BSR

Balkan Society of Radiology

XVIII CONGRESS OF BALKAN SOCIETY OF RADIOLOGY

19-20 October, 2023

Belgrade, Serbia


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Dear BCR members,
Dear colleagues,

After the long interruption of our activities due to the COVID epidemic, which made it impossible to see each other live, we are extremely happy to welcome you to this year's XVIII Balkan Congress of Radiology!

As was decided by the Executive Committee and, at the suggestion of our colleagues from Serbia, it will be held in Belgrade, and this year, the Balkan Congress will be merged with the Serbian National Radiology Congress. And this, the 18th congress will be an excellent opportunity for networking, learning, and building meaningful connections between Balkan radiologists with the high quality of the presented scientific reports.

We are confident that this Congress will provide a unique platform for networking, learning, and building connections with colleagues. With a dynamic agenda that includes keynote sessions, panel discussions, and symposia, we invite you to join us for an engaging and inspiring experience. The topics truly reflect the current trends, recent advances, and new, cutting-edge approaches in radiology. This congress has a rich history and has played a significant role in the advancement of radiology in the Balkans, gathering radiology professionals from across the Balkans and beyond.

Additionally, we are going to host ESOR Visiting Professorship for those who have a special inerest in neuroradiology and general radiology. Experts in neuroradiology will provide lectures on state-of-the- art topics, accompanied by interactive presentation of cases, a pattern that has been proven to be attractive and already recognized as very efficient.

With this address, we once again express our great joy that we will gather to exchange scientific achievements and strengthen Balkan radiologists' once again gather to exchange scientific achievements and strengthen Balkan radiologists' already traditionally friendly contacts. And this is one of the main goals of our organization – to unite the radiological community in this small geographical part of Europe, but rich in history and traditions.

We hope you are as excited as we are to meet in person again, improve and share knowledge, and enjoy your stay in Belgrade!

See you in Belgrade!

Prof. Milan Totev
President, BSR

Prof. Ružica Maksimović
President, BCR 2023

President, BSR

Milan Totev

President, BCR 2023

Ružica Maksimović

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Ružica Maksimović
Nevra Elmas
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Cem Calli
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Milena Spirovski
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Viktorija Vučaj Ćirilović

Secretary General of BCR 2023

Miloš Gašić

1. Musculoskeletal radiology
2. Chest radiology
3. Cardiovascular radiology
4. Interventional radiology – vascular
5. Interventional radiology – non-vascular
6. Interventional neuroradiology
7. Urogenital radiology
8. Neuroradiology
9. Gastrointestinal radiology
10. Brest radiology
11. Pediatric radiology
12. Oncologic imaging
13. Head and neck imaging
14. Emergency radiology
15. Junior session

Belgrade is the capital and largest city of Serbia, situated at the confluence of the Sava and Danube rivers and at the crossroads of the Pannonian Plain and the Balkan Peninsula. It is one of the oldest continuously inhabited cities in Europe. Today population of the Belgrade metropolitan area is 1.68 million.

History

The first farming people to settle in the region are associated with the Neolithic Starčevo culture in the 6-7th millennium BC. One of the most important prehistoric cultures in Europe, the Vinča culture, evolved within the Belgrade area and is best known for the earliest known copper metallurgy in Europe and a proto-writing. Evidence of early knowledge of Belgrade's geographical location can be found in a variety of ancient myths and legends. The ridge overlooking the confluence of the Sava and Danube rivers is described in the epic poem of Jason and the Argonauts. It was inhabited by Thraco-Dacians and Celts and later conquered by the Romans and in the 6th century by the Slavs.

Belgrade served as the capital of the medieval Serbian Despotate and evolved into one of the most strategically important cities during the Ottoman–Habsburg wars. The city has been battled more than 100 times and besieged many times over centuries. Belgrade has become the development and cultural center of Southeast Europe, hosting numerous international events. It also is home to the University Clinical Centre of Serbia, one of the hospital complexes with the largest capacity in the world, the Church of Saint Sava, one of the largest Orthodox church buildings, as well as residence of a novelist Ivo Andrić, Nobel laureate, and Novak Đoković, the greatest tennis player of all time.

Culture & Science

Belgrade has a lot of nationally important arts and scientific institutions: the Serbian Academy of Sciences and Arts (founded in 1886), the National Library of Serbia (1832), the National Museum of Serbia (1844), the National Theatre (1869), and the University of Belgrade (1905; as Grande école in 1808). The most famous museums in Belgrade are: the Historical Museum of Serbia, Ethnographic Museum, Museum of Contemporary Art, Nikola Tesla Museum, Museum of Vuk and Dositej, Museum of Yugoslavia, Military Museum.

Language

The official language is Serbian. The official alphabets are Cyrillic and Latin. Many people in Serbia, especially congress staff and participants, are fluent in English.

Currency

The official currency of the country is the Serbian Dinar (RSD). Foreign currencies can be exchanged at exchange offices and banks.

Time zone

Belgrade and Serbia are in the CET (Central European Time) zone – UTC+1.
In summer the Daylight Saving Time (DST) moves it to CEST – UTC+2.

Climate & Weather

Belgrade has a moderate continental climate, with four seasons and uniformly spread precipitation. Take a look at the weather forecast for the week of Congress here.

Water

Tap water in Belgrade is safe to drink. In addition, many bottled water brands offer regular, mildly carbonated, or highly carbonated water.

Working hours

Most shops and grocery stores work usually from 8 AM to 9 or 10 PM, but there are others that work 24h. Large shopping malls are open from 10am until 10 PM on business days and weekends too. Banks and offices have standard 9 AM to 5 PM working hours. Most of them have ATMs (cash machines).

Emergency

In case of emergencies during the Congress, please contact the staff at the registration desk. In case of emergencies in the hotel, please contact your hotel reception for first aid service.

- Police Department: 192
- Fire Department: 193
- Medical emergencies: 194

Airport

Belgrade Nikola Tesla Airport (BEG)

Surčin, 18 km (11 miles) west of downtown Belgrade

Address: Belgrade 59, 11180, SERBIA

Phone: +381 11 209 4000

Mini buses are available to go and come back to Belgrade Airport from Slavija Square, priced 400 RSD (3.4 €) one-way. All vehicles are fully equipped and modern. There are also a few regular public transport lines.

Motorways

Belgrade is located along the Pan-European corridors VII and X. E70 directly connects the city with Slovenia and Croatia, as well as Romania and Bulgaria. E75 connects Belgrade with Hungary, as well as North Macedonia and Greece.

Railway

Belgrade is directly connected with the international train line to Bar (Montenegro) via Podgorica (Montenegro) and Ljubljana (Slovenia) via Zagreb (Croatia). Due to reconstructions, the timetable should be checked regularly.

The Four Star Hotel M is one of the Belgrade leading business and conference hotels. The hotel is conveniently located, next to the Byford's Forest, just a 5 minutes bus ride to city center and Belgrade Fair, and 20 minutes to the International Airport Nikola Tesla.

The advantages of hotel are good connection with main roads, airport and city centre, free internet, free hotel parking and stay in protected environment. Each of 180 elegantly decorated rooms are designed for a creative work ambience with large desks, free high-speed and wireless internet. Functionally equipped rooms, comfortable beds and work area will provide you with a quality rest and prepare you for another working day.

REGISTRATION

The age limit for registration as a resident is 35 years.

The specified amounts of participation in the congress will be strictly observed depending on the date of payment. To this account number, the registration fee for participation in the congress can be paid in dinars against the value at the middle exchange rate on the day of payment.

The registration fee includes:

- Participation in scientific sessions
- Congress material
- Coffee and snacks during breaks
- Networking and get together

	Early fee (to 15.9.2023.)	Fee (15.9 – 10.10.2023)	on site
Non-members of URS / ESR	150,00 €	170,00 €	190,00 €
Members of URS / ESR	120,00 €	140,00 €	160,00 €
Residents	70,00 €	90,00 €	110,00 €
Radiologic technologists	50,00 €	70,00 €	80,00 €

Registration fees for ESOR VPP:

Non-members of URS / ESR	85,00 €
Members of URS / ESR	65,00 €
Resident	35,00 €

Further information are available on **bcrad2023@gmail.com.**

Please contact the following email address for any additional information related to registration:

Contact for financial affairs:
Tatjana Todorović Kolić
tatjana@gorrdi.net
Payment in local currency – dinar RSD
265-1620310003867-10
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For any further information regarding acomodation and registration, kindly contact:

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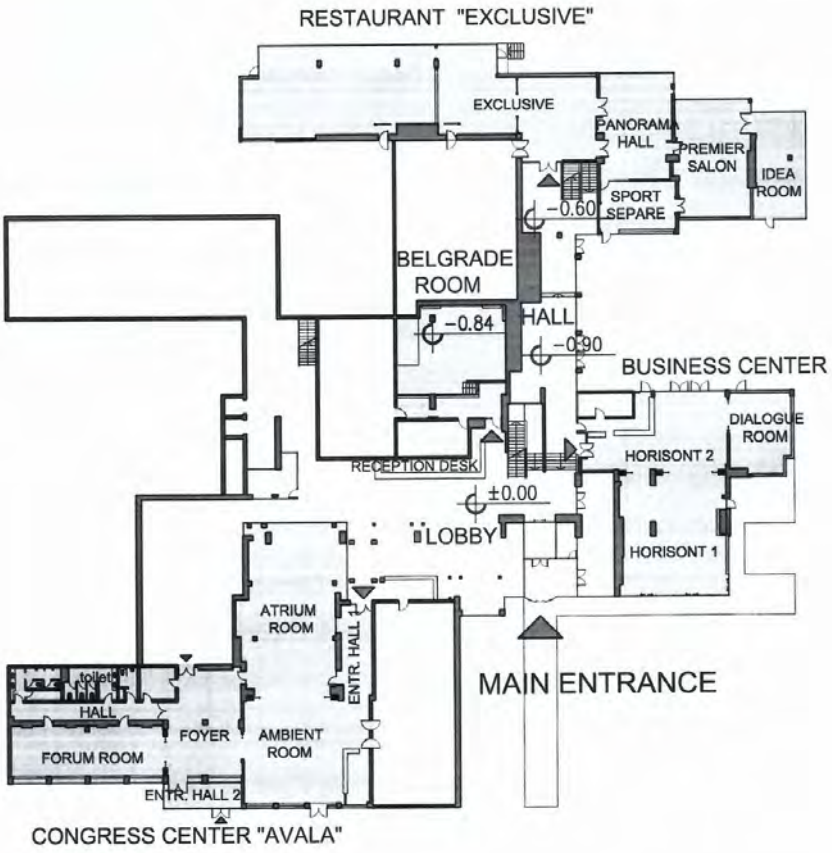
HOTEL M



RESTAURANT "EXCLUSIVE"	total area 542.00 m2
BUSINESS CENTER	total area 270.00 m2
CONGRESS CENTER "AVALA"	total area 535.00 m2
BELGRADE ROOM	total area 111.00 m2

Thursday 19.10.2023

	Hall ATRIUM	Hall HORIZONT	Hall BEOGRAD
08.30-10.00	Focus session I Interventional radiology in treatment of liver tumors with interactive case discussion	Paediatric Radiology	Musculoskeletal Radiology I
10.00-11.30	Hepatobilliary system I	Breast Imaging I	Urogenital Radiology I
12.00-13.00	Opening Ceremony Honorary Lectures Moderator: Prof. N. Gourtsoyiannis (GR), Prof. Milan Totev (BG), Prof. Ružica Maksimović (RS) "Mentorship in the era of AI"- Prof. N. Gourtsoyiannis (GR), The History of the Future: AI & Radiology, Milos. A. Lučić (RS)		
13.00-14.00	Welcome Coctail		
14.00-15.30	Abdominal Radiology	Interventional Radiology I	Scientific Presentations Interventional, Musculoskeletal and neuroradiology
15.30-17.00	Neuroradiology I	Cardiovascular Radiology	Scientific Presentations Abdominal and Uroradiology
17.00-17.30	Break		
17.30-19.00	Neuoradiology II	Oncology Imaging I	Scientific Presentations Breast, Chest imaging, Head and Neck
19.00-20.00	BSR Executive Committee Meeting & General Assembly		
21.00	Get together and Networking		

Friday 20.10.2023

	Hall ATRIUM	Hall HORIZONT	Hall BEOGRAD
08.00-09.30	Chest Imaging	Understanding Imaging Fundamentals	Head and Neck Radiology
09.30-11.00	Focus Session II Prostate Carcinoma - What Should I Know?	Musculoskeletal Radiology II	Emergency Radiology
11.00-11.30	Break		
11.30-13.00	Hepatobilliar Radiology II	My Most Challening Cases	Interventional Radiology II
13.00-14.00	Break		
14.00-15.30	Breast II	Focus Session III Lung Carcinoma - What Should I Know?	Urogenital Radiology II
15.30-17.00	JFR - An Ordinary Day at a Department of Radiology	Hands on in MSK	Oncology Imaging II
17.30-18.30	Closing Ceremony and Awards		

BSR

Balkan Society of Radiology

ЛЕКАРСКА КОМОРА СРБИЈЕ
1901 - 2006
SERBIAN MEDICAL CHAMBER

UDRUŽENJE RADIOLOGA SRBIJE
1994

FINAL PROGRAM

Thursday, October 19, 2023

Hall ATRIUM

08.30-10.00 FOCUS SESSION I - INTERVENTIONAL RADIOLOGY IN TREATMENT OF LIVER TUMORS WITH INTERACTIVE CASE ISCUSSION

Moderators:
Dragan Mašulović (RS), Daniel Galun (RS)

16. Locoretional therapy of liver tumors
Dragan Mašulović (RS)

17. What does a surgeion expect from a radiologist?
Daniel Galun (RS)

18. Theramal ablation in treatment of liver tumors
Aleksandar Filipović (RS)

19. TACE in the treatment of liver tumors
Miloš Zakošek (RS)

20. Interventional radiology in treatment of malignancies of hilar region
Dušan Bulatović (RS)

21. Interventional radiology in treatment of liver tumors - our experience
Aleksa Igić (RS)

Hall HORIZONT

08.30-10.00 PAEDIATRIC RADIOLOGY

Moderators:
N. Mitreska (RNM), Polina Pavićević (RS)

1. Paediatric lung ultrasound-between skepticism and (over) enthusiasm
Jovan Lovrenski (RS)

2. MRI of the fetus: an overview
Corina Banu (RO)

3. MRI/radiologic evaluation of transposition of great arteries
Serçin (Baş) Özkök (TR)

4. Should I say or should I not-missinterpretation of the most common normal variants in children
Tijana Radović (RS)

5. The role of ultrasound in paediatric emergencies
Ivana Dašič (RS)

Hall BEOGRAD

08.30-10.00 MUSCULOSKELETAL RADIOLOGY I

Moderators:
Remide Arkun (TR), Goran Đuričić (RS)

1. **Imaging of atraumatic muscle disorder**
   Anesa Čengić (BIH)
2. **Impingement syndromes**
   Remide Arkun (TR)
3. **What the MRI can tell us about lesions caused by excessive knee usage in young physically active people**
   Goran Đuričić (RS)
4. **Anterior knee pain**
   Vesna Njagulj (RS)

Hall ATRIUM

10.00-11.30 HEPATOBILIARY RADIOLOGY I

Moderators:
Stavros Efremides (GR), Ružica Maksimović (RS)

1. **MR contrast media - sponsored by Bayer**
   Ružica Maksimović (RS)
2. **Diffuse liver diseases**
   Sukru Mehmet Erturk (TR)
3. **MRI of cirrhotic nodules. The good, the bad and the ugly**
   Evangelos Alexiou (GR)
4. **Liver pseudolesions: MR imaging features**
   Jelena Đokić Kovač (RS)
5. **CEUS in focal liver lesions**
   Vasileios Rafailidis (GR)

Hall HORIZONT

10.00-11.30 BREAST IMAGING I

Moderators:
Nikolaos Dimitropoulos (GR), Dragana Djilas (RS)

1. **Breast cancer surveillance in high risk women ?**
   Yasuo Nakajima (JP)
2. **AI in digital mammography and breast tomosynthesis**
   Nikolaos Dimitropoulos (GR)
3. **Breast imaging: Beyond the detection**
   Dragana Djilas (RS)
4. **Challenges in breast imaging**

Dragana Bogdanović-Stojanović (RS)

5. **Rare breast lesions**
   Dragana Roganovic (BiH)

Hall BEOGRAD

10.00-11.30 UROGENITAL RADIOLOGY I

Moderators:
Demosthenis Cokkinos (GR),Sanja Stojanović (RS)

1. **Contrast enhanced ultrasound or CT for Bosniak characterisation of renal cysts**
   Demosthenis Cokkinos (GR)
2. **Renal lesion characterization with MRI**
   Mustafa Secil (TR)
3. **The relevance of stone density measurement in urolythiasis.**
   Biljana Marković (RS)
4. **Ovarian cancer - tips and trics**
   Sanja Stojanović (RS)

12.00-13.00 OPENING CEREMONY

Ministry of Health, Republic of Serbia
Prof. Danica Grujičić, Minister
Serbian Medical Chamber
Dr Miodrag Stanić, Director
Faculty of Medicine, University of Belgrade
Prof. Lazar Davidović, Dean
Balkan Society of Radiology
Prof. Milan Totev, President
Serbian Society of Radiology
Prof. Ružica Maksimović, President

HONORARY LECTURES

Moderator:
Prof. N. Gourtsoyiannis (GR), Prof. Ruzica Maksimovic (RS),
Prof. Milan Totev (BG)
"Mentorship in the era of AI"- Prof. N. Gourtsoyiannis (GR),
The History of the Future: AI & Radiology. - Milos. A. Lucic (RS)

13.00-14.00 WELCOME COCTAIL

Hall ATRIUM

14.00-15.30 ABDOMINAL RADIOLOGY

Moderators:
Nevra Elmas (TR), Dragan Vasin (RS)

1. **Small bowel tumors**
   Nevra ELmas (TR)
2. **Imaging of mesenteric ischaemia**
   Dragan Vasin (RS)
3. **What is new in the staging of colon tumors**
   Ezgi Guler (TR)
4. **Stenosis and dilatation of the Wirsung`s duct**
   Aleksandar Bojanović (RS)
5. **Diagnostic challenges in liver cirrhosis - architecture of dysfunction**
   Florin Mihai (RO)
6. **Dual energy CT: Basic principles and applications**
   Saša Vujnović (BIH)

Hall HORIZONT

14.00-15.30 INTERVENTIONAL RADIOLOGY I

Moderators:
Nikolaos Galanakis (GR), Viktor Till (RS)

1. **Perfusion imaging in patients with peripheral arterial disease**
   Nikolaos Galanakis (GR)
2. **Our experience in carotid artery stenting**
   Viktor Till (RS)
3. **The unique pathobiology of giant brain aneurysm and their treatment challenges**
   Michalis Mantatzis (GR)
4. **US and CEUS imaging of endoleaks in the post-EVAR aorta**
   Vasileios Rafailidis (GR)

Hall BEOGRAD

14.00-15.30 SCIENTIFIC PRESENTATIONS

Interventional radiology, Musculoskeletal radiology and Neuroradiology

Moderators:

Nenad Janeski (SRB), Radiša Vojinović (SRB)

1. **Percutaneous Ascites Drainage Catheter Procedure with the Seldinger Method: A Single Center Experience**
   Omer Faruk Uluca, Mustafa Ozdemir (TR)
2. **Endovascular and Percutaneous Treatment Procedures in Dialysis Fistula Thrombosis**
   Erbil Arik, Onur Taydaş, Ömer Faruk Ateş (TR)
3. **The Outcome of Embolization of Non-traumatic Rectus Sheath Hematomas**
   Eda Cingoz, Mehmet Cingoz (TR)
4. **Successful Hybrid Approach Treatment of a Large Persistent Sciatic Artery Aneurysm**
   Vladimir Cvetić, Borivoje Lukić, Marko Miletić, Oliver Radmili, Branko Gaković (RS)
5. **Significance of pain duration before treatment with CT guided periradicular therapy in patients with sciatica**
   D Veljanovski, B Prgova, M Kostova, S Dejanova, I Jovanoska (RNM)
6. **CT guided periradicular infiltration treatment in patient with extraforaminal disc herniation**
   D Veljanovski, T Deleva Stoshevska, D Ristik-Stomnaroska,G Dungevski (RNM)
7. **Top 5 vertebral looks at all imaging modalities you may need to know**
   Ljiljana Drazetin, Ivana Stojić (RS)
8. **Different subcortical volume in patients with temporal lobe epilepsy**
   Z. Joković, A. Pejović, V. Miler Jerković, A. Ristić (RS)
9. **An excess artery in the posterior segment of the cerebral arterial circle in human adult cadaver**
   Milena Trandafilović, Miroslav Milić, Aleksandra Antović, Ivan Stojanović (RS)
10. **Radiological evaluation of intracranial aneurysms and AV malformations**
    Tijana Koković (RS)

Hall ATRIUM

15.30-17.00 NEURORADIOLOGY I - MASTER CLASSES

Moderators:
Efrosini Papadaki (GR), Edward Michels (USA), Turgut Tali (TR)

1. **Brain tumors Imaging: Known and Unknown**
   Edward Michals (USA)
2. **Current and future biomarkers of disease activity in multiple sclerosis**
   Zsigmond Tamás Kincses (HU)
3. **Non-MS idiopathic demyelinating diseases (MOGAD, NMOSD, etc.) and differential diagnosis from MS**
   Efrosini Papadak (GR)
4. **Uncovering the glymphatic system**
   Turgut Tali (TR)
5. **How tough is the tough body?**
   Martina Špero (CRO)

Hall HORIZONT

15.30-17.00 CARDIOVASCULAR RADIOLOGY

Moderators:
Kostantinos Michailidis (GR), Milena Spirovski (RS), Ružica Maksimović (RS)

1. **CT evaluation of the aortic root pathologies**
   Violeta Groudeva (BG)
2. **Plaque, heamodynamic compomise and ischaemia: The role of cardiac CT**
   Kostantinos Michailidis (GR)
3. **Ischemic heart disease: the role of MRI**
   Milena Spirovski (RS)
4. **MRI in non-ischemic heart disease**
   Tuncay Hazirolan (TR)
5. **Cardiac MRI as a risk stratification tool in COVID 19 myocarditis**
   Olga Nedeljković (RS)

Hall BEOGRAD

15.30-17.00 SCIENTIFIC PRESENTATIONS

Abdominal radiology and Uroradiology

Moderators:

Dragan Dulović (SRB), Dušan Šaponjski (SRB)

1. **Bowel and mesenteric trauma – CT signs, diagnostic challenges and pitfalls**
   Tijana Tomić, Dragan Vasin, Biljana Jovandić, Sanela Hasanagić, Milica Mitrović, Ksenija Mijović, Dragan Mašulović (RS)
2. **Benign pancreatic lesions mimicking malignancy - a case series**
   Jovana Milenković, Milica Stevanović, Jelena Kovač (RS)
3. **Solid pseudopapillary neoplasm of the pancreas and the role of MRI in the diagnosis: A case series**
   Milica Stevanović, Jovana Milenković, Jelena Kovač (RS)
4. **Intraductal Papillary Neoplasm of the Bile Duct (IPNB): CT and MRI characteristics for detection of rare pathological entity**
   Stefan Milosević, Katarina Stošić, Milica Mitrović, Aleksandra Janković, Dušan Šaponjski, Ljubica Lazić, Aleksandra Đuric-Stefanović, Jelena Kovač (RS)
5. **Radiological Presentation of Abdominal Wall Hernias: A Comprehensive Overview**
   Stefan Milošević, Aleksandra Đurić-Stefanović, Katarina Stošić, Milica Mitrović-Jovanović, Dusan Šaponjski, Aleksandra Janković, Jelena Kovač, Ljubica Lazić (RS)
6. **Pancreatic Cystic Lesions, Our Experiences**
   Vladimir Videnović, Tamara Vučinić (RS)
7. **The importance of diagnostic monitoring of patients with acute pancreatitis and timely detection of life-threatening vascular complications: Single Center Experience**
   Katarina Stošić, Stefan Milosević, Aleksandra Đurić-Stefanović, Jelena Kovač, Dragan Mašulović, Milica Mitrović, Dušan Šaponjski, Aleksandra Janković, Ljubica Lazić, Borivoje Lukić, Vladimir Cvetić (RS)
8. **The relationship between PIRADS v2.1 and Gleason Score in the diagnosis of peripheral zone prostate cancer by ADC Histogram Analysis**
   Halil İbrahim Sara, Hasan Aydin, Fatih Hizli (TR)
9. **The role of T2w pulse sequence and diffusion with its numerical ADC map in prostate cancer diagnosis**
   M Kostova, A Dodevski, D Veljanovski, B Zafirovska-Ivanovska, S Dejanova Panev, B Prgova Veljanova (RNM)
10. **PI-RADS classification**
    Maja Stankov, Ivana Stojić, Ivan Adjić, Marijana Basta Nikolić, Nataša Prvulović Bunović (RS)

17.00-17.30 BREAK

Hall ATRIUM

17.30-19.00 NEURORADIOLOGY II HOW DO I EXAM: QUICK TIPS AND TRICKS IN A COUPLE OF MINUTES

Moderators:
Cem Calli (TR), Biljana Georgievski Brkić (RS), Miloš Lučić (RS), Katarina Koprivšek (RS)

1. **How do I exam: Pre – and Posttreatment Brain Tumors: The Quadrangulation**
   Cem Calli (TR) Kamil Karaali (TR)
2. **How do I exam: Acute stroke**
   Biljana Georgievski Brkić (RS)
3. **How do I exam: Neuroinflamation**
   Svjetlana Jefić (BIH)
4. **How do I exam: Epilepsy**
   Katarina Koprivšek (RS)
5. **How do I exam: Small vessel disease**
   Jasmina Boban (RS)
6. **How do I exam: Cerebral venous thrombosis**
   Marija Jovanović (RS)
7. **How do I exam: Degenerative spine**
   Dejan Kostić (RS)
8. **How do I exam: Intracranial Cystic Lesions**
   Marijana Karlović Vidaković (BIH)
9. **How do I exam: Hydrocephalus**
   Miloš Lučić (RS)

Hall HORIZONT

17.30-19.00 ONCOLOGY IMAGING I (STRUCTURED REPORT)

Moderator:
Sofia Gourtsoyianni (GR), Silvija Lučić (RS)

1. **Structured reporting in gyneocological cancer**
   Charis Bourgioti (GR)
2. **Anal cancer: MRI staging**
   Sofia Gourtsoyianni (GR)
3. **Essential findings for structured reporting of rectal cancer MRI**
   Bengi Gurses (TR)
4. **The importance of structured report in pancreatic cancer**
   Evangelos Chartabilas (GR)

Hall BEOGRAD

17.30-19.00 SCIENTIFIC PRESENTIONS

Breast, Chest imaging, Head and neck imaging

Moderators:

Miloš Gašić (RS), Siniša Ristić (BiH)

1. **Interval breast cancers detected in the screening mammography program at the Obrenovac Health Center**
   Predrag Jovanović, Miloš Peković (RS)
2. **Unusual presentations of lung carcinoma - case reports**
   Rade Kovač, Nataša Knežević, Marija Stolić (RS)
3. **Feasibility of using cross-sectional area of masticatory muscles to predict skeletal muscle sarcopenia in healthy aging subjects**
   Aleksa Janović, Biljana Miličić, Svetlana Antić, Đurđa Bracanović, Marijana Stanišić, Goran Krstić, Biljana Marković-Vasiljković (RS)
4. **CT and CT image-based texture image analysis in radiological evaluation of chronic rhinosinusitis**
   Đurđa Bracanović, Svetlana Antić, Aleksa Janović, Goran Krstić, Marijana Stanišić, Biljana Marković Vasiljković (RS)
5. **Computed tomography evaluation of sinonasal polyposis**
   Goran Krstić, Marijana Stanišić, Đurđa Bracanović, Aleksa Janović, Svetlana Antić, Biljana Marković Vasiljković (RS)
6. **Diagnostic Value of Ultrasound-Based Deep Learning in Classification of Benign-Malign Thyroid Nodules**
   Merve Solak, Esat Kaba, Ayşenur Topçu Varlik, Yusuf Çubukçu, Lütfullah Sağir, Kubilay Muhammed Sünnetci, Ahmet Alkan, Hasan Gündoğdu, Fatma Beyazal Çeliker, Mehmet Beyazal (TR)
7. **Active surveillance or surgery for ACR TI RADS 5 nodules mesuring less than 1cm: is papillary microcarcinoma really indolent?**
   Predrag Jovanović, Milos Peković, Vesna Kovačević (RS)
8. **Comparison of computed tomography and intraoral ultrasonography in assessing the invasion depth of oral squamous cell carcinoma**
   Svetlana Antić, Đurđa Bracanović, Aleksa Janović, Marijana Stanišić, Goran Krstić, Biljana Marković Vasiljković (RS)
9. **Initial clinical experiences with the use of CO_2 contrast media during interventional radiological procedures**
   Stefan Petković, Saša Vujnović, Bojan Jovanić, Mile Čučak (BiH)
10. **Anthropometric characteristics of the facial soft tissue thickness and it's significance in forensic medicine**
    Tamara Tapušković, Dragoslav Nenezić, Rabina Dedeić (MNE)

19.00-20.00 BSR EXECUTIVE COMMITTEE MEETING & GENERAL ASSEMBLY

21.00 GET TOGETHER AND NETWORKING

Friday, October 20, 2023

Hall ATRIUM

08.00-09.30 CHEST IMAGING

Moderators:
Kiriaki Tavernaraki (GR), Ruža Stević (RS)

1. **Lung cancer screening with low dose CT. An overview**
   Kiriaki Tavernaraki (GR)
2. **Imaging of the pulmonary nodules**
   Selen Bayraktaroglu (TR)
3. **The many faces of pulmonary sarcoidosis detected on HRCT - our experience**
   Kristina Dimitrijeviki (RNM)
4. **CTPA beyond pulmonary embolism- the pulmonary arterial obstruction index**
   Sonja Nikolova (RNM)

Hall HORIZONT

08.00-09.30 UNDERSTANDING IMAGING FUNDAMENTALS

Moderator:
D. Akata (TR), Marija Basta Nikolić (RS)

1. **Peritoneum and mesentery**
   Panos Prassopoulos (GR)
2. **MRI of shoulder joint-anatomy and basic knowledge**
   Miloš Gašić (RS)
3. **Understanding breast Imaging**
   Marija Basta Nikolić (RS)
4. **MRI of the spine: How to recognize and report**
   Jelena Kostić (RS)
5. **How trainees (should) learn anatomy by neuroimaging**
   Intesar-Victoria Malla (BG)

Hall BEOGRAD

08.00-09.30 HEAD AND NECK RADIOLOGY

Moderators:
Nikoleta Traykova (BG), Sladjana Petrović (RS)

1. **Suprahyoid neck spaces- anatomy and pathology**
   Nikoleta Traykova (BG)
2. **Imaging of perineural tumoral spread in head and neck**
   Sladjana Petrović (RS)
3. **Lymphoma in head and neck**
   Can Karaman (TR)
4. **Must know pseudolesions in head and neck**
   Darka Hadnađev-Šimonji (RS)

Hall ATRIUM

09.30-11.00 FOCUS SESSION II: PROSTATE CANCER - WHAT SHOULD I KNOW?

