



Macedonian
Association of
Radiologists

ABSTRACT BOOK

**7th Macedonian National
Congress of Radiology**

**9-11 November 2023
SKOPJE, Macedonia**

7th Macedonian National Congress of Radiology

Dear colleagues, friends and associates,

I am honored to invite you to the 7th Macedonian Congress of Radiology with international participation, organized by the Macedonian Association of Radiologists- MAR. The event will be held in the “Double Tree by Hilton” hotel in Skopje, Republic of North Macedonia from 9-11th November 2023. Meeting will be held in English.

Both, Diagnostic and Interventional radiology have emerged as one of the most important parts of the modern clinical medicine. Through incredible advancements in both technology and techniques the future of Radiology is bright.

Our aim is to organize a high-level scientific event with lectures and delegates from the radiological community of the region and Europe but also scientists from other specialties that are tightly connected to our specialty. The meeting will include international and Macedonian speakers, educational workshops and satellite simposiums with a focus on established diagnostic and therapeutic procedures, latest research and technologies.

This meeting will be the largest radiologic event in the country in the last few years. It is intended for residents and specialists in radiology, oncology, gastroenterology, surgery, nuclear medicine, internal medicine and other specialties.

We invite all interested parties to actively participate and submit abstract in a timely manner.

We are confident that this Congress will provide a unique opportunity to learn from leading experts in the field, share knowledge and experience and network with colleagues from around the world. We look forward to welcoming you to Skopje on the 7th Macedonian Congress of Radiology.

Sincerely,

Assoc. Prof. Aleksandar Gjoreski, MD, PhD

Chief of the department for diagnostic and interventional radiology, Clinical Hospital Acibadem- Sistina

President of the Macedonian Association of Radiologists

President of the Society for Interventional Radiology of North Macedonia



Scientific and Organizational Committees

Scientific Committee

Prof. Zoran Trajkovski

Prof. Elizabeta Stojovska Jovanovska

Assoc. Prof. Aleksandar Gjoreski

Assoc. Prof. Jasminka Chabukovska Radulovska

Prof. Maja Jakimovska Dimitrovska

Ass. Sonja Nikolova

Assoc. Prof. Menka Lazarevska

Prof. Antonio Gligorievski

Prof. Violeta Vasilevska Nikodinovska

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Dr. Argjent Imeri

Dr. Gordana Belcheska Antuleska

7th Macedonian National Congress of Radiology

with International Participation

9-11 November 2023
Hotel DoubleTree by Hilton,
Skopje, Macedonia

Thursday, November 9th

16:00 - 19:00 | REGISTRATION

16:30 - 17:45 | BREAST RADIOLOGY

Moderators | Prof. Dr. Svetlana Antevska-Grujoska
Prof. Dr. Andreja Arsovski

- | | |
|---------------|---|
| 16:30 – 16:42 | Role of elastography in the diagnosis of solid breast tumors
Assoc. Prof. Dr. Jasminka Chabukovska Radulovska (MKD) |
| 16:42 – 16:54 | Breast examination appointment pathway and Breast cancer 2023 screening program
Dr. Svetlana Temelkovska (MKD) |
| 16:54 – 17:07 | Management of breast disease - UK pathways
Dr. Sonja Jovanoska (UK) |
| 17:07 – 17:20 | Breast microcalcifications on mammogram
Prof. Dr. Maja Jakimovska-Dimitrovska (MKD) |
| 17:20 - 17:33 | Preoperative breast MRI: our experience
Dr. Maja Stojchevska-Chapova (MKD) |
| 17:33 – 17:45 | Updated WHO classification of breast tumors
Assoc. Prof. Dr. Magdalena Bogdanovska-Todorovska |

17:45 - 18:30 | JUSTIFICATION IN MEDICAL CT EXPOSURE, OPTIMIZATION, RADIATION PROTECTION

Moderators | Prof. Dr. Zoran Trajkovski
Assoc. Prof. Dr. Jasminka Chabukovska-Radulovska (MKD)

17:45	18:00	Recurrent imaging and cumulative effective dose Prof. Dr. Franz Kainberger (AU)
18:00	18:15	Justification embedded in the indication for imaging Prof. Dr. Franz Kainberger (AU)
18:15	18:30	Optimization in computed tomography: an update for Radiologists Assoc. Prof. Dr. Jasminka Chabukovska-Radulovska (MKD)

18:30 - 18:45 **OPENING CEREMONY**

18:45 - 20:00 **COCKTAIL**

Friday, November 10th

08:00 - 16:00 | REGISTRATION

08:30 - 09:30 | **ABDOMINAL RADIOLOGY**
Gastrointestinal tract

Moderators | Prof. Dr. Vladimir Dimov
Dr. Milan Sapundzieski

08:30 – 08:42	Modified CT examination in the diagnosis of neo-infiltrative diseases of the digestive tube with special reference to the stomach Prof. Dr. Antonio Gligorievski (MKD)
08:42 – 08:54	Modern approach in detection and monitoring of metastatic disease in colorectal cancer Prof. Dr. Biljana Prgova (MKD)
08:55 – 09:07	CT colonoscopy: what the surgeons want to know from radiologists Dr. Milan Sapundzieski (UK)
09:07 – 09:19	Peritoneal metastases – options and challenges Assoc. Prof. Dr. Goran Spirov (MKD)
09:19 – 09:30	MRI restaging of rectal cancer after neoadjuvant treatment Dr. Ivana Blazic (SRB)



09:30 - 10:30 | NEUROINTERVENTIONAL RADIOLOGY

Moderators | Prof. Dr. Kiril Lozanche
Assoc. Prof. Dr. Menka Lazareska

09:30 – 09:45	Endovascular treatment of complex aneurysms (balloon, stent remodeling and FD techniques) Dr. Nurfet Alioski (BG)
09:46 – 10:00	Treatment strategy in complex and ruptured aneurysms vs unruptured Assoc. Prof. Dr. Menka Lazareska (MKD)
10:00 – 10:15	Treatment of angiospasm in ruptured aneurysms Dr. Jasna Bushinoska (MKD)
10:15 – 10:30	Endovascular treatment of DAVF and CCF Dr. Deniz Bulja (BIH)

10:30 - 11:00 | COFFEE BREAK

11:00 - 12:00 | ABDOMINAL RADIOLOGY

HCC, from prevention and diagnostics to therapy - current trends

Moderators | Prof. Dr. Kalina Grivcheva-Stardelova
Dr. Vladimir Avramovski

11:00 – 11:15	Epidemiology and prevention Dr. Anche Volkanovska (MKD)
11:15 – 11:30	Locoregional options for HCC treatment, what's new Assoc. Prof. Dr. Aleksandar Gjoreski (MKD)
11:30 – 11:45	Surgery in hepatocellular carcinoma Prof. Dr. Svetozar Antovikj (MKD)
11:45 – 12:00	Oncology treatment for HCC Dr. Nenad Mitreski (MKD)

12:00 - 12:45 | INTERVENTIONAL RADIOLOGY I (NON-VASULAR AND ONCOLOGY)

Moderators | Prof. Dr. Okan Akhan
Assoc. Prof. Dr. Aleksandar Gjoreski

12:00 – 12:15	Ablation of intrahepatic cholangiocarcinoma Prof. Dr. Okan Akhan (TR)
12:15 – 12:30	Embolization in oncology Dr. Aleksandar Bojanovic (SRB)
12:30 – 12:45	Radioembolization in primary and secondary liver tumors Prof. Dr. Peter Popovic (SLO)
12:45 – 13:00	Nonvascular interventional procedures in pediatric radiology Prof. Dr. Zoran Trajkovski (MKD)

13:00- 13:45 | LUNCH BREAK

13:45 - 14:00| SPONSORED SYMPOSIUM (GE)

14:00 - 15:00 | CARDIOVASCULAR RADIOLOGY I

Moderators | Assoc. Prof. Dr. Svetla Dineva (BG)
Dr. Nikola Bakracheski

14:00 – 14:15	The Role of vascular US in diagnosing and follow up in PAD on lower extremities Dr. Aleksandar Manolev (MKD)
14:15 – 14:30	Imaging of carotid plaques Dr. Vjolca Aliji (MKD)
14:30 – 14:45	The role of CTCA in detection of coronary artery anomalies Dr. Fuad Zukic (BiH)
14:45 – 15:00	Acute aortic syndrome or not? Assoc. Prof. Dr. Svetla Dineva (BG)

15:00 - 16:00 | INTERVENTIONAL RADIOLOGY II (VASCULAR)

Moderators | Dr. Viktor Serafimov
Dr. Nikola Lazovski

15:00 – 15:12	Endovascular treatment of complex carotid artery lesions - Experience from the University Clinical Center of Serbia - Assos. Prof. Dr. Vladimir Cvetic (SRB)
15:12 – 15:24	TEVAR Dr. Zvonko Atanasov (MKD)
15:24 – 15:36	An IVC filter: to whom and when - does the risk/benefit ratio justifies the procedure Dr. Viktor Serafimov (UK)
15:36 – 15:48	Endovascular treatment and procedural modalities in chronic vein insufficiency Dr. Nikola Bakracheski
15:48 - 16:00	Endovascular treatment of iliofemoral region Assoc. Prof. Dr. Petar Janevski (MKD)

16:00 - 16:30 | COFFEE BREAK

16:30 - 17:00 | SATELLITE SYMPOSIUM - MEDTRONIC

17:00 - 18:00 | CARDIOVASCULAR RADIOLOGY II

Moderators | Assist. Prof. Dr. Jadranka Stojanovska
Assoc. Prof. Dr. Menka Lazareska

17:00 – 17:15	The emerging role of Cardiac CT Prof. Dr. Christian Loewe (AU)
17:15 – 17:30	US - MRI in cardiac imaging Assoc. Prof. Dr. Valentina Andova (MKD)
17:30 – 17:45	The role of CMR in rheumatologic disease Prof. Dr. Robin Nijveldt (NE)
17:45 – 18:00	Clinical application of CMR in cardiomyopathies Dr. Planinka Zafirovska (MKD)

Saturday, November 11th

08:00 - 12:00 | REGISTRATION

08:30 - 09:30 | UROGENITAL RADIOLOGY

Moderators | Prof. Dr. Elizabeta Stojovska-Jovanovska
Dr. Biljana Bozhinovska

08:30 – 08:42	Current recommendations in imaging of bladder tumors Prof. Dr. Elizabeta Stojovska-Jovanovska (MKD)
08:42 – 08:54	Surgical procedures and treatment of bladder tumors Prof. Dr. Skender Saidi (MKD)
08:54 – 09:06	Radio and chemotherapy of bladder tumors Prof. Dr. Skender Saidi (MKD)
09:06 – 09:18	Advancing prostate cancer care: Pathology reporting protocol for radical prostatectomy specimens - Dr. Selim Komina (MKD)
09:18 – 09:30	Prostate MR imaging Dr. Masha Kostova (MKD)

09:30 - 10:30 | PEDIATRIC RADIOLOGY

Moderators | Prof. Dr. Zoran Trajkovski
Prof. Dr. Erich Sorantin

09:30 – 09:45	Pediatric imaging – from symptom to diagnosis Prof. Dr. Zoran Trajkovski (MKD)
09:45 – 10:00	Fetal MRI Dr. Jasminka Josheva (MKD)
10:00 – 10:15	TBA TBA
10:15 – 10:30	Differences Adults vs Children - Implications for Radiology Prof. Dr. Erich Sorantin (AU)

