scene is an essential part of the experience.
- Be Taxi Smart: To avoid overcharging, always insist taxis use the meter or ask your hotel to arrange a reliable ride. This simple step can save you from common tourist scams.

Enjoy discovering the charm and history of this fascinating Balkan capital!

A FINAL WORD

Dearest readers,

Thank you all for joining us for this edition of ICOF'S NEWS.

The landscape of medicine is in constant motion, shaped by the dedication and curiosity of researchers and clinicians around the globe.

We hope this curated collection of abstracts has provided a clear and useful window into the most recent and relevant developments in our field.

Let the knowledge shared in these pages serve as a tool. May it inform your practice, challenge your perspectives, and fuel your passion for this vital work. The conversation doesn't end here; it continues in our clinics, our labs, and with every patient we treat.

Until next time,

Magdalena Lazevska & Ana Kotorchevikj
Co-Editors