Moderators:
Ružica Maksimović (RS), Tomislav Pejčić (RS)

1. **Prostate cancer: What radiologist should know?**
   Tomislav Pejčić (RS)
2. **Diagnostic value of mpMR in evaluation of prostate cancer: are we happy?**
   Ružica Maksimović (RS)
3. **Oncology approach – what a radiologist should know?**
   Suzana Stojanović Rundić (RS)
4. **Prostate cancer theranostics**
   Miloš Veljković (RS)

Hall HORIZONT

09.30-11.00 MUSKULOSKELETAL RADIOLOGY II

Moderators:
Zulejha Merhemić (BIH), Vesna Njagulj (RS)

1. **Spinal bone tumors**
   Sebnem Orguc (TR)
2. **Infections of the spine**
   Zulejha Merhemić (BIH)

3. **Imaging of the pubic symphysis**
   Mujdat Bankaoğlu (TR)
4. **Differential diagnosis of septic arthritis**
   Nuran Sabir (TR)

Hall BEOGAD

09.30-11.00 EMERGENCY RADIOLOGY

Moderators:
Vesna Sarajlić (BIH), Dejan Jovanović (RS)

1. **Blunt abdominal trauma**
   Vesna Sarajlic (BIH)
2. **Up-to-date imaging of the cervical trauma**
   Nail Bulakbasi (TR)
3. **Inflammation and atherosclerosis through the eyes of radiology**
   Maria Nedevska (BG)
4. **Calm night for an emergency radiologist**
   Dejan Jovanović (RS)

11.00-11.30 BREAK

Hall ATRIUM

11.30-1300 HEPATOBILIARY RADIOLOGY II

Moderators:
Charina Triantopoulou (GR), Aleksandar Ivanović (RS), Jelena Đokić Kovač (RS)

1. **Imaging in obstructive jaundice**
   Aleksandar Spasić (RS)
2. **Cancers of the ampulla vater**
   Aleksandar Ivanović (RS)
3. **Mimics of gallbladder adenocarcinoma**
   Sofia Papaioannou (GR)
4. **Chronic pancreatitis: A path to pancreatic cancer**
   Milica Mitrović (RS)
5. **Differential diagnostic clues for pancreatic tumors**
   Charina Triantopoulou (GR)

Hall HORIZONT

11.30-13.00 MY MOST CHALLENING CASES -

Moderators:
Lukas Dagdilelis (GR), Katerina Xinou (GR), Ksenija Mijović (RS)

1. Lukas Dagdilelis (GR)
2. Katerina Xinou (GR)
3. Dušan Šaponjski (RS)
4. Ksenija Mijović (RS)
5. Smiljana Kocić (RS)
6. Aleksandar Pavlović (RS)

Hall BEOGRAD

11.30-13.00 INTERVENTIONAL RADIOLOGY II

Moderator:
Okan Akhan (TR), Jovica Šaponjski (RS)

1. **HCC: the role of local ablation**
   Okan Akhan (TR)
2. **Endovascular treatment of extracranial carotid artery disease**
   Vladimir Cvetić, Borivoje Lukić (RS)
3. **Treatment of vascular pancreatic lesions**
   Davor Mrda (RS)
4. **Effects of oxygen ozon therapy of low back pain-three years follow up**
   Kristina Davidović (RS)

13.00-14.00 BREAK

Hall ATRIUM

14.00-15.30 BREAST IMAGING II

Moderator:
Vanesa Bešlagić (BIH), Mirjan Nadrljanski (RS), Dijana Nićiforović (RS)

1. **Imaging of the high-risk premalignant breast lesions**
   Ayşenur Oktay (TR)
2. **BI-RADS 3 lesions: diagnostic evaluation**
   Vanesa Bešlagić (BIH)

3. **Needle localization of breast lesions**
   Maja Jakimovska Dimitrovska (RNM)
4. **MRI and CESM-guided biopsy: advantages and challenges in routine use**
   Mirjan Nadrljanski (RS)

Hall HORIZONT

14.00-15.30 FOCUS SESSION III: LUNG CANCER: WHAT SHOULD I KNOW?

Moderators:
Ruža Stević (RS), Dragana Šobić Šaranović (RS)

1. **Atypical presentations of lung carcinoma**
   Ruža Stević (RS)
2. **TNM classification of lung cancer-pitfalls and limitations**
   Dragan Dragišić (RS)
3. **The role of PET CT in the lung cancer staging**
   Dragana šobić Šaranović (RS)
4. **RECIST 1.1 criteria in lung cancer response evaluation**
   Vesna Stokanović (RS)
5. **Radiological treatment of oligometastatic lung cancer**
   Biljana Šeha (RS)

Hall BEOGRAD

14.00-15.30 UROGENITAL RADIOLOGY II

Moderators:
Deniz Akata (TR), Olivera Nikolić (RS)

1. **Deep endometriosis**
   Deniz Akata (TR)
2. **Biparametric prostate MRI**
   Atadan Tunaci (TR)
3. **US evaluation of varicocele: Recommendations of the ESUR SPIWG**
   Athina Tsili (GR)
4. **Cystic female pelvic masses**
   Olivera Nikolić (RS)

Hall ATRIUM

15.30-17.00 JRF / RTF - A SHIFT IN A DAY / NIGHT OF RADIOLOGIST

Moderators:
Vesna Njagulj (RS), Milena Spirovski (RS), Kristina Ivošević (RS)

1. Radmila Perić (RS)
2. Slobodan Torbica (RS)
3. Ivana Stojić (RS)
4. Aleksandar Ragaji (RS)
5. Stefan Stojanoski (RS)
6. Kristina Polak (RS)
7. Uroš Mirčić (RS)
8. Ivan Andjelković (RS)
9. Vesna Babić (RS)
10. Maja Popović (RS)
11. Jovana Tončev (RS)

Hall HORIZONT

15.30-17.00 HANDS ON IN MSK

Hall BEOGRAD

15.30-17.00 ONCOLOGY IMAGING II

Moderators:
Nikolaos Courcoutsakis (GR), Silvija Lučić (RS)

1. **Findings of peritoneal carcinomatosis in the small bowel: Radiologic – Pathologic correlation**
   Nikolaos Courcoutsakis (GR)
2. **Regional Lymphadenopathy in head and neck cancer - what, where and why?**
   Svetla Dineva (BG)
3. **PET/CT in Oncology**
   Silvija Lučić (RS)
4. **MR imaging in 3D brachytherpy for cervical carcinoma**
   Aleksandar Tomašević (RS)

Hall BEOGRAD

17.30-18.00 CLOSING CEREMONY AND AWARDS

Balkan Society of Radiology

POSTER PRESENTATIONS

PP01

Ana Glavinkova, Svetla Dineva
Bulgaria

A rare case of partial anomalous venous return

Abnormal pulmonary venous return is a congenital cardiovascular condition in which pulmonary veins do not connect with the left atrium. There are two main types of abnormal pulmonary venous return – total, in which all pulmonary veins form a collector before draining to systemic veins , and partial in which some of the veins have normal left atrial drainage and others do not follow the expected path. There is a rare subtype - partial anomalous venous return with dual drainage - where a single pulmonary venous ostium is opened both to the left atrium and a systemic vein.

In our case, we present an asymptomatic 5-year-old girl with a heart murmur detected during a routine visit to the general practitioner. After an examination from a paediatric cardiologist and some additional tests a suspicion for a congenital anomaly was raised. We performed a contrast enhanced computed tomography of the thoracic cardiovascular structures. A rare form of partial anomalous venous return was reported – the left upper lobe veins have normal drainage to the left atrium, but at the same time there was a vertical vein connecting their common trunk to the left brachiocephalic vein. Via this anomalous path (left superior pulmonary vein-vertical vein-left brachiocephalic vein-superior vena cava) a significant left-to-right extra-cardiac shunt was suspected because collateral right chambers enlargement was present as well. The results from the CT scan were discussed with paediatric cardiothoracic surgeons. The multidisciplinary team determined that an endovascular closure of the vertical vein is the most appropriate treatment for this case.

PP02

Milena Spirovski, Tanja Popov, Mila Kovacevic, Aleksandra Milovancev, Andrej Preveden, Andrea Ljubotina Milanovic, Miroslava Sladojevic, Aleksandar Redzek
Serbia

Magnetic resonance imaging in the diagnosis of anomalous origin of the left coronary artery

Anomalous origin of the left coronary artery is a rare congenital anomaly, accounting for less than 0.5% of all congenital heart defects. The disease is usually diagnosed in childhood, so the prevalence in adult population is extremely rare.

A 42-year-old female patient was referred for a cardiac magnetic resonance imaging (MRI) with suspected communication between the aorta and the pulmonary artery on echocardiography. She had severe headaches of unexplained etiology, occasional palpitations and left parasternal pain irradiating to axilla. MRI did not confirm communication between the aorta and the pulmonary artery, with a relatively balanced flow. However, an anomalous origin of the voluminous left coronary artery from the pulmonary trunk was observed, with visible collaterals. A normal origin of the voluminous right coronary artery from the right aortic coronary sinus was registered. The patient underwent catheter coronary angiography, that confirmed anomalous origin of the left coronary artery, followed by

surgical correction. The postoperative period was accompanied with occasional ventricular tachycardias, that resolved after several months and she has been without symptoms for ten years now, she is physically active and without arrhythmias, loss of contractility or function on follow up exams.

Magnetic resonance imaging, although not the initial or primary method of choice for the evaluation of coronary arteries, absolutely enables the diagnosis and assessment of anomalous origin of the coronary arteries non-invasively and without ionizing radiation. Evaluation of cardiac MRI should always include attention to the origin of the coronary arteries, since this, although rare anomaly, can lead to arrhythmias, syncope and sudden death.

PP03

N. Janeski, R. Vidakovic, N. Rakonjac, S. Kocic, P. Milicevic, M. Panic
Serbia

Delayed post-contrast phases of Cardiac CT as a possibility to confirm infiltrative cardiomyopathy - case report

Introduction:

Infiltrative cardiomyopathies are usually examined by Cardiac MR as the method of choice. Cardiac CT is the method of choice for assessing findings of the coronary arteries, but with the advancement of technology, it is possible to confirm the existence of pathological changes in the myocardium in the form of infiltrative and fibrous changes in the myocardium. This is made possible by the use of delayed postcontrast phases at an interval of 5-7 minutes after IV administration of iodinated contrast.

The aim:

Presentation of a case of a patient with suspected infiltrative cardiomyopathy through visualization on delayed post-contrast phases of a Cardiac CT.

Material and methods: An 85-year-old patient was examined with ECG-guided Cardiac CT with non contrast, angio and delayed phases on a 640 ms CT unit at KBC Zemun in August 2023.

Results:

The patient has an implanted cardioverter defibrillator and it is contraindicated to have MR examination of any kind. A Cardiac CT was performed on the native phase to assess the Ca score, angio phase to assess the coronary arteries and one delayed phase after 7 minutes from the start of iodine contrast administration. Evaluation of the myocardial septum was not possible due to artifacts from the IBD device electrode. Hypertrophy of the myocardium as a whole was verified. What is more important is that late post-contrast enhancement was observed at a delayed phase in the visible parts of the myocardium subepicardial up to 50% of the wall thickness, which indicates the existence of a possible infiltrative process, such as amyloidosis.

Conclusion:

Delayed-phase on Cardiac CT can serve as an alternative to Cardiac MR examination for patients in whom MR examination is contraindicated to confirm the presence of late enhancement in the infiltrative or fibrotic process in the myocardium.

PP04

Sofija Marković, Mihajlo Korać, Predrag Popović, Nenad Janeski
Serbia

Doppler-verified pseudoaneurysm of the AFS as a complication of a coronary intervention – a case report

Introduction:

Arterial pseudoaneurysms are caused by damaging arterial walls. When injured, blood penetrates from vessels through individual layers or all layers of the wall and collects in surrounding tissue. Cause of pseudoaneurysm can also be iatrogenic, after diagnostic and therapeutic procedures. Most common location of iatrogenic pseudoaneurysms is the femoral artery, especially after coronarography with an incidence of 0,6-4,8%.**The aim:** The aim of this study is to show the importance of Doppler techniques in diagnosing pseudoaneurysm and monitoring further course, without using other imaging methods.

Material and methods:

Material used for this study is patient medical history and the method is Doppler examination of the inguinal region on GE-LogiqP9 ultrasound.

Case report:

A 64-year-old male patient with unstable angina pectoris was hospitalized. Laboratory tests, echocardiography and coronarography performed via right femoral artery, indicated three-vessel coronary artery disease. Cardiologists decided to performe PCI and implant one stent. The procedure went without complications, after hemostasis hematoma, murmur and pain in the right inguinal region appeared. A Doppler examination of the blood vessels of this region visualizes a complex pseudoaneurysm that communicates with the AFS with a thin neck immediately after the fork of the AFC. A yin-yang sign was detected with color doppler, while to-and-fro flow was registered with pulse doppler. The patient was treated conservatively and during hospitalization, the patient's condition was monitored with Doppler examinations. The pseudoaneurysm didn't enlarge, and the pain stopped. The last control Doppler showed almost complete thrombosis of the pseudoaneurysm with still minimal CD flow in the neck itself, after which the patient was discharged.

Conclusion:

Arterial pseudoaneurysms are rare but complex complications that must be monitored by CD examination until complete closure due to risks of further hemorrhage, rupture, and the vascular surgeon's assessment of which therapeutic approach is the most effective.

PP05

Sonja Janković Sonja, D Ilić, Dragan Stojanov, Isidora Janković,
Mihailo Svetozarević
Serbia

Congenital anomalies of the inferior vena cava with azygos and hemiazygos continuation

Introduction:

Anomalies of the inferior vena cava (IVC) are very rare, with an incidence of 0.3% of otherwise healthy individuals and 0.6% to 2% of patients with coexisting cardiovascular

defects. Anomalous continuation of IVC is an even rarer abnormality, with a prevalence of 0.6% in azygos and hemiazygos continuation of IVC. The failure to form the corresponding vein anastomoses is considered the main cause during embryonic development.

Aim:

The aim of this work is to bring to the radiologists' attention and summarize imaging findings in congenital anomalies of the inferior vena cava with azygos and hemiazygos continuation.

Discussion:

Azygos and hemiazygos continuation of IVC is most commonly associated with an interruption/agenesis of suprarenal/infrahepatic IVC segment, duplicated IVC, left-sided IVC and infrarenal interruption of IVC. There are multiple possible pathways of venous drainage. In the absence of a suprarenal IVC segment, the most common path includes either the azygos vein through the superior vena cava or the hemiazygos vein and subsequently into the azygos vein. Alternatively, the hemiazygos vein may drain directly into the coronary sinus in case of a persistent left-sided superior vena cava or the left brachiocephalic vein. One of the main clinical importance of these anomalies is the potential for misdiagnosis during imaging. They can be mistaken for retrocrural lymphadenopathy, mediastinal or paraspinal mass or even an aortic pathology. Moreover, a precise knowledge of the anatomical variation of the IVC is crucial during surgery and endovascular procedures when they may cause difficulties in vascular access, such as abdominal aortic aneurysm repair, radical nephrectomy, organ transplantation and IVC filter placement.

Conclusion:

Knowledge and recognition of IVC congenital abnormalities are essential to patient diagnosis and treatment. Although anomalies of the IVC are extremely rare, radiologists should be aware of and should always include and precisely describe them in the radiologic report in order to avoid significant complications and misdiagnosis.

PP06

Vesna Celic Kukric
Bosnia and Herzegovina

Cardiac MRI in a Patient with Focal Myocardial Hypertrophy: A Case Report

Introduction

Cardiac magnetic resonance imaging offers additional advantages over other diagnostic methods for various myocardial conditions and serves as the gold standard for assessing potential heart tumors.

The aim

The aim of this case report is to demonstrate that cardiac MRI can detect left ventricular tumor lesion in an adult patient who had previously been diagnosed with focal hypertrophic cardiomyopathy through clinical assessments.

Methods

In this case, a 51-year-old male patient presenting with symptomatic arrhythmia, dizziness, and elevated blood pressure was referred to the Department of Radiology at the University Clinical Center of the Republic of Srpska, where a cardiac MRI was performed following the standard protocol.

Results

The cardiac MRI reveals focal thickening in the anterolateral and anteroseptal walls of the left ventricular myocardium at the basal and mid-cavity levels. This thickening appears uniformly isointense with the rest of the left ventricle and right ventricle myocardium in cine sequences. HASTE T2 sequences show hyperintensity within the wall thickening, perfusion sequences demonstrate complete enhancement of the lesion, early post-contrast sequences exhibit increased signal intensity within the lesion compared to the surrounding myocardium, and late post-contrast sequences reveal a heterogeneous appearance of the lesion with predominantly high signal intensity. There are no calcifications within the lesion, and no obstruction is observed in the left ventricular outflow tract.

Conclusion

Primary cardiac tumors are rare, often involving mediastinal tumors that infiltrate the heart or secondary deposits in the heart. Although the patient had previously been diagnosed with focal hypertrophic cardiomyopathy, the cardiac MRI confirmed the presence of a myocardial tumor mass.

PP07

Miloš Dujović, Milan Pantelić, Tamara Vučinić, Dedijer Dujović Suzana, Nataša Radujković
Serbia

The correlation between plasma D-dimer levels and computed tomography pulmonary angiography in detection of pulmonary embolism

Introduction

The diagnosis of acute pulmonary embolism (PE) mainly rests on D-dimer measurement and computed tomography pulmonary angiography (CTPA). The use of D-dimer alone for screening and diagnosing PE remains controversial.

The aim

The aim of study was to compare the utility of plasma D-dimer levels for diagnosing PE with that of CTPA as gold standard.

Materials and methods

This was a retrospective analysis of 1387 consecutive patients with suspected PE at Clinical Hospital Center Zvezdara between January 2015 and December 2022. For all patients blood was sampled before thrombolytic therapy was administered. D-dimer levels were measured using an automatic system. CTPA was used to diagnose PE and was performed within 12 hours of blood sampling using a 16-detector CT scanner (GE LightSpeed), pulmonary embolism protocol and SmartPrep technique. ROC curve analysis was performed to evaluate the diagnostic utility of D-dimer levels, with CTPA as the gold standard.

Results

Using CTPA we identified PE in 1128 of 1387 (81.3%) analyzed patients and detected 259 (18.7%) patients without obvious abnormality. Using a threshold value of 1.1 mg/L FEU (fibrinogen-equivalent units) for D-dimer level, the diagnosis of PE was achieved with a sensitivity of 95.8%, specificity of 50.0%, negative predictive value of 80.0%, positive predictive value of 91.3% and accuracy of 89.5%. D-dimer levels were significantly higher in patients positive for PE on CTPA than in those negative for PE on CTPA (7.82±5.14 vs.

2.85±2.25 mg/L, P=0.001). The optimal threshold value for D-dimer level in the diagnosis of PE was 1.7 mg/L, based on ROC curve analysis.

Conclusion

D-dimer levels correlate with the extent of PE on CTPA. D-dimer could be a fast and simple screening method for excluding a diagnosis of PE.

PP08

Dušan Krstić, Miroslav Mišović, Dejan Kostić, Milan Božinović
Serbia

Continuous radiological follow-up of a patient with Kartagener's syndrome: a case report

Introduction

Kartagener's syndrome is a rare autosomal recessive genetic disease characterized by a triad of symptoms: bronchiectasis, ciliary dyskinesia and situs inversus. We present a case of a patient with Kartagener's syndrome to highlight the importance of continuous radiological monitoring. The incidence of this disease is estimated at 1 case per 15,000 to 30,000 live births. Because of this, continuous monitoring is important in order to better understand its epidemiology, genetic basis, and approaches to diagnosis and therapy.

The goal

The aim of this paper is to show radiological changes and complications in a patient with Kartagener's syndrome, as well as to emphasize the importance of regular follow-up in order to enable early diagnosis and adequate therapy.

Material and methods

This work presents a 46-year-old man with a diagnosis of Kartagener's syndrome, who presents to the Pulmonology Clinic of the Academy of Medical Sciences as part of the follow-up of the underlying disease. At the age of nine, he was diagnosed with situs inversus, and in 2008, bronchial asthma, while in 2014, a lobectomy was performed on the lower lobe on the left side. The patient underwent regular radiological follow-up, including chest radiography and MDCT.

Results

Changes in the bronchial structure, pulmonary complications and position of internal organs were monitored. A progression of bronchiectasis was observed in relation to previous radiographs and MDCT examinations. Also, changes in the position of internal organs associated with inversion and the condition after lobectomy were noted.

Conclusion

This case of a patient with Kartagener's syndrome illustrates the importance of continuous radiological monitoring of this rare disease. Chest radiographs and MDCT examinations provide key data for early detection of changes in the condition and timely correction of therapy, which can significantly improve the quality of life of patients.

PP09

Maja Nijemčević, Ratko Stamatović, Vesna Nešović, Dejan Kostić, Miroslav Mišović
Serbia

Pleurocutaneous Fistula – Case Report

Introduction:

A pleurocutaneous fistula is defined as a pathological communication between the pleural space and subcutaneous tissue. It can occur as a complication of infectious processes, neoplasms, foreign body aspiration, or iatrogenic procedures. Diagnosis is typically made through classical radiography - fistulography, MDCT (Multidetector Computed Tomography), MR (Magnetic Resonance), or ultrasound examination.

Objective:

To demonstrate the capabilities of classical radiography - fistulography in diagnosing pleurocutaneous fistulas.

Materials and Methods:

A 57-year-old patient who underwent right-sided wedge sleeve pneumectomy 17 years ago due to squamous cell neoplasm developed episodes of fever a few months ago and was treated for right-sided pleural empyema with conservative therapy. Due to the appearance of a wound on the right hemithorax wall with purulent discharge, the patient was admitted to the Clinic for Thoracic and Thoracic Surgery at VMA. During the course of treatment, the patient was referred for fistulography.

Results:

A fistulous opening without secretion is observed on the skin of the right hemithorax under the mamillary region. The chest X-ray shows the postoperative condition after right-sided thoracotomy and excision of the anterior end of the third rib on the right. The right hemithorax is narrowed, there is an elevation of the right hemidiaphragm, and a pleural effusion shadow is present. There is a displacement of mediastinal organs to the right side. Contrast medium was applied through the fistulous opening using an 8F dilator. The fistulous canal is displayed with a length of approximately 77 mm, a width of up to 7 mm, directed cranio-posteriorly. The contrast medium in the pleural cavity fills the pleural space, forming a collection, thus confirming the presence of a right-sided pleurocutaneous fistula.

Conclusion:

It is important to recognize such pathological communications for appropriate therapeutic procedures and to prevent complications.

PP10

Slađana Novković Ostojić, Dragan Dragišić, Bosiljka Krajinović
Serbia

Necrotic mediastinal lymphnode – an unusual sarcoidosis presentation - Case report

Introduction:

Sarcoidosis is multisistemic disease which can affecting any organ and/or organ system. Extratoracaly typically involves the skin and eyes. Thoracaly sarcoidosis starts with enlarged

hilar and mediastinal lymph nodes with formation a multiple changes in the lung parechyma up to fibrosis. Its tipical pathological presentation is non- necrotic granuloma, while necrotic granuloma are rare.

Case report:

A 37 years old man presented with palpitation and shortness of breath. The chest Xray and computed tomography confirmed hilar and mediastinal lymphadenopathy without any presented pathology lung parenchyma changes. Lung biopsy showed epitehelioid cell granulomas with Langhans and giant cell reaction with caseose necrosis inside a few granulomas. Positron emission tomography- computed tomography confirmed bilateral hilar end mediastinal lymh nodes envolment and indicated the extension of the disease to the hepatic and hepatoduodenal lymph node.

Conclusion:

Well knowledge of atypical clinical, imaging features and diagnostic criteria for excluding diferent disorder with necrotizing granulomas plays a crucial role in timely diagnosis and application of appropriate treatment.

PP11

Milica Stojković Rudić, Borislav Stanković, Milan Božinović
Serbia

Acquired tracheoesophageal fistula

Introduction:

Acquired tracheoesophageal fistula is a pathological communication between the trachea and the esophagus, which occurs extremely rarely, and is most often a complication of malignancy and surgically placed tracheostomy. Acquired tracheoesophageal fistula is diagnosed by endoscopy and MDCT. Endoscopy allows determining the location and size of direct communication in real time. MDCT can not clearly visualize the lumen of a collapsed tracheoesophageal fistula, therefore it is not the gold standard in diagnosis.

Objective:

To present the clinical possibilities in the diagnosis of acquired tracheoesophageal fistula.

Material and methods:

A 20-year-old patient was admitted to the Clinic for Neurosurgery due to a fracture of the second cervical vertebra, post-traumatic subarachnoid hemorrhage, and tracheoesophageal fistula caused by traffic trauma. As part of the diagnosis, the following methods were performed: MDCT of the head, chest, esophagogastroduodenoscopy and bronchoscopy.

Results:

Initially, MDCT of the whole body was indicated on admission, which showed a linear hypodense banded structure connecting the lumen of the trachea and esophagus, which was described as a suspected tracheoesophageal fistula. After MDCT of the whole body, esophagogastroduodenoscopy and bronchoscopy are indicated. Esophagogastroduodenoscopy and bronchoscopy confirmed the finding described on MDCT.