10:30 - 11:00 | COFFEE BREAK

11:00 - 12:00 | NEURORADIOLOGY I

Moderators | Prof. Dr. Miodrag Vrcakovski
Dr. Gjorgi Damjanoski

11:00 – 11:15	Imaging of orbital pathologies Prof. Dr. Dusko Kozic (SRB)
11:15 – 11:30	Multiparametric neuroimaging modalities in detection of subtle brain changes during aging and disease induced neurodegeneration Prof. Dr. Dusko Kozic (SRB)
11:30 – 11:45	Criteria and golden standard for diagnosing Multiple Sclerosis Prof. Dr. Dragana Petrovska-Cvetkovska (MKD)
11:45 – 12:00	Can advanced MRI techniques differentiate radiation necrosis from recurrence? Assoc. Prof. Dr. Menka Lazareska (MKD)

12:00 - 13:00 | ABDOMINAL RADIOLOGY Hepatopancreaticobiliary tract

Moderators | Dr. Aleksandar Bojanovic
Prof. Dr. Okan Akan

12:00 – 12:15	Posttherapeutical imaging of the liver – challenges and pitfalls Assoc. Prof. Dr. Aleksandar Gjoreski (MKD)
12:15 – 12:30	The role of MRI in assessment of chemotherapy-induced liver injury in patients with colorectal liver metastases Prof. Dr. Jelena Kovac (SRB)

12:30 – 12:45	MSCT in cholangiocarcinoma Dr. Aleksandar Bojanovic (SRB)
12:45 – 13:00	Cystic lesions of the pancreas Dr. Mitko Ilievski (MKD)

13:00 - 14:00 | LUNCH BREAK

HALL 1 |

14:00 - 15:00 | NEURORADIOLOGY II - SPINE

Moderators | Assoc. Prof. Dr. Menka Lazereska
Prof. Dr. Igor Kaftandziev

14:00 – 14:15	Effectiveness of single lumbar periradicular infiltration in patients with sciatica Dr. Dimitar Veljanovski (MKD)
14:15 – 14:30	TBA Prof. Dr. Igor Kaftandziev (MKD)
14:30 – 14:45	The value of MRI imaging and assessment in predicting the need for neurosurgical intervention in cervical spine degenerative disease Dr. Milenko Kostov (MKD)
14:45 – 15:00	The mystery of redundant nerve roots of cauda equina finally solved Prof. Dr. Miodrag Vrchakovski (MKD)

15:00 - 16:00 | THORACIC RADIOLOGY

Moderators | Assist. Prof. Dr. Jadranka Stojanovska
Dr. Sonja Nikolova

15:00 – 15:15	CT evaluation of pulmonary hypertension Assist. Prof. Dr. Jadranka Stojanovska (USA)
15:15 – 15:30	The many faces of Lung Cancer Dr. Ivana Pancevska (MKD)
15:30 – 15:45	Lung biopsy - current standing Dr. Andrea Nancheva (MKD)
15:45 – 16:00	Current concepts in CT Diagnosis and TNM staging of Lung Cancer Dr. Sonja Nikolova (MKD)

HALL 2 |

14:00 - 15:00 | MUSCULOSKELETAL RADIOLOGY I (ULTRASOUND)

Moderators | Prof. Dr. Gordana Ivanac
Prof. Dr. Violeta Vasilevska-Nikodinovska

14:00 – 14:15	Step-by-step guide to shoulder ultrasound Dr. Eugen Divjak (HR)
14:15 – 14:30	US of rheumatoid arthritis Prof. Dr. Gordana Ivanac (HR)
14:30 – 14:45	Ultrasound diagnosis of clinically significant bursal disorders Dr. Slavco Ivanovski (MKD)
14:45 – 15:00	Meniscal tear types and typical pitfalls on MRI Assoc. Prof. Dr. Smiljana Bundovska - Kocev (MKD)

HALL 2 |

15:00 - 16:00 | MUSCULOSKELETAL RADIOLOGY II

Tumors - multidisciplinary session

Moderators | Prof. Dr. Gjorgji Zafiroski
Prof. Dr. Violeta Vasilevska-Nikodinovska

15:00 – 15:15	Plain film in diagnosis of bone tumors Prof. Dr. Violeta Vasilevska-Nikodinovska (MKD)
15:15 – 15:30	Bone tumor pathology Prof. Dr. Slavica Kunovska (MKD)
15:30 – 15:45	Surgical treatment of bone tumors Prof. Dr. Milan Samardziski (MKD)
15:45 – 16:00	Oncological treatment and biopsies of bone tumors Dr. Igor Stojkovski (MKD)

16:00 - 16:30 | COFFEE BREAK

16:30-17:15 | SCIENTIFIC PAPER SESSION - ORAL PRESENTATIONS

Moderators | Assoc. Prof. Dr. Aleksandar Gjoreski
Assoc. Prof. Dr. Svetla Dineva

17:15-18:00 | CASE REPORT SESSION - ORAL PRESENTATIONS

Moderators | Dr. Dimitar Veljanovski
Dr. Vjollca Aliji

20:30 | COCKTAIL PARTY

Part I:

Lectures Abstracts

OPTIMIZATION IN COMPUTED TOMOGRAPHY: AN UPDATE FOR RADIOLOGISTS

Chabukovska Radulovska Jasminka

University Clinic for Surgical Diseases „St.Naum Ohridski“, Skopje

New health technologies and medical devices that use ionizing radiation have led to major improvements in the diagnosis and treatment of diseases in the population. Improper or unqualified use of such technologies and equipment may lead to unnecessary or unintended exposures and potential health hazards to patients and staff. Risks can be controlled, and benefits can be maximized by choosing an appropriate procedure and using methods to reduce patient exposure without reducing clinical effectiveness. In recent decades the number of examinations with Computed Tomography in medical practice has been continuously increasing and represents a large part of the collective dose of radiation from medical examinations. As CT utilization increases, so does the average annual cost-effective dose per capita from medical procedures, which increases the concern about radiation hazards with the increased use of CT. In addition to that is the fact that the effective dose per capita has doubled in the last 10 years. Due to the increasing concern about the potential dangers of CT radiation, various strategies have been developed to reduce and optimize CT dose, as well as to maximize the benefit-risk ratio of CT examinations by optimizing CT imaging techniques using these strategies. Even though there are uncertainties in quantifying the lifetime risks of CT examinations, the cumulative dose of CT radiation per capita should be minimized especially in the younger population because they have higher radio sensitivity and longer life expectancy than the older population. In the presentation, the currently available strategies for saving and reducing the CT dose are given, which can facilitate the rational use of CT in radio diagnostics and contribute to adequate health protection for patients.

ROLE OF ELASTOGRAPHY IN THE DIAGNOSIS OF SOLID BREAST TUMORS

Chabukovska Radulovska Jasminka

University Clinic for Surgical Diseases „St.Naum Ohridski“, Skopje

OBJECTIVE: To evaluate the role of breast ultrasound elastography as an emerging sonographic imaging technique that provides information in addition to conventional ultrasonography (US) and mammography in the characterization of solid breast tumors.

INTRODUCTION: Breast ultrasound elastography is a non-invasive imaging method that enables the differentiation of solid tumors according to the hardness (elasticity) of the tissue they show. Breast ultrasound elastography is used to characterize lesions previously diagnosed using B-mode ultrasound as a characterization tool rather than a detection tool.

METHODS: The study was conducted in 50 patients with a single diagnosed solid breast lesion during 2020-2022. All patients underwent a clinical examination, mammography, routine US, and breast ultrasound elastography using an ultrasound device (ESAOTE) with a linear multifrequency probe 6-18MHz.

RESULTS: Fifty patients were included in this study and examined by breast ultrasound, breast ultrasound elastography, and mammography. The findings were confirmed by biopsy. From 50 results, on the ultrasound and breast ultrasound elastography, 41 breast lesions were characterized as benign and 9 as malignant. Biopsy confirmed malignant lesions in the 6 patients and benign lesions in the 44 patients. The most common histology of the benign nodules was fibroadenomas and fibrocystic change. Of the malignant nodules, the most common lesion was infiltrative ductal carcinoma. Previously, all the patients had a B-mode ultrasound, and the lesions were categorized according to the BI-RADS categorization.

CONCLUSION: Breast ultrasound elastography is a non-invasive ultrasonographic procedure that increases the specificity of conventional B-mode ultrasound, enables more precise characterization of breast lesions, and provides greater diagnostic accuracy compared to conventional B-mode ultrasonography in solid breast tumors. Breast ultrasound elastography is an additional ultrasonographic tool that helps reduce false-positive results and is useful for avoiding unnecessary breast biopsies. Ultrasound breast elastography is best used in solid BI-RADS 3 or 4a lesions, increasing the confidence of ultrasound in its diagnosis before biopsy.

Modified CT examination in the diagnosis of neo-infiltrative diseases of the digestive tube with special reference to the stomach

Prof dr. Antonio Gligorievski

University Clinic for surgical diseases "St. Naum Ohridski" Skopje

Conventional CT examinations of the abdomen do not provide a clear picture of the actual wall thickness of the alimentary canal, thus making analysis of the examination difficult. It is not possible to reliably detect the pathological process, its size, the depth of involvement of the layers of the wall, nor to reliably determine the character of the changes. Both false positive and false negative findings are possible. For this purpose, we introduce a modification in the CT examination of the abdomen. The modification consists in causing induced hypotension by applying a hypotonic agent 20-30 minutes before the examination, and immediately before the examination, a 750-1000ml water bottle is applied to achieve maximum distension of the stomach. For a modified CT scan of the abdomen targeting the large intestine, before the examination the patient needs to be cleansed, 20-30 minutes before the examination induced hypotension is induced by the application of a hypotonic agent, a rectal catheter is placed and 1500-2000ml of lukewarm water is given that maximum distention of the colon is achieved. The advantage of the modified CT examination of the abdomen in order to examine the stomach, i.e. the colon, is that in addition to the excellent display of the organs and the present pathological conditions, staging can also be done if it is a neoinfiltrative process of the targeted organs.

What is new in the IR treatment for HCC?

*Assoc. prof. dr. Aleksandar Gjoreski
Clinical Hospital Acibadem Sistina, Skopje*

In the modern era of oncological medicine and personalized treatment for each cancer patient is the treatment of choice. There are many new opportunities of locoregional therapies (LRT) within the cancer patients. Interventional oncology as the newest branch of interventional radiology together with surgery, systemic chemotherapy, radiation and immunotherapy represents the fourth pillar of modern oncological approach. IO procedures are becoming more and more popular over time. Precision medicine can be applied in the treatment of HCC as well. According to the BCLC staging and treatment strategy IO is present in almost every stage of the disease. Ablation for the very early and early stage, TACE in early, intermediate and advanced stage and TARE in the early stage of the disease. These IO options can be applied separately or as a combination together with chemo or immunotherapy in order to obtain the best survival rates for the patients.

RFA and MWA are the main stem local ablative therapies for the early stage of HCC with microwave being superior for lesions equal or bigger than 3 cm. Local recurrence rates of ablation vs surgery are almost similar nowadays. MWA has certain advantages over RFA in terms of faster heating, less influence of blood flow and shorter procedural time. Future perspectives in ablation are modern 3D planning, 3D image guidance with image fusion software and software which can predict the ablation zone and achieve a safety margin.

Regarding TACE it is also an evolving technique implementing the newest technical advancements like super-selective cone beam TACE using small sized microcatheters and TACE guidance software. With the application of these newest techniques overall survival rates for these HCC patients increased dramatically in the past few years.

Post-therapeutical imaging of the liver – challenges and pitfalls

Assoc.Prof. Aleksandar Gjoreski

Clinical Hospital Acibadem Sistina – Skopje

Interventional radiology has an emerging role in the treatment of primary liver malignancies and liver metastasis. It is of great importance to be able to evaluate treatment success, identify intervention complications and detect locoregional recurrence.

This is a review of imaging findings and latest recommendations for follow up after interventional locoregional therapies of the liver. Treatments include thermal ablation techniques, such as microwave ablation (MWA) and radiofrequency ablation (RFA) and transarterial chemoembolization (TACE) in hepatocellular carcinoma (HCC), cholangiocarcinoma (CCC) and liver metastases.

FDG-PET-CT, CT, and MRI are the recommended modalities to detect early residual tumor, local tumor progression or new liver lesions as well as to identify complications after oncologic intervention.

Each of these modalities has its role and percent of accuracy depending on the time point of follow up, therefore correct combination is the best approach in accessing tumor control.

One should beware of false-positive signs of residual tumor or recurrence due to inflammation early after intervention and also the imaging presentation of concomitant systemic treatment, especially the newly developed targeted and imuno therapies.

This represents summary based on available evidence and recommendations that can be used in clinical practice for follow-up of patients with liver cancer who were treated with interventional locoregional therapies.

Imaging of carotid plaques

Vjola Aliji

University Institute of Radiology

Atherosclerosis is complex, multifactorial, chronic inflammatory disease affecting arterial walls. Carotid artery disease and atherosclerosis in particular has been reported as one of the predominant causes of cerebrovascular events including TIA, amaurosis fugax and ischemic stroke. By detecting plaques that are prone to rupture “vulnerable plaques” and understanding their characteristics with various imaging modalities, we may identify patients who are susceptible and at risk for stroke and who would benefit from potential therapeutic targets, medical, surgical or interventional treatments. We present comprehensive overview of imaging features of plaques at risk for stroke and summarize the imaging techniques that can be used in assessment of carotid plaques, their advantages, limitations and their role in guiding clinical decisions.

Breast pathways in UK

Sonja Jovanoska

West Suffolk Hospital, UK

Breast cancer is the most commonly diagnosed cancer worldwide, and its burden has been rising over the past decades. Estimates of new female breast cancer cases and deaths abstracted from the GLOBOCAN database show that the breast cancer is the most commonly diagnosed cancer worldwide in 2020. With estimated over 2.3 million new cases accounts for 1 in 8 cancer diagnoses and with 685,000 deaths corresponds to 1 in every 6 cancer deaths in women.

The future burden of breast cancer is predicted to increase to over 3 million new cases and 1 million deaths in 2040 because of population growth and ageing alone.

WHO to reduce breast cancer mortality and to tackle the overall burden from the disease launched Global Breast Cancer Initiative (GBCI). The three strategic pillars by which GBCI aims to reduce global breast cancer mortality are increasing access to early detection, timely definitive diagnosis and comprehensive cancer management.

No ministry of health can overlook breast cancer if they intend to address cancer as a significant public health issue in their country. Early detection could be achieved through both screening pathway, detecting cancers in asymptomatic healthy population, and symptomatic pathway, detecting cancers in patients presenting with breast symptoms.

The aim of this presentation is to share the experiences of how the breast, screening and symptomatic, work is organised in UK.

Endovascular treatment of iliofemoral region

Assoc.Prof. Petar Janevski,

University Institute of Radiology - Skopje

Ilio-femoral endovascular treatment is a minimally invasive technique that aims to restore blood flow and relieve symptoms in patients with ilio-femoral venous obstruction or peripheral artery disease. These conditions can cause chronic pain, swelling, ulceration, or limb-threatening ischemia in the lower extremities. Ilio-femoral endovascular treatment involves the use of catheters, wires, balloons, stents, or other devices to cross, dilate, or remove the occlusive lesions in the iliac or femoral arteries or veins. The procedure is performed under local anesthesia or conscious sedation in an interventional suite or hybrid operating room. The benefits of ilio-femoral endovascular treatment include improved quality of life, reduced morbidity and mortality, and lower costs compared with surgical alternatives. The challenges of ilio-femoral endovascular treatment include technical difficulties, procedural complications, and long-term patency issues. This presentation will review the indications, techniques, outcomes, and future directions of ilio-femoral endovascular treatment.

Breast microcalcifications on mammograms

Prof.Dr. Jakimovska Dimitrovska Maja

Institute of Radiology, Skopje, North Macedonia

Breast calcifications are usually found by chance during screening mammograms or diagnostic mammograms. Early detection of breast calcifications through routine mammography is vital for timely intervention and effective treatment. Mammography is used worldwide to detect microcalcifications. Breast calcifications are very common, and they are usually benign and occur as a part of the aging process. Many fibroadenomas, breast cysts, injuries of the breast tissue, mastitis can also form microcalcifications. Additionally, calcifications can develop within the blood vessels of the breast. Some microcalcifications can be the only and early presenting sign of breast cancer. With the mammography we can not only diagnose breast cancer in a non palpable stage, but can also detect the extent of the disease. The knowledge of the various microcalcification patterns on mammography helps in correct interpretation and management of microcalcifications in breast. We will display numerous types of microcalcifications. The majority of presented microcalcifications are suspicious of malignancy. Also microcalcifications can be seen with no associated tumor mass.

Keywords: microcalcifications, breast cancer, mammography,

Презентација на Патека за закажување на преглед на дојка и Скрининг програма за рак на дојка 2023

М-р д-р Светлана Темелковска

Универзитетски институт за радиологија – Скопје

Националната комисија за рана детекција и скрининг на рак на дојка, назначена од министерот за здравство како советодавно тело, работејќи од 1 јули 2022 до денес, ги анализираше проблемите и потребите од промени во врска со рана детекција на рак на дојка како најчесто малигно заболување и водечка причина за смртност кај жените во светот и кај нас.

Анализирани беа правилникот за времетраење на преглед, ФЗО - радиолошки услуги за преглед на дојка и скрининг програмата 2018-2022. НК заклучи дека се потребни промени поради несоодветно времетраење на радиолошките прегледи на дојка, несоодветни РД услуги и цени како и потреба од промени во скрининг програмата.

Имајќи во обзир потешкотиите кои ги имаат жените при закажување на преглед на дојка но и несоодветната тријажа од страна на упатувачот каде што закажувањата беа на основа кој дојде прв до термин а не согласно клиничката слика, пред и по третман на рак на дојка или семејната анамнеза на жената но истовремено и правото и обврската на специјалистот радиолог да креира календар на активности и издава упати, се предложија значителни промени кои беа прифатени од министерот за здравство. Работењето на НК и министерството за здравство резултираше со нова патека за упатување за радиолошки преглед на дојка, овозможување на радиолог да издава упати и промени во РД услугите на ФЗО. Промените во скрининг програмата беа во однос на возрастната група на поканети жени, на квалитетот на мамографска слика, интрепретација на истата од страна на субспецијалист за радиологија на дојка како и формирање на референтен центар за скрининг за рак на дојка. Во тек е имплементација на патеката и скрининг програмата. На одреден временски интервал ќе се прави анализа и ревизија на патеката за закажување и скрининг програмата од страна на националната комисија со предлог и имплементирање на евентуланите промени и подобрувања.

EFFECTIVENESS OF SINGLE LUMBAR PERIRADICULAR INFILTRATION IN PATIENTS WITH SCIATICA

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Introduction: Periradicular therapy (PRT) is a minimally invasive radiological technique for treatment of chronic lumbar pain

The aim of this study is to investigate the dependence of pain duration before periradicular therapy (PRT) in patients with chronic lumbar pain and radiculopathy through clinical effectiveness.

Materials and methods: The study includes prospective follow-up of 166 subjects divided into 4 groups. The degree of pain intensity is determined according to the VAS scale. The degree of improvement was presented as excellent (over 75%), good (50-70%), moderate (25-49%), and weak (less than 25%). An improvement greater than or equal to 50% on the VAS scale, and a functional improvement equal to 40% in the reduction of the ODI index was defined as a good clinical response. The follow-up of treated patients was done at 2 weeks, 3 and 6 months.

Results: Good response was observed in 51.8% after 2 weeks, 54.2% after the 3 months and 59% after 6 months. The parameters on the ODI index greater than or equal to 40% were 22.2% after 2 weeks, 13.8% after 3 months, and 8.4% after 6 months. After 2 weeks in patients with pain duration up to 3 months the improvement was excellent in 32 (58.18), after 3 months 41 (74.5) and after 6 months 41 (74.5), in contrast to patients with pain over 1 year who showed excellent improvement at 2 (5.7) after 2 weeks, 41 (74.5) after 3 months, and 41 (74.5) after 6 months.

Conclusion: PRT is clinically effective and patients with a shorter duration of symptoms showed a better clinical outcome.

CYSTIC PANCREATIC LESIONS

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The widespread use of high-spatial-resolution cross-sectional imaging has led to an increase in detection of incidental pancreatic cystic lesions. The frequency of detection of cystic pancreatic lesions with cross-sectional imaging, particularly with multidetector computed tomography, magnetic resonance (MR) imaging, and MR cholangiopancreatography, is increasing, and many of these cystic pancreatic lesions are being detected incidentally in asymptomatic patients. Cystic lesions of the pancreas are a diverse group of lesions and often can be morphologically differentiated on CT and MRI on the basis of characteristic features. This is important because a precise diagnosis determines the treatment and surgical approach. The diagnosis of several of these lesions can be suggested on the basis of their imaging appearance, while many other lesions require follow-up imaging and/or aspiration. Expert panels have developed societal guidelines, based on a consensus, for surveillance of these lesions. However, these guidelines are often inconsistent and are constantly evolving as additional scientific data are accumulated. As a result of the differences in guidelines, key stakeholders (eg, radiologists, gastroenterologists, and surgeons) must review and come to a consensus regarding which guideline, or combination of guidelines, to follow at their individual institutions. Standardized reporting and macros are helpful for ensuring the uniformity of interpretations. Radiologists play a critical role in the detection and characterization of pancreatic cystic lesions, in the follow-up recommendations for these lesions, and in the detection of associated cancer.

MR Imaging of prostate

Masha Kostova

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Prostate carcinoma is the second most frequently found carcinoma in male population. PSA and digital rectal examination are included in the prostate carcinoma screening. The diagnostic problem rises because increased levels of PSA are also found in prostate inflammation, as well as in benign prostatic hyperplasia (BPH) . Prostatitis, hemorrhaging, atrophy and post-radiation changes can also mimic carcinoma in the periphery zones of T2W pulse sequence . MRI is a non-invasive diagnostic tool for evaluation of the changes responsible for higher levels of PSA. Most often the MRI is focused on the lateral zones changes because they are more prone to carcinoma, but in around 20-30% PC is found in the transitory zone and they are thought to have a lower degree of biological aggression. The transitory zone is the area around the proximal urethra and is a zone which can undergo hypertrophy during the lifetime with consecutive appearance of BPH. BPH, i.e. stromal hypertrophy and PC look similar on MRI, are presented as a hypersignal on T2W pulse sequence, because of which there can be a diagnostic problem in differentiating of BPH carcinoma nodule.

Lung biopsy-current standing

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Lung cancer is the leading cause of cancer-related deaths in North Macedonia and as well as Europe .Lung cancer is at the top of the list because is often not diagnosed until the cancer is at an advanced stage.Early diagnosis of lung cancer is crucial, especially in screening high-risk populations, such as smokers, exposure to fumes, oil fields, toxic occupational places, etc. The current diagnosis of lung cancer includes different types of imaging complemented with CT-guided biopsies and theirs pathological assessment . which enables accurate and successful further oncological treatment.These days in urgent need to identify some novel biomarkers and detect early lung cancer developments liquid biopsy are performed.In this scientific article we analyse the CT-guided biopsy as well established method for lung cancer diagnosing and also the advantages of potentially adding the use of body fluids to predict the cancer development and progression.