On the control MDCT of the chest with intravenous application of a contrast medium, a structure suspicious for a tracheoesophageal fistula was observed on the left side of the trachea.

Conclusion:

The standard MDCT examination of the chest is the first diagnostic method that can be used to suspect a tracheoesophageal fistula, which can be further verified by endoscopy, fully assessed and a definitive diagnosis can be made.

PP12

Sanja Vunjak, Milorad Bijelović, Dragan Dragišić, Ivan Ergelašev, Dragana Tegeltija, Slađana Novković Ostojić
Serbia

Synchronous Multiple Primary Lung Tumors (sMPLT)- A Case Presentation

Multiple primary synchronous lung tumors represent the occurrence of two or more primary tumors discovered simultaneously in different parts of the lungs.

We present a case of a 55-year-old patient with symptoms of high fever, a persistent dry cough, chest pain over the past two weeks, and unexplained weight loss. The patient was referred to the Institute of Pulmonary Diseases of Vojvodina, where a localized collection was noted on the chest X-ray examination in the admission ward, posterior basal on the right side and a previously performed chest CT confirmed a localized pleural effusion on the right side, along with a smaller air inclusion and a distinct gas-liquid interface consistent with pyopneumothorax and empyema, in addition to that, multiple stripe-like opacifications consistent with atelectasis were observed on the same side, as well as a lobulated tumor lesion with smaller intralesional excavated zones in the lower left lobe. Following the thoracentesis of the right pleural space, evacuation of purulent contents, and achieving satisfactory re-expansion of the right lung, the patient underwent preoperative preparation and surgical intervention, including video-assisted thoracoscopy. During the procedure, an infiltrative lesion seen on the CT scan in the lower left lobe was palpated, along with the discovery of another synchronous primary lung tumor in the upper left lobe. The pathological analysis revealed that the tumor in the resected lower left lobe corresponded to poorly differentiated adenocarcinoma, while the atypically resected lesion in the upper left lobe corresponded to squamous cell carcinoma (SCC).

Multiple primary synchronous lung tumors are rare, and a definitive diagnosis relies on clinical, radiological, and histopathological analyses. The collaborative effort of various subspecialties in thoracic pathology, including thoracic surgeons, thoracic radiologists, pathologists, and pulmonologist oncologists, plays a crucial role in the timely diagnosis and treatment of patients with lung cancer. The choice of treatment for these tumors depends on the clinical stage of the disease, the patient's overall health status, and a comprehensive assessment of operability and resectability.

PP13

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Radiology diagnosis related to gossypiboma – a case report

Introduction.

Retained surgical bodies may appear after surgery that lead to harmful consequences such as chronic inflammation and even sepsis, a condition known as Gossypiboma. The aim of the study was to present a radiological imaging importance discovering retained surgical bodies.

Material and Methods.

A case report was a female patient at the age of 39 year after 4 month period of Sectio Cesarea. She visted Urgent Unit due to abdominal pain, high temperature of 40 C and was immediately submitted to Ultrasound sonography (US) and computerized tomography (CT).

Results.

A heteroechogenous substrate was detected in the abdominal cavity by US, when CT was immediately indicated. In the central parts of the abdomen, a tubular kidney substrate was seen with an approximately 27mm of length. The heterogenous density substrate with gas collections without accumulation of contrast agent in the post contrast series was found. At the surgical intervention, US and CT results were confirmed when retained gaze was found with purulent content with fibrous capsule formed by the large omentum and partially by intestinum. The patient was diagnosed with chronic granulomatous inflammation by surgical alien bodies with acute supurative peritonitis after partus at stadium of adhesive organization.

Conclusion.

US and CT are important imaging methods to discover retained surgical bodies after Sectio Cesarea and other surgical interventions in general.

PP14

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Penetrating gastric ulcer-diagnostic challenge (case report)

Introduction:

Penetration of gastric ulcers into adjacent organs is a rare event.Giant gastric ulcers are gastric ulcers greater than 3 cm in diameter. They represent between 4% and 25% of all gastric ulcers and typically present in the sixth or seventh decade of life. Perforated ulcers accounts for 2%-14% of peptic ulcers; however, a penetration into liver is rare.

The aim:

To represent a rare case of penetrating gastric ulcer.

Material and Method:

Female patient 80 years old reports to Emergency department with acute abdominal pain and melena.During physical examination, the abdomen was with diffuse pain, and manifest gastrointestinal bleeding was not detected. Laboratory analyses showed increased factor of inflammation. Ultrasound revealed signs of pneumoperitoneum and two liquid collections with gas inclusions subhepatically close to the stomach as well as one suspect in the left lobe of the liver. CT afterwards showed hidropneumoperitoneum with one liquid collection and one hematoma.Further exploration was observed penetrable ulcer of the stomach in the left lobe of the liver. The patient underwent immediate surgery. Intraoperative, CT findings were confirmed.

Conclusion:

Diagnostic challenge is that it is not shown in all cases manifested by gastrointestinal bleeding, but very often by non-specific symptoms. The problem of radiological detection of this condition is that ultrasonography as an incinesible diagnostic method if there is an isolated penetration into the parenchyma of limited specificity and ensitibility because there is a wide range of differential diagnoses of liquid collection in the liver parenchyma.

PP15

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Gallbladder perforation in the Emergency Radiology Department – frequency and causes

Introduction:

Gallbladder perforation can occur due to cholecystitis, trauma, neoplasm, steroid use, or vascular compromise. It has been classified into three types: acute free perforation into the peritoneal cavity, subacute with pericholecystic abscess, and chronic with cholecystenteric fistula formation. The subacute form is the most common, but the neoplastic etiology is not. The prompt diagnosis is the most important and the first imaging method of choice is the ultrasound with the additional CT, and if necessary the MRI. The therapy is urgent cholecystectomy.

The aim:

To show the frequency of gallbladder perforation and its most common causes in everyday work, as well as importance of the imaging for the right and quick diagnosis.

Materials and methods:

In the Emergency Radiology Department of the University Clinical Center of Serbia we had seven patients with gallbladder perforation from 1st February till 1st August 2023.

Results:

Of the seven patients with gallbladder perforation, in six (86%) the perforation was seen on the ultrasound examination (US) and confirmed by computed tomography (CT) and intraoperative, but in one patient (14%) it was seen neither by the US nor CT (described as cholecystitis with pericholecystitis). In five patients (71%) perforation was caused by an inflamatory process and two (29%) by a tumor (with pathohistological verification). Six patients (86%) were male and one patient (14%) was female, but both patients with tumors were male. In one patient with a tumor, MRI was also done and confirmed that the etiology of the perforation is most likely neoplastic which is definitively proven pathohistologically.

Conclusion:

Considering that this is an urgent, life-threatening condition, the imperative is the prompt diagnosis with US and CT and finally cholecystectomy.

PP16

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Acute mesenteric ischemia in an old patient: A case report of a challenging diagnostic disease

Introduction:

Acute mesenteric ischemia (AMI) is a rare but emergency disease resulting from the impaired blood flow of mesenteric vessels, leading to bowel ischemia. The unspecific presentation may confuse physicians and delay a timely diagnosis; hence, the mortality rate is

high.In old patients accounts for about 10% of cases of acute abdominal pain. The etiology of AMI can be occlusive, non-occlusive or mixed.**The Aim:**To indicatethe spectrum of CT findings of acute mesenteric ischemia, since early diagnosis and timely intervention are important for improving outcomes.

Material and methods:

An 82-year-old male patient who presented to the emergency department complaining about acute onset of diffuse abdominal pain. Past medical history was noteworthy for hypertension,atrial fibrillationand diabetes mellitus type II. The clinical examination revealed hypoactive bowel sound and periumbilical guarding.The patient underwent urgent non-contrast enhanced abdominal CT due to poor renal function.The next day, a contrast enhanced abdominal CT was performed.

Results:

The initial CT scan showed multiple dilated loops of small bowel with extensive intramural air and gas in superior mesenteric vein branches, setting the suspicion of ischemia. The following contrast enhanced CT revealed no proximal occlusion of the superior mesenteric artery or of major mesenteric veins, peritoneal free fluid, non-enhancing bowel wall, portal venous and superior mesenteric vein gas and pneumatosis intestinalis almost in the entire small bowel.

Conclusion:

The diagnosis of non-occlusive mesenteric ischemia was made. Having considered the patient's medical state, he was given palliative treatment and died one day later. A diagnosis of AMI in old patients demands a high index of suspicion. Imaging is essential, with contrast-enhanced CT being the gold standard.

PP17

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Serbia

Surprising Culprit Behind Postpartal Hematuria: A Case Report

Introduction:

Postpartal hematuria is often a diagnostic challenge due to its multifaceted etiology, typically attributed to obstetric trauma, urinary tract injuries, or bleeding disorders.

Aim:

Our experience with an unexpected yet apparent cause of postpartal hematuria compels us to present this intriguing case.

Material and Methods:

We report an unusual case involving a 30-year-old female with a spontaneous twin pregnancy, successfully delivered via cesarean section at 36 weeks of gestation. The day following her surgery, the patient exhibited gross hematuria and experienced a decline in hemoglobin levels from 108g/L to 96g/L within 5 hours. She was promptly admitted to the emergency room for further assessment. Suspecting an iatrogenic urinary injury, a CT urography was ordered by the urologist.

Results:

The imaging revealed a postpartal uterus containing intraluminal clots and gas, alongside a massive pelvic hematoma, measuring up to 15cm in size. This hematoma extended

supravesically, retrovesically, and parametrially, with cranial propagation into the left retroperitoneum. Intraperitoneal free fluid of blood density was also observed. Surprisingly, no apparent injury to the urinary tract was detected. However, the unusual positioning of the urinary catheter raised suspicion, prompting a cystography that confirmed intravaginal contrast administration. The catheter was expeditiously repositioned in the bladder, and a repeated cystography ruled out urinary injuries. Subsequently, the patient was referred to the obstetrics clinic, where she underwent a relaparotomy. The procedure involved hematoma extraction, hysterectomy, bilateral adnexectomy. Vaginal mucosa injury was noted and sutured. Methylen blue installation revealed no bladder leakage.

Conclusion:

This case underscores the critical need for comprehensive evaluations in cases of postpartal hematuria, as an apparent cause may be easily overlooked or even false. Furthermore, it underscores the paramount importance of advanced imaging techniques and meticulous diagnostic procedures in identifying and managing postsurgical complications. Such practices are essential for ensuring timely and appropriate interventions that optimize patient outcomes.

PP18

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A rare case of Gossypiboma after duodenal ulcer surgery: case report

Introduction:

Gossypiboma, also called textiloma or cottonoid, is a term used to describe a pseudotumor resulting from retained surgical material in the body after surgery. The word is derived from Latin "gossypium" (cotton) and Swahili "boma" (hidden place). The abdominal cavity is the most common place of retained surgical material. Gossipiboma has a variable presentation, depending on size, location and inflammatory response. The exudative response leads to the formation of an abscess around the foreign body, while the aseptic fibrotic response leads to the encapsulation of the surgical material by avascular tissue. Patients may remain asymptomatic for a long time or may have vague pain and palpable mass formation. Emergency procedures with heavy blood loss, lengthy surgeries and obesity are thought to be some of the main risk factors for this condition.

Case report:

We present an 80-year-old patient referred to our institution due to pain in the epigastrium, hematemesis and melena, blood pressure 150/70mmHg, heart rate 100/min, HGB: 56 g/L. In the personal anamnesis, information about duodenal ulcer surgery from 15 years ago is obtained. For the purpose of a further diagnostic evaluation, an ultrasound and then an MDCT of the abdomen were performed, which showed an inhomogeneous, dominantly hypodense (about 20 HU) mass in the wall of the D2 duodenum, measuring 130x76x100mm (LLxAPxKK), with extraluminal propagation. The change is clearly lined with amorphous marginal and intralesional calcifications, as well as bleeding zones. After an urgent medial laparotomy was performed, the mass was examined and sent for histopathological analysis which revealed that it was pseudocystic necrosis surrounded by a calcified fibro-inflammatory capsule with bleeding zones and remnants of artificial fibrous material.

Conclusion:

Gossypiboma is a rare surgical complication, but it causes serious morbidity and even mortality if not diagnosed on time. This entity should be included in the differential diagnosis of every radiologist in patients with pain, infections and palpable masses in the postoperative course.

PP19

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Case report: Intestinal intramural hematoma

A male patient, 80 years old presented with nose bleeding, a massive arm bruise, abdominal pain and exhaustion. This condition occurred three days ago from the moment of admission. Past medical history included: hypertension, diabetes and atrial fibrillation after myocardial infarction (2 years ago). The patient had a history of Farin therapy, 2.5 mg two times daily for 1 year for atrial fibrilation.

Blood examination revealed an elevated INR of 9.94.

Abdominal ultrasound revealed a large wall thickening of duodenum and jejunum, echogenic submucosal layer and free abdominal fluid.

For more detail a MSCT scan of the abdomen was performed, and showed whole duodenum and proximal jejunum circumferential mural thickening with precontrast hyper-density, luminal narrowing and free fluid of higher densities.

Most common side effect of anticoagulant drugs is bleeding. Bleeding in the form of intramural hematoma of the small intestine is rare, seen in 1 out of 2500 patients, but the history of anticoagulant therapy use in patients presenting with abdominal pain should alert doctors.

After the diagnosis of anticoagulant intoxication was confirmed, in this case conservative treatment with correction of coagulation parameters was conducted, with satisfactory results.

In this patient, radiological resolution of the hematoma was noted on a follow up MSCT 6 weeks after onset.

Spontaneous intestinal intramural haematoma is a rare clinical entity. It should be considered in any patient on long term anticoagulation. It is important to correctly diagnose this condition in order to avoid unnecessary surgical intervention. MSCT can be of key importance for the diagnosis of the small intestine hematoma.

PP20

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Serbia

Massive pneumoperitoneum caused by typhlitis with cecum perforation

Introductio

Typhlitis, also known as neutropenic colitis, is inflammation of the cecum that most commonly occurs in immunocompromised patients. Although it is typically localized to the cecum, typhlitis can extend to the terminal ileum, ascending colon, or appendix. The

most common mechanism believed to contribute to its development is a compromised mucosal barrier due to the use of cytotoxic drugs in combination with severe neutropenia. Clinically, it presents with fever, nausea, vomiting, abdominal pain, peritoneal signs, and, less frequently, the presence of blood in the stool. Typhlitis often leads to complications such as peritonitis or perforation, necessitating surgical intervention.

Methods

We present the case of a 64-year-old female patient who had undergone multiple pleural punctures, resulting in the development of partial hydropneumothorax as a complication, with microbiological isolation of *Enterococcus faecalis* from the effusion. This patient had a history of cardiac issues, de novo arrhythmia, cardiomegaly, arterial hypertension, bronchial asthma, and cellulitis of both arms. On admission, the patient reported rectal bleeding as the sole gastrointestinal symptom. Laboratory analysis revealed a WBC of 3.1x10^9/L, with a NEU count at the lower limit of reference values, 2.6x10^9/L, showing a downward trend.

Material

A suspicious pneumoperitoneum was identified on chest radiography, prompting a CT abdominal scan.

Results

The CT scan revealed a massive pneumoperitoneum without a clearly identified site of gastrointestinal perforation. However, there was reduced opacification of the cecal wall, a thinned, hypodense cecal wall, and pericecal fat tissue edema. The patient underwent surgery, during which a significant amount of purulent content was observed, along with a microperforation of the cecal wall located 10cm from the Bauhin valve.

Conclusion

Despite a subtle clinical presentation and an unclear cause of immunocompromise, radiological signs such as the absence of wall opacification and markedly hypodense cecal wall may suggest typhlitis. Timely diagnosis is crucial to prevent complications.

PP21

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Serbia

A rare case of perihepatitis associated with a perforated gastric peptic ulcer with hiatal hernia type 3- The role of CT

Introduction:

Perforation is a relatively uncommon, life-threatening complication of peptic ulceration, often present with acute abdomen.

Fitz-Hugh-Curtis syndrome is perihepatitis (inflammation of

peritoneum and tissue around the liver) caused by pelvic inflammatory disease, but there may be other causes.

Case presentation:

An elder-age male presented to emergency department with exhaustion and abdominal pain. Patient appeared hypotensive, tachycardic, with a high level of CRP. Abdominal plain radiography was normal, and ultrasound revealed peritoneal fluid and perihepatic adhesions. A CT examination followed, and the findings indicated ascites, hiatal hernia type 3

(figure 1.), gastric wall thickening, perigastric fat stranding with punctate gas inclusions (figure 2. and 3.). Arterial phase showed increased rim enhancement along the hepatic surface - perihepatitis (figure 4.). The patient underwent immediate surgery which confirmed a perforated prepyloric ulcer and perihepatic adhesions.

Discussion:

In case of perforated hollow viscus, clinically suspicious findings associated with pneumoperitoneum on plain abdominal radiography are sufficient for laparotomy, otherwise, CT is indicated.

Perihepatitis is an inflammation of the liver capsule and tissue around the liver, associated with the perihepatic adhesions.

On an arterial-phase on CT, the inflammation and the increased blood flow of the peritoneum is manifested as intense enhancement of the liver capsule.

Perihepatitis is usually associated with pelvic inflammatory disease (PID) caused by C. trachomatis or N. gonorrhoeae, which is described as Fitz-Hugh-Curtis syndrome.

Infrequently, perihepatitis can be caused by other pelvic as well as any peritoneal infections.

In the case of ulcer perforation, gastric and duodenal contents penetrate the peritoneal cavity, which leads to chemical and suppurative peritonitis.

Conclusion:

Perihepatitis is a rare condition, especially without association with PID. By presenting this case, we aim to highlight the significance of CT findings and the possibility of association of perihepatitis with peritonitis caused by a perforated peptic ulcer

PP22

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A case of perforated jejunal diverticulitis

Authors:

Introduction

Jejunal diverticulitis is a rare disease that usually occurs in the elderly. It may present with an acute abdomen but is difficult to diagnose clinically because the symptoms mimic other conditions (appendicitis, colonic diverticulitis, or Chron's disease).

The aim

To present radiologic findings in patients with perforated jejunal diverticulitis, usually with nonspecific clinical presentation.

Material and methods

We present a case report of a 69-year-old man who presented to the emergency department with left lower quadrant pain and leukocytes (10 x 109 L) and severely elevated CRP (215.6 mg/ml).

Results

Ultrasonography revealed thickening of the jejunal wall with inflamed diverticula with peridiverticulitis, laminar infiltrates of fluid and local pneumoperitoneum with concomitant inflammation of the left colon. On CT, we found an edematous wall of the middle segment of the jejunum in the left hemiabdomen with inflamed diverticula at the antimesenteric side

with clear defect in the wall with local pneumoperitoneum and peridiverticular abscess collection with "fat stranding" of the surrounding mesentery. Emergency surgery was performed. At surgery, the CT report was confirmed. A 20 cm resection of the jejunum with end-to-end anastomosis was done. The patient has successfully recovered and was discharged after 2 weeks without complications.

Conclusion

It is important to raise awareness of this disease because perforation and other complications are common if the disease is not recognized by the physician. CT is a necessary diagnostic tool for the final diagnosis.

PP23

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Case report of cardiac rupture after a blunt trauma

Introduction

Blunt cardiac trauma is diagnosed in less than 10% traumatic patients. Cardiac rupture with pericardial tear is a very rare diagnosis, and some studies reveal that they are identified in 0,002% cases only. The diagnosis is difficult and challenging for the radiologist who is on the first line in treating traumatised patient.

The aim

Analysis of CT findings in a patient with the proven cardiac rupture - case report

Material

58-year-old female patient who was injured in a car accident, with a direct impact. Upon admission hypotensive, hemodynamically unstable, unconsciousness, on dopamine support. A CT scan for polytrauma performed immediately, the following revealed: right massive hemothorax, a small pericardial effusion and bilateral serial rib fractures with lung contusions. Suspiciously, on the right cardiac atrium, next to the VCS, there is a minor wall defect with a small contrast pull. After the placement of a thoracic drainage catheter by the thoracic surgeon, there was 1200 ml of hemorrhagic content, a thoracotomy was performed and a large amount of hemorrhagic content was evacuated identifying pericardial laceration with an active bleeding lesion from laceration auricle of the right atrium. The cardiac surgery team takes care of the lesion with suture material and pledgets. The patient is relocated to the intensive care unit in a stable condition.

The result

CT findings of the thorax multiple injuries, in the first place a massive hemothorax, it indicates to look for the signs of possible heart injuries.

Conclusion

Heart ruptures as a result of blunt trauma are extremely rare, with a low survival rate and the diagnosis of these injuries represents a diagnostic challenge for the radiologist. Analysis of the radiological examination, which detects indirect and possibly direct signs of heart injuries, enables the survival of these patients.

PP24

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Gallstone ileus: An unusual cause of intestinal obstruction

Introduction:

Gallstone ileus (GSI) is a severe complication of cholelithiasis where a stone enter the intestinal tract through a biliary-enteric fistula and causes mechanical obstruction. Its prevalence is very low, but mortality rate is high (7-30%).

Case report:

An 69-year-old woman attended the emergency department with a complaint of abdominal pain associated with vomiting and constipation in the last 3 days. She has a previous history of hypertension and diabetes mellitus and had appendicitis surgery.

Clinical examination revealed a epigastric pain.

Routine blood tests were unremarkable.

Abdominal X-ray showed gas in the biliary ducts and choledochus duct and ultrasound of the abdomen showed emphysematous cholecystitis (Figure 1).

A non contrast-enhanced computed tomography (CT) of the abdomen demonstrated pneumobilia with fistulous connection between a collapsed empty gallbladder and the duodenum (Figure 2). Opacity about 4.0 cm impacted in the duodeno-jejunal junction associated with secondary inflammatory reaction was also identified (Figure 3).

The laparotomy with cholecystectomy and cholecystoduodenal fistula closure was performed. The patient was discharged after 7 days without complications

Discussion:

GSI is an extremely rare cause of bowel obstruction (1-4% of all cases), it is a disease of the elderly and has a female predominance, with considerable morbidity and mortality. It commonly occurs due to the passage of a solitary large stone through a biliary-enteric fistula into the bowel.

Conclusion:

GSI is a rare but important cause of bowel obstruction. The diagnosis may be very difficult, but abdominal CT is a crucial diagnostic aid. Surgical management is the treatment of choice to prevent the complications of bowel obstruction.

PP25

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Accidental penetrant injuries to the head and neck

Introduction:

Accidental injuries to the head and neck area have recently occupied a significant place in the field of traumatology. Clinical examination and timely diagnosis are important, which are the main guides in the general approach to solving the condition of patients with such injuries. If we

take into account the fact of the wealth of significant structures which are located by topography in that area, as well as the possibility of their lesions with manifest profuse bleeding, and the task is all the greater. They are usually wounds that are caused by a blade and/or blunt force, and consequently, the way in which they were caused leaves and consequently imposes on us the task of how to care for them. Taking into account the characteristic of the trauma, the time elapsed since the same as the current status of the patient, decisions are made very quickly in order to win a race against time for the general well-being and health of the patient.

Aim:

To present the incidence, etiology, occurrence of accidental neck injuries and consideration of the modality and proper approach to their treatment through the creation of treatment algorithms.

Material and methods:

The study included 12 patients from the Department of Neurotraumatology, University Clinical Center of Serbia, Belgrade, Republic of Serbia who required urgent and urgent surgical assistance. To show the algorithms of the way of treatment and treatment of patients with such type of injuries and the requirements that were created before us during the solution of the resulting conditions.

Results:

The possibility that certain vital structures have been injured is potentially very high, therefore, timely and valid diagnostic procedures that include MDCT and CT angiography are very important to us, in order to provide us with sufficient information and determine the operative action. The extent to which we can rely only on a clinical examination without diagnostic supplements is only in those situations when there is a very pronounced hemorrhage that threatens to put the patient into hemorrhagic shock, and a surgical approach and care lead quickly to its resolution. The actual action plans will depend not only on the specific patient with such an injury, but also on the available personnel and professional potential of the institution that can take care of it.

Conclusion:

The structures at risk in such neck injuries are primarily the airways, vascular structures - primarily the main blood vessels, esophagus, spinal column including the spinal cord, lower cranial nerves and brachial branches. The thoracic duct is also at risk, especially in wounds positioned on the left side of the neck. In this work, we wanted to point out the specifics of such injuries, the way they are treated and diagnosed. Showing that timely action ultimately has a quality of life for such patients.

PP26

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Trauma of the facial massive-panfacial fractures

Introduction:

Panfacial fractures are defined as those that simultaneously involve the upper, middle and lower part of the face. There is no clear definition and classification of panfacial fractures in the literature. Panfacial fractures, as defined by Follmar et al. are fracture patterns

involving at least three of the four axial segments of the facial skeleton: frontal, upper middle, lower middle, and lower face. Panfacial injuries most often occur as a result of traffic accidents, interpersonal violence, sports accidents, industrial accidents and gunshot wounds. Mechanism of injury helps identify impact energy as well as estimate the likely extent of injury. Open fractures are considered an emergency, which makes planning the treatment of a panfacial fracture very challenging. Panfacial fracture treatment planning is a demanding process. The timing of operative management remains controversial. Multisystem injury is often associated; therefore, treatment is often multidisciplinary. Dislocation of the fracture and degree of comminution are decisive guidelines in the choice of surgical procedures. Panfacial fractures are often associated with soft tissue injuries and loss of bony structures that can lead to severe post-traumatic deformities and disabilities. Early treatment of fractures facilitates reduction and avoids damage to soft tissues.

Aim:

The goal of treating panfacial fractures is to restore the function and aesthetic three-dimensional contour of the face, as early as possible. However, the ideal positioning of complex panfacial trauma fragments remains the greatest challenge for any maxillofacial surgeon. Dislocation of the fracture and degree of comminution are decisive guidelines in the choice of surgical procedures.

Matherial and methods:

Research conducted on the fundus material of patients who were treated in the Intensive Care Unit at the Neurotrauma Center, University Clinical Center of Serbia, Belgrade. Procedures, treatment algorithms according to our protocols with which we take care of them. In the published literature, two classic approaches to the management of panfacial trauma are described; namely "from the bottom up and from the inside out" or "from the top down and from the outside in". The preferred repair and osteosynthesis begins with the reconstruction of the lower jaw, including temporomandibular joint fractures. In the next step, the fronto-facial and zygomatic-orbital compartments are reconstructed; they are crucial for the subsequent reconstruction of the middle of the face.

Results:

In our study, the average maxillofacial correction time was 9 days since most of our patients had associated systemic or neurological injuries; it also took time for the edema to resolve. All our patients received oral corticosteroids for a faster reduction of edema; antibiotics were also prescribed to prevent infection.

Conclusion:

Treatment of panfacial trauma enables the correct restoration of the shape and function of the face. It seems that panfacial fractures are complex and difficult to treat, but with an organized and proper approach, it is possible to rehabilitate and stabilize such complex fractures with osteosynthesis, but complications after surgery cannot be easily avoided in terms of minor or major deformities.

PP27

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Double duct sign, malignant or not?

Introduction

The double duct sign refers to the presence of dilatation of both the common bile and the pancreatic ducts. It is more used as an anatomical/ radiological sign andcan be seen on all modalities imaging the region, including ultrasound, CT, MRI, MRCP, ERCP. The general rule that has been established is that it represents a malignant cause, until disproved.

The aim

The most common etiology is the carcinoma of the head of pancreas, followed by ampullary tumors, such as carcinoma of the ampulla of Vater. Less common causes also include malignant, such as distal common bile duct cholangiocarcinoma and ampullary metastases and non-malignant ones, such as impacted gallstone in distal duct, chronic pancreatitis and ampullary stenosis. Our aim was to find out if this sign refers predominantly/only to malignant causes or other non-malignant ones can be find out.

Material and methods

In our Radiological Department, we collected a number of interesting cases over 3 years, demonstrating different causes of double duct sign.

Results

Most cases referred to a malignant cause, with the carcinoma of the head of pancreas leading the race, followed by ampullary tumors, distal bile duct cholangiocarcinoma, pancreatic metastasis and IPMN with invasive carcinoma. On the other hand, non-malignant causes such as distal choledocholithiasis, fibrosis due to chronic pancreatitis, IgG4 cholangitis, autoimmune pancreatitis, are less common but still exist.