Modern approach in diagnosis and follow-up of metastatic colorectal cancer

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City General Hospital 8th September – Skopje

Colorectal cancer is the 3rd most common cancer worldwide, with 60% of cases diagnosed in advanced stage. Proper imaging diagnosis and staging has crucial role in determining most appropriate treatment management. Also regular and accurate imaging follow-up is key to correct treatment response evaluation, especially in metastatic cases.

This is a summary based on available evidence and recommendations that can be used in clinical practice for imaging of colorectal cancer.

CT and MRI are the standard modalities used for staging and follow-up, and each of these modalities has its role and percent of accuracy. PET-CT has its advantages in particular situations mostly as problem-solving tool, but it is not routinely used.

Radiologists should beware of the imaging presentation of the lesions treated with locoregional interventional radiology procedures and also the patterns of presentation during systemic treatment, especially the newly developed targeted and imuno therapies.

Multidisciplinary Treatment of Bone Tumours

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Introduction. Bone tumours are rare and malignant even more so. Benign are 7 times more often than malignant. 1-2 cases of osteosarcoma in 1 000 000 inhabitants/year can be easily overlooked. These tumours are with high mortality rate. 5 years survival is between 50-60%. Treatment is multidisciplinary. The decision is done between limb salvage vs amputations. Biopsy is essential for defining the type of the tumour and the grade of malignancy. Preoperative neoadjuvant chemotherapy improves the outcome. After the resection, tumours are tested for the type of response. Good or bad responders get different chemotherapy. Resection and reconstruction are most often surgical treatment. Reconstruction can be done with bone and tissue transplants, osteosynthesis combined with bone cement and various types of implants. Outcomes vary with specific case but is bad in many cases. Complications as lung metastasis, local recurrences and implant failure are the most common. Conclusion. Bone tumours, especially malignant are rare tumours with high morbidity and mortality rate. There is no prevention. Early diagnosis and multidisciplinary approach to treatment is essential. Neoadjuvant chemotherapy improves the outcome. "No complications but side effects" of the treatment.

Meniscal Tear Types and Typical Pitfalls on MRI

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This aim of this article is to provide a comprehensive overview of meniscal tear types and typical pitfalls encountered in magnetic resonance imaging (MRI) interpretation. Meniscal tears are common knee injuries that can significantly impact patient outcomes if not accurately diagnosed and managed. MRI is the imaging modality of choice for evaluating meniscal tears due to its high sensitivity and specificity. However, the interpretation of MRI findings can be challenging, as various tear types and associated pitfalls can mimic or be overlooked, leading to diagnostic errors and suboptimal patient care. This article discusses the different types of meniscal tears, including horizontal, vertical, radial, and complex tears, and highlights the key imaging features and diagnostic criteria for each. Additionally, it addresses the common pitfalls encountered during MRI interpretation, such as artifacts, partial volume effects, and normal anatomical variants that may mimic or obscure meniscal tears. By familiarizing radiologists with these pitfalls, this review article aims to enhance the accuracy and reliability of meniscal tear diagnosis on MRI, ultimately improving patient outcomes and guiding appropriate treatment decisions.

CURRENT RECOMMENDATIONS IN IMAGING OF BLADDER TUMORS

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Bladder cancer is a complex disease, ranking as the sixth most prevalent form of cancer, and its management is continuously developing. Recent strides in therapy, comprehension of the disease, and advanced imaging techniques have initiated a phase of swift evolution in the care of patients with bladder cancer.

Imaging plays a crucial role in the comprehensive management of individuals afflicted with bladder cancer. It facilitates the locoregional staging and evaluation for distant metastatic disease, which may not be ascertainable during cystoscopy and biopsy/resection procedures.

Among the available imaging modalities, CT stands out as the most widely accessible and commonly employed method for bladder cancer. It exhibits commendable performance in detecting both nodal and visceral metastatic diseases. On the other hand, there is growing interest in advanced imaging techniques such as multiparametric MRI for locoregional staging and assessing muscular invasion in bladder cancer cases, a critical aspect for prognosis determination and treatment planning, as well as standardized imaging and reporting system with the recently created Vesicle Imaging Reporting and Data System (VI-RADS).

A particularly promising advancement in this field is the emergence of FDG-PET/MRI, a pioneering hybrid imaging modality that combines the strengths of both MRI and FDG-PET/CT in a single-setting comprehensive staging examination. This innovation may potentially herald the future of bladder cancer imaging evaluation, offering a more integrated and holistic approach.

In this review, we aim to assess the current significance of cross-sectional and molecular imaging modalities in the staging of bladder cancer, emphasizing the potential benefits and limitations associated with each imaging technique.

UPDATED WHO CLASSIFICATION OF BREAST TUMORS

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Breast cancer is a heterogeneous disease that can be classified using several classification systems including clinical, imaging, morphological and molecular features. The World Health Organization (WHO) Classification of Tumors is regarded as the gold standard for the diagnosis of tumors and provides important international standards for classification of breast tumors worldwide. Fifth edition of WHO Classification of Breast Tumors contains significant updated and new data, even including new disease entities. The histologic features of the lesions continue to form the basis of the classification, however, several new molecular classifications as well as additional prognostic and predictive factors are discussed.

The current edition has introduced changes to morphological subtype categorization. Several tumor types (eg. oncocytic, lipid-rich, glycogen-rich, clear cell, sebaceous), have been deleted and reassigned to the invasive carcinoma, NST (no special type) category with a designation of special morphological pattern. Inflammatory, bilateral and non-synchronous breast carcinomas are now recognized as distinct clinical presentations rather than special subtypes of breast cancer. Mucinous cystadenocarcinoma and tall cell carcinoma of reverse polarity are new entities included in this volume.

In this edition, neuroendocrine tumors and neuroendocrine carcinomas of the breast, both of which are invasive cancers, are classified as neuroendocrine neoplasms (NENs) of the breast. Special-type breast carcinomas expressing neuroendocrine markers, such as solid papillary carcinomas and mucinous carcinomas, are removed from the NEN category.

Current concepts in CT Diagnosis and TNM-8 staging of Lung Cancer

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Regardless of the colossal efforts in lung cancer treatment, the majority of patients will present at an advanced stage when any curative treatment will no longer be an option. The overall 5-year survival for all tumor stages is disturbingly low at 15%, and lung cancer is the leading cause of cancer-related deaths for both genders worldwide. Early diagnosis as well as appropriate radiological staging is of utter importance for patients with early-stage lung cancer that can greatly benefit from timely treatment.

The current 8th revision of tumor, node, metastasis (TNM) staging system accepted by The International Association for the Study of Lung Cancer (IASLC) and the American Joint Committee on Cancer (AJCC) was published in January, 2017, and the edition has committed some major alternations, including modification of the T classification based on 1 cm increment, down staging of the T descriptor disregarding its distance from carina (T2), integrating total and partial atelectasis/pneumonitis into the same T category (T2), upstaging diaphragmatic invasion to T4, new classification concepts of adenocarcinoma in situ and minimally invasive adenocarcinoma for pure and part-solid ground-glass nodules, and further division of extra thoracic metastasis into M1b and M1c based on their number and location. There is an agreement for some ambiguous conditions, such as the classification of Pancoast tumor based on its invasion depth, as well as categorization of various sites of pulmonary involvement. The IASLC Staging Project has provided evidence based recommendations for the TNM Classification for Thoracic Cancers in the last 20 years. The upgraded 9th edition of the TNM will be published on January 1, 2024 and will consider new data elements, including genetic biomarkers, protein alterations, and copy number alterations.

In order for a radiologist to present an accurate clinical stage of lung cancer using consistent standards introduced in the 8th edition of the TNM Lung Cancer Staging System, it is important to acknowledge the prospective difficulties and limitations of imaging interpretation.

Секундарни депозити на перитонеумот, можности и предизвици

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Перитонеумот претставува серозна мембрана која ја обложува перитонеалната празнина, го гради мезентериумот и делумно или целосно ги обложува органите во абдоменот и малата карлица. Секундарните депозити на перитонеумот, односно перитонеалната карциноматоза, најчесто е застапена кај карциномот на овариум, желудник и колон, но се среќава и кај карциномот на белиот дроб и дојката, меланомот, неуроендокрините тумори и други.

Златен стандард за детекција на перитонеалната карциноматоза е хистопатолошка анализа на биоптично ткиво земено интраоперативно. Од неинвазивните методи за евалуација на перитонеумот кај онколошки пациенти предводи компјутеризираната томографија (КТ). Стандардниот протокол кај магнетната резонанца (МР), кој вклучува детекција на рестрикција на дифузија и постконтрастно скенирање, овозможува поголема сензитивност во детекцијата на перитонеалните депозити, особено кога лезиите се помали од 1cm. Позитронско емисионата томографија / компјутеризирана томографија (ПЕТ/КТ) е метод на визуелизација кој се почесто се користи кај онколошките пациенти и има додадена вредност во детекцијата на перитонеалната карциноматоза, користејќи ја можноста за приказ на зголемен метаболизам на глукоза на туморското ткиво.

Современиот пристап во третман на перитонеаланата карциноматоза вклучува системска, но и агресивна локорегионална терапија, додека во процесот на избор свое место имаат и неинвазивните методи на визуелизација.

CT Colonoscopy: what the surgeons and gastroenterologists want to know from radiologists

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CT Colonoscopy (CTC) is without doubt primary diagnostic imaging tool for diagnosis of colorectal cancer and large polyps. In UK and Gibraltar, it is used in symptomatic (all patient with symptoms for possible colorectal cancer) and BCSP (Bowel Cancer Screening) patients (under selected indications, where colonoscopy is medically contraindicated, incomplete, difficult). Patient choice for CTC against colonoscopy is indicated only for symptomatic service. Sensitivity for cancer and large polyps over 10 mm is high over 90% and complimentary with optical colonoscopy.

Technically good examination is essential for accurate reporting. Patient selection, bowel preparation and good insufflation are most important factors. While the practice is variable in terms of using laxatives, giving iv contrast, positions protocol and way of reading CTC, there is general acceptance for faecal tagging as a most important tool to differentiate polyps and flat lesions from loaded faeces.

Symptomatic and screening CTC are regulated in UK through guidance from British Society of Abdominal and Gastrointestinal Radiology and National Radiological Committee for the use of CTC in the BCSP. Radiologists reporting CTC need to have experience and skills, to report at least 100 CTC/year, to use minimum data set for reporting and to undertake recommended audits.

CTC gives excellent opportunity for radiologists to step ahead in diagnosis and management of colorectal cancer, especially in hospitals with limited access for colonoscopy.

Part 2:

Scientific Abstracts

Association of pelvis fractures and traumatic soft tissue lesions

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Pelvis fractures are common in car accidents and falls. Also, they can be seen as a part of crash syndrome, mostly in woodcutter injuries.

Aim of the study: presentation of pelvis fractures with soft tissue injuries.

Material and methods: we examined 275 patients with pelvic fractures. We performed US; 64, 128 and 256 MDCT; and MR 1.5T and 3T. Patients were mostly male, 183, age from 4 to 88, average age 34.1. Isolated hip fractures were not a part of this study.

Results: we divided injuries on one and both sides injuries, also on front and rear part of the pelvis. Soft tissue injuries we divided into soft tissue and urogenital injuries. Urogenital injuries we divided into uroinjuries, genital injuries and complicated both tissue injuries. A separate group were injuries of blood vessels. Fractures without soft tissue injuries were in 190 patients. Blood vessel injuries were in 16 patients. Muscle only injuries were in 38 patients, uroinjuries in 14, genital organ injuries in 5 and massive injuries of all tissues were in 12 patients.

Conclusion: there are a lot of complicated injuries associated with pelvis fractures, which demand additional diagnostic procedures.

Positron Emission Tomography/Computed tomography role in skeletal tumors

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Presentation of value in hybrid access in diagnostic and localization of bone tumors with positron emission tomography (PET)/computed tomography (CT) MRI and X ray

Materials and methods: A total of 24 studies were selected for the final analysis. It was indicated that PET/CT is the imaging metabolic method that exhibits the highest sensitivity, specificity and accuracy in analysis of metabolic presentation of skeletal lesion with different origin.

Comparing with radiology methods as X-ray, computed tomography (CT) and magnetic resonance imaging , (PET) using 2-(fluorine-18)-2-deoxy-D-glucose (18F-FDG) and CT has been used to evaluate and stage malignant tumors and in differentiation of tumor lesion with inflammatory lesion .

Findings: In the musculoskeletal system, findings of previous studies have shown a positive correlation between glucose consumption measured by 18F-FDG and the aggressiveness of skeletal tumors.

Has been performed 18F-FDG PET studies on a series of 20 intraosseous lesions, where 5 has been proven as malignant tumors and 4 as benign lesions. 15 the malignant tumors were metastatic lesions from primary Ca mamma and lung carcinoma . Statistically there is significant difference between the SUVmax values of benign and malignant bone tumors.

However, the authors observed a significant overlap between the SUVmax values of a number of the benign and malignant bone tumors, and a high accumulation of 18F-FDG in certain benign bone tumors. Furthermore, the value of 18F-FDG in the musculoskeletal system has also been questioned. The intensity of 18F-fluorodeoxyglucose (FDG 18) uptake has been found to positively correlate with the histologist grade of various malignancies.

Conclusion - Combination of PET and CT in one imaging device, performs morphological and functional imaging in one procedure. Integrated PET/CT has been shown to be more accurate for lesion localization and characterization than PET and CT alone and the results obtained from PET and CT separately, following software-based fusion of the PET and CT data sets

Pre-operative CT-guided in subcentimeter lung nodule coiling in facilitating VATS and RATS wedge resection

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Purpose:

Lung nodule localization for diagnostic and therapeutic purposes is often a challenge in patient care in a variety of settings. The localization of pulmonary nodules using CT-guided coil insertion can effectively improve the success rate of VATS/RATS lesion resection. The utilization of coil localization (CL) substantially reduces the frequency with which patients must undergo conversion from closed to open thoracotomy. The purpose of this paper was to evaluate the clinical efficacy of CT guided lung nodule coiling in facilitating lung sparing surgery.

Methods:

This was a retrospective cohort study in design. Between January 2017 and May 2023 we assessed the rates of technical success corresponding to the localization and VATS / RATS wedge resection procedures and measured rates of localization-related complications. Patient demographics, nodule characteristics, and histopathologic findings were recorded.

Results:

Baseline data for the 78 patients (36 females and 43 males) were collected, average age was 69 years. 48 (62%) of the 78 patients had prior malignancy history, 32 (67%) had an extrathoracic malignancy, whereas 16 (33%) had a known thoracic malignancy.

A total of 80 LNs were localized. The mean diameter was 11,6mm and lesion-pleura distance was 15,6 mm. The 80 LNs contained 35 solid LNs, 26 GNNs and 19 mixed nodules. The CT-guided CL had a 98% technical success rate.

Conclusion:

CL helps to quickly and accurately locate the LNs during the VATS/RATS operation.

Pre-operative CT-guided CL can be carefully and conveniently used to achieve a high successful rate of VATS and RATS WR for LNs.

Incidence of osteoclastoma in the adult population – our 3 year experience

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Osteoclastoma, also called giant cell tumor of the bone or giant cell myeloma is characterized by the presence of multinucleated giant cells (osteoclast-like cells). Giant cell tumor of the bone accounts for 4-5% of primary bone tumors and 20% of benign bone tumors. Giant cell tumors are mostly benign; however, 5-10% of patients may have a malignant tumor.

Aim of the study: the aim is to show cases and incidence of osteoclastoma in the adult population.

Material and methods: this study included 83 patients with pain and swelling in the upper extremities. We performed 128 or 256 MDCT and 1.5T or 3T MR. The patients were aged from 18 to 72, with the average age being 36,5.

Results: the first diagnostic sign was pain of a dull-boring type, long lasting, with no relief after common analgesics. 7 of the 83 patients had osteoclastoma, of which 6 were benign and 1 malign. 3 patients had a tumor located in the distal femur, 2 in the proximal tibia, 1 in the proximal humerus and 1 in the sacrum. The malignant tumor was found in the distal femur.

Conclusion: CT and MR have a significant role in diagnostic of osteoclastoma. They are the golden standard.

Imaging of paediatric bone tumors

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Imaging of the developing skeletal system represents a challenge for the everyday practise. In the presence of specific ossification centres, maturation and conversion of bone marrow, constant fiseal plate growth and surrounding soft tissue changes, a radiologist should recognise the formation of a pathological process and distinguish neoplasms, tumor-like conditions, reactive focal abnormalities, and metabolic diseases.

Bone tumors, both benign and malignant, can be diagnosed in the onset of unspecific symptoms, like pain or swelling, be an incidental finding, or be the cause of a pathological fracture.

Nowadays diagnosis of bone lesions has evolved far beyond the plane radiograph, and is accompanied by multimodality imaging like CT, MRI and hybrid imaging.

A plain radiograph still remains the initial diagnostic modality. However, MRI is the modality of choice since it enables better visualization of periosteal reaction, involvement of bone marrow, adjacent joint and surrounding soft tissue and also cortex preservation. In addition, MRI imaging has an important role in patients' staging, follow up, assessing therapy response and surgery planning.

Local adjuvants following curettage of the bone in patients with benign and intermediate bone tumors.

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Introduction

Tumor like lesions, benign and intermediate bone tumors represent a heterogenous group of tumors most commonly seen in children, young adults and adolescents. In most of the cases they are treated with intralesional curettage or burring in combination with local adjuvants in order to reduce the local recurrence rate. There are different agents described in the literature together with their impact of the local recurrence rate.

Aim

To evaluate the role of different adjuvants in the treatment of tumor like lesions, benign and intermediate bone tumors following curettage of the bone, local recurrence and complication rate.

Materials and methods

The study was conducted at the University Clinic for Orthopedic Diseases, in the period between 2015-2023. It is of a retro-prospective nature. Data of 65 patients surgically treated for a benign, locally aggressive tumor or tumor-like lesion were analyzed. The most common entity was the enchondroma, followed by the giant cell tumor and the osteoid-osteomas. 6 types of treatment were identified, drilling and curettage alone as well as in combination with bone cement, ethanol, phenol and Depomedrol. The most frequently registered complications were arthrosis of the adjacent joint and contractures.

Discussion

Our systematic review of the literature identified 32 treatment combinations. Also the heterogeneity of the entities and the available therapeutic modalities are the main reason for limited analysis. The highest rate of local recurrence was registered in the case of giant cell tumor, which significantly decreased with the use of alcohol and phenol.

Conclusion

Despite the many studies published about the effects of local adjuvants their usage is still controversial. Even though some entities benefit from the local adjuvants the main treatment still remains the curettage of the lesion.

Placement of central venous access port in the interventional radiology suite – single center experience

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To report our experience in image-guided central venous access port(CVAP) placement, evaluate clinical outcomes and complications.

Retrospective analysis was done on 257 patients' records who underwent port implantation, between January 2020-January 2023. All patients were referred by oncologist, before or during chemotherapy treatment. The procedures were performed in angiographic suite under ultrasound and fluoroscopic guidance, every single one of them with local anesthesia and prophylactic oral antibiotic.

Technical success was achieved in 99.6% of total 257 scheduled patients. Right internal jugular vein(IJV) was access site in 75% of patients, while in 25% left IJV was punctured. There were 16 complications overall, 10/16 or 62.5% as early (<30 days) and 6/16 or 37.5% as late (>30 days) post-procedural complications. Among the <30 days complications group, there were only 3 cases with peri-procedural complications including pneumothorax, puncture site hematoma and guide wire dislodgement. Most commonly observed early complication was pocket inflammation(4/10). On the other side, injection failure due to catheter adherence to vessel wall was noted in 50% of patients in the late complications group, where also catheter displacement(1/6) and port infections(2/6) were causes of clinical malfunctioning of CVAP. All complications were managed at our department, either endovascularly or with wound/port revision and only 43.7% of patients needed port removal. No post-procedure related mortalities were observed.

CVAP placement is safe and effective procedure for patients requiring long-term venous access with overall complication rate of 6.2%. Image-guided implantation in interventional radiology suite ensures least periprocedural complications occurrence and great options for complications management.

Incidental Breast Lesions detected on computed thorax tomography

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With the significantly increased number of multidetector computed Tomography (CT) made, the number of incidental findings is over the past years is on the rise. Therefore numerous of incidental breast lesions are detected more frequently. In this case we want to state the mean about the importance of chest CT in detecting and recognizing the incidental findings of the breast lesions. In some of the recent literature, the prevalence of breast cancers among incidental malignant lesions are found in 0.7% to 7.63% of chest CT's.

Consequently in our case we want to express the importance of carefully examined chest computed tomography.

In our study we present 47 year old patient who had CT-Thorax with incidental finding of Invasive Ductal Carcinoma in the both breasts.

The patient was sent to this type of examination with the referral diagnosis- unspecified Angina Pectoris due to cough, shortness of breath and retracted left nipple.

CT Findings: The both breasts were with thickened skin, spiculated, stellate and circumscribed irregular hypodense mass with retracted left nipple along side with axillary lymphadenopathy. In the lungs were increased amount of pleural effusion both sides more in the left.

After CT imaging, mammography and ultrasound of breast were performed. Regarding to FNAB the suspected lesions had rate scale of 5. Conservative, cytostatic treatment was performed due to spread disease

CT-Imaging Thorax has important role for detecting incidental findings in breast.

The role of esophageal stenting in the treatment of malignant esophageal stenosis, long term results

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Acibadem Sistina Clinical Hospital

Esophageal stenting plays a pivotal role in the management of malignant esophageal stenosis, offering relief and improved quality of life to patients facing obstructive lesions. This abstract summarizes the long-term results of a case series involving 124 patients who underwent esophageal stenting in the period from 2013-2023, shedding light on key aspects of the procedure.

The study, spanning a substantial patient cohort, sought to explore the indications, symptoms, and outcomes associated with esophageal stenting. In the context of indications, the primary motivation was to alleviate dysphagia and prevent further weight loss, making the patients more suitable candidates for other treatment options.

In terms of symptomatology, patients experienced significant relief from dysphagia and associated symptoms, with improved nutritional intake and overall well-being. Clinical and radiological assessments documented positive changes, including enhanced swallowing ability, resolution of aspiration, and radiographic evidence of stenosis improvement.

The study also examined the relationship between stricture length and the choice of stent, revealing that stent selection influenced outcomes. Self-expanding metallic stents (SEMS) were found to be particularly effective for longer strictures, while fully covered SEMS were preferred for shorter lesions, emphasizing the importance of tailoring treatment to the specific clinical scenario.