Conclusion

The double duct sign represents a malignant cause until proven otherwise, but we should always also have in mind non-malignant causes. Finally, in patients with jaundice a malignant cause is much more likely, whereas its absence makes a malignant etiology unlikely.

PP28

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Diagnostic significance of conventional X-ray examination in achalasia type assessment according to modern classification

Introduction:

Conventional esophagography is significant and essential in "real-time" visualization of contrast passage through the esophagus giving direct visualization and characterization of contraction type and degree of esophageal emptying, as well as assessing the position and width of the esophageal body.

Aim:

Define the parameters of conventional X-ray examination with barium contrast agent by analyzing the morphological and functional characteristics of the esophageal body, for determining the types of achalasia, in correlation with the manometric findings.

Material and methods:

The cohort group involved 100 patients with monometrically confirmed achalasia (55 males, 45 females) at the University Clinical Center of Serbia. The study of 6 years was designed as a clinical prospective study approved by the Ethics Committee with the written consent of each patient. The main condition was the positive manometric findings for achalasia as the first diagnostic examination in the algorithm.

Results:

Results: There was a statistically significant difference in the esophageal body measured in the coronal position and lateral-lateral diameter between groups ($p<0.001$), as well as between the type 1 and 2 ($p<0.001$), 2 and 3 ($p=0.001$), 2 and 3 ($p=0.011$) with the cut-off value for discrimination ≤40cm. Similar findings were found in the anteroposterior diameters with the statistically significant difference ($p<0.001$, $p<0.001$, $p<0.001$, and $p=0.029$, respectively) with the cut-off value for discrimination ≤33cm.

Good agreement was found between manometry and X-ray examination in the assessment of achalasia type ($\kappa = 0.789$), while overall diagnostic reliability was evaluated as 88%.

Conclusion:

X-ray examination of the esophagus with barium contrast is a radiological method that enables fast and accurate diagnosis of achalasia and assessment of its type with satisfactory reliability based on real-time visualization for evaluation of functional characteristics.

PO29

Marko Miletić, Vladimir Cvetić, Borivoje Lukić, Milica Mitrović
Serbia

Pelvic Hematoma And Active Bleeding Due To Knife Attack – Successful Embolization of Inferior Gluteal Artery

Introduction:

Interventional vascular radiology plays a major role in the management of acutely traumatized patients with signs of active bleeding. In a minimally invasive way, the detection of the bleeding source and the exclusion of that blood vessel from the circulation is achieved. We present a case of a 24-year-old patient who presented with a knife wound to the right gluteal region and significant blood loss. Computed tomography scan showed the stab wound and formed hematoma in the perirectal space with diameter of 65 mm with extravasation of the contrast.

The Aim:

By presenting this case, we want to demonstrate successful endovascular treatment in a young patient who, due to a stab wound in the region of pelvic floor, had signs of active bleeding with a formed hematoma.

Material and Methods:

Utilizing contralateral retrograde transfemoral approach, superselective catheterization of the right internal iliac artery branch was performed. Angiography confirmed acute hemorrhage and the source of bleeding was inferior gluteal artery. Two coils 4mm x 4 cm and 4mm x 6 cm were placed through the microcatheter.

Results:

After the placement of the coils, a control angiography was performed, which showed the correct position of the coils and no signs of active bleeding. Hemostasis of the puncture site was successful without complications. After a short recovery, the patient was released for home treatment with gradual resorption of the hematoma.

Conclusion:

By presenting this case, we point out the importance of emergency diagnostics and minimally invasive management in the treatment of acute bleeding. In recent years, interventional radiology is in great expansion and it becomes the method of choice in treatment of acute hemorrhage.

PP30

Lejla Hajdarpašić, S. Radosavljević, V. Dobrilović, M. Đorđević, P. Adnađević, T. Kosanović
Serbia

Case report: A case of gastric pneumatosis associated with hiatal hernia type IV

Gastric pneumatosis is an extremely rare condition characterized by the presence of air in the stomach wall. Two variations can be distinguished based on the cause of the gas. Infection by gas-forming organisms within the gastric wall can lead to emphysematous gastritis. On the other hand, gastric emphysema develops when gas within the gastric lumen is forced into the gastric wall through a mucosal breach, which may be brought on by traumatic, pulmonary, or obstructive causes.

A 73-year-old male was presented to the emergency department for sudden-onset abdominal pain associated with dark vomit, melena, and feeling generally unwell. A physical exam revealed diffuse epigastric tenderness without peritoneal irritation signs. Blood tests showed hyperleukocytosis of 19 million, hemoglobin levels of 159 g/l, and C-reactive protein of 4.1 mg/l. His prior medical history included CVI, atrial fibrillation, an abdominal aortic aneurysm, and a gastric ulcer.

An ultrasound of the abdomen demonstrated a large amount of gas obstructing the visualization of the abdominal organs as well as free fluid in the small pelvis. A native abdominal x-ray showed gas under the left hemidiaphragm and in the biliary tract. The existence of bowel pneumatosis was suspected, so a non contrast CT scan of the abdomen was performed due to high values of urea and creatinine. A CT scan showed a large hiatus hernia type IV in the chest, which contained part of the stomach, free fluid, and part of the transverse colon. The stomach was distended by the type of gastrectasis up to the level of the collapsed duodenum and was in an inverted position, which was suspicious at the site of the volvulus. The transverse and ascending colons in the abdomen collapsed and had a ribbon-like appearance at the level of the hiatus. Computed tomography showed diffuse and circumferential air at the walls of the stomach and distal esophagus and hepatic portal venous gas in the liver. The patient underwent an open laparotomy, transhiatal subtotal esophagectomy, and total gastrectomy. The transverse colon was repositioned with the omentum. The patient was discharged after 13 days without complications.

Acute stomach ischemia is a grave, perhaps fatal, vascular disorder. When present, it is the main cause of hepatic portal venous gas and is linked to a high death rate of 85%.

The most common method of diagnosis is CT, which has excellent sensitivity and specificity for detecting it as well as the ability to determine its underlying etiology. Early identification and care are crucial for better outcomes.

PP31

Marija Stojičić, Željka Kovačević, Milanka Mitrović, Dragan Mašulović
Serbia

Cystadenocarcinom as a rare pathological finding in appendiceal mucocele

Background:

Appendiceal mucoceles represent the dilation of the appendix lumen due to the accumulation of mucous secretions. They are relatively rare, occurring in approximately 0.3% of appendectomy cases, with a higher incidence in women and typically affecting individuals around the age of 55. About 75-90% of them are benign.

The primary symptom is most commonly pain in the right lower quadrant of the abdomen, while approximately a quarter of patients are asymptomatic. On ultrasound examination, mucoceles appear as tumor-like formations filled with fluid content and can be completely anechoic, but they may also have septations and echoes corresponding to mucous material.

On CT examination, a mucocele typically appears as a tumor mass filled with fluid of water density or, less commonly, soft tissue density. Sometimes, calcifications may be visible within the wall or lumen. However, the presence of a heterogeneous mass with nodular changes in soft tissue density or a cystic mass with a soft tissue component suggests appendiceal mucinous cystadenocarcinoma. Perforation occurs in approximately 46% of cases.

Case report:

The patient presented to the Emergency Department with lower right quadrant abdominal pain, without accompanying nausea and vomiting. After ruling out gynecological causes of the symptoms, an ultrasound examination was performed, followed by MDCT scan. The MDCT scan revealed a tumor-like transmural irregular thickening of the cecum wall, along with a cystic, peripherally calcified lesion with a diameter of 37 mm. This finding could correspond to a mucocele or mucinous adenocarcinoma of the appendix.

Following the colonoscopy and subsequent right hemicolectomy, the sample was sent for pathological analysis. The obtained data revealed that it was a cystic tumor-like lesion with an ulcerated inner surface and extensive mucin production. Furthermore, it was found that the lumen of this lesion communicated with the cecal lumen.

Conclusion:

Due to the potential for complications such as torsion, rupture, intussusception, and the presence of malignant tumors, it is important to establish a diagnosis of appendiceal mucocele, which necessitates resection. Although the occurrence of invasive appendiceal cystadenocarcinoma is rare, with a 5-year survival rate of only 25%, it is essential to correlate surgical, radiological, and pathological findings.

PP32

N. Rakonjac, dr N. Janeski, dr J. Latov Bešić, dr M. Tubic Milojević, dr T. Gligorić, dr V. Prodanović

Primary liver tumor with multiple thromboses of large blood vessels - case report

Introduction:

Primary liver tumors (HCC or CCC) can be associated with vein thrombosis of the portal vein system or hepatic veins either directly by invasion and compression of the tumor on the veins or indirectly as part of the paraneoplastic syndrome. As part of thrombosis of the hepatic veins (Budd-Chiari syndrome), the thrombosis may spread to IVC, and as part of the paraneoplastic syndrome, development of thromboembolic changes in the pulmonary arteries may also occur.

The Aim:

Case presentation of a large primary liver tumor with progression of thrombotic changes in portal vein and hepatic veins between two imaging scans.

Material and methods: A 44-year-old patient was examined on an abdominal MR examination at the beginning of August and then on a abdominal CT examination at the end of August 2023.

Results:

MR examination of the abdomen verified the existence of large focal change of the liver with thrombosis of the right hepatic vein, after which a biopsy of the liver was performed and PH verified CCC liver tumor. The patient had elevated markers of inflammation and prothrombotic factors in laboratory analyses. After the deterioration of the patient's condition, ultrasound examination of the abdomen was first performed, where the appearance of ascites and effusion in the right pleura, along with hemorrhage inside the tumor, was verified. On an urgent CT examination, findings from the US examination were verified and further dissemination of thrombotic changes was found: spreading of the thrombus from the right hepatic vein to the IVC, thrombosis of the right portal vein and finding of thromboembolic changes in lower pulmonary arteries.

Conclusion:

Large vein thrombosis is a relatively common complication of primary liver tumors and must be confirmed by imaging methods in order to plan an appropriate therapy in combination with the treatment of the primary disease.

PP33

Sofija Radosavljević
Serbia

Case report: Rare case of adult colocolic intussusception

Intussusception presents as telescoping of a bowel segment with its mesenteric fold into the adjacent distal bowel. This condition is a rare ocurrence in adults, representing 5% of all bowel intussusceptions and 1% of all bowel obstructions, and 50-75% are caused by malignant lesions.

A caucasian female patient aged 68, with no family history of colon cancer was admitted in the emergency surgical department following persistent abdominal and rectal pain over

the course of last two weeks, along with frequent nausea, diarrhoea, occasional mucus and blood in feces. Bloodwork revealed hemoglobin levels of 67 g/l and iron 2 μmol/l.

Upon rectal examination, there was a palpable mass around 2 cm from the anocutane line.

Abdominal ultrasound revealed a circular wall thickening of the rectum with inflammation and edema of the surrounding adipose tissue.

A contrast enhanced CT scan was then performed, revealing a colocolic rectosigmoid intussusception with a low-density soft-tissue tumor mass as the lead point, with moderate upstream dilatation and suboclusion, and a thin layer of free fluid in the pelvis. There was no signs of remote dissemination.

This intususception was successfully treated by left hemicolectomy and primary anastomosis, with no postoperative complications. The patient was discharged on the seventh postoperative day.

Histopathological examination of the surgical specimen concluded a moderately-differentiated colonic adenocarcinoma.

Colocolic intussusception can present through a wide range of symptoms, causing trouble with differential diagnosis. Considering the probability of a malignancy in adult colocolic intussusceptions, precise diagnostic methods are crucial, and the diagnostic value of computed tomography scanning with intravenous contrast is is invaluable.

PP34

Stefan Milošević, Katarina Stošić, Milica Mitrović Jovanović, Dušan Šaponjski, Aleksandra Janković, Jelena Kovač, Ljubica Lazić, Aleksandra Đurić-Stefanović
Serbia

Double gallbladder complicated with cholelithiasis and acute cholecystitis

A 77-year-old patient was referred to our clinic with right upper quadrant pain and nausea. Physical examination showed positive Murphy sign. Blood analyses revealed elevated inflammatory markers.

Abdominal ultrasound (US) revealed two separate gallbladders, one of which had diffuse wall thickening, several intraluminal stones, and laminar pericholecystic fluid. Abdominal computed tomography (CT) also showed the presence of two gallbladders. The patient underwent magnetic resonance cholangiopancreatography (MRCP) which revealed two separate gallbladders with two cystic ducts.

Patient was treated conservatively with intravenous antibiotics. Surgery was indicated after withdrawal of inflammation. At laparoscopy two separate, thickened wall gallbladders with intraluminal gallstones were found and removed without incident. The patient had successful recovery and was discharged from hospital on the post-operative day two.

Discussion

Gallbladder duplication is a rare congenital biliary anomaly, typically discovered as an incidental finding during imaging studies. Patients are asymptomatic unless cholelithiasis or cholecystitis develops.

Double gallbladder can be classified into two types. The first one is bi-lobed gallbladder, caused by persistent longitudinal septum that divides gallbladder lumen into two chambers, with common cystic duct. The second type represents true gallbladder duplication with two separate gallbladders and two independent cystic ducts.

Ultrasonography is the imaging modality of choice for primary evaluation of gallbladder MRCP has an important role in determining the type of gallbladder duplication.

Conclusion

Patients with symptomatic gallbladder duplication should undergo surgical treatment with both gallbladders removal. Since anatomical variations of gallbladder are related to increased incidence of iatrogenic bile duct injuries during cholecystectomy, their preoperative diagnosis is very important.

PP35

Milica Živanović, Dragana Panajotović, Marta Petrović, Milena Trandafilović, Bogdan Stojiljković, Dragan Stojanov, Slađana Petrović, Slađana Ugrenović
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Anatomical variations of the sphenoid sinus septum and its relationship with the adjacent neurovascular elements

Introduction:

The sphenoid sinus (SS) represents a pathway in transsphenoidal surgery, but it also can be the origin of pathological processes that are often treated using functional endoscopic sinus surgery (FESS). The SS septum direction may dictate access to the sella turcica. Ideally, there is one complete septum oriented medially, which is not always the case.

The aim:

Examination of SS septum variations in its number, direction and incorporation into bone canals of adjacent neurovascular elements.

Material and methods: The research was performed as a retrospective study at the Radiology Center of the University Clinical Center and the Department of Anatomy of the Faculty of Medicine in Niš. It included 80 healthy subjects. We examined the number of main and additional septa, the main septum orientation, and the potential septal incorporation into the optic canal (ON), parasellar and paraclival internal carotid artery segment (psICA and pcICA), foramen rotundum (FR) and Vidian canal (VC).

Results:

Of all examined septums, the most subjects had 2 septums (33.75%), the highest detected number in one subject was 5 (3.75%), and the lowest was 1 (20%). The most subjects had one main septum (96.75%), which completely divided the SS. In 30% of cases, the septum was in the midline, while in the remaining cases, it was asymmetrical. Septal incorporation was most common in the pcICA and psICA (63.75% and 60%), while much less often in the other elements.

Conclusion:

During FESS, bleeding may occur as a complication, if the main or accessory septum has to be removed. This means that an excess septum can represent a risk. This complication comes to the forefront if the septum is incorporated into the carotid canal. Also, the adjacent nerves can be damaged by removing the incorporated septum.

PP36

Aleksa Janović, Biljana Miličić, Svetlana Antić, Đurđa Bracanović, Marijana Stanišić, Goran Krstić, Biljana Marković-Vasiljković
Serbia

Feasibility of using cross-sectional area of masticatory muscles to predict skeletal muscle sarcopenia in healthy aging subjects

Introduction

Determination of skeletal muscle mass (SMM) and sarcopenia is of tremendous importance in identifying patients at high risk of potential adverse health outcomes. Recent studies demonstrated a significant decline in masticatory muscle (MM) function in patients with sarcopenia.

Aim

This study aimed to analyze the computed tomography (CT) structure of MMs in patients with and without sarcopenia and to explore their predictive value in diagnosing sarcopenia.

Materials and methods

This retrospective cross-sectional study included 149 adult patients (59 (39.6%) males, 90 (60.4%) females, mean age 57.4±14.8 years) in whom head and neck CT examination was performed for diagnostic purposes. The selection criteria were a negative history of malignant disease, neurodegenerative and muscle disease, developmental jaw anomalies, and acute inflammatory diseases. A routine protocol was used to diagnose sarcopenia on CT scans: measurement of skeletal muscle cross-sectional area (CSA) at the C3 vertebral level, skeletal muscle index (SMI) estimation, and application of specific cut-off values for SMI. CSA of MMs (temporal, masseter, medial pterygoid, and lateral pterygoid) were measured bilaterally on reference CT slices. T-test explored the differences in MM CSA between patients with and without sarcopenia. Univariate and multivariate logistic regression (presented in Odds ratio (OR) and 95% Confidence Interval (CI)) analyzed the relationship between MM CSA and sarcopenia.

Results

Sarcopenia was diagnosed in 67 (45%) patients. Patients with sarcopenia had significantly lower CSA of all MM when compared to patients without sarcopenia. Univariate logistic regression demonstrated a significant association between all MMs CSA and sarcopenia. In the multivariate logistic regression model, only masseter (OR 0.480 (95% CI 0.288-0.800) and lateral pterygoid CSA (OR 0.536 (95% CI 0.327-0.878) were significantly associated with sarcopenia.

Conclusion

CSA of masseter and lateral pterygoid muscle can be used as predictors of sarcopenia in healthy aging subjects.

PP37

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Greece

New anterior neck mass in a patient with a history of thyroidectomy due to thyroid cancer

Introduction:

An anterior neck mass encompasses a variety of disparate potential entities, either congenital or acquired in nature. The clinical context remains paramount, with the imaging providing a more concise interpretation to a more elusive clinically suggested diagnosis.

The Aim:

To determine the differential directionin a patient with a newly acquired anterior neck mass and a prior history of thyroidectomy due to papillary thyroid carcinoma.

Materials & Methods:

A 73-year-old male patient, with a history of thyroid gland surgical removal due to cancer, presents with a palpable anterior neck mass and referenced dyskataposis. The clinical examination revealed erythema, oedema and mentioned pain on the anterior-mid part of the neck. The initial clinical consideration sought toexclude thyroglossal duct carcinoma as a possible diagnosis.

The ultrasound depicted a lesion located above the hyoid bone just sinistrally to the midline. The lesion echoed a complex cystic appearancewith intrinsic thin septations, internal punctate hyperechoic areas and comet-like artifacts, peripheral hypervascularity and a "tail" towards the midline. A diagnosis of an inflamed thyroglossal duct cyst was suggestedand was followed by a computed tomography (CT) scan of the neck without contrast administration.

Results:

The CT scan result displayed a well-circumscribed, thin-walled and low-density lesion with internal septations, located slightly above, anterior to and on the left of the hyoid bone and was confirmed to be a thyroglossal duct cyst.

Conclusion:

Although important to consider differentially, a thyroglossal duct cyst carcinoma remains infrequent while other, more prevalent diagnoses of an anterior neck mass could be examined first to avoid unnecessary patient distress.

PP38

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Turkey

Sinonasal myeloid sarcoma, developed in an acute myeloid leukemia case

Introduction:

A 41-year-old patient with the diagnosis of Acute myeloid leukemia(AML),underwent to Allogeneic cell transplantation and developed neutropenic fever,abdominal pain, abdominal distension and nasal obstruction afterwards.

Aim:

To present the potential aids of Paranasal CT in the diagnosis of sinonasal tumors.

Material-Method:

Paranasal CT was performed in 16 slices Toshiba Acquillon CT scanner with 1 mm slice thickness in coronal plane and 0.5 mm in axial plane.

Results:

In Paranasal CT**:** A hypodense expansile heterogeneous soft tissue lesion was observed which was filling the left frontal, ethmoid, maxillary and sphenoid sinuses and was causing bone destruction. Frontoethmoidal recess and the osteomeatal unit were closed on the left side.

Mild mucosal thickenings were observed in the right maxillary, ethmoid, frontal and sphenoid sinuses, right frontoethmoidal recess was also closed, right osteomeatal unit was clear. There was no typical fungal infection findings

Nasal turbinates were not observed on the left, and there was prominent bone destruction in the left orbital floor and medial orbital wall.

Biopsy and histopathology yielded **Myeloid granulocytic sarcoma.**

Discussion:

There were several cases of myeloid sarcoma described with Leukemia, especially in children and the association of AML/Paranasal Myeloid sarcoma has been described in a few studies in adults.(1-3) Our case has contributed to the relevant literature in this respect.

Conclusion:

The patient's chemotherapy and steroid treatment for AML was still continuing in our Hematology department.

PP39

N. Janeski, S. Kocic, I. Blazic, M. Jovanovic, R. Kovacevic, P. Popovic
Serbia

Sialolithiasis and sialoadenitis of the submandibular salivary gland on MR examination - case report

Introduction:

Inflammatory and infectious findings in the salivary glands in the form of acute sialoadenitis can occur idiopathically, but also due to obstruction of the excretory ducts by calculi of sialolithiasis. Routinely, these pathological conditions are verified with US examinations, and only in special cases associated with recurrent infections, advanced imaging methods of CT and MR diagnostics should be used.

The aim:

Presentation of a case of sialoadenitis and sialolithiasis of the submandibular salivary gland visualized by MR examination.

Material and methods: A 75-year-old female patient was examined by MR examination on a 1.5T machine with the use of Gd contrast.

Results:

The patient presented for an MR examination of the neck after recurrent sialoadenitis (5x in the last 2 years) of the right submandibular salivary gland, where US examinations verified sialoadenitis of the gland each time, once also with dilatation of the ducts, but with

no visible cause of obstruction. At the time of the MR examination, she was under initial inflammation and at the 1st day of antibiotic treatment. The MR examination itself verified a voluminous and edematous right submandibular salivary gland with minor dilatation of the excretory duct system. Calculus was detected at the level of the Wharton canal opening on the right side of the floor of the oral cavity as the cause of the obstruction of the flow of saliva and repeated inflammation of the salivary gland.

Conclusion:

Sialolithiasis as a cause of sialostasis and recurrent sialoadenitis is an important pathological finding that needs to be verified by imaging examinations before further ENT interventions.

PP40

David Stevanović, Ivan Ženilo, Miroslav Mišović, Dejan Kostić, Natalija Aleksić.
Serbia

Percutaneous drainage in the treatment of postoperative lymphoceles

Introduction

Lymphocele is one of the possible complications in surgery, which occurs due to the accumulation of lymph and the formation of a cystic collection. It develops in the region of the surgical incision. They are most commonly detected within six weeks after surgery, but can also be found up to eight years after organ transplantation. Spontaneous development of lymphoceles is rare. Treatment of symptomatic lymphoceles should be initiated with percutaneous drainage.

Objective

To present the possibilities of treating postoperative lymphoceles using percutaneous drainage performed by an interventional non-vascular radiologist.

Materials and methods

A 65-year-old patient was admitted to the Gastroenterology Clinic due to a cystic formation in the left hemiabdomen, detected on a follow-up scan, 3 months after left nephrectomy.

Results

Under ultrasound guidance, puncture of the mentioned cystic change was performed, a sample was taken for analysis, and then a pigtail drainage catheter, size 10F, was inserted after adequate dilation. The obtained material was sent for biochemical, microbiological, and cytological processing. No malignant cells were found in the cytological findings, but numerous erythrocytes and lymphocytes were found in the sediment, which most likely corresponded to a postoperative lymphocele. Therefore, the existing drainage catheter was replaced with a pigtail drainage catheter, size 12F, for a more efficient drainage process. Over the next 40 days of successive follow-up examinations, there was a gradual regression in the size of the pathological collection with a significant reduction in the drained content. On the last follow-up examination, complete regression of the pathological collection was observed, and after the application of contrast solution, the drainage catheter was shown to be successfully removed, indicating the completion of the drainage process.

Conclusion

Percutaneous drainage is the method of choice in the treatment of postoperative lymphoceles.

PP41

Vladimir Cvetić, Borivoje Lukić, Marko Miletić
Serbia

Successful Embolization of Renal Arteriovenous Malformations

Introduction:

Renal arteriovenous malformations represent anomalous connections between the intrarenal arterial and venous systems, typically arising from genetic mutations that disrupt the normal development of renal blood vessels. We present a clinical case of a 38-year-old female who was admitted with symptoms of nausea, vomiting and gross hematuria. Upon admission, a comprehensive evaluation, including computed tomography intravenous urography, identified the presence of arteriovenous communications within the right kidney.

The Aim:

The objective was to employ an endovascular approach for the purpose of excluding arteriovenous malformations within the right renal vasculature and preserving the substantial portion of renal parenchymal tissue.

Material and Methods:

Utilizing a left transfemoral approach, a selective catheterization of the right renal artery was performed. Angiography confirmed the presence of multiple arteriovenous communications and subsequent superselective catheterization with the utilization of a microcatheter was performed. Three microvascular plugs and two coils were placed within distinct of the right renal artery branches.

Results:

Upon conducting a control angiography, it was observed that there were no pathological arteriovenous communications present within the right kidney. Furthermore, a significant portion of the kidney parenchyma was successfully conserved. Hemostasis at the puncture site was executed without any complications. Subsequently, a follow-up cystoscopy performed several days later unveiled clear urine within the urinary bladder. Consequently, the patient was discharged home without any reported complaints.

Conclusion:

The endovascular management of renal arteriovenous malformations through embolization techniques may be the preferred therapeutic approach. This method entails the meticulous placement of vascular plugs or coils, allowing for the precise exclusion of arteriovenous communications, while simultaneously ensuring the preservation of the surrounding kidney parenchyma.

PP42

Isidora Janković, Aleksandra Aracki-Trenkić, Dragan Stojanov, Sonja Janković, Mihailo Svetozarević
Serbia

Mechanical thrombectomy in a patient with primary thrombophilia - case report

Introduction:

Primary thrombophilia represents a predisposition to forming blood clots, which leads to an increased risk of developing venous thromboembolism. Arterial involvement increases the

risk of myocardial infarction, stroke, and spontaneous abortion. Mechanical thrombectomy is an endovascular technique for removing blood clots by means of direct aspiration or stent retriever.

Case report:

A 19-year-old female patient with a sudden onset of left-side weakness and difficulty speaking was brought to the ED. Neurological examination showed left-sided dissociated hemiparesis, left-side central facial palsy and dysarthric speech disturbances, NIHSS 15. Initial MDCT examination of the endocranium with CT angiography was performed, showing occlusion of the M1 segment of the right MCA and early signs of ischemia in territories of the MCA frontotemporal right with an ASPECT score of 8. The patient did not receive intravenous thrombolytic therapy because she was outside the time window and was referred to the Center for Radiology for mechanical thrombectomy. OTP (onset-to-puncture) time was less than 6 hours. Selective DSA showed occlusion of the right ICA from the level of origin of the right PCoA. Extensive thrombotic masses were extracted by direct aspiration with the pump. Control angiograms showed complete recanalization of the right ICA, ACA, and MCA, as well as their distal branches, without restenosis, contrast imaging defects, and extravasation. TICI3 recanalization was achieved. After two days, an MR of the endocranium was performed, which showed subacute ischemia in the region of the basal ganglia on the right. The patient was discharged from the hospital in good general condition. After a month, blood analysis confirmed primary thrombophilia and suspected antiphospholipid syndrome.

Conclusion:

Mechanical thrombectomy represents the gold standard and the method of choice for the treatment of acute ischemic stroke in younger patients in whom onset to puncture is within 6 hours and in whom hemorrhage is excluded.

PP43

Andrej Petreš; Slobodan Torbica; Sanja Stojanović; Dragan Anđelić; Viktor Till
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Case report: Successful treatment of complication of endovascular dialysis access procedure

Introduction

Endovascular procedures are becoming the First-line treatment for hemodialysis (HD) vascular access dysfunction. It is a safe procedure and should be tailored to the individual patient's needs. Major complication rates following angioplasty in dialysis access are between 3 and 5%.

The aim

This case report aims to present a rare complication of fistula angioplasty and its treatment.

Material and methods

We represent two cases, of patients with chronic renal failure on hemodialysis. The patients were sent to the interventional radiology department by a vascular surgeon for significant stenosis of the vein segment of the AV fistula. Stenosis confirmed at physical and Color Doppler examination. Angiography also showed stenosis of cephalic vein and balloon dilatation was

performed. After dilatation, we detected cephalic vein thrombosis. In the first case, we aspirated the thrombus with manual aspiration catheter, in the second case we performed aspiration with the AngioJet thrombectomy system.