In conclusion, esophageal stenting is a valuable intervention for malignant esophageal stenosis, offering long-term benefits by improving symptoms, nutritional status, and quality of life. The choice of stent should be guided by stricture length, with SEMS and fully covered stents as viable options. These insights contribute to the comprehensive understanding of esophageal stenting's role in managing malignant stenosis and inform clinical decision-making for physicians and healthcare providers.

Complex hepato-biliary interventions: achieving excellence in PTBD and stenting procedures

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Complex percutaneous biliary interventions play a pivotal role in the management of challenging biliary strictures, demanding the highest level of expertise and precision. In this abstract, we present our institution's remarkable experience in performing percutaneous transhepatic biliary drainage (PTBD) and advanced stenting techniques, such as Y stenting and T stenting, while achieving a high success rate of over 96% in crossing complex biliary strictures and maintaining a low rate of complications.

Our dedication to excellence in complex hepato-biliary interventions is exemplified by our proficiency in PTBD and various stenting procedures. These interventions are indispensable in providing relief to patients with obstructive biliary diseases and challenging strictures. The successful navigation of complex biliary anatomies and high ultrasound guided procedures experience is the cornerstone of our practice, and our success rate underscores our commitment to precision and innovation.

External- internal drainage, Y and T stenting, which involve the placement of multiple stents to establish and maintain biliary patency, are advanced techniques that demand a unique skill set. Our institution has not only embraced these complex procedures but has excelled in their execution thus significantly improves both quality of life and clinical outcomes.

An exceptional aspect of our department is the consistently low rate of complications associated with these interventions. Patient safety is our utmost priority, and our meticulous approach, combined with rigorous quality control measures, has resulted in an impressively low incidence of adverse events.

In conclusion, our institution's experience in complex hepato-biliary interventions, particularly PTBD and stenting, is characterized by a success rate of over 96% in crossing challenging biliary strictures with a low rate of complications. This proficiency highlights our dedication to providing the highest standard of care for patients.

CT-guided coeliac plexus neurolysis

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CT-guided coeliac plexus neurolysis (CPN) has emerged as an effective intervention for managing intractable abdominal pain stemming from various malignancies. In this retrospective study, we present the Indications, symptoms, clinical outcomes, and long-term results based on a case series of 59 patients treated at our institution between 2017 and 2022.

Indications for CPN included unremitting pain associated with pancreatic cancer (64%), intra-abdominal malignancies (22%), chronic pancreatitis (8%), and other causes (6%). Patients presented with severe, refractory abdominal pain, often accompanied by nausea and weight loss, negatively impacting their quality of life.

Following CT-guided CPN, a significant reduction in pain scores was observed in 82% of patients, and a remarkable decrease in opioid consumption was noted in 68% of cases. Moreover, patients reported improved overall well-being and reduced opioid-related side effects. The clinical outcomes were consistent with the relief of sympathetic overactivity in the coeliac plexus, achieved through the precise administration of local anesthetic agents and steroids.

Long-term follow-up revealed that pain relief was sustained in 71% of patients beyond 6 months, with 53% experiencing prolonged benefits for over a year. Our results suggest that CT-guided CPN is a safe and effective option for alleviating intractable abdominal pain in a variety of malignancies and related conditions. This minimally invasive procedure offers a valuable adjunct to pain management strategies, enhancing the quality of life for patients with limited treatment options. Further prospective studies are warranted to explore optimal patient selection and long-term outcomes in greater depth.

Fibroadenomas - classification, presentation, diagnosis and treatment

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Fibroadenomas are the most common cause of a palpable breast lump in adolescent girls and young women with an incidence of 2.2%, accounting for 68% of all breast masses and 44-94% of all biopsied breast lesions. According to the terminology, fibro means stroma and adenoma means a glandular structure in the epithelial tissue. These are biphasic tumors of epithelial and stromal components.

They appear in the 2nd decade of life. Their clinical expression is related to the level of estrogens, number of receptors for ER, pregnancy, birth, breastfeeding and decreases during menopause. According to their pathohistological structure and radiological expression, they can be solitary, juvenile and complex fibroadenomas. Only complex fibroadenomas show an increased risk of developing breast cancer. Most of the fibroadenomas are benign changes. Radiological follow-up of these patients is important for establishing a diagnosis and sending further investigations.

Malignancy is rare in this group, but therefore suspicious changes should be biopsied.

They are classified into 3 groups, solitary, juvenile and multicentric.

Radiodiagnostic methods are ultrasound, mammography, magnetic resonance, as well as performing aspiration and core biopsy guided by ultrasound, mammography, stereotaxy or MRI.

Methods for minimally invasive radiological techniques are: VACUUM-ASSISTED PERCUTANEOUS BIOPSY (VAB), Percutaneous radiofrequency assisted excision, ablative procedures and surgical excisions.

The management of such patients ranges from regular examinations to surgical treatment.

Understanding the clinic, pathology, and radiologic changes allows the radiologist to properly manage these patients.

Part 3:

Case report Abstracts

Multilocular presentation of Tuberous Sclerosis : A Case Report

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Tuberous sclerosis (TS) is a rare genetic disorder of autosomal-dominant inheritance. Tuberous sclerosis complex is characterized by the development of benign tumors affecting different body systems who results in hamartomas involving many organs, like the brain, heart, kidneys, skin, lungs and liver. The management of these patients is often multidisciplinary involving specialists from various fields. TSC presents at any age as a wide range of clinical and phenotypic manifestations with varying severity. The most common manifestations are facial angiofibroma, seizures, cortical tubers, cardiac rhabdomyoma, renal cysts and tumor of the kidneys. We present a case report of a 32-old-year female patient with characteristic clinical and radiological features of multilocular tuberous sclerosis with renal angiomyolipoma, LAM and cortical tubers.

Wandering Spleen with Torsion and Infarction in an 11-Year-Old Patient: A Rare Case Presentation

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Wandering spleen, a rare clinical entity characterized by the absence or laxity of the splenic ligaments allowing the spleen to migrate from its anatomical position, is a condition seldom encountered in pediatric patients. This abstract presents the case of an 11-year-old patient diagnosed with wandering spleen, complicated by torsion and infarction, emphasizing the clinical challenges, diagnostic dilemmas, and management strategies associated with this uncommon condition in the pediatric population.

The patient presented with abdominal pain and discomfort and fever, and upon clinical evaluation, abdominal tenderness and palpable splenomegaly were noted. Diagnostic imaging, including ultrasound and computed tomography (CT) scans, revealed the dislocated spleen with torsion of the vascular pedicle, leading to splenic infarction. Explorative laparotomy was performed, and given the compromised vascularity and necrosis, splenectomy was performed while ensuring postoperative immune function.

This case underscores the importance of a high index of suspicion for wandering spleen in the pediatric population, especially when confronted with acute abdominal symptoms and physical examination findings suggestive of splenic displacement. Prompt diagnosis through advanced imaging techniques is crucial for timely intervention.

This report aims to contribute to the limited literature on wandering spleen with torsion and infarction in pediatric patients, emphasizing the need for awareness, early diagnosis, and tailored surgical management to ensure the best possible outcomes for this rare condition.

MDCT imaging in diagnosing posttraumatic bilateral renal pelvis rupture

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Isolated rupture of renal pelvis following a trauma is a rare medical condition with very few case reports published in literature.

A 68 year old male patient was brought to our Emergency Room complaining of abdominal pain, urinary retention and a history of falling from his own height four days before admission.

To thoroughly assess his condition, after conducting a clinical examination and a blood test, it was recommended that an abdominal MDCT scan be performed, both native and with contrast, to provide a comprehensive evaluation.

There was no indication of trauma to the parenchymal organs within the abdominal region.

However, it was observed that the patient had extrarenal pelvis bilaterally, along with dilated ureters and a dilated bladder. Following the intravenous contrast injection, the kidneys exhibited appropriate absorption and excretion of the contrast material in a timely manner. Furthermore, in the adjacent kidney tissue, there was observed leakage of the excreted contrast agent from the pelvic lesions in both kidneys.

The patient exhibited signs of recovery following the surgical placement of JJ stents in the kidneys. This improvement was evident in the MDCT scans conducted after the surgical procedure.

Moreover, there were no indications of any free fluid in the surrounding kidney tissue.

The utilization of MDCT (Multi-Detector Computed Tomography) in both native and post-contrast series, complemented by 3D volume rendering, plays a crucial role in identifying and diagnosing renal pelvis rupture.

Endovascular Thrombectomy in a 72-Year-Old Stroke Patient: A Case Study

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Background: Acute ischemic stroke is a significant global health issue with potential for severe morbidity and mortality. Rapid intervention to restore cerebral blood flow is essential to limit neurological damage. This report details the intervention in a 72-year-old patient who presented 4.5 hours post-onset with a pronounced National Institutes of Health Stroke Scale (NIHSS) score of 27.

Case Summary: A 72-year-old patient was urgently directed to our Radiology Clinic for endovascular intervention, presenting with symptoms of an acute ischemic stroke and a NIHSS score of 27, indicative of a severe neurological deficit. Diagnostic angiography revealed occlusions in the internal carotid artery (a.carotis interna), the left middle cerebral artery (a.cerebri media), and the anterior cerebral artery (a.cerebri anterior). Utilizing the ADAPT technique, recanalization of the internal carotid artery up to its T-junction was achieved. Subsequently, the SAFE technique, which integrates aspiration and mechanical thrombectomy with a stent retriever, led to complete TIC13 reperfusion of the left middle and anterior cerebral arteries.

Conclusion: This case underscores the paramount importance of immediate and proficient endovascular strategies in managing acute ischemic stroke, especially in patients with high NIHSS scores indicating significant vascular occlusions. The use of ADAPT and SAFE techniques demonstrated their potential in optimizing the likelihood of neurological recovery.

Importance of MRI Examination in the Diagnosis and Evaluation of Myocarditis

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Introduction: Myocarditis is an acute or chronic inflammatory reaction of the heart muscle, that can mimic acute coronary syndrome.

The Aim of this case report is to present a case of myocarditis where cardiac MRI was helpful in establishing the diagnosis.

Material and Methods: We present the case of a young 18 years old boy who came in Zan Mitrev Clinic, due to acute chest pain and dyspnoea. His routine tests showed electrocardiographic changes with increased troponin and C –reactive protein levels. CT coronary angiography performed in another clinic revealed normal coronary arteries with no evidence of thrombosis or occlusion. Cardiac MRI with contrast was performed for the patient on a 1.5 Tesla platform (Phillips Ingénue) Revised Lake Louise criteria were used for diagnosing myocarditis.

Results: We used T1 and T2 mapping, T2 STIR and late gadolinium enhancement. The T1 mapping was increased, T2 STIR presented oedema and late gadolinium enhancement presented mid wall and sub epicardial myocardial enhancement at the inferolateral and septal wall. The left ventricular function was normal.

Conclusion: Cardiac MRI is highly specific imaging modality for patients with suspected myocardial inflammation, allowing non-invasive assessment of myocardial oedema and injury. Cardiac MRI can guide management and improve patient outcomes.

The advantage of ultrasound in the early diagnosis of liposarcoma of the thigh in a man-a case report

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PHI Health center Skopje¹, PHI Health center Kratovo², PHI Clinical Hospital - Bitola³.

Introduction: Liposarcoma is the second most common type of soft tissue sarcoma, accounting for 10%-35% of these lesions.

Case report: A 46-year-old man with a change in the right upper leg, which has grown in the last 3 months. On palpation, it shows softness and partial fixation for the deeper structures of the right upper leg. A heteroechoic change was found on the ultrasound performed, with a dominant fat component and thin septa from non-fat tissue, with a hyperechoic capsule and increased vascularization. The finding was in favor of liposarcoma of the upper leg. The diagnosis was confirmed histopathologically preoperatively and postoperatively. On MRI imaging, lipomas usually resemble subcutaneous fat, but may contain several thin septa. The presence of thick, irregular, enhancing septa and a nonfatty component of the soft tissue mass suggests a liposarcoma rather than a lipoma. However, benign lipomatous lesions and WDLPS often have overlapping findings on MRI imaging.

Discussion: Ultrasound is a radiological method that is easily available, concise, economical, less invasive, does not require contrast injection and is easily performed in children. Today, with modern ultrasound devices with color Doppler, an early and timely diagnosis can be achieved. Liposarcoma with the help of ultrasound, it can be diagnosed at an early stage when there are still no thick, non-fatty septa present, and there is increased vascularization, a stage which for MRI and PET SCAN would be a bigger challenge from an available and financial point of view.

Radiological findings on ct examinations during the evolution of pancreatitis from acute to necrotising in correlation with autoimmune diseases

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Clinical Hospital Stip, North Macedonia

This paper is a case report on a 74 year old female patient hospitalized with acute abdominal pain where has been diagnosed acute pancreatitis from laboratory analyses and ct scans.

The patient has comorbidities of myasthenia gravis and ulcerative colitis, which are most likely a predisposing factor for rapid evolution of acute pancreatitis into necrotizing pancreatitis.

Pancreatic disorders and abnormalities are not uncommon in patients with autoimmune diseases and are often underestimated. They represent a heterogeneous group of pancreatic manifestations that includes acute pancreatitis, autoimmune pancreatitis, chronic pancreatitis and asymptomatic elevation of pancreatic enzymes.

Acute necrotizing pancreatitis is a severe form of acute pancreatitis characterized by necrosis in and around the pancreas and is associated with high rates of morbidity and mortality.

Despite the fact that acute pancreatitis is primarily diagnosed of clinical imaging and laboratory tests, radiological methods still play the biggest role in establishing the diagnosis. We are using the Atlanta clasiffication to determine the form of pancreatitis which has been classified as mild, moderate, severe and critical.

In our case the patient is with severe of necrotising pancreatitis.

In this paper we will show the rapid evolution of the disease from acute to necrotising pancreatitis through several ct exams in corelation with clinical simptoms and laboratory analyses and associated autoimmune diseases.

Ductal Invasive Carcinoma

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We present the case of 45 – year – old patient who initially presented with a palpable lump in her left breast, which she noticed during a routine self – breast examination. Further clinical evaluation, including ultrasound, confirmed a suspicious mass. Core needle biopsy revealed most likely invasive ductal carcinoma. The patient was admitted to the surgical department of the General hospital for elective surgical treatment due to a diagnosed carcinoma of the left breast based on her medical history, clinical, ultrasonographic, mammographic and core – needle biopsy findings. Indication for left radical mastectomy with axillary lymphadenectomy was established. After a short preparation and anesthesiology assessment, the patient is operated. The patient underwent a left total mastectomy with axillary lymph node dissection. Pathology confirmed that surgical material corresponds to a poorly differentiated invasive ductal carcinoma. Clinically, the disease is classified as stage IIIA, a pTN = pT1C, pN2A, pMx, G3. An additional immunohistochemical analysis was performed, and the following results were obtained HER2NEU 1+, ER around 90%, PR around 98%, ki 67 around 20%, p53 negative. Subsequently, the patient received adjuvant chemotherapy and radiation therapy.

Common origin of the brachiocephalic artery and left common carotid artery - presentation of three cases, incidental finding on CT of the thoracic aorta

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Introduction

This is the most common variant of the aortic arch (~15% of population), and is usually asymptomatic, but in rare cases of head and neck surgery (e.g. tracheostomy) it can be a risk factor for injury. It also has significant importance to interventional neuroradiology.

There are some studies which indicate that this type of variant is more common in patients with thoracic aortic disease.

Cases presentation

Methods and materials:

A standard protocol for thoracic aorta CTA (on 16 slice MDCT) was done.

Results:

The first patient was 66 y/o female with ascending aortic aneurism up to 51mm.

The second patient was 68y/o female with ascending thoracic aorta ectasia (up to 38mm), and the third one 73y/o male with ascending aortic aneurysm - up to 67mm. In all cases brachiocephalic artery shares a common origin with the left common carotid artery and aorta descendens was with normal diameter. Other findings in the 66 y/o female patient were: vertebral hemangiomas, hemangioma on the 4th right rib, liver hemangiomas, and cysts of the right kidney.

In the second case there was a paratracheal air cyst and vertebral hemangiomas. Aortic valve calcifications were presented too. The male patient has enlarged heart with aortal configuration.

Conclusion:

Common origin of the brachiocephalic artery and left common carotid artery can correlate with thoracic aortic disease.

A great role of radiology in the detection of osteoporosis in middle-aged women

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Osteoporosis meaning "porous bones" is a condition in which bones become weak and brittle, due to the body either losing too much bone or making too little.

On microscopic level, the structure of healthy bones is like a honeycomb with holes and spaces. In bones affected by osteoporosis, these hollows and spaces are much wider. This makes them susceptible to breaks (fractures).

Symptoms: a person will not realize they have osteoporosis until they break a bone.

Osteoporosis fractures, also called fragility fractures (caused by minor trauma), occur most commonly in wrist, spine and hip. Significantly loss of height should always prompt investigation for osteoporosis.

Fragility fractures are fractures that occur with minor trauma (like falling from standing high).

Case report

42 year old woman with back pain after falling from standing high

X ray shows us low dense skeletal structure and decreased of crania-caudal diameter of th12 vertebra.

CT and MR confirm low density of bone of lumbosacral region and disturbed structure of bones.

DXA scan confirm T score between - 3.7 and - 2.7 of lumbar vertebra.

Multidisciplinary approach to osteoporosis will leads us to success. Cooperation with Orthopedists, Endocrinologist, and Rheumatologist are clue for bright future of patient's health.

We can conclude that without imaging we could not diagnosed osteoporosis and we could not manage proper treatment for this condition also we could not prevent the consequence.

Cutaneous metastases as an initial presentation of neo infiltrative process in the lungs: case report and literature review

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Cutaneous metastases are a rare clinical entity with a representation of about 0.8% as a secondary MS deposit originating from another tissue/organ. Most often, skin metastases are associated with a high degree of malignancy and a poor prognosis. Our case report is a 72-year-old male patient who was referred to CT because of a large soft-tissue cutaneous lesion of the upper right hemithorax, somewhere below the right shoulder joint. At the radiodiagnostics department, an MDCT native series and series after i.v. contrast were performed, which allowed us to detect a neo infiltrative process of the lung and secondary deposits in the lung itself, liver, left adrenal gland and along the seventh rib on the left. It was recommended to perform bronchoscopy and biopsy of the lung tissue, for the purpose of further differentiation and further treatment.

A pathohistological analysis of the skin change itself was carried out, with an answer for a finding that corresponds to a deposit of a malignant neoplasm with spinous differentiation

Phyllodes tumor- Case report

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Phyllodes tumors of the breast are rare fibroepithelial neoplasms of the breast and are considered challenging for radiological diagnostics and therapy.

Phyllodes tumors consist of 0.3–1.0% in all breast tumors. They are classified pathohistological as benign, borderline and malignant tumors.

Phyllodes tumors can be detected in all ages but, the average age is 45 years. They can mimic fibroadenoma in clinical and diagnostic presentations. Breast imaging is also similar to fibroadenomas. Cytological diagnosis as core-needle biopsy is superior to fine-needle aspiration as diagnostic procedure for verification.

We present a case of phyllodes tumor in a female that presented diagnostic challenge and the diagnostic pathway that was undertaken. The fast diagnosis led to a positive clinical outcome.

A great role of radiology in the detection of osteoporosis in middle-aged women

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Osteoporosis meaning "porous bones" is a condition in which bones become weak and brittle, due to the body either losing too much bone or making too little.

On microscopic level, the structure of healthy bones is like a honeycomb with holes and spaces. In bones affected by osteoporosis, these hollows and spaces are much wider. This makes them susceptible to breaks (fractures).

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We can conclude that without imaging we could not diagnosed osteoporosis and we could not manage proper treatment for this condition also we could not prevent the consequence.

Mixoma

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INTRODUCTION

Case report - 62 old woman with symptoms: dyspnea, chest pain, heats up, sweating, dizziness, vertigo

MATERIALS AND METHODS

We performed computed tomography without and with contrast and we found parenchymal consolidation paracardial basal with pleural effusion. In the left atrium detected hypodense irregular formation with comparison to the environmental structures. After we used contrast the formation accumulated the metastatic accumulation.

RESULTS

Irregular hypodense formation with heterogeneous accumulation of the iv contrast in the left atrium

Ddg: Mixoma

CONCLUSION

CT imaging are very successful methods for early diagnosis of the Mixoma

MRI imaging of uterus bicornis – case report

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Uterus bicornis is a congenital uterine anomaly caused by the division of the uterine cavity into two separate horns. This condition occurs during embryological development when the two Müllerian ducts, which eventually form the female reproductive tract, fail to fuse completely. As a result, the uterus takes on bicornuate appearance, with varying degrees of septal development and fusion between the horns.

We present a case of a 32 year old uniparous woman with a uterus bicornis, characterized by an asymmetric uterine morphology. This case report includes Magnetic resonance imaging (MRI) findings which played a key role in characterizing this anomaly.

Brunn's cyst of the urinary bladder - incidental finding

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Brunn's cysts are rare cause of lower urinary tract obstruction often detected incidentally during radiological investigations, in the region of the bladder neck. These benign cystic lesions can be asymptomatic or present with non-specific urinary symptoms, because usually result from inflammation in the Brunn's nests located within the urothelium. Their recognition and characterization through radiological assessment are crucial for accurate diagnosis and clinical management.

This radiological case report emphasizes the radiological evaluation of an incidental Brunn's cyst discovered at the bladder neck in a 57-year-old male. The case presentation includes CT and MRI findings, aiding in the diagnosis and management of this benign bladder lesion.

Radiological presentation of hereditary Madelung dyschondrosteosis in a 6-year-old girl confirmed by genetic analysis - case report

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PHI Health Home Skopje*

Introduction: Hereditary Madelung dyschondrosteosis has an autosomal dominant genetic inheritance. In this case, the disease is present in the father's genetic and passed on to the daughter's.

Case report: A 6-year-old girl with Mesomelia on 4 extremities was sent for biopsy due to exostoses on the right and left tibia. X-rays were taken of both forearms, and it was concluded that the three conditions for the diagnosis of Hereditary Madelung dyschondrosteosis were met (1. dysplastic, archly bent radius and wide interosseous space - consecutively; 2. triangular to quadrangular, osteopenic distal radius; 3. dorsal dislocation of the ulna;), as well as pyramidally changed proximal phalanges of the hands. A recommendation was made for the preparation of a genotypic map, which proved haploinsufficiency of the EHT1 gene. More precisely, the genetic analysis showed the presence of a heterozygous form of a pathogenic variant - a slicing donor variant in intron 2 of the EHT1 gene, inherited from the father and leading to an abnormal joining of exons. Moreover, the absence or dysfunctional protein, led to the bone deformity. The EHT1 gene is located on chromosome 8.

Discussion: Early diagnosis of hereditary Madelung dyschondrosteosis is very significant in terms of further treatment of the disease. Short height can be treated with growth hormone. The main symptom is pain that intensifies with age. Physiolytic and release of the abnormal Vickers ligament is suggested.