Results

On control angiography, an optimal result was obtained. Thrombus formation wasn't detected anymore. The fistula were patent, and hemodialysis proceeded smoothly.

Conclusion

Interventional radiology plays a vital role in the treatment of all the major disorders of hemodialysis access. Interventional radiologist should be a member of the dialysis team involved in the choice of optimal vascular access and management of possible complications.

In the treatment of AV fistula stenosis, it is extremely important to choose the optimum approach and material for work. The interventionalist must be prepared to manage these complications appropriately when they are encountered.

PP44

Darko Radinović, Behar Adžović, Tamara Tapušković
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Carotid stenting with contralateral carotid occlusion after the ischemic stroke

Introduction:

In the case of carotid atherosclerotic stenosis, contralateral occlusion is present in approximately 2.3% to 25% of cases. Contralateral carotid occlusion has been found to be at high risk for undergoing carotid endarterectomy due to perioperative stroke, transient ischemic attack (TIA) and high rate of mortality, and is traditionally an indication for stenting, which is associated with an increased risk of periprocedural death (in small percent), but not with stroke or TIA.

The aim:

To present the management of carotid stenosis by stenting, after a stroke in a patient with contralateral carotid occlusion.

Matherials and method:

It was performed percutaneous transluminal angioplasty of the carotid artery with a stent. During the diagnostic, planning and follow-up process we used the patient's medical history, CT of the endocranium and MSCT angiography of the neck and brain.

Results:

The patient comes to the Emergency Center due to dizziness, difficulty with speaking and weakness of the right arm, hypotensive. He previously knew for 70% stenosis of the right ICA. Emergency MSCT of the endocranium with head and neck angiography showed that there was no acute cerebral ischemia, but it showed 70% right ICA stenosis and left ICA occlusion on the vessel origin. It was indicated carotid artery stenting. Procedural access site was right CFA, Newt catheter, 5F. Sheath 23cm; 6F, Long sheet destination Terumo 7F. The place of stenosis is passed with Asahi Sion 0.014 wire. Spider FX filter wire protection was performed, then a Wallstent 9x40mm stent was implanted in the right ICA and post-dilatation with a Sterling 7x30mm balloon insufflation with the addition of two ampoules of atropine intravenously. There was a short-term cardiac arrest that passed after precordial

shock and the administration of atropine. The final finding was without residual stenosis, TICI 3 flows distally, and on the left were shown collaterals for the MCA basin across the Willis hexagon.

Conclusion:

In cases of carotid stenosis, such as our patient, contralateral carotid occlusion is an important predictor of periprocedural risk for carotid endarterectomy, but not for carotid stenting. Researches have shown that carotid stenting is a safe and effective method for such patients, which we can confirm with this case report.

PP46

David Stevanović, Igor Sekulić, Miroslav Mišović, Dejan Kostić
Serbia

Transjugular intrahepatic portosystemic shunt (TIPSS) in the treatment of portal hypertension and refractory ascites

Introduction

TIPSS is a procedure that creates a direct communication (shunt) between the portal and hepatic veins, aiming to reduce portal hypertension, ascites, and the risk of variceal bleeding caused by portal hypertension.

Objective

To present the procedure and its possibilities in a patient with alcoholic liver cirrhosis, portal hypertension, and refractory ascites.

Material and methods

A 65-year-old patient was admitted to the clinic of general surgery for clinical evaluation of alcoholic liver cirrhosis, with signs of portal hypertension and refractory ascites, for TIPSS placement.

Results

Using a right transjugular approach with a TIPSS introducer, the middle hepatic vein was accessed with a diagnostic catheter. After a control venography confirmed the proper position of the introducer, the needle of the puncture system was directed anteromedially and caudally, puncturing the main trunk of the portal vein through the liver parenchyma, and venous blood was aspirated. The correct position of the needle was confirmed, and a guide wire was inserted into the portal vein. A balloon, measuring 5mm x 60mm, was introduced over the guide wire, and pre-dilation of the liver parenchyma between the middle hepatic vein and the portal vein was performed. Subsequently, a balloon-expandable stent measuring 7mm x 57mm was placed, and a control venography confirmed the correct position of the stent. Another balloon-expandable stent of the same dimensions was placed inside the stent, and after contrast injection, the correct position of both stents was observed, with an excellent angiographic response and an established shunt between the middle hepatic vein and the main trunk of the portal vein.

Conclusion

TIPSS is the method of choice in the treatment of portal hypertension, ascites, variceal bleeding, hepatorenal syndrome, Budd-Chiari syndrome, and in patients who are candidates for liver transplantation.

PP46

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Serbia

Abscess development following subcutaneous placement of anti-alcohol abuse implant in a young adult male patient

Introduction

Disulfiram implantation is a widely used treatment alternative for alcohol abuse, where active substance acts by producing an acute and very uncomfortable reaction following alcohol intake. Studies have reported longer durations of abstinence with implantation of disulfiram compared to oral intake. However, study follow up of possible post implantation complications remains limited.

Case report

A 22 year old male patient presented in the emergency department due to right lower abdominal pain and flatulence. Patient reveals that in the area of maximum tenderness, he had Disulfiram implant for prevention of alcohol abuse which was implanted a week prior. Lab values revealed mild leukocytosis (11×10^9/l).

Abdominal ultrasound displayed a subcutaneous heterogeneous collection in right lower abdominal area (5x4cm in diameter) with oedema of surrounding fat tissue.

After ultrasound exam was performed, patient was given antibiotics and was scheduled to come for a check up.

Ten days later, patient came with same complaints, and second ultrasound revealed that collection has not decreased in size. Computerized Tomography (CT) exam was performed.

On CT exam, a subcutaneous fluid collection with opacified walls in anterior right pelvic wall, which is most likely to represent abscess, was noted. Intralesional hyperdense foreign object which represents implant was also noted.

Conclusion

Although it is a widely used and effective treatment alternative, it may come with certain complications which can be assessed sonographically or on CT exam and help with providing appropriate care.

PP47

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Turkey

A case of patella baja, causing patellar instability

Introduction:

A 58-year-old female patient was admitted to the Orthopedics outpatient clinic with complaints of limited motion of right knee, constant rolling and slipping sensation with crackling in the knee, recurrent pain at the posterior aspect of the knee. She was referred to our unit for Knee MRI after conventional Knee Radiography.

Aim:

Our aim in this patient was to diagnose possible Patella Baja variation with MRI and to rule out other possible causes of knee pain after the evaluation of classic Radiography

Material and method:

Knee MRI was performed in 1.5 T Scanner GE-Wisconsin-USA.Images were interpreted by a 15 years experienced musculoskeletal radiologist.

Results:

In non-enhanced right knee MRI; Significant inferolaterally displaced patella with very shallow-short,redundant and thick patellar tendon were observed, while accompanying prepatellar and pretibial edema was observed. Insall Salvati index (Patellar depth/Patellar tendon length) was calculated as approximately 0.56 in the sagittal planes. The Blackburne-Peel index calculated from the Lateral Knee X-ray was also 0.38.

Conclusion:

Patella baja, also known as patella infera,was the name given to an abnormally low positioned patella and was characterized by pain and limitation of movement,could be seen in poliomyelitis sequela, in bone fractures and after ACL reconstruction/osteotomy cases. MRI and Radiography with Insall Salvati index, Blackburne-Peel index calculations were used in the diagnosis(1-3).

PP48

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Serbia

Spontaneous intramuscular hematomas in patients with COVID-19: a comparison between computed tomography findings and clinical severity

Introduction

Hemorrhagic complications were reported more often in the COVID-19 patient. Despite increases in the incidence of spontaneous intramuscular hematomas (SMH), the relationship between computed tomography (CT) features and clinical severity remains unclear.

The aim

The aim of study was to evaluate the correlation between CT findings and clinical outcomes in SMH.

Material and Methods

We retrospectively reviewed data of 1169 CT examinations of Covid-19 positive patients performed at Clinical-Hospital Center Zvezdara in the COVID regime between 2020-2022 (275 days in total). SMH was morphologically classified according to the presence or absence of the fluid level pattern and was also divided into groups with or without extravasation as per CT findings. These CT findings were compared with the patients' vital signs and laboratory investigation results. The CT examination was performed on a 80-detector scanner (Canon Aquilion).

Results

SMH was detected in 12 patients (incidence 1.7/1000 hospitalized), 10 of them were men. All patients with SMH received anticoagulant therapy. The main distribution was in rectus abdominis muscle in 6 patients (50%). Relative to time of hospitalization women developed SMH earlier than men (average day 9 women, day 16 men) and in relation to the time of positive PCR (average day 11 vs. day 23). The intrahospital mortality rate from SMH was 33.3%. Fluid level and non-fluid level patterns were observed in 7 (58%) and

5 (42%) patients, respectively. Anticoagulant therapy and extravasation were significantly correlated with the fluid level pattern. However, other clinicolaboratory outcomes showed no significant difference between the two patterns. In the comparison of hematomas with and without extravasation, none of the clinicolaboratory outcomes except for anticoagulant therapy showed significant differences.

Conclusion

SMH with a fluid level pattern on CT is significantly associated with extravasation. However, extravasation does not seem to be related to clinical severity in SMH.

PP49

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Serbia

CREST syndrome – case report

Introduction:

CREST syndrome is a form of systemic sclerosis, which includes:

C-calcinosis (calcinosis), R - Raynaud's phenomenon, E - esophageal dysfunction,

S - sclerodactyly, T - telangiectasia. That is, it can be said that CREST syndrome causes thickening and tightening of the skin with the deposition of calcification nodes ("calcinosis").

Objective:

Significance of radiography in early diagnosis of CREST syndrome and musculoskeletal manifestations of this disease.

Material and methods:

A 34-year-old female patient has been treated for CREST syndrome for the past three years, on Methotrexate therapy. Since 10 days ago, he states that the calcifications in the region of both knees and both hands became inflamed.

Objective findings show telangiectasias on the face, tightness of the skin of the face and hands, calcifications on the joints of the fingers of both hands and both knees.

Results:

The patient was admitted to the Rheumatology Clinic of the MMA because of sudden pain and inflammation in the region of both knees and both hands. After a rheumatologist's examination and based on a previously known diagnosis, radiography of these regions is indicated.

On the radiographs of both knees, it can be seen that the tibiofemoral and patellofemoral joint spaces are bilaterally preserved in width.

In the projection of the soft tissues of both knees, prepatellar, pretibial and in the region of Hoffmann's fat pad, several irregular shadows of mineral intensity can be observed, the largest of which is on the right, measuring about 10 mm in diameter.

No other pathomorphological changes were observed on other bony structures in the region of both knee joints.

On the radiograph of the hand, it can be seen that the AP image is technically incorrect due to the cut off of the V finger on the right and the right wrist.

The image shows signs of juxtaarticular osteopenia.

In the projection of the fingers of both hands, the distal phalanx of the II finger on the left and the III finger on the right, the distal and medial phalanx of the II finger on the right,

as well as in the projection of the soft tissues of the II MT bone on the left, more shadows of mineral intensity are observed.The image shows signs of juxtaarticular osteopenia.

On the shown bones of both hands without other pathomorphological changes.

Conclusion:

Radiography is a reliable method for early diagnosis of CREST syndrome, and with a proper approach, it enables the resolution of differential diagnostic doubts as well as the planning of adequate treatment.

PP50

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Presentation of the characteristic findings of the US examination of the ankle joint

Introduction:

With the examination of the ankle joint, it is possible to check the condition of the tendinous-muscular structures around the joint, verify the existence of intra-articular effusions. The state of the ligamentous structures of the ankle joint can be partially evaluated by US examination, better with ligaments that are anterior and more superficial. Most of the indications for US examination of the ankle joint are the evaluation of post-traumatic conditions after larger and more severe distortions of the ankle joint with the need to assess the severity of US-visible injuries and the overall condition of the joint based on the assessment of effusion and edema around the joint.

The aim:

Presentation of a case series of US examination of the ankle joint with an assessment of the frequency of characteristic pathological findings.

Material and methods:

63 patients were examined by US examination of the ankle joint in the period from August 2022 to August 2023 at KBC Zemun and other smaller clinics.

Results:

With the examination of the ankle joint, the existence of intra-articular effusion was verified, either on pretalar or retrotalar spaces, in 49 examined patients. 37 patients had a pathological finding on the tendons in terms of tendinitis/the most frequently affected tendons were m. TibPost and m. PeronLong. Two cases of partial ruptures of the tendons were also detected - in both cases m. TibPost. An examination of the US visible parts of the ligaments revealed altered ligaments in 17 patients.

Conclusion:

With the examination of the ankle joint, pathological findings on the tendinous-muscular structures and the surrounding soft tissues as a whole can be evaluated, while the visualization of effusions and ligaments within the joint is partially possible.

PP51

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Mb Sudeck or complex regional pain syndrome (CRPS)– case report

Introduction:

Mb Sudeck or complex regional pain syndrome (CRPS) forms a typical triad of motor, sensory and autonomic symptoms. Clinically, it is characterized by spontaneous pain and hyperalgesia that are not limited to one nerve territory and are disproportionate to the triggering event.

Mb Sudeck has a multifactorial pathophysiology involving pain dysregulation in the sympathetic and central nervous systems, as well as possible genetic, inflammatory, and psychological factors.

CRPS is divided into type I, which occurs in the absence of nerve trauma, and type II, which occurs posttraumatically.

Objective:

Clinical importance of magnetic resonance imaging in early diagnosis Mb Sudeck

Material and methods:

Female patient, 49 years old, in May of this year, an injury to the left ankle joint with a distortion mechanism. On the radiograph, there were no visible traumatic bone lesions.

Results:

The patient was admitted to the MMA Orthopedics Clinic due to persistent complaints in the form of swelling of the ankle joint and pain while walking for the past two months. A neurological examination ruled out the existence of an acute neurological disease. Orthopedic examination indicated MRI of the left ankle joint.

The first examination was performed sagittally in fsT2W, axially and coronally in T1W, and in all three planes in the fsPD sequence.

Horizontal fracture crack in the lateral malleolus at about 14mm above the lower pole, with a break on the outer contour of the bone, without a clear break in the region of the articular surface of the malleolus, without dislocation of the bone fragment, without a periosteal reaction according to the type of callus, this MRI finding corresponds to a fracture without signs of healing. In the tibiotalar joint, the amount of joint fluid is increased, the joint surface is smooth, the width of the joint space is preserved.

A control examination according to the same protocol was performed after two months, after wearing plaster immobilization and physical therapy.

The condition after the fracture of the lateral malleolus above the lower pole of the malleolus, compared to the previous examination, there is a reduction of the fracture crack, there is no oedema of the bone marrow in the area, signs of healing are present. The cortex of the other bones has preserved thickness and signal intensity, there are no signs of periosteal reaction. The distal part of the tibia, talus, calcaneus and tarsus bones with patchy zones of bone marrow edema, dominantly subcortical and subchondral, the finding is in favor of osteopenia due to inactivity, Mb Sudeck.

Conclusion:

Magnetic resonance imaging is a reliable method for diagnosing Mb Sudeck, which enables the resolution of doubts about the differential diagnosis and, with the correct approach, adequate treatment.

PP52

Bojana Mišković, Milica Stojadinović, Dragan Mašulović
Serbia

The importance of MRI in revealing parathyroid cyst - a case report

Introduction:

Parathyroid cysts are a very rare cervical entity (300 cases in the literature). They occur mostly in women with predominance in the fourth and fifth decades and can be divided into non-functioning and functioning cysts. Non-functioning cysts are more common with a tendency to be localized mostly in the inferior parathyroid gland and on the left side. Clinical symptoms can vary, but they are mostly caused by compression or hyperparathyroidism.

The aim:

To represent a rare case of a parathyroid cyst

Material and methods:

The 59-year-old patient complained of submandibular pain. After clinical examination, laboratory analysis which showed slightly elevated serum levels of the parathormone, and an ultrasound examination which detected a hypoechoic structure suspected to be a lymph node or parathyroid gland, the patient underwent an MRI.

Results:

Beside the left lobe of the thyroid gland and in front of the vascular structures, paratracheal was seen a cystic structure (5x4x6 mm in size). This structure showed increased signal intensity in T2w, T1w and T2wFS sequences, without restricted diffusion nor postcontrast changes (Figures 1 and 2). The described cyst was in the expected localization of the parathyroid gland and the diagnosis of the parathyroid cyst was made with the differential diagnosis of the cystic degenerated adenoma of the parathyroid gland (T1w hyperintensity).

Conclusion:

Parathyroid cysts could be often confused with a variety of thyroid pathology and MRI can help to distinguish them. It is also important to do laboratory analysis, as well as cytochemical if it is possible, in order to differentiate non-functioning and functioning cysts, because of the different treatments, so the patients with the non-functioning cysts can avoid unnecessary surgery.

PP53

Bolu Abant Izzet Baysal
Turkey

A rare case report: ophtalmic herpes zoster involvement of the spinal trigeminal nucleus

Introduction

Herpes zoster ophthalmicus (HZO) is an inflammation caused by the reactivation of the varicella-zoster virus (VZV) in the ophthalmic branch (V1) of the trigeminal nerve. It is commonly observed in elderly or immunosuppressed patients.

Case

A 72-year-old male patient presented with complaints of swelling in the right eye, blurred vision, redness on the right half of the face, and headache for the past 10 days. Ophthalmic

examination revealed periorbital edema, increased warmth, and redness in the right eye, restricted outward gaze in the right eye and keratitis in the cornea. Dermatological examination showed vesicular lesions on the scalp and around the eyes. The patient was discharged after intravenous acyclovir treatment. Two months later, he returned due to severe, persistent headaches. Following a neurological examination, a brain MRI was performed to investigate intracranial involvement of herpes zoster. The MRI showed hyperintense signals on FLAIR and T2-weighted images in the localization corresponding to the right spinal trigeminal nucleus. DWI demonstrated restricted diffusion in this localization.

Discussion

Postherpetic neuralgia is a commonly reported complication of herpes zoster (1). Pain and temperature sensory fibers extend from the trigeminal ganglion to the spinal trigeminal nucleus, forming the spinal trigeminal tract.

The proposed mechanism involves the virus migrating anterogradely from the Gasser ganglion to the V1 branches of the trigeminal nerve and retrogradely to the cisternal and intrapontine segments, eventually reaching the spinal nucleus (2).

Some studies have shown that patients with trigeminal herpes zoster or cervical herpes zoster who exhibit abnormal MRI findings are more likely to develop postherpetic neuralgia compared to those without MRI findings (2). There have been few reported cases of spinal trigeminal nucleus involvement. Previous cases have primarily described high signal intensity on T2-weighted, FLAIR, and DWI images (3, 4, 5, 6). Our case exhibited similar findings to the literature.

PP54

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North Macedonia

Radiographic features of Fahr disease – A case report

Introduction.

Fahr disease is also known as bilateral striatopallidodentate calcinosis or basal ganglia calcification. It is characterized by abnormal vascular deposition of calcium in specific brain regions such as dentate nucleus of cerebellum, basal ganglia, globus pallidus, thalamus and the periventricular white matter, followed by brain atrophy.

The aim

of the study was to present very rare case report that was diagnosed by Computed Tomography (CT).

Material and Methods.

A 47 year old male due to loss of conciseness was examined, and besides hematological and biochemical investigations, CT scan (by Simens 128 slices) was performed.

Results.

On CT scan cerebral calcification in globus pallidus was preferably found, although there were some calcifications in basal ganglia, dentate nuclueus, thalamus and putamen. Radiographic features were shown as extensive hyperdensities with HU units of calcification, bilaterally located in the vessels of the brain with characteristic presentation.

Conclusion.

Brain CT scan is the diagnostic method of choice to clarify cerebral calcifications in different brain regions, especially in asymptomatic patients.

PP55

Emel Inci
Turkey

A case of diffuse leptomeningeal glioneuronal tumor: all faces of characteristic MR imaging findings

Introduction:

Diffuse leptomeningeal glioneuronal tumor (DLGNT) is a recently described Central Nervous System (CNS) tumor, which has been introduced in 2016 World Health Organisation (WHO) classification of tumors. It is a mix of nueronal and glial tumor, and very rare. It is usually encountered in children and adolescents and its MR imaging findings are unique and almost specific. In this report, all characteristic MR imaging findings of DLGNT are described.

Case Report:

A 4-year-old girl was admitted to the hospital with difficulty in walking and balance disorder progressively increasing for the last 3 months. On physical examination, she had anisocoria, and increased deep tendon reflexes at the upper extremities. Cranial MR imaging revealed multipl cyst-like nodules in the cerebellum and disseminated leptomeningeal enhancement in the cerebral and cerebellar convexity, including the basal cisterns. Spinal MRI examination showed diffuse leptomeningeal enhancement around the spinal cord and in the cauda equina. Besides, small cyst-like nodules were also present in the spinal cord. A biopsy was performed from the posterior fossa and the diagnosis of DLGNT was established.

Conclusion:

The MR imaging findings of DLGNT are unique, especially regarding the presence of subpial small cysts. The location and appearance of these cysts are almost specific for this tumor, and they are believed to be focal dilated perivascular spaces due to perivascular tumor infiltration. The aim of this presentation is to summarize the unique imaging findings of this very rare tumor.

PP56

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Serbia

Schwannoma of Intercostal Nerves – A Case Presentation

Introduction:

Schwannomas, also known as neurinomas, are encapsulated tumors originating from Schwann cells and involving nerve sheaths. They can manifest at various stages of life, most commonly between the ages of 20 and 50. Most patients remain asymptomatic. Schwannomas of intercostal nerves are a rare occurrence.

Objective:

To highlight the significance of radiological methods, including classical radiography and MDCT (Multi-Detector Computed Tomography) scans, in identifying tumor-related changes in the chest wall.

Materials and Methods:

During a routine examination, a 44-year-old patient exhibited a tumor shadow on a chest X-ray. Subsequently, an MDCT scan with contrast medium was recommended.

Results:

On the chest and heart radiograph in the right costophrenic sinus projection, a spindle-shaped soft tissue intensity shadow, relatively well-defined towards the lung parenchyma, measuring 28x65mm (LLxCC), was observed. The base of this lesion abuts against the lateral thoracic wall, forming an obtuse angle, suggesting the possibility of an extrapulmonary localization or a tumor originating from the pleura, chest wall, or an organized effusion or empyema.

On the MDCT scan of the chest, a spindle-shaped, relatively well-defined, heterogeneous lesion was noted on the right lateral wall, disrupting the stratification of muscle layers. It forms an obtuse angle towards the lung parenchyma, measuring 70x30x70mm (APx-LLxCC). The upper pole of the lesion is at the level of the lateral edge of the eighth rib on the right, and the lower pole is at the level of the lateral edge of the ninth rib, protruding into the right costophrenic angle and exerting pressure on the liver parenchyma.

Further diagnostic evaluation included a TRU-CUT biopsy of the lesion. The histopathological findings indicated an infiltrative low-grade malignant tumor originating from the peripheral nerve sheath - a malignant schwannoma in the chest wall.

Conclusion:

Intercostal schwannomas are most commonly discovered incidentally. Classical chest and heart radiography serves as the initial method for diagnosing tumor-related changes in the chest wall. MDCT scans with contrast medium enable a more precise characterization and determination of the lesion's origin.

PP57

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Horizontal gaze palsy with progressive scoliosis

Introduction

Horizontal Gaze Palsy with Progressive Scoliosis (HGPPS) is an autosomal recessive disorder characterized by restricted conjugate horizontal eye movements and progressive scoliosis.

Case

A 7-year-old girl, who has been under follow-up at the orthopedic clinic since the age of 2, underwent an examination by pediatric neurology. Limited bilateral horizontal eye movements and horizontal nystagmus were detected, while vertical eye movements were normal. At the age of 4, she underwent scoliosis surgery due to progressive scoliosis. Genetic testing revealed a mutation in the ROBO3 gene.

Discussion

Horizontal Gaze Palsy with Progressive Scoliosis (HGPPS) is characterized by the congenital absence of conjugate horizontal eye movements while vertical gaze and convergence remain intact during childhood and adolescence. It is associated with progressive scoliosis. (1,2)

HGPPS is an autosomal recessive disorder caused by a mutation in the ROBO3 gene located on the 11th chromosome. (3)

Characteristic findings on MRI imaging include the "butterfly" configuration of the medulla oblongata, a deep midline pontine cleft, absence of the abducens nuclei leading to absence of facial colliculi, resulting in a "tent-shaped" fourth ventricle, and narrowing of the anteroposterior diameter in the pons and medulla oblongata due to brainstem hypoplasia. (4,5,6) Progressive scoliosis, starting around the age of 2 is also present. (7)

Differential diagnoses for HGPPS include Duane retraction syndrome and Möbius syndrome. In Duane retraction syndrome, there is hypoplasia or aplasia of the abducens nerve and nucleus, while Möbius syndrome is associated with brainstem hypoplasia accompanied by absence of the facial colliculi. However, the pathognomonic split pons sign seen in HGPPS is not present in these conditions. (8,9)

Progressive scoliosis is also considered a pathognomonic feature of this condition. It leads to significant functional limitations, lung involvement, and pain in affected individuals, often necessitating corrective surgery (5).

PP58

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Radiological approach in primary extranodal Non- Hodgkin lymphoma

Introduction:

Non-Hodgkin lymphoma (NHL) is a disease in which cancer cells form in the lymph system. It can be indolent or aggressive. Older age, being male, and a weakened immune system can increase the risk of NHL. Extranodal type of disease can affect any organ. Approximately half of patients develop extranodal disease during the course of their disease, while between 10-35 % of patients have primary extranodal lymphoma at diagnosis.

The aim:

To present a case of a primary extranodal NHL in the left thigh.

Material and methods:

A 50-year-old man with a huge, painful soft tissue mass in the left thigh has been examined for 6 years on almost all imaging modalities in our department.

Results:

The first conventional radiography (CR) showed an irregular and thick femoral bone cortex, so we indicated an MRI of the left thigh, which revealed an expansive, large, relatively homogeneous mass with bone entrapment. The mass had an oval shape, smooth contours, and significant postcontrast enhancement. The deep femoral artery and vein were captured, too. After fine needle biopsy and patohistological analysis, the diagnosis of extranodal NHL was determined. One year later, our patient had a pathological femoral bone fracture after an unusual microtrauma, thus an osteosynthesis was made. Many amorphous calcifications in soft tissue were seen on the control computerized tomography (CT), as a part of myositis ossificans. We have done a lot of control CR, CT, and MRI examines for six years. The last MRI has shown partial regression of tumor size and prominent bone callus, instead of a previous fracture line.

Conclusion:

A precise and correct diagnosis combined with an appropriate therapy is crucial in patients with malignancy, but modern radiological methods, have an important role, too, especially in monitoring these diseases.

PP59

Hasan Aydin, Makbule Çaylak, Muazzez Bengu Arin,Yasin Özdemir, Şahap Törenek
Turkey

Report of a case with right renal cell carcinoma-gall bladder tumor and multiple liver metastasis

Introduction:

A 69-year-old male patient with a history of Glioblastoma multiforme, had multiple masses in the liver which were discovered in the abdominal USG during his routine controls and was referred to Medical Oncology department of our hospital.

Material and method:

Dynamic Contrast Enhanced Abdominal MRI was performed for actual diagnosis and guidance for his future therapy.

Results:

Case report: In the abdominal MRI, A 10x8 cm heterogeneous pathologically contrasting mass lesion with diffusion-restriction was visualized which was thought to be originated from the neck, both lateral walls and fundus of the gallbladder, spreaded to the anterior segment of the right hepatic lobe.In addition, multiple metastatic masses with maximum 35x28 mm in diameter were observed in the liver.

An endophytic mass with a diameter of 43x34 mm with heterogeneous intense contrast enhancement, especially in the arterial phase, and heterogeneous hyperintense signal in T2W series, was observed in the mid-pole of right kidney which showed diffusion restriction. Intra-abdominal ascites was observed without any Lymphadenopathy.

True-cut biopsy revealed gall-bladder adenoca, and its metastasis to the liver.

Renal mass was compatible with clear cell RCC

Discussion:

RCC metastasis to gallbladder, renal pelvis and gall- bladder tumor coexistence were observed, and there was no similar case with synchronous gall-bladder ca-RCC and liver metastasis in the literature(1-3).It was also the first case in the literature, characterized by the presence of three primary cancer foci and liver metastases.

Conclusion:

6-8 cures Gemstabin + Cyclophosphamide was decided to be administered to the patient, still under follow up in our Medical Oncology unit.

PP60

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Serbia

Horseshoe adrenal gland - case report

Introduction:

Anatomical variation of horseshoe adrenal gland is a very rare developmental anomaly (much rarer than horseshoe kidney) with less than 100 documented cases by imaging worldwide. In this anatomical variation, the junction of the medial arms of the adrenal cortex does not separate from the midline during the development of retroperitoneal structures. This variation is also associated with other anomalies and variations in the development of abdominal structures.

The aim:

Presentation of a case of horseshoe adrenal gland as a rare anatomical variation of the development of retroperitoneal organs.

Material and methods:

A 71-year-old patient was examined on a 128 ms CT scan of the abdomen in August 2023.

Results:

A priority CT examination of the abdomen due to a acute abdominal pain and a drop in the blood count with a negative US examination of the abdomen did not verify the condition of the acute abdomen. As an incidental finding of this examination, anatomical variation of the horseshoe adrenal gland was detected, i.e. preserved conection of the medial branches of the adrenal glands, which are placed retrocavally and retroaortally, without other structural changes of the adrenal gland such as hyperplasia or adenoma. A CT view of two fused adrenal glands gives a characteristic "butterfly" image. The patient had no history of previous hormonal disorders of adrenal gland function.

Conclusion:

This is a rare anatomic variation that can be detected by CT or MR examination as an incidental finding and as such should not be omitted from the report.

PP61

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Magnetic resonance imaging features of the neuroendocrine tumor of the uterine cervix

Neuroendocrine tumors of the uterine cervix are rare neoplasms, they account up to 1.5% of all cervical malignant tumors. The prognosis is poor, given that histologically aggressive types are usually presented in this localization, in most cases they are small cell, less often large cell or other types of neuroendocrine tumors. The cytology of the cervical smear can be negative, which limits non-invasive diagnosis.

A 32-year-old female patient was referred for a magnetic resonance (MR) examination due to biopsy-proven high-grade endometrial stromal sarcoma at a regional center. On MR

examination, the tumor was presented as an area of homogeneous and discretely increased T2W signal in the region of the posterior lip of the vaginal portion of the cervix, with the largest dimension up to 16 mm and showed marked diffusion restriction. No presence of local tumor spread, parametrial invasion, or lymphonodal invasion was seen. The revision of the histological finding performed at our institution showed a poorly differentiated large cell neuroendocrine carcinoma, and the subsequent surgical treatment, which included hysterectomy with right-sided adnexectomy, left-sided salpingectomy and bilateral pelvic lymph node dissection, confirmed the high-grade FIGO I stage neuroendocrine carcinoma, without dissemination to the pelvic lymph nodes.

Homogeneous signal of the tumor and marked restriction of diffusion on MRI indicating hypercellularity are in favor of a probable high-grade neuroendocrine malignant neoplasia. Magnetic resonance imaging plays a major role in the non-invasive diagnosis of the uterine cervix tumors, can assess the aggressiveness and accurately assess the T stage of the disease.

PP62

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Xanthogranulomatous cystitis mimicking bladder malignancy: case report

Introduction:

Xanthogranulomatous cystitis (XC) is a rare form of chronic granulomatous inflammation of unknown etiology, characterized by focal or diffuse thickening of the urinary bladder wall, which progresses to wall destruction and the formation of adhesions with surrounding organs, ultimately leading to fistula formation. Radiologically, it is very difficult to distinguish from malignancy, so surgical excision and pathological verification (PH) are necessary.

Purpose:

To present an interesting rare case of abscess-forming xanthogranulomatous inflammation of the urinary bladder radiologically mimicking malignancy.

Materials and Methods:

A 55-year-old patient presented for evaluation due to lower abdominal pain and dysuria. Ultrasonography showed an irregular solid-cystic formation on dome of the urinary bladder with extravesical extension with peripheral CD signal. Contrast enhanced computed tomography (CT) confirmed the presence of the described formation on the upper wall with extravesical grown, with thick irregular enhancing peripheral wall and a hypodense non-enhancing area, probably reflecting cystic/necrotic content. Surround "fat stranding" was noted. It was not clear whether it was an inflamed urachal cyst or carcinoma. Cystoscopy revealed focal mucosal undulation without proliferation. MRI scan showed a multilocular cystic tumor in the upper bladder wall with extravesical grown, restricted diffusion, peripheral post-contrast enhancement, and two deposits between adjacent loops of the small intestine.

Results:

Partial cystectomy was performed with the resection of adhesions with the small intestine and suspected vesicointestinal fistula. PH findings indicated abscess-forming xanthogranulomatous inflammation of the bladder wall. Postoperative course was uneventful. At the follow-up two months later, there was no recurrence, and the patient remained completely asymptomatic.

Conclusions: XC is an extremely rare, benign lesion, which may mimic bladder malignancy and present clinical and radiologic diagnostic challenges. Histopathologic assessment is crucial to confirm the diagnosis.

PP63

Hasan Aydin, Makbule Caylak, Ezel Yaltirik Bilgin, Hatice Cisel Yazgan, M. Bengu Arin
Turkey

A highly aggressive metastatic malignant epithelial lung tumor

Introduction:

A 66 year old male was admitted to Medical Oncology due to weakness, weight loss, cough, hemoptysis, abdominal ache. After his physical examination and laboratory analysis, he was referred to our unit for Contrast-enhanced Thorax and Abdomino-Pelvic CT.

Aim:

To present the diagnostic effect of CT in the depiction of primary tumor and its metastatic masses.

Material-Method:

Thorax and Abdomino-Pelvic CT was performed in 16 slices Toshiba Acquillon CT scanner; with 1-3 mm in axial and coronal planes for mediastinum, 1 mm in axial plane for lung parenchyma in Thorax and 2/3 mm slice thickness for axial and coronal planes in Abdomino-Pelvic area.

Results:

In Thorax CT: Mediastinal hypodense multipl Lymph nodes were observed. A Necrotic mass lesion in the left lung, 10x4 cm in size, extending from the left hilus to anterior segment of upper lobe and its pleural ridge,obstructing the left upper lobe bronchus, was shown.Several nodules with maximum diameter of 20 mm, were observed in both lungs. A right ventricular hypodense mass protruding to the pericardium was also visualized

In Abdomino-Pelvic CT; Multiple metastatic mass lesions were observed in liver, in both kidneys, adrenal glands,in the tail of pancreas.

Lymph nodes mainly in paracaval and para-aortic area, 1-2 cm in size,were also discovered.Muscle metastasis in the right psoas, left obturator internus and in both gluteal muscles,were presented.

Transthoracic biopsy of the lung mass regarded "**Malignant epithelial lung tumor with neuroendocrine differentiation**" as a result

Conclusion:

Chemoradiotherapy and Interferone treatment were decided to be applied against the tumor, unfortunately he had died due to respiratory failure 4 days after the pathologic diagnosis.

PP64

Hasan Aydin, Busra Turkkahraman, H. Sertaç Güler, Ezel Yaltirik Bilgin, Yasin Ozdemir, Muazzez Bengu Akyol
Turkey

Bilateral Lung tumor with accompanying Covid infiltration

Introduction:

65 year old male patient was admitted to our unit for Thorax CT due to his chief complaints of cough, dyspnea, hemopthysis, intermittent fever and throat ache. He was under control and therapy for Squamous cell carcinoma in the at the left lung.

Aim:

To present the effectivity and potential aid of CT in the diagnosis of Lung tumors and Covid infiltration**.**

Material-Method:

Thorax CT was performed in 16 slices Toshiba Acquillon CT scanner with 1-3 mm slice thickness in axial and coronal planes for mediastinum, 1 mm in axial plane for lung parenchyma.

Results:

In the Thorax CT**;** Irregular narrowings in the bronchus of upper and middle lobe at the right hilar region with accompanying peribronchovascular soft tissue appearances surrounding the bronchial structures, were visualized.

Residual mass left lung mass was about 65x31mm in size with colloborating ground glass infiltrative densities around and a consolidation composed of mass and atelectasis which was extending to the vicinity of the oblique fissure in the apicoposterior segment of the left upper lobe.

Multiple nodules which were considered to be metastatic, were existed in both lungs, between 3-14mm size.

Subpleural focal ground glass densities and tree in buds appereance were also observed in the left lung particularly at inferior lingular segment and posterobasal segment of the left lower lobe.

Transthoracic biopsy of the right hilus yielded second squamous cell carcinoma focus and at the sametime his PCR test was positive

Conclusion:

His Covid infiltration would be treated at first, then Radiotherapy(RT) and chemotherapy would be applicated for his primary tumor treatment.

PP65

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Turkey

Mediastinal Giant B Cell Lymphoma With İntrathoracic Mass Recurrence

Introduction:

27 year old woman with prior diagnosis of Mediastinal Giant B-cell Lymphoma(MGB-CL) was admitted to Hematology in-patient service due to serious recurrences and referred to our unit for Thorax CT

Aim:

To present the potential diagnostic aid of CT in the depiction of mediastinal and parenchymal recurrences of MGBCL.

Material and Method:

Contrast-enhanced Thorax CT was performed in 16 slices Toshiba Acquillon CT scanner with 1-3 mm slice thickness in axial and coronal planes for mediastinum, 1 mm in axial plane for lung parenchyma.

Results:

In Thorax CT**;** Left axillar Lymphadenopathies ranging between 3-5 cm in size, were seen. Mediastinal 3cm maximum sized Lymphadenopathies, were also present.There was prominent engorgment in the left breast with increased skin thickness and parenchymal edema.Left jugular vein thrombosis was also shown.

Bilateral pleural effusion was present in both hemithoraxes.There was a huge mass in the left lung about 16x14 cm in size was visualized,accopanying a total atelectasis in the left upper lobe with compression against the bronchovascular structures. That mass had cystic necrotic areas inside with extrathoracic and extrapleural protrusion. Several pulmonary nodules was also shown in both lung parenchyma.

Conclusion:

All presented situations were diagnosed as ''Intra and extrathoracic,Lymph node recurrences" of MGBCL and 6-8 cures of chemotherapy was going to be applied to the mediastinum for, the therapy.

PP66

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Turkey

Secondary lung involvement in patient with systemic sclerosis

Introduction:

A 68-year-old patient, who has been followed up with the diagnosis of systemic sclerosis (Scleroderma) for 15 years, has complaints of rapidly progressive shortness of breath, cough, sputum and inability to swallow.

Aim:

To present the effectivity of HRCT in the diagnosis of Scleroderma for lung involvement

Material-Method:

HRCT was performed in 16 slices Toshiba Acquillon CT scanner with 1 mm slice thickness.

Results:

In HRCT; There was organized pleural effusion in the right basal area with extensive pleural fibrotic recessions, bullous emphysema was present in both apexes.

Widespread reticular pattern in the right middle lobe-left lingula and both basals, accompanying multiple air cysts, intense honeycomb-like interstitium involvement with ground glass background were observed.

There were extensive cystic saccular bronchiectasis in the mediobasal segment of right lower lobe, prominent peribronchial thickenings with pleuroparenchymal bands were also observed in both basal areas.This yields were actually consistent with non-specific interstitial pneumonia, developed on the basis of scleroderma

Discussion:

Scleroderma was an autoimmune connective tissue disease which typically affects skin with variable internal organ involvement, characterized by immune dysregulation and progressive fibrosis(1,2). Interstitial lung disease was the most common cause of death, with a prevalence of up to 30% and a 10-year mortality of up to 40% in patients with Scleroderma, 80% of patients develop Lung involvement(1).

Steroids, Immunosupressants,Tyrosine kinase/ VEGF inhibitors could be used as chemotherapeutic agents in the therapy. In very advanced cases, stem cell and/or Lung transplantation should be performed.(1,3,4)

Conclusion:

The patient was under steroid treatment, however was hospitalized due to significant progression of lung complaints, was decided to receive combined treatment with Sunitinip and Bevacizumab.

PP67

Bojan Radojičić, Dejan Todorović, Milena Milović, Mirko Dolić, Marija Radojičić
Serbia

Pneumobilia

Introduction:

Pneumobilia (aerobilia) is the accumulation of gas in the biliary tree. There are many causes of pneumobilia and clinical findings are very important when diagnosing the cause of its occurrence. Etiologically, it can occur after ERCP, after application of a stent in the common bile duct, after percutaneous transhepatic or intraoperative cholangiography, incompetent sphincter of Oddi, sphincterotomy (up to 50% may have pneumobilia in the first year), biliary-enteric surgical anastomosis, cholecystoenterostomy, choledochoduodenostomy, after Whipple procedures, spontaneous biliary-enteric fistula, ileus caused by gallstones, after trauma, neoplasm (cholangiocarcinoma), cholangitis, emphysematous cholecystitis (usually as gas in the gallbladder, although about 20% have gas in the biliary tree as well), liver abscess (if contains gases and communicates with the biliary tree), ruptured hydatid cysts.

Ultrasound is seen as a series of hyperechoic formations within the intrahepatic bile ducts, without accompanying anechoic acoustic shadows, and indicates air bubbles in the bile ducts, which is most prominent in the large-caliber central ducts, as bile flow pushes gas toward the liver hilus.

Material and methods:

The patient underwent a diagnostic and therapeutic ERCP procedure due to biliary calculus. He is coming for a control ultrasound examination..

Objective:

To demonstrate the importance of ultrasound examination of the intrahepatic bile ducts in the detection of pneumobilia.

Results:

as part of the examination, aerobilia was diagnosed by ultrasound. Over time, her spontaneous regression occurred.

Conclusion:

Ultrasound examination is very sensitive in the detection of pneumobilia because it creates an artifact, without accompanying acoustic shadows and gives the liver a characteristic "striped appearance". It represents the initial diagnostic method, after which, if necessary, additional diagnostics are carried out (laboratory analyses, MSCT/MR of the abdomen...), because numerous causative agents require urgent treatment.

In differential diagnosis, it should be distinguished from small stones in the biliary tree (mostly solitary in contrast to aerobilia which is multiductal), calcification of the hepatic arteries (occurring in CBI) and air in the portal vein (peripheral distribution and patients are generally seriously ill).

PP68

D Veljanovski, B Prgova, M Kostova, S Dejanova, I Jovanoska
North Macedonia

Significance of pain duration before treatment with CT guided periradicular therapy in patients with sciatica

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.

PP69

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North Macedonia

CT guided periradicular infiltration treatment in patient with extraforaminal disc herniation

Introduction:

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

The aim

was to evaluate the history, treatment and clinical outcome of a patient with low back pain and radiculopathy caused by extraforaminar disck herniation, after a minimally invasive procedure (PRT) periradicular therapy and physical therapy.

Clinical features:

A 48-year-old patient without comorbidities was presented with 3-week history of lumbar pain with irradiationto the left lower extremity. The patient had difficulty sitting and standing with antalgic movement .The pain was intensified by lateral movements dominant left and positioning backwards with propagation to the left side and hip. Dominant symptom was radicular pain with paresis inthe affected dermatoma of lower limb. The diagnosis was confirmed by magnetic resonance imaging.

Intervention and outcome:

Advantages of PRT are: minimal invasive procedure, CT guided intervention for exact and precise delivery of the medications, low risk in damage of important local anatomical structures, short recovery time, easy approach and low cost for patient and for the medical institution, respectively. In our study, CT Siemens 16 slice was used for the intervention. The patient was treated with lumbar epidural corticosteroid application and physical therapy. Functional status was measured using a Modified Oswestry Questionnaire andnumerical pain assessment scale VAS scale. Initially, before intervention, functional status was assessed at 68%, with pain 8/10. After treatment, functional status was 4% and pain was assessed as 1/10.

Conclusion:

Multidisciplinary approach is needed in patients with extraforaminal disc herniation for better results. PRT demonstrated a significant role in treating our patient. As a result of the treatment significant reduction of pain and improvement of functional status was observed. The patient returned to normal life habits and activities in a very short time, which was primary goal.

PP70

Milan Božinović, David Stevanović, Mina Stanić, Ljubica Ilić, Milica Stojković, Dušan Krstić, Ratko Stamatović, Jasenka Vasić Vilić
Serbia

Incidence of foramen arcuale atlas

Introduction:

Foramen arcuale atlantis (ponticulus posticus, posterior ponticle or Kimmerle's anomaly) represents a normal variation of the first cervical vertebra - the atlas (C1). It occurs when the posterior atlanto-occipital membrane calcifies. It represents a bony bridge over

the sulcus for the vertebral artery and the suboccipital nerve. It can be complete (complete) or incomplete (incomplete). It shows very well in the profile radiographs of the neck.

The aim

of the work was to determine the degree of frequency of occurrence of foramen arcuale atlas on radiographs of the cervical spine.

Patients and methods:

The research included 68 patients, both sexes, aged 18 to 23 years, who underwent a cervical spine scan as part of a systematic examination. Evaluation of radiological images was done by three radiologists.

Results and discussion:

Foramen arcuale was present in 14 patients (20.59%). Incomplete (in 8 patients, 57.40%) was more dominant than complete Foramen arcuale (in 6 patients, 42.60%). The representation of Foramen arcuale according to gender was higher in women (42.86%) than in men (18.03%), although due to the very small number of patients (61 men to 7 women), these data should be taken conditionally.

Conclusion:

Foramen arcuale atlantis represents a normal variation of the first cervical vertebra. Its importance is reflected in the pathology of the vertebral artery and suboccipital nerve, and its presence or absence is very important during all interventions in this region, but also clinically due to possible deficits due to the compressive effect. The gold standard for detecting the existence and type of Foramen arcuale atlas is represented by computed tomography.

PP71

Vesna Nešović, Maja Nijemčević, Miodrag Mihajlović, Igor Sekulić, Dejan Kostić, Miroslav Mišović, Petar Pavlović
Serbia

Inferior Vena Cava Duplication – A Case Presentation

Introduction:

Inferior Vena Cava (IVC) duplication occurs with a frequency of 0.2-3%. It results from disruptions in embryonic development due to the persistence of the left supracardinal vein, leading to the separation of the hepatic segment from the IVC-azygos continuity due to the absence of anastomosis between the right subcardinal vein and the right vitelline vein.

The aim:

To demonstrate the capabilities of MDCT (Multidetector Computed Tomography) in diagnosing IVC anomalies.

Materials and Methods:

A 63-year-old patient was admitted to the Cardiology Clinic of the Military Medical Academy for chronic pulmonary hypertension treatment. During catheterization, an unusual route of the catheter into the Superior Vena Cava (SVC) from the left side prompted suspicion of variant IVC anatomy, leading to MDCT venography 180 seconds after the intravenous administration of 150 ml of iodinated contrast agent.

Results:

MDCT venography revealed the absence of the hepatic segment of the IVC. Hepatic veins drained into a small preatrial segment of the IVC and into the right atrium. Venous

drainage of the lower extremities and kidneys occurred via two separate IVCs, on the right and left sides, which formed the azygos vein at the thoracolumbar junction, and the azygos vein subsequently drained into the SVC, which had a normal morphology. This patient was thus confirmed to have IVC duplication with a discontinuation of the hepatic segment and IVC-azygos continuity.

Conclusion:

Recognizing such anomalies is crucial for the correct execution of interventional and surgical procedures and the prevention of potential complications. MDCT procedures play a significant role in diagnosing these IVC anomalies.

PP72

Silvija Lucic, Igor Djan, Milena Spirovski, Dejan Kozarski, Dragana Stojanovic, Aleksandar Ragaji, Kristina Polak, Viktorija Vucaj-Cirilovic, Milos A. Lucic
Serbia

Gaussian and Non-Gaussian Diffusion Based Scalars in Early White Matter Microstructure Disruption Detection During and After High-Grade Glioma Patients Irradiation

Purpose:

To ascertain early microstructure changes and/or disruption within the white matter areas receiving different delivered irradiation doses during and after high-grade glioma (HGG) patients' radiotherapy treatment by Gaussian based diffusion tensor imaging (DTI) and Non-Gaussian based diffusion kurtosis imaging (DKI).

Methods:

Twenty-one HGG (18 glioblastoma, 3 anaplastic astrocytoma) patients underwent MRI examination on 3T MRI unit with DTI/DKI measurement before the radiotherapy treatment, immediately after 16 delivered fractions and after 33 delivered fractions. Regions of interest (ROI) within the areas with overall irradiation doses of 20Gy/40Gy/60Gy were determined using fused dose-volume histograms/FLAIR images, and a set of DTI/DKI scalars, including fractional anisotropy (FA), radial diffusivity (RD), axial diffusivity (AD), mean diffusivity (MD), radial kurtosis (RK), axial kurtosis (AK), and mean kurtosis (MK) were measured and analysed.

Results:

Within areas with 60Gy overall delivered irradiation dose significant FA decrease after 33 fractions in comparison to baseline measurement was noted ($p<0.05$); RD, AD, and MD showed significant increase, while RK, AK, and MK demonstrated declining trend. In areas with 40Gy overall radiation dose, FA showed significant decrease after 16 fractions in comparison to the baseline measurement ($p<0.05$), but significant changes after 33 fractions were not noted; ascending trend of RD, AD, and MD values was conspicuous; RK showed significant decrease after both 16 and 33 fractions, MK demonstrated increasing trend below the significance border, AK showed no significant changes. Significant changes of measured DTI/DKI scalars in areas with 20Gy overall delivered dose weren't observed.

Conclusion:

DTI and DKI may indicate early microstructure disruption dynamics within irradiated white matter in areas with higher overall delivered doses, providing information that do not appear fully identical, but rather complementary.

PP73

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Serbia

Phase-Contrast Dynamic MRI CSF Flow Quantification within the Cerebral Aqueduct of the Patients with Communicant Hydrocephalus

Purpose:

The aim of the study was to define the differences in CSF net flow, and average/maximal CSF velocities within the cerebral aqueduct in the patients with communicant hydrocephalus in comparison to the group of healthy volunteers without the hydrodynamic disorder.

Methods:

Fifty-two patients with communicant hydrocephalus (CH) and fifty age-matching patients without the hydrodynamic disorder (WHD) underwent brain MRI on 1.5T imager by use of ECG gated phase-contrast FLASH 10 through-plane sequence positioned perpendicularly to cerebral aqueduct. To quantify CSF flow parameters, images were analysed by "Segment" (v.1.8R0931), a comprehensive freely available software package for medical/cardiac image analysis.

Results:

The cross-sectional area of cerebral aqueduct was significantly larger in CH group then in WHD group ($p<0.05$). Bidirectional CSF flow was significantly higher in CH group in comparison to WHD group ($p<0.001$). CSF net flow values were significantly higher in CH then in WHD group ($p<0.05$), whereas in CH group net CSF flow was dominantly of caudo-cranial ($+0.053 \pm 0.175$ml/s), and in WHD group dominantly of cranio-caudal direction (-0.018 ± 0.047ml/s). Average CSF velocities were significantly higher in CH group in comparison to WHD group ($p<0.05$ in cranio-caudal and $p<0.001$ in caudo-cranial direction). Maximal CSF velocities in both directions were significantly higher in CH group compared to WHD group ($p<0.001$). Curve shapes of the observed parameters distinctively differ between all the observed two groups.

Conclusion:

Phase-contrast MRI CSF flow quantification within cerebral aqueduct may provide added value in achieving more accurate diagnosis and could be of help to differentiate communicant hydrocephalus from other entities.

PP74

Silvija Lucic, Dragana Stojanovic, Andrea Peter, Dolores Srbovan, Vanja Cimbaljevic, Emil Matovina
Serbia

Hybrid SPECT/CT imaging in 99mTc-Tektrotyd scintigraphy of neuroendocrine tumors: In search for added value

Purpose:

To define the influence on added values and improvement of study analysis and results in reporting with the introduction of SPECT/CT in somatostatin analog scintigraphy of neuroendocrine tumors (NET).

Subjects & Methods:

Forty (18 male and 22 female patients (pts)) with histopathologicaly verified neuroendocrine tumour were examined since the introduction of hybrid gamma camera GE NM/CT 870 DR. Out of them 37/40 pts were newly diagnosed and three were sent for a control after therapy evaluation. Out of all NET tumours were gastrointestinal including pancreas originated and were lung originated. After the injection of 740MBq 99mTc-Tektrotyd whole body image acquisition was done 1 and 4 hours later, followed by a SPECT/CT of selected body regions.

We divided the body regions in four groups: chest, liver, abdomen and bones, depending on the region of interest for added value of SPECT/CT. The results of the study results were extracted from the final scintigraphy reports written by six board certified nuclear medicine specialists. Added value of the SPECT/CT examination was considered present if the final report indicated that morphological mapping of the presence or absence of radionuclide focuses helped in the reading and decision-making process.

Results:

14/40 (35%) had negative scintigraphy findings, 24/40 (60%) were positive, with detectable expression of tissue somatostatin receptors of different grading, and 2/40 (5%) scintigraphy results were indeterminate. Regarding the body regions we determined liver in 2/40 (5%) pts, other abdominal organs in 11/40 (27.5%) pts (mostly mesenterial and retroperitoneal localisation), lung and mediastinum in 5/40 (12.5%) pts and bones in 5/40 (12.5%) pts. We considered that SPECT/CT results contributed to the final report, hence added the value in 23/40 (57.5%) pts, while in 17/40 (42.5%) pts no added value has been reached.

Conclusion:

Based on our results, an incremental added value of including SPECT/CT imaging in the somatostatin analogue scintigraphy of NET tumours is emerging.

PP75

Ratko Stamatović, Jasenka Vasić Vilić, Ljubica Ilić, Mina Stanić
Serbia

Aneurysmatic bone cyst – case report

Introduction:

Aneurysmatic bone cysts are benign, tumorous, vascular lesions. They represent reactive bone changes consisting of cystic cavities and channels filled with blood. Although they can occur in any bone, aneurismal bone cysts are most common in the femur, tibia, and vertebrae. They usually occur in patients under the age of 40 and their nature can lead to pain, inflammation, and disruption of the joints and growth plates. Avascular bone cysts can grow aggressively, be locally destructive, and weaken bone to the point of pathologic fractures.

Objective:

The importance of magnetic resonance imaging in early diagnosis of aneurysmal bone cysts and similar osteolytic changes of benign characteristics.

Material and methods:

A 31-year-old patient has had pain in his left hip for several months, but without limitation of movement in the joint. On the radiograph of the pelvis and hips, a clearly delineated, multilobulated, osteolytic zone was described, that expands the intertrochanteric region of the left femur, but without a clearly visible periosteal reaction in the described zone.

Results:

The patient was admitted to the Clinic for Vascular Surgery of the Military Medical Academy due to sudden pain with a pronounced tingling sensation in the left leg, and the presence of an acute vascular disease was ruled out by a vascular surgeon. A neurologist's examination based on the previously described radiograph of the pelvis with hips indicated magnetic resonance imaging of this region.

Examination was performed in all three planes in fsPD sequence, coronal in fsT2 and STIR, in all three planes before and after i.v. application of paramagnetic contrast medium in fsT1 sequence.

In the neck, intertrochanteric region, in both trochanters and the initial part of the diaphysis of the left femur, a clearly delineated, lobulated, septated, cystic formation with a fluid-fluid level, with an approximate diameter of about 11x7x5cm (CC, LL, AP), is seen. Bone expansion (diameter of the proximal segment of the left femur about 43mm, at the same level on the right about 30mm), thinned cortex in the area, without periosteal reaction, without edema of the surrounding spongiosa. In the post-contrast series, the rim and septa of the described changes increase the signal intensity, while the content remains low signal intensity throughout the examination in fsT1 sequences.

Conclusion:

Magnetic resonance imaging is a reliable method for early diagnosis of an aneurysmal bone cyst and, with a proper approach, enables resolution of differential diagnostic doubts as well as an adequate treatment.

PP76

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Serbia

Aseptic osteonecrosis (AON) – case report

Introduction:

Aseptic osteonecrosis (AON) can be defined as the death of bone tissue that occurs as a result of disruption of the blood supply to the bone. It usually appears in the epiphyses during the growth period and mainly at those points of the skeleton that are subjected to special stress.

AON of the head of the second metatarsal bone occurs most often as a result of untreated and unrecognized foot trauma, often in sports involving running and jumping. Complaints in the form of pain in the front segment of the foot, intensifies during standing and walking.