A case report of osteomyelitis after external fixation treatment of Gustilo-Anderson type IIIA tibia fracture

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Background/Introduction

Open high-grade tibial fractures can result in high rates of complications, especially if the amount of initial bone displacement, comminution, and soft tissue injury is significant.

We present the case of 69-year old women with a history of post traumatic subacute osteomyelitis of tibia.

Case presentation

The patient was involved in a traffic accident, where she sustained an open comminuted fracture of the distal right tibia, classified as Gustilo-Anderson type IIIA fracture.

The treatment approach was a wound debridement of devitalized tissues, reconstruction and skeletal stabilization with external fixator and prophylactic antibiotics. The patient had an uncontrolled diabetes mellitus that prolonged the healing rate. After one year she developed erythema, pain of the affected area. On physical examination there was swelling of the lower limb and there was a visible fistula draining.

X-ray showed signs of focal bony lysis and cortical loss with [regional osteopenia](#) highly suggestive of osteomyelitis. A CT scan confirmed the classic imaging sings of cortical erosion and bone destruction with the formation of sequestra and intraosseus gas.

A positive microbiological culture from fistula biopsy confirmed the organism *Staphylococcus aureus* to be the culprit. The isolate was susceptible to Ceftazidime, which was admitted six weeks i.v., antibiotic therapy, correction of glycemia and surgical treatment followed.

Discussion/Conclusion

Closer monitoring of patients with high grade Gustilo-Anderson open fractures, antimicrobial prophylaxis as well as monitoring of previous medical conditions will result in the best outcome for patients.

Glomus tumor with bilateral localisation

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Glomus tumors represent 0.6% of neoplasms of the head and neck and 0.03% of all neoplasms; they are the most common tumors of the inner ear and the second most common tumors of the temporal bone after schwannomas. About 80% of all glomus tumors are carotid body tumors or glomus jugulare tumors. In our case, there are two glomus tumors in 52 years old patient, one in carotid space and the second in jugular foramen with compressive remodeling of the mastoid and partially petrous segment of temporal bone, both vascularized by both branches of AKK

Rare case of giant renal angiomyolipoma

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Renal angiomyolipoma (AML), is a rare solid tumor without malignant characteristics. The inheritance pattern of renal AML is autosomal dominant. If the lesion grows to a large size, a series of clinical manifestations and serious complications may occur. We present a case of giant renal AML in a 66-year-old female patient, who presented with right-sided abdominal pain and anemia gravis. Following abdominal computed tomography examination, retroperitoneal hematoma arising from retroperitoneal tumor, giant angiomyolipoma, the patient underwent total right nephrectomy. The resected mass was sized 23×23 × 24 cm. Postoperative histopathological examination confirmed the lesion as a giant renal AML.

Rare giant retroperitoneal leiomyosarcoma

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About 25% of all types of sarcomas, are leiomyosarcomas. Vascular retroperitoneal leiomyosarcomas are relatively slow-growing tumors that are typically attached to the venous wall and show extraluminal growth, while intraluminal tumor penetration is mainly manifested by thrombosis. In our case, it is a giant retroperitoneal leiomyosarcoma with an extraluminal growth, type 3, in a 35-year-old woman.

Retroperitoneal leiomyosarcoma in general, especially the giant type 3, is a highly aggressive tumor that occurs less frequently, but has an extremely poor prognosis. Therefore, timely diagnosis is crucial for the most favorable outcome, with MSCT as a modality, which provides great possibilities in diagnosis. MSCT core biopsy as the gold standard to the final pathohistology, as well as a multimodal approach to the final decision to enable a longer and better life.

Rare case of giant renal angiomyolipoma

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Urethral duplication is a rare congenital genitourinary abnormality that predominantly affects males. The Effman Classification is a widely used system for classification of the several types of urethral duplications. Retrograde urethrography and voiding cystourethrography are considered the main diagnostic imaging procedures for detecting this anomaly.

We present a case of a newborn with Effman type IIA-2 Y urethral duplication diagnosed with voiding cystourethrography performed at our clinical hospital. For better visualizations of the two urethras two views were obtained. A radiopaque contrast line was demonstrated extending from the ventral membranous urethra, propagating medially and dorsally to perineum, presenting the duplex accessory urethra.

The aim of this report is to add value to voiding cystourethrography as a diagnostic procedure that can provide standard views with visualization of size, shape and position of the urethras, therefore determining the type of urethral duplication. Optimal knowledge of the type of duplication is important for the surgeon for preoperative planning, successful treatment and avoiding complications.

Embolic stroke as first symptom of left atrial myxoma

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Description of clinical presentation

A 56 years old male presented in our hospital with dysphasia, right side paresis, confusion and somnolence before 18 hours. On brain MRI we found multiple ischemic strokes cerebellar and cerebral in acute and early subacute phase which suggest embolic etiology without large vessel occlusion and without venous sinus thrombosis. We admitted the patient in intensive care unit and ECG showed atrial fibrillation and flutter. Echocardiography detected left atrium enlargement with oval lobulated mobile mass attached on inter atrial septum highly suspected for thrombus, with dimensions around 21x27mm. Patient was treated with anticoagulant therapy. After few weeks echocardiography was performed but the dimension of the left atrial mass was almost the same, and the patient was with improved neurological status.

Diagnostic techniques and their most important findings

CMR was done after two months according to control echocardiography. Despite CINE sequence where LA mass was non compact and mobile. On T2BB mobile mass was hypersignal and with intermediate to iso with myocardial signal on T1 BB. Perfusion, early and late gadolinium enhancement showed heterogeneous gradual enhancement. LA mass signals and enhancement pattern suggested myxoma that can be differential with older chronic thrombus. Patient was operated on and histopathologically myxoma was confirmed.

Learning points from this case

Stroke can be first symptom of cardiac masses but CMR is crucial in diagnosis and tissue characterization of cardiac masses.

CMR as imaging method of choice in assessment of HCM

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Case 1: CMR morphological protocol with late gadolinium enhancement and CINE sequences. CMR findings was: hypertrophy of left ventricle symmetrical with mid septal wall in ED, d= 22mm. Right free wall with d=5mm. SAM and LVOT obstruction with jet. No edema. On LGE multiple mid wall patchy/streaky lesions anteroseptal and inferior dominant in basal and mid segments and inferolateral in mid and apical suggesting fibrosis around 14-15% from myocardium. After CMR and 24h ECG monitoring and risk stratification patient received ICD.

Case 2: CMR findings: asymmetrical left ventricular hypertrophy dominantly on anterior and septal wall and mild on inferior mid and apical segments. LGE showed mid wall patchy lesions and scars mostly anteroseptal and less scars inferior septal basal and mid as well as in apical segments. In ED septal wall d=26mm, and left atrium enlargement. On CINE sequences, moderate jet of LVOT-obstruction and moderate mitral regurgitation.

Learning Points from this Case

The primary role of CMR in HCM is clarification of the diagnosis and assessment of myocardial fibrosis extension. CMR has a prognostic significance in patients with extensive myocardial fibrosis while high risk for malignant arrhythmia. Currently CMR is under discussion should be included in risk stratification guidelines.

Gastrointestinal tract duplication cyst in patient diagnosed with ovarian cystadenocarcinoma - a Challenging diagnosis

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Congenital and hereditary cystic lesions of the abdomen are relatively rare. Correct diagnosis is critical as they may simulate several other benign and malignant acquired diseases of the abdomen. We present the case of 45 years old female patient who initially presented with abdominal discomfort and bloating in the last three months. Further clinical evaluation with Ultrasound, CT, MRI and laboratory confirmed ascites and cystic-solid formation on her right ovarium and huge cystic lesion in her upper abdomen with high CA 125 = 634 (<35 u/ml).

Esophageal stenting in a lung cancer patient: A two-fold solution

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Esophageal stenting has emerged as a pivotal intervention in the management of dysphagia and complications related to lung cancer treatment. This case report highlights a unique scenario in which esophageal stent placement not only alleviated dysphagia but also addressed an unexpected complication in a patient with a history of right lung lobectomy due to lung cancer in 2018.

Following a course of radiation and chemotherapy, the patient began experiencing dysphagia and odynophagia. An esophagram identified a significant stenosis in the proximal to middle third of the esophagus, prompting the scheduling of esophageal stent placement.

However, on the day of the intervention, the patient described episodes of coughing and expectoration during food intake in the days leading up to the procedure. This raised concerns, leading to a pre-interventional esophagram that unequivocally confirmed the presence of an esophago-bronchial fistula—a rare and challenging complication.

In response to this unexpected finding, a covered stent with an anti-reflux valve was strategically placed. This innovative approach not only addressed the stenosis but also immediately resolved the esophago-bronchial fistula, simultaneously achieving an adequate lumen of the esophagus.

This case underlines the efficacy of esophageal stenting as a multifaceted solution for complex clinical presentations. By addressing both dysphagia and the unanticipated esophago-bronchial fistula, the procedure not only improved the patient's quality of life but also potentially averted a more severe respiratory crisis. Such cases emphasize the need for interdisciplinary collaboration and creative problem-solving in the realm of interventional medicine to ensure comprehensive patient care.

CT-guided lung ablation of primary lung cancer in a patient with two other concomitant malignancies – a successful story

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Lung cancer remains one of the leading causes of cancer-related mortality worldwide. In cases where patients present with advanced age, multiple comorbidities or other concomitant malignancies, the management can be exceedingly complex. We present a unique case of a patient diagnosed with primary lung cancer while concurrently battling two other malignancies.

This report highlights the case of a 62-year-old male with a history of prostate and laryngeal cancer, who was incidentally found to have an early-stage primary lung cancer. Given the presence of two other active malignancies, traditional surgical resection was deemed high-risk. Consequently, a multidisciplinary team opted for CT-guided lung ablation as an alternative approach.

The minimally Invasive CT-guided biopsy and ablation procedure was performed successfully, and the patient experienced minimal complications such as local pain. Follow-up imaging and clinical assessments indicated complete resolution of the lung tumor with no evidence of recurrence. The patient's overall quality of life significantly improved and currently he is disease free. This case report underscores the importance of individualized treatment strategies in complex clinical scenarios, demonstrating that CT-guided lung ablation can be a valuable option for managing primary lung cancer, particularly in older patients with many comorbidities. It also emphasizes the critical role of a multidisciplinary approach to provide the best possible care for such patients, showcasing a successful and innovative approach to cancer management.

Clicking knee: a common complaint with an uncommon culprit

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Background/Introduction

Synovial reaction plays an important role in the radiological and clinical progression of osteoarthritis (OA). This reaction can take many faces, most commonly it's inflamed. However sometimes a diffuse villous proliferation can result in the replacement of it by mature adipocytes, resulting is a rare condition known as lipoma arborescens (LA).

Case presentation

We present a case of 59-year-old women, with knee pain waking her at night and gradually increasing swelling. On clinical examination the swelling was evident with limited range of motion. Laboratory finding were normal. Radiographic examination showed features of advance degenerative changes with dense projections in the articular space. An MRI was ordered which revealed the culprit of the dense projections. There were villous projections stemming from the synovium into the articular space with signals of fat in all sequences. After i.v. administration there was no pathologic enhancement. The diagnosis of LA was suggested in the report and biopsy followed, which confirmed the diagnosis. The patient went on to have surgery, open synovectomy, with good results of restored range of motion.

Conclusion

Rare causes of knee pain have to be considered in order to stop the progression of the condition into joint degeneration. Prompt complete radiologic examination guarantees such a success and radiologists have to be aware of this synovial benign tumor of LA.

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