Objective: The clinical significance of magnetic resonance imaging in diagnosing aseptic osteonecrosis.

Material and methods:

A 41-year-old patient fractured the proximal phalanx of the left big toe four months ago due to a hard object dropping on his foot. The patient was treated with plaster immobilization and physical therapy.

Results:

The patient was admitted to the MMA Orthopedics Clinic due to persistent pain in the front part of the foot when standing and walking, as well as oedema in the region of the left foot. An examination by a vascular surgeon ruled out the existence of an acute vascular disease. After an examination by an orthopedist and a physiatrist, an MRI of the left foot was indicated.

Examination performed sagittally in fsT2W, axially and coronally in T1W, and in all three planes in the fsPD sequence.

Oedema of the bone marrow of the head, distal metaphysis and distal half of the diaphysis of the second metatarsal bone is present, the articular surface of the head is flattened, with subchondral sclerosis and the presence of a small cyst with a diameter of about 3 mm, the joint space is easily expanded with an increase in joint fluid, there is oedema of the surrounding soft tissues, the findings correspond to Mb Freiberg, AON of the head of II MT bone. The proximal phalanx of the thumb with a banded oblique zone of the higher signal intensity, and signs of periosteal reaction on the outer contour of the phalanx, corresponds to a fracture in repair with callus formation.

Conclusion:

Magnetic resonance is a reliable method for diagnosing Mb Freiberg and resolves doubts about the differential diagnosis and, with the correct approach, enables adequate treatment.

PP77

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Chiari malformation type II

Introduction

Chiari malformations are structural defects in the base of the skull and cerebellum, the part of the brain that controls balance.This causes pressure on the cerebellum and brain stem that may affect functions controlled by these areas and block the flow of cerebrospinal fluid.Most of the hindbrain findings in Chiari II malformation derive from a diminutive posterior fossa, with brain structures squeezed superiorly,inferiorly, and anteriorly.The fourth ventricle is squeezed into a small vertical slit. Syringomyelia is a disorder in which a CSF-filled tubular cyst, or syrinx, forms within the spinal cord's central canal.The growing syrinx destroys the center of the spinal cord, resulting in pain, weakness, and stiffness in the back, shoulders, arms, or legs.

Aim

Since Chiari malformations are associated with certain birth defects like spina bifida,children born with those defects are often tested for malformations and to use that knowledge to reduce the burden of neurological disease. imely diagnosis is important because an undetected malformation can end with a fatal outcome.

Materials and methods

33 years old woman with apnea,weakness in the both arms and trouble using them to pick up and use small objects, arm and neck pain,balance problems,difficulty swallowing or speaking and etc.

Results

Computed tomography. stenosis of spinal kanal at the level C1, 13mm and distal of this 16 mm.

Magnetic resonance imaging (MRI) is the imaging procedure most often used to diagnose a Chiari malformation.

Sagittal Coronal and Axial T2 WI with syrinx formation in the cervical cord and syringobulbia.The cisterna magna is obliterated and the fourth ventricle is effaced, atrophy of the cerebelar tonsili.

Conclusion

Many people with Chiari malformations have no symptoms and their malformations are discovered only during the course of diagnosis or treatment for another disorder.

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ORAL PRESENTATIONS

PO01

Predrag Jovanović, Miloš Peković
Serbia

Interval breast cancers detected in the screening mammography program at the Obrenovac Health Center

Introduction: Interval breast cancer (IBC) is a term used for breast cancers detected between 2 screening mammographic examinations, after a normal screening mammogram but before the next scheduled mammogram. In a biannual screening mammography program, it's necessary to group breast cancers that appear in the first 12 months, in the second 12 months and after 24 months from the previous normal finding. IBC is a very important parameter in evaluating the efficiency and success of the screening mammography program.

The aim of this retrospective study is to indicate the characteristics and specificities of IBC, the importance of their early detection and to prove their greater aggressiveness and worse prognosis compared to cancers detected in regular biannual follow-up.

Material and methods: Since July 15, 2015 to December 31, 2021 was performed 7.766 screening mammograms at the Obrenovac Health Center. IBCs are classified as "true", "missed" - false negative findings on previous mammography and IBCs missed due to technical inadequacy of the images. Histopathological type, tumor grade, tumor size and axillary lymph node status were analyzed for all IBCs.

Results: During the analyzed period, 80 cancers (10.3 per 1.000 mammograms) was confirmed histopathologically- 7 "true" IBCs (0.9 per 1.000 mammograms), predominantly symptomatic, high grade, triple negative, or HER2 positive, with high Ki67 and positive nodal status; 1 "missed"- false negative; 1 missed due to inadequate positioning and 15 cancers detected at regular screening examinations, 24-30 months after previous mammography with normal findings- predominantly asymptomatic, DCIS or invasive cancers, low grade, size <15mm, negative nodal status and low Ki67.

Conclusion: From the obtained results, it can be concluded that the majority of "true" IBCs have more aggressive features and worse prognostic parameters than screening detected cancers, that indicates necessity to improve detection which will lead to their early detection and mortality rate reduction.

PO02

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Montenegro

Unusual presentations of lung carcinoma - case reports

Introduction

Lung cancer is one of Montenegro's leading public health problems, where more than 350 new cases are diagnosed annually. Symptoms such as cough, dyspnoea, or hemoptysis usually appear late, so approximately 70% of patients are diagnosed at an advanced stage with metastases when the prognosis is poor. The five-year survival rate for lung cancer in the United States is 16%.

The aim

To describe several rare initial presentations of advanced-stage lung cancer.

Material and methods

The patient's medical history, laboratory findings, as well as CT and MR examinations were used.

Results

Fifty-nine-year-old woman consulted a doctor because of dyspnoea and coughing for the past several days. An enlarged cardiac contour suggestive of pericardial effusion was noted on the chest radiograph, as well as opacity in the right lung. After the cardiologist's examination, an emergency pericardiocentesis was performed, where about 2200ml of hemorrhagic fluid was drained. Chest CT and bronchoscopy were performed, after which the diagnosis was made.

A 70-year-old man was referred to a neurologist for cauda equina syndrome. A lumbosacral spine MRI was performed, where a mass in the medullary cone was observed, as well as metastatic lesions in several vertebrae. Radiologist suspected that the mass in the medullary cone could also be metastasis, probably of lung cancer, which was confirmed after chest CT and biopsy.

A forty-five-year-old man underwent an ultrasound examination due to neck swelling, where conglomerates of pathological lymph nodes were detected. After that, an infiltration in the right upper lobe was observed on neck CT. Bronchoscopy and biopsy were performed when metastatic lung adenocarcinoma was proven.

Conclusion

Although lung cancer is most often primarily visualized as a mass in the lung parenchyma or mediastinum, in certain cases it can initially present as metastasis. Therefore, it is important to be familiar with rare manifestations of lung cancer, especially because of its high morbidity and mortality.

PO03

Tijana Tomić, Dragan Vasin, Biljana Jovandić, Sanela Hasanagić, Milica Mitrović, Ksenija Mijović, Dragan Mašulović

Serbia

Bowel and mesenteric trauma – CT signs, diagnostic challenges and pitfalls

Introduction:

Injures of the bowel and mesentery in patients with abdominal and pelvic trauma are relatively uncommon (1-5% patients with blunt abdominal trauma), but detection of these changes and timely diagnoses are essential to decrease patient mortality and morbidity. CT has been showen to be the best modality of choise for the imaging of these patients. Specific and less specific CT signs of bowel and mesenteric injures are described (also refffered to as hard and soft CT signs). However, interpretation of this findings can be challenging for radiologist since they are commonly seen in setting of multiple and complex injuries. In addition to these some of this findings can be subtle.

The aim:

is to enhance radiologist awarness of CT signs in mesenteric and bowel trauma.

Material and methods: We presented the range of CT findings in patients with mesenteric and bowel trauma, as well as diagnostic pearls and pitfalls we enconuntered with, during interpretation of these findings

Results:

Combination of hard (extraluminal air collection, bowel wall defect, active vascular contrast extravasation, metallic fragment(s) within bowel wall or lumen) and soft CT signs of bowel injures (free fluid, bowel wall thickening, intramural hematoma, abnormal bowel wall enhancement), as well as hard (active vascular contrast extravasation) and soft CT signs of mesentery injures (free fluid, abnormal mesenteric vessels, mesenteric fat stranding and hematoma) can lead us to accurate diagnosis.

Conclusion:

Bowel and mesenteric injures are one of the most common missed injures on trauma abdominal and pelvic CT. Radiologist familiarity with CT signs of bowel and mesenteric trauma, as well as most common pitfalls, can help pave the way for improved diagnostic accuracy.

PO04

Jovana Milenković, Milica Stevanović, Jelena Kovač
Serbia

Benign pancreatic lesions mimicking malignancy - a case series

Introduction:

There is a wide range of benign, inflammatory and pseudotumoral lesions of the pancreas, which radiologically can mimic pancreatic cancer. Since incorrect diagnosis can have significant therapeutic consequences, it is very important to consider certain benign entities in the differential diagnosis of pancreatic cancer. These include focal fatty replacement, intrapancreatic splenule, pancreatic lipoma, specific forms of pancreatitis (autoimmune, focal, "groove", and eosinophilic pancreatitis), aneurysms of peripancreatic vessels, and others.

The aim:

The purpose of this study is to point out the radiological appearance of the most common non-neoplastic lesions that may mimic pancreatic malignancy, identifying relevant features that may help reaching the correct diagnosis.

Material and methods:

We report a case series of 14 patients with benign pancreatic lesions who were suspected of having pancreatic cancer. Multimodal imaging approach (echosonographic examination, computed tomography (CT), and magnetic resonance imaging (MRI)) was used in correlation with clinical findings, in order to determine the correct preoperative diagnosis of a pancreatic lesion.

Results:

In four patients pancreatic cancer was misdiagnosed with focal pancreatitis which was confirmed through follow-up and regression of pancreatic parenchymal changes. Two patients with initial diagnosis of pancreatic cancer had autoimmune pancreatitis which was suspected on MRI, further confirmed by corticosteroid test. Two patients had groove pancreatitis which was suspected on MRI and later confirmed in follow-up examinations. Two patients had intrapancreatic splenule which was confirmed by MRI in one patient, and pathohistologically after distal pancreatectomy in one patient. In two patients aneurysm of peripancreatic vessels simulated pancreatic malignancy. In two patients focal fatty infiltration simulated pancreatic malignancy on CT, and correct diagnosis was made after MRI.

Conclusion:

Various benign conditions may mimick radiologically pancreatic cancer. However, certain lesions can be precisely diagnosed on imaging, relying on the key radiological features. Taking into account clinical impact, it is very important to preoperatively differentiate pancreatic cancer from its mimickers.

PO05

Milica Stevanović, Jovana Milenković, Jelena Kovač
Serbia

Solid pseudopapillary neoplasm of the pancreas and the role of MRI in the diagnosis: A case series

Introduction:

Solid pseudopapillary neoplasms (SPNs) are rare tumors of the pancreas, most often found in young women, with benign characteristics, but with possibility of malignant alteration. SPNs usually present on imaging as large, well-defined, encapsulated, heterogeneous lesions, consisting of solid and cystic components with pathognomonic intralesional hemorrhage and varying degrees of necrosis. However, atypical presentations of these tumors might mimick other pancreatic lesions.

The aim:

The aim of this study is to present typical and atypical radiological presentation of SPNs and other lesions that may have similar imaging characteristics.

Material and methods:

We report a case series of 12 patients with pathohistologically proven SPN. All patients underwent preoperative magnetic resonance imaging (MRI) examination and were surgically treated. In five patients cephalic duodenopancreatectomy was performed, while seven patients had distal pancreatectomy.

Results:

Fivepatients had typical imaging appearance of well-defined, large heterogeneous tumors, consisting of solid and cystic components with intralesional hemorrhagic content. In seven patients tumor had atypical presentation and was preoperatively diagnosed as pancreatic neuroendocrine tumor (four patients), pseudosolid serous cystic neoplasm (one patient), mucinous cystic neoplasm (one patient), and pancreatic adenocarcinoma (one patient). The most common atypical presentation of SPN was completely solid lesion which was present in five patients. Internal hemorrhage was absent in seven patients. Three patients had tumors less than 3cm in diameter, while nine patients had larger tumors.

Conclusion:

Diagnosing SPN is challenging, even with the use of modern imaging modalities. If typical imaging features are absent, and if tumor is found in men or elderly population, the correct preoperative diagnosis is very difficult. Taking into account different treatment strategies for SPNs and lesions simulating their appearance on imaging, it is clinically very important to bare in mind atypical presentation of SPN.

PO06

Stefan Milosević, Katarina Stošić, Milica Mitrović, Aleksandra Janković, Dušan Šaponjski, Ljubica Lazić, Aleksandra Đuric-Stefanović, Jelena Kovač
Serbia

Intraductal Papillary Neoplasm of the Bile Duct (IPNB): CT and MRI characteristics for detection of rare pathological entity

Introduction:

Intraductal papillary neoplasm of the bile ducts (IPNB) is a rare tumor characterized by intraductal papillary growth, with mucin secretion and dilatation of the bile ducts. It is defined as a pre-invasive lesion, with mucin hypersecretion seen in only one-third of IPNBs. If excessive mucin is produced the affected bile ducts show tubular or cystic luminal dilatation both upstream and downstream from the lesion. The tumor itself may be seen as solitary or multiple polypoid intraductal enhancing lesions.

The aim:

To show computed tomography (CT) and magnetic resonance imaging (MRI) characteristics of IPNB in patients with pathohistologically confirmed desease.

Material and methods:

A retrospective analysis from September 2021. to September 2023. found 6 patients with pathohistologically confirmed IPNB. All patients preoperatively underwent CT and/or MRI examination. Based on the analysis of the availabile literature and our own experience, a set of diagnostic criteria for IPNB were determined: bile duct dilatation, soft tissue nodules within the dilated bile duct, growth along the interior wall of bile duct, and "thread sign" defined as string-like filling defects representing mucin bands within the lumen of bile ducts seen on magnetic resonance cholangiopancreatography (MRCP).

Results:

In five patients correct preoperative diagnosis was made, while in one patient extrahepatic cholangiocarcinoma was suspected. In three cases the tumor was located in intrahepatic biliary ducts, and in other three extrahepatic location of the tumor was found. Biliary dilatation was seen in all patients. Main CT and MRI feature was a nodular soft-tissue mass within the dilated bille duct, showing enhancement in late arterial phase. In four cases the growth of the lesion along the bile duct wall was noted. On MRI soft-tissue mass showed low signal intensity on T1-weighted images and slightly higher signal intensity on T2-weighted images. In all cases diffusion restriction was noted in affected bile ducts. Although mucin cannot be differentiated from bile on CT, MRCP showed string-like filling defects ("thread sign") in three cases.

Conclusion:

With the use of above mentioned CT and MRI diagnostic criteria, although rare entity, IPNB might be accurately diagnosed preoperatively in most of the cases.

PO07

Stefan Milošević, Aleksandra Đurić-Stefanović, Katarina Stošić, Milica Mitrović-Jovanović, Dusan Šaponjski, Aleksandra Janković, Jelena Kovač, Ljubica Lazić
Serbia

Radiological Presentation of Abdominal Wall Hernias: A Comprehensive Overview

Introduction:

Abdominal wall hernias are common clinical entities characterized by the protrusion of abdominal contents through a weakened or disrupted abdominal wall. Radiological imaging plays a pivotal role in the diagnosis, characterization, and management of these hernias. Ultrasonography (US), computed tomography (CT) and magnetic resonance imaging (MRI) can be all used for evaluation of abdominal wall hernias. CT, being the gold standard, can offer exceptional anatomical detail, allowing for precise localization, sizing, and classification of hernias.

The aim:

This abstract provides a brief overview of the radiological presentation of deferent type abdominal wall hernias, highlighting key imaging modalities, diagnostic criteria, and their clinical significance.

Material and methods: Here-in we present deferent types of abdominal wall hernias that were diagnosed on various radiological modalities in the Department of Abdominal Radiology, UKCS for the time period from September, 2022. to September, 2023.

Results:

Abdominal wall hernias were detected in 45 patients. Most common type of hernia was inguinal hernia seen in 17 cases (37%), followed by umbilical hernia in 8 cases (18%) and epigastric and hypogastric hernias in 7 patients (15%). A large number of patients had post incision hernias and parastomal hernias 10 out of 45 (22%). Only one patient (2%) had a lateral abdominal wall hernia (Spigelian hernia) and in two cases we saw paraumbilical hernia (5%). In 29 cases the hernias were detected on CT. On US in 12 cases, and in 4 patient's diagnosis was incidentally made on MRI.

Conclusion:

Radiological evaluation is integral to the diagnosis and management of abdominal wall hernias. CT remains the cornerstone, providing comprehensive information, while US and MRI offer valuable alternatives in specific scenarios. A multimodal approach, guided by radiological findings, allows for accurate diagnosis, optimal surgical planning, and improved patient outcomes in the management of abdominal wall hernias.

PO08

Aleksa Janović, Biljana Miličić, Svetlana Antić, Đurđa Bracanović, Marijana Stanišić, Goran Krstić, Biljana Marković-Vasiljković
Serbia

Feasibility of using cross-sectional area of masticatory muscles to predict skeletal muscle sarcopenia in healthy aging subjects

Introduction

Determination of skeletal muscle mass (SMM) and sarcopenia is of tremendous importance in identifying patients at high risk of potential adverse health outcomes. Recent studies demonstrated a significant decline in masticatory muscle (MM) function in patients with sarcopenia.

Aim

This study aimed to analyze the computed tomography (CT) structure of MMs in patients with and without sarcopenia and to explore their predictive value in diagnosing sarcopenia.

Materials and methods

This retrospective cross-sectional study included 149 adult patients (59 (39.6%) males, 90 (60.4%) females, mean age 57.4±14.8 years) in whom head and neck CT examination was performed for diagnostic purposes. The selection criteria were a negative history of malignant disease, neurodegenerative and muscle disease, developmental jaw anomalies, and acute inflammatory diseases. A routine protocol was used to diagnose sarcopenia on CT scans: measurement of skeletal muscle cross-sectional area (CSA) at the C3 vertebral level, skeletal muscle index (SMI) estimation, and application of specific cut-off values for SMI. CSA of MMs (temporal, masseter, medial pterygoid, and lateral pterygoid) were measured bilaterally on reference CT slices. T-test explored the differences in MM CSA between patients with and without sarcopenia. Univariate and multivariate logistic regression (presented in Odds ratio (OR) and 95% Confidence Interval (CI)) analyzed the relationship between MM CSA and sarcopenia.

Results

Sarcopenia was diagnosed in 67 (45%) patients. Patients with sarcopenia had significantly lower CSA of all MM when compared to patients without sarcopenia. Univariate logistic regression demonstrated a significant association between all MMs CSA and sarcopenia. In the multivariate logistic regression model, only masseter (OR 0.480 (95% CI 0.288-0.800) and lateral pterygoid CSA (OR 0.536 (95% CI 0.327-0.878) were significantly associated with sarcopenia.

Conclusion

CSA of masseter and lateral pterygoid muscle can be used as predictors of sarcopenia in healthy aging subjects.

PO09

Đurđa Bracanović, Svetlana Antić, Aleksa Janović, Goran Krstić, Marijana Stanišić, Biljana Marković Vasiljković
Serbia

CT and CT image-based texture image analysis in radiological evaluation of chronic rhinosinusitis

Introduction:

Computerized tomography (CT) is the primary imaging technique used once chronic rhinosinusitis (CRS) is suspected. So far, researchers investigated different CT parameters which are not strictly specific for CRS.

The aim:

This study was focused on evaluating radiological properties of CRS. We analyzed specific CT features and evaluated the possible usefulness of the texture image analysis (TIA) as an additional diagnostic parameter. Additionally, we examined which of the available radiological and clinical parameters is the best indicator of the CRS severity.

Methods:

56 adult patients diagnosed with CRS were subdivided into three subgroups (mild, moderate and severe CRS). Clinically we reported the Lund-Mackay score (LMS), presence of nasal polypus (NP) and fungal infection. Obtained CT images were analysed for homogeneity, high-attenuation areas, density of the soft tissue mass, bony wall thickness and density, while TIA included assessment of uniformity, contrast, homogeneity and entropy of sinus content in CT images.

Results:

Frequencies of NP, presence of fungi, areas of high attenuation and LMS significantly increased with the increased severity of CRS. Anterior wall thickness and density increased in the severe forms of CRS. In the group of patients with detected fungal infection soft tissue mass was significantly more non-homogeneous, high-attenuation areas were more prevalent, while soft tissue densities were higher. Among TIA parameters only homogeneity showed significant differences.

Conclusions:

Morphological changes of sinus wall could be a useful indicator of CRS severity. The presence of fungi, allergic inflammation of any origin and nasal polypus potentiates more severe forms of CRS. Presence of fungi should be suspected when the sinus is filled with a non-homogenous soft tissue content of a high CT density not necessarily presented as clearly visible hyperattenuation material. TIA may serve as a tool for quantitative assessment of subjective CT features such as homogeneity of the soft tissue mass for investigative purposes.

PO10

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Serbia

Computed tomography evaluation of sinonasal polyposis

Introduction:

Sinonasal polyposis is relativly common degeneration of sinonasal mucosa. Although benign, sinonasal polyps and their underlying disease may have a huge impact on a patient's quality of life. The etiology is still uncertain, but there is a strong association with allergy, infectious rhinosinusitis, asthma, cystic fibrosis, and eosinophilic granulomatosis, but also can be related to some local conditions.

The aim:

The aim of this study was to assess CT presentation and different local conditions related to sinonasal polyposis.

Material and methods:

The study was performed from September 2022 to April 2023 and included 35 patients presenting with symptomatic sinonasal polyposis. All recruited patients, were examined by ENT specialists, and then underwent computed tomography (CT) examination. CT scans were carried out using a 0,9 mm slice thickness in axial planes and multiplanar reconstructions.

Results:

Maxillary sinus was the most commonly and most severely affected, while the sphenoid sinus was the least frequently involved. Ostiomeatal complex (OMC) was found to be blocked in more than half of presented cases. Different anatomic variations (septal deviation, concha bullosa, sinus aplasia, and hypoplasia) were observed in 65% of cases. Acquired conditions such as odontogenic cysts and retention pseudocysts were depicted in 31%. Osteolysis of the medial maxillary sinus wall was detected in 13%, while osteolysis of the upper and middle nasal turbinates were present in 23% of patients, mostly in cases of extensive polyposis.

Conclusion:

Our research indicated that combined anatomic variations and acquired conditions are local factor associated with sinonasal polyposis, while osteolysis of sinus wall and nasal turbinates occurs mostly in cases of extensive polyposis.

PO11

Merve Solak, Esat Kaba, Ayşenur Topçu Varlik, Yusuf **Çubukçu**, Lütfullah Sağir, Kubilay Muhammed Sünnetci, Ahmet Alkan, Hasan Gündoğdu, Fatma Beyazal **Çeliker**, Mehmet Beyazal
Turkey

Diagnostic Value of Ultrasound-Based Deep Learning in Classification of Benign-Malign Thyroid Nodules

Introduction:

Thyroid nodules are a common problem in thyroid diseases. Ultrasonography (US) and fine needle aspiration biopsy (FNAB) are most commonly used in this diagnostic process.

However, both of these methods are practitioner dependent. Therefore, new studies are investigating the utility of artificial intelligence-based models in differentiating benign from malignant nodules.

The aim:

In our study, we aimed to determine the success of deep learning (DL) in differentiating malignant from benign nodules and its contribution to the diagnostic accuracy of radiologists with different levels of experience.

Material and methods:

The dataset consists of 576 US images from 178 patients with benign or malignant FNAB results. After the image pre-processing, the dataset was divided into 80% training and 20% test set. AlexNet+ Fine KNN architecture was used for benign-malignant classification. In our study, 3 radiologists with different experiences predicted benign and malignant nodules in the test set first without using DL results and then using DL results.

Results:

Accuracy, sensitivity, and specificity results obtained using AlexNet+ Fine KNN on the test set of 115 images for Dataset are 0.9391, 0.9688, and 0.7895 respectively. The accuracy results for Junior resident (JR), Senior Resident (SR), and Senior Radiologist (SRad) before deep learning were 0.7826, 0.8435, and 0.8522 respectively. Sensitivity was 0.8125, 0.9278, and 0.8854, and specificity was 0.6316, 0.3889, and 0.6842 respectively. The accuracy results with deep learning results are 0.8696, 0.9304, and 0.9043 for JR, SR, and Srad respectively.

Conclusion:

When we evaluate the performance of different experienced radiologists and artificial intelligence models in diagnosing thyroid nodules, deep learning-based models contribute greatly to the success of inexperienced radiologists and have the potential to significantly reduce the workload of experienced radiologists.

PO12

Predrag Jovanović, Milos Peković, Vesna Kovačević
Serbia

Active surveillance or surgery for ACR TI RADS 5 nodules mesuring less than 1cm: is papillary microcarcinoma really indolent?

Introduction:

In 2017, Thyroid Imaging Reporting and Data System (TI-RADS) Committee of the American College of Radiology (ACR) published a white paper for classifying thyroid nodules on the basis of their appearance at ultrasonography (US). ACR TI-RADS determines a risk level from TR1 to TR5 and recommendations for fine-needle aspiration biopsy (FNAB) or ultrasound follow-up based on a nodule's ACR TIRADS level and its maximum diameter.

Papillary carcinomas account approximately 85% of thyroid tumors. Papillary microcarcinoma (PMC) is defined as papillary thyroid carcinoma measuring less than 1cm. The majority of PMCs are indolent and clinically silent. But, the prognosis of patients with PMC can be poor if they have high-risk features such as clinical node metastasis, distant metastasis and suspicion of high-grade malignancy on cytology.

There are two management options: active surveillance for low-risk PMCs and surgical treatment only for patients with high-risk PMCs or when tumor progression occurs.

The ACR TI-RADS is against routine biopsy of nodules smaller than 1 cm, even if they are highly suspicious.

The aim:

To present results from our practice and to indicate the need to consider an updating the current ACR TI RADS classification and recommendations for FNAB for TR5 nodules.

Material and methods:

In a retrospective study was analyzed the results of thyroid ultrasound examinations performed at the Obrenovac health center radiology department and clinical examinations, laboratory analysis, ultrasound guided FNAB and surgery performed at the Institute of Oncology and Radiology of Serbia.

Results:

During the analyzed period, 5 TR5 nodules smaller than 1cm was detected. FNAB was performed in one patient and obtained BethesdaIII score. All 5 patients underwent surgery and 5 PMCs was confirmed. In 2 patients, jugular lymph node metastases was confirmed after surgery, in one of them a suspicious cervical lymph node was seen on ultrasound.

Conclusion:

From the obtained results, it can be concluded that PMCs may not have an indolent behavior and therefore should be considered FNAB or surgery for all TR5 nodules smaller than 1cm.

PO13

Svetlana Antić, Đurđa Bracanović, Aleksa Janović, Marijana Stanišić, Goran Krstić, Biljana Marković Vasiljković
Serbia

Comparison of computed tomography and intraoral ultrasonography in assessing the invasion depth of oral squamous cell carcinoma

Introduction:

Complete removal of oral squamous cell carcinoma (OSCC) is essential for loco-regional control, and disease-free survival. An important prognostic factor in early-stage OSCC, in addition to lymphovascular invasion and histological grade, is the depth of invasion (DOI).

The aim:

The aim of the study was to compare two different imaging modalities: intraoral ultrasonography (IOUS) and computed tomography (CT) in assessing the DOI of OSCC, and to correlate the obtained values with analogue histopathological (HP) measurements, as the gold standard.

Material and methods:

Prospective study with time limitation of 6 months included 15 patients with a clinical diagnosis of an intraoral tumor lesion. Patients underwent multidetector CT and IOUS examination, and DOI measurements were obtained. Histopathological analysis confirmed OSCC in all the cases (2 at the level of the buccal mucosa, 2 on the dorsal tongue side, 5 on the ventral tongue side and 6 on the lateral tongue edge), and HP DOI measurements were correlated with those obtained by CT and IOUS. The analysis of the obtained data was performed using the statistical package SPSS 22 and Pearson correlation coefficient.

Results:

Both techniques, IOUS and CT showed a significant and strong positive correlation of DOI measurements with analoge measurements in HP reports (0.829 and 0.880, respectively, $p<0.001$). Although a discretely stronger correlation was recorded with the CT method, we have to note that in 2 out of 15 patients it was not possible to detect the intraoral lesion at all, due to artifacts originating from dental restorations.

Conclusion:

Both methods, CT and IOUS proved to be reliable in assessing DOI of OSCC. In cases with presence of metal dental restorations as a limiting factor for CT, IOUS has proven to be a competitive, easily applicable alternative in the evaluation of early stage OSCC.

PO14

Omer Faruk Uluca, Mustafa Ozdemir
Turkey

Percutaneous Ascites Drainage Catheter Procedure with the Seldinger Method: A Single Center Experience

Introduction:

Peritoneal fluid increase is common in benign and malignant diseases called ascites. Drainage of the existing fluid may be necessary for diagnosis, treatment, and palliation. For this purpose, the catheter procedure can be performed using the Seldinger or Torakar method.

The aim:

This study aims to evaluate the efficacy and safety of percutaneous ascite drainage using the Seldinger method.

Material and methods:

A total of 15 patients who were inserted percutaneous ascites drainage catheter using the Seldinger method in our center between January 2021 and August 2023 were included in the study. The procedure was performed under the guidance of ultrasonography, under standard sterile conditions, and local anesthesia.

Results:

The mean age of the patients was 60±9.5. Six patients (40%) were male, and nine (60%) were female. An 18G needle was used in all patients. An 8F catheter was inserted in 10 patients (66.7%), and a 10F catheter was inserted in 5 patients (33.3%). There was malignant effusion in 13 patients (86.7%) and benign effusion in 2 patients (13.3%). The procedure was performed in 2 patients using an antiaggregant (13.3%). The nature of the effusion was serous in 11 patients (73.4%), hemorrhagic in 2 patients (13.3%), and purulent in 2 patients (13.3%). No major complications developed in any of the patients. Minor complications were present in 2 patients (13.3%). There was leakage around the catheter in 1 patient, and an infection developed around the catheter in 1 patient.

Conclusion:

Percutaneous ascites drainage with the Seldinger method is effective and safe for both malignant and benign diseases.

PO15

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Significance of pain duration before treatment with CT guided periradicular therapy in patients with sciatica

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.

PO16

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North Macedonia

CT guided periradicular infiltration treatment in patient with extraforaminal disc herniation

Introduction:

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

The aim

was to evaluate the history, treatment and clinical outcome of a patient with low back pain and radiculopathy caused by extraforaminar disck herniation, after a minimally invasive procedure (PRT) periradicular therapy and physical therapy.

Clinical features:

A 48-year-old patient without comorbidities was presented with 3-week history of lumbar pain with irradiationto the left lower extremity. The patient had difficulty sitting and standing with antalgic movement .The pain was intensified by lateral movements dominant left and positioning backwards with propagation to the left side and hip. Dominant symptom was radicular pain with paresis inthe affected dermatoma of lower limb. The diagnosis was confirmed by magnetic resonance imaging.

Intervention and outcome:

Advantages of PRT are: minimal invasive procedure, CT guided intervention for exact and precise delivery of the medications, low risk in damage of important local anatomical structures, short recovery time, easy approach and low cost for patient and for the medical institution, respectively. In our study, CT Siemens 16 slice was used for the intervention. The patient was treated with lumbar epidural corticosteroid application and physical therapy. Functional status was measured using a Modified Oswestry Questionnaire andnumerical pain assessment scale VAS scale. Initially, before intervention, functional status was assessed at 68%, with pain 8/10. After treatment, functional status was 4% and pain was assessed as 1/10.

Conclusion:

Multidisciplinary approach is needed in patients with extraforaminal disc herniation for better results. PRT demonstrated a significant role in treating our patient. As a result of the treatment significant reduction of pain and improvement of functional status was observed. The patient returned to normal life habits and activities in a very short time, which was primary goal.

PO17

Erbil Arik, Onur Taydaş, Ömer Faruk Ateş
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Endovascular and Percutaneous Treatment Procedures in Dialysis Fistula Thrombosis

The Aim

To investigate the effectiveness of endovascular and percutaneous treatments to preserve the patency of failing hemodialysis arteriovenous fistulas.

Background

Hemodialysis for patients with end-stage Renal Disease requires well-functioning vascular access. Native arteriovenous fistulae (AVF) are the best and most durable access for hemodialysis. AVF dysfunction is a common reason for vascular access problem in chronically hemodialyzed patients. It is caused by stenosis or occlusion in the inflow artery, anastomosis, or outflow vein. Endovascular and percutaneous strategies have been used to manage patients with AVF dysfunction for hemodialysis.

Clinical Findings/Procedure Details

In the access failure of a mature AVF, stenosis, thrombus, and aneurysm formation should be investigated with Doppler ultrasonography after insufficient fistula findings are detected in the physical examination. In addition, the flow rate and pressure of the fistula should be checked. In patients for whom endovascular treatment is considered, a fistulography

(angiography) should be performed, and the pathology should be fully demonstrated. Lyse and wait technique and its modifications can be used as a percutaneous treatment method. Endovascular treatment methods can be listed as balloon angioplasty, stent, stent-graft, and mechanical thromboaspiration. Balloon angioplasty is the gold standard treatment for venous stenosis in the KDOQI guideline. Treatment success is evaluated as successful dialysis and restoration of a palpable thrill.

Conclusion

Endovascular and percutaneous interventions are safe and effective methods in the treatment of AVF dysfunction caused either by stenosis or thrombosis. Preoperative planning has a crucial role in angiographic or clinical success.

PO18

Eda Cingoz, Mehmet Cingoz
Turkey

The Outcome of Embolization of Non-traumatic Rectus Sheath Hematomas

Introduction:

Rectus sheath hematoma (RSH), caused by injury to the superior and/or inferior epigastric arteries, results in bleeding into the rectus abdominis muscles. Abdominal trauma is primarily implicated in RSH; however, non-traumatic RSH has also been described.

The aim:

Herein, we present RSH patients percutaneously treated with embolization at an interventional radiology department (IRD).

Material and methods:

This retrospective study included 15 non-traumatic RSH patients (3males,12females) aged between 17-94 (64.53±18.17) years who were referred to the IRD between November 2020 and May 2023. The diameters of the largest hematomas varied between 70 to 182 mm. Ten patients were treated with coil embolization, 2 patients with NBCA (n-Butyl cyanoacrylate) embolization, and 3 patients with both particle and coil embolization via access to the femoral artery using a 5F sheath. Superior and/or inferior epigastric arteries were catheterized and occluded according to the site of the extravasation. When no extravasation was seen, the aforementioned arteries were occluded in accordance with the localization of RSH. Hemoglobin levels and computed tomography (CT) images were obtained before and after the procedure.

Results:

At the follow-up CT carried out 1-3 months following the intervention, all hematomas had shrunk. The maximum diameter of the RSH was significantly smaller in the post-procedural patients. The decrease in hemoglobin levels had ceased and raised to near-normal ranges within one week following the procedure. Complication related to the intervention was encountered in 1 patient who developed skin necrosis over the embolized vessel and was treated with NBCA embolization.

Conclusion:

The size of the hematoma reduced substantially following the procedure and the hemoglobin levels reached to near-normal values contributing to clinical improvement of the patients. Percutaneous embolization of RSH is therefore a safe and effective method in a non-traumatic setting.

PO19

Vladimir Cvetić, Borivoje Lukić, Marko Miletić, Oliver Radmili, Branko Gaković
Serbia

Successful Hybrid Approach Treatment of a Large Persistent Sciatic Artery Aneurysm

Introduction:

Persistent sciatic artery (PSA) is a rare congenital vascular anomaly, often asymptomatic, but can be associated with aneurysm formation and potential complications such as thromboembolism or aneurysm rupture in some cases. We present a case of a 75-year-old woman with symptomatic thrombus-containing aneurysm of the left PSA.

The Aim:

The aim was to restore lower limb vascularization while excluding a large persistent sciatic artery aneurysm using endovascular techniques, involving the placement of vascular plugs in the aneurysm's inflow and outflow vessels.

Material and Methods:

The treatment of the PSA aneurysm involved a successful hybrid approach, which included open surgical bypass and endovascular embolization. The open surgical bypass was performed from the left common femoral artery to left above-the-knee popliteal artery using a synthetic graft, while the aneurysm exclusion was achieved through endovascular plug embolization. Utilizing right contralateral transfemoral approach, a selective catheterization of the left persistent sciatic artery was performed and two vascular plugs were deployed in the outflow and inflow vessels of the aneurysm.

Results:

Control angiography revealed complete exclusion of the PSA aneurysm. At the 1-month follow-up there were no palpable pulsatile masses in the left gluteal region and the patient reported no symptoms.

Conclusion:

Given the high incidence of limb and life-threatening complications associated with PSA aneurysm, accurate diagnosis and appropriate treatment are crucial. In this case, a combination of open surgical and endovascular techniques resulted in a favorable outcome for the patient, highlighting the effectiveness of the hybrid approach in managing PSA aneurysms. Further studies are warranted to explore and refine treatment strategies for these complex vascular anomalies.

PO21

Stefan Petković, Saša Vujnović, Bojan Jovanić, Mile Čučak
Bosnia and Herzegovina

Initial clinical experiences with the use of CO_2 contrast media during interventional radiological procedures

Introduction:

Iodine contrast agents have traditionally represented the gold standard in digital subtraction angiographic (DSA) diagnostics and interventional procedures, but they have negative nephrotoxic and allergic properties, which prevent their use in a large number of

patients. The introduction of CO_2 contrast media as a substitute for iodine opened up the possibility for patients with reduced renal function or a previously noted allergic reaction to undergo minimally invasive procedures and interventions.

Aim, material, and methods:

The aim of the paper is focused on a subjective evaluation of two experienced interventional radiologists from University Clinical Center of the Republic of Srpska and their evaluation of the quality of digital subtraction angiography using CO_2 in comparison with iodine contrast media in 30 patients. The emphasis is on several parameters that are crucial when performing both DSA and other interventional radiological procedures, such as stenting or PTA, with the use of this contrast medium. The analysis of the main parameters included in the work is: the quality of the opacification of the blood vessel with the contrast agent; the opacification of the contrast agent in relation to the lumen of the blood vessel; the speed and practicality of the examination; the chemical and biological properties of the contrast agent and its effect on the patient; compatibility with the device; as well as economic profitability.

Results:

The advantages of CO_2 are reflected in the reduction of the risk of allergic reactions and nephrotoxicity, in the possibility of applying a larger amount of contrast compared to iodine, and in the same technical complexity of contrast application, while the negative side is currently the equal or possibly lower economic profitability. The average duration of the intervention in diagnostics was about 20 minutes, which is the same amount as when using iodine, and during angioplasty it lasted longer by about 20% of the total duration of the procedure when using iodine.

Conclusion:

CO_2 is a safe and successful contrast agent and is a suitable alternative to iodine contrast agents in DSA in patients who have contraindications to their use.

PO22

Ljiljana Drazetin, Ivana Stojić
Serbia

Top 5 vertebral looks at all imaging modalities you may need to know

Introduction:

Vertebral bodies may show a specific shape and look, so helps us to recognize pathologies or normal variants.

The aim:

To describe and illustrate radiological signs named for the phenomena that they mimic.

Material and methods:

We present some of the most frequent signs in our daily routine. Findings are best appreciated on different imaging modalities.

Results:

Cupid's bow sign indicates a normal variant in the endplate of the vertebral body. Normal variants are important to recognize to avoid labeling the observation as pathological. Fish vertebra describes the biconcave appearance of vertebra in bone mineral density disorders and anemias. „H" shaped vertebra is a characteristic finding of sharply delimited central

endplate depression, seen in some patients with sickle cell disease. The ivory vertebrae sign refers to the diffuse and homogeneous increase in opacity of a vertebral body that retains its contours and size. Finally, the pancake vertebra is the term given when a vertebral body has lost almost its entire height.

Conclusion:

Multiple signs are described in the radiology literature. The recognition of these signs allows radiologists to make a specific diagnosis or give a differential diagnosis.

PO23

Z. Joković, A. Pejović, V. Miler Jerković, A. Ristić
Serbia

Different subcortical volume in patients with temporal lobe epilepsy

During life spam and also at patients with epilepsy exist decrease of brain volume, but we were interested to determine possible mismatches in younger patients. We evaluated MRI volumetry in patients with temporal lobe epilepsy (TLE) and healthy controls using fully-automated software, FSL`s FIRST to determine the extent of subcortical volume loss in patients with TLE. This automated software for calculating subcortical volumes has been validated.

The aim of our study were to show changing at subcortical structures in patients with TLE.

Material and methods

We had a retrospective study with patients already diagnosed with temporal lobe epilepsy. MR images (n=118) were obtained from individuals aged 13–59 years. The participants included 54 men (45.8%) and 64 women (54.2%). They were divided into TLE-R (right) 28 participants, TLE-L (left) 52 participants, and healthy 38 participants. Structural scans were acquired at 1.5 T (Philips Achieved), 1.5 T, and 3T (Siemens). For the segmentation method used T 1-weighted MRI.

Results

Our groups were divided into younger (group I) and older than 30 years (group II). Statistically significant was $p < 0.005$ because we used Bonferroni correction. In group I, we found in the TLE-R group statistically significant lower volumes in all structures except the right amygdala ($p = 0.05$). In TLE-L were found statistically significant lower volumes except in the left amygdala ($p = 0.05$) and right thalamus ($p = 0.43$). In group II, TLE-R found statistically significant lower volumes at all subcortical structures except left thalamus ($p = 0.01$), right thalamus ($p = 0.04$), left caudate ($p = 0.06$) and right caudate ($p = 0.06$). In TLE-L were statistically significant lower volumes at all structures except at right thalamus ($p = 0.148$).

Conclusion

Subcortical structures show a negative correlation with age. Our study provides different volumes at subcortical structures and lateralization in patients with TLE.

PO24

Milena Trandafilović, Miroslav Milić, Aleksandra Antović, Ivan Stojanović
Serbia

An excess artery in the posterior segment of the cerebral arterial circle in human adult cadaver

Introduction:

Morphologically, the posterior segment of the cerebral arterial circle (CAC) consists of two posterior communicating arteries and precommunicating parts of the posterior cerebral arteries. In fetuses and adult cadavers, an excess (variable) artery is found and described as an accidental finding.

The aim:

This study has aim to describe an excess artery in the posterior segment of the cerebral arterial circle in human adult cadaver, as well as the conditions under which it occurs.

Material and methods:

The research was performed on 388 cadavers of both genders and different ages (0 to 95 year-old), autopsied at the Department for Forensic Medicine in Niš. Brain bases were photographed and morphometric analysis was performed in the *ImageJ* software. Statistical analysis was done in *SPSS ver. 20.0*.

Results:

An excess artery in the posterior segment of the CAC, named as a. communicans intermedia (ACoI) occurs in two forms morphologically stated (ACoI*), or as a pseudo form (p–ACoI*). The both forms of ACoI were observed in 12.6% of the examined cadavers. The investigation did not proved statistically significant relationship between gender and the occurrence of the (p–)ACoI*. An excess artery was noted significantly more frequent in cases with asymmetrical posterior segment of the CAC, more often as a p–ACoI*. ACoI* was noted significantly more frequent in cases with ipsilateral adult, and p–ACoI* in fetal configuration of the ipsilateral posterior segment of the CAC. An excess artery had the smallest diameter and the smallest deviation in diameter compared to the adjacent arteries.

Conclusion:

Predominant unilateral appearance of the (p–)ACoI* in the posterior segment of the CAC, dependence of the CAC type, as well as its incidence, indicate the influence of embryological vascular and hemodynamic factors during formation of this arterial form.

PO25

Halil İbrahim Sara, Hasan Aydin, Fatih Hizli
Turkey

The relationship between PIRADS v2.1 and Gleason Score in the diagnosis of peripheral zone prostate cancer by ADC Histogram Analysis

Introduction:

Contribution of ADC histogram datas to the nature of prostate lesions, Gleason scores of malignant lesions and grading of prostate cancer, according to ADC min/max, Standard Deviation, Entropy, Voxel count, Volume, Coefficient of Variance datas under ROC curve analysis, were evaluated in this research.

Aim:

To determine the effectiveness of ADC histogram in diagnosing and determining the aggressiveness of peripheral zone prostate cancer and to reveal the relationship between Gleason and PIRADS scores.

Material and method:

61 patients who underwent standard prostate biopsy and mp-MRI before biopsy, were included in the study. The target lesions in mp-MRI were detected according to the pathology reports and ADC values were segmented by using FireVoxel program. Histogram parameters were obtained by marking throughout all sections of the lesion along the ROI. Patients were divided into 35 clinically significant cancers, and 26 insignificant cancers.

Results:

ADC max, Standard Deviation, Entropy, Voxel count, and Volume were found to be significantly different between benign and malignant lesions. According to ROC curve; Entropy, Voxel count, and Volume values were statistically significant in distinguishing benign and malignant lesions. According to Gleason scores; Voxel count was statistically significant in grading prostate cancer under ROC curve. With regard to Gleason scores, ADC values were significantly different between ADC min, Coefficient of Variance and Voxel count values.

Conclusion:

ADC histogram datas contribute to the diagnosis of benign-malignant prostate lesions and prediction of Gleason scores of malignant ones.

PO26

M Kostova ,A Dodevski, D Veljanovski, B Zafirovska-Ivanovska, S Dejanova Panev, B Prgova Veljanova
North Macedonia

The role of T2w pulse sequence and diffusion with its numerical ADC map in prostate cancer diagnosis

Introduction.

In patients with increased PSA (prostate-specific antigen), the next diagnostics tool is transrectal ultrasound-guided biopsy-TRUS.

Multiparametric magnetic resonance imaging (mp MRI) as non invasive diagnostic tool is used as a triage test to avoid biopsy, as well as to improve the diagnostics.

Aim.

To prove the clinical meaning of T2W pulse sequence and diffusion in prostate malignant lesions detection and their distinction from the benign lesions.

Materials and methods.

A cohort prospective study included 100 patients with increased levels of PSA from 4 ng/ml to 76 ng/ml. The MRI equipment used was Siemens Essenza1,5T with body coil. The results from the T2W pulse sequence and diffusion are correlated with the values of diffusion and ADC map, in which the suspected zones are marked on a template. Patients undergo biopsy depending on the PIRADS (prostate-imaging and reporting data system) classification. The MRI results and the pathohistological findings are then compared. Clinically significant cancer is considered to be a cancer with a Gleason score 6, diameter > 6mm.

Results.

The values of diffusion with its numerical ADC map are considerably lower for malignant nodules compared to benign ones. Hyposignal of T2W pulse sequence is characterized with score 2 and 3 in benign changes, and 4 and 5 in malignant changes using the PI RADS score system for differentiation.

Conclusion.

T2W pulse sequence combined with diffusion is a powerful tool for non-invasive differentiation of benign prostatic hyperplastic nodule and prostatitis from a malignant nodule.

PO27

Maja Stankov, Ivana Stojić, Ivan Adjić, Marijana Basta Nikolić, Nataša Prvulović Bunović
Serbia

PI-RADS classification

The aim:

- to describe the role of MRI findings in the assessment of prostate cancer;
- to review PI-RADS 2.1 classification;
- to provide examples of different PI-RADS scores.

Introduction:

Prostate cancer is one of the most common cancers among male patients. Around 95% of all prostate cancers are adenocarcinoma and they tend to spread locally in the pelvis. MRI is a useful tool for evaluation of the prostate gland as well as surrounding structures. PI-RADS (Prostate Imaging-Reporting and Data System) represents the standardised reporting system and indicates the probability of clinically significant cancer, which includes T2W, DWI and DCE sequences. On T2W images, prostate carcinoma is usually presented as hypointense lesions with restricted diffusion and post contrast enhancement. In evaluation of prostate carcinoma it is necessary to precisely locate the lesion in the gland by using the sector map.

Conclusion:

The importance of prostate MRI lies not only in the detection and precise localization of a clinically significant tumour but in locoregional staging, follow-up after the applied therapy, and detection of carcinoma recurrence in treated patients. The evaluation of the MRI findings is based on the PI-RADS reporting system, which enables better communication between clinicians and radiologists and adequate treatment of the patient.

PO28

Vladimir Videnović, Tamara Vučinić
Serbia

Pancreatic Cystic Lesions, Our Experiences

Introduction:

Pancreatic cystic lesions are often incidental findings, and they are more frequently detected due to incrising number of radiological examinatons and population aging. In the terms of patology pancreatic cystic lesions are simple retention cyst, pseudocyst or cystic neoplasm.

Aim:

In this presentation, we share main characteristics and our experiences of pancreatic cystic lesions detected by multidetector computed thomography (MDCT) and magnetic resonance imaging (MRI).

Patients and Methods:

The study included 35 patients (males 51%), mean age 60±10 years, that were examined in our center during one year. The patients undergone routine clinical workup and had contrast enchanced CT scan in arterial and portal venous phase.

Results:

Pancreatic pseudocyst were the most found pancreatic cystic lesions in 45% (16/35), as well as simple pancreatic cyst in 28% (10/35). Serous cystic neoplasm (SCN) were diagnosed in 12% (4/35), intraductal pappilary mucinous neoplasm (IPMN, only „branch duct" types were found) in 9% (3/35) , and mucinous cystic neoplasm (MCN) in 6% (2/35).

There were no CT signs of possible malignate alteration of these lesions, but patients with diagnosed pancreatic cystic neoplasm were reffered for further imaging diagnostic - MRI.

Conclusion

Pancreatic cystic lesions may vary in appearance. Characterization of these lessions, is crucial in further menagment, such as surgical removal or follow – up. We need to have a comprehansive approach that inclues other information such as age, gender and history of previous pancreatitis, as well as imaging method, such as MDCT that is crucial for diferential diagnosis, follow up and furhter clinical work up of these patients.

PO29

Katarina Stošić, Stefan Milosević, Aleksandra Đurić-Stefanović, Jelena Kovač, Dragan Mašulović, Milica Mitrović, Dušan Šaponjski, Aleksandra Janković, Ljubica Lazić, Borivoje Lukić, Vladimir Cvetić
Serbia

The importance of diagnostic monitoring of patients with acute pancreatitis and timely detection of life-threatening vascular complications: Single Center Experience

Abstract

Introduction:

Acute pancreatitis is a debilitating inflammatory condition that can lead to a spectrum of complications, including the formation of pseudoaneurysms. These vascular abnormalities, characterized by their fragility and risk of rupture, pose a significant clinical challenge. Pseudoaneurysms in pancreatitis are most commonly associated with peripancreatic arteries, particularly the splenic artery and pancreaticoduodenal artery.

The aim:

To provide a concise overview of the radiological characteristics, timely follow-up and treatment strategies for vascular complications of pancreatitis, and emphasize possible imaging features that that can help in their early detection.

Material and methods:

From September, 2020. to August, 2023. pseudoaneurysms were detected in 5 patients with pancreatitis. Two of which were located on pancreaticoduodenal artery, two on lienal artery and one on left gastric artery. All the patients were treated with endovascular embolization.

Results:

In four cases, pseudoaneurysms of peripancreatic vascular structures were diagnosed by regular ultrasound and CT control examinations and were successfully embolized. With our last patient, initial CT exam showed some worrisome features for the formation of pseudoaneurysm near left gastric artery. Patient was then included in rigorous follow-up, with ultrasound exams on three day basis and after two weeks we detected Color-Doppler flow in a collection near left gastric artery. CT exam was made that confirmed the formation of the left gastric artery pseudoaneurysm, which was later on treated with coil embolization.

Conclusion:

Radiological imaging, with its ability to detect, characterize, and follow-up on these vascular complications, is pivotal in guiding treatment decisions and evaluating therapeutic outcomes. The gold standard in treatment is endovascular angioembolization with all its benefits compared to open surgery. As technology continues to advance, radiological interventions and follow-up strategies are likely to play an even more significant role in improving the prognosis of patients with pancreatitis-associated pseudoaneurysms.

PO30

Tijana Koković
Serbia

Radiological evaluation of intracranial aneurysms and AV malformations

Intracranial aneurysms most often occur in the region of the hexagon of Willis. High blood pressure is the most significant risk factor for the occurrence of aneurysmal subarachnoid hemorrhage (SAH), regardless of age and sex. In the majority of cases, brain artery aneurysms are symptomless and are discovered as an accidental finding during autopsy. The symptoms that occur as a result of the presence of an unruptured aneurysm are the result of the pressure of the aneurysm on the surrounding brain tissue with the failure of the functions of the affected part of the brain. By far the most common manifestation of an intracranial aneurysm is rupture, leading to SAH. Currently, aneurysms are increasingly being detected before rupture, thanks to the increased availability and improved sensitivity of non-invasive imaging techniques. The first diagnostic procedure undertaken when SAH is suspected is a native CT scan of the brain parenchyma. After confirmed SAH, the next diagnostic procedure is to determine the exact cause that led to the occurrence of spontaneous SAH. The presence of aneurysms can be demonstrated by multislice computed tomography angiography (MSCTA), magnetic resonance angiography (MRA) and digital subtraction angiography (DSA), DSA is considered the "gold standard" for aneurysm detection and is an invasive imaging method. MSCTA is a non-invasive method of imaging with the application of i.v. contrast and high spatial resolution. Because of its non-invasiveness and high sensitivity, MSCTA can be successfully used in the diagnosis of brain aneurysms. MRA is also a non-invasive imaging method, without radiation compared to MSCTA. MRA helps in detecting aneurysms of blood vessels, and today it is a complementary method to CT devices of the newer generation. Accidentally discovered, asymptomatic aneurysms, depending on the size and condition of the aneurysm, require observation, monitoring and planned treatment. Observation consists of routine periodic scans. Accidentally discovered aneurysms with risc o rupture require treatment, and SAH resulting from aneurysm rupture requires immediate treatment. The goal of

the treatment is complete, permanent and safe exclusion of the aneurysm from the systemic circulation. Microsurgical interventions represent the "gold standard" in modern surgery of brain aneurysms, which involves disconnecting the aneurysm from the systemic circulation with a clip placed using an applicator. Endovascular coil embolization (coiling) is an interventional radiological procedure in which an aneurysmal enlargement is reached, series of coils and stents are inserted - if the aneurysm has a wide neck, and it has proven to be extremely effective in the treatment of ruptured aneurysms.

PO31

Tamara Tapušković, Dragoslav Nenezić, Rabina Dedeić
Montenegro

Anthropometric characteristics of the facial soft tissue thickness and it's significance in forensic medicine

Introduction

Gender, age, ethnicity and previous traumas can be determined by observing bones. However, for face identification, necessary are preserved soft tissues, and if they are not, then it's necessary to approach the reconstruction. Initially, data of the facial soft tissue thickness (STT) were obtained from cadavers, using the needle puncture method. Later, measurements were made on radiographs and ultrasound, but the most accurate techniques are MDCT and MRI. The data can be used for clay remodeling and digital reconstruction.

The aim

Comparison of Montenegrin facial STT with other populations using the MDCT modality, and the creation of a facial STT database of Montenegrin residents.

Material and methods

The study was performed at the Center for Radiological Diagnostics of the Clinical Center of Montenegro, on MDCT examinations of the head of Montenegrin residents aged 18-85, recorded in December 2022 and January 2023. All patients already had MDCT scheduled for other diagnostic purposes, on a 64-slice MDCT Somatom Sensation device, in the supination position, with a layer thickness of 0.6 mm. The images were measured in the Radiant DICOM viewer. Facial STT was measured at: glabella, rhinion, nasion, mid-philtrum, chin lip fold, upper lip, lower lip, mental eminence, beneath chin, frontal tubers, external orbital margins, zygomatic arches and mid-masseteric points.

The results

In Montenegro, the rhinion, mid-philtrum, upper and lower lip, mental eminence, fontal tubers, supraorbital and middle masseteric points are thicker in males than in females. In Bulgaria and Korea, male's soft tissues are thicker in almost all points compared to females, the exceptions are the zygomatic and external orbital point, where the soft tissues were thicker in females by about 1 mm. In Australia, there is no difference related to gender.

Conclusion

The database of facial STT is necessary to assess ethnic differences. By comparing our results with the others, we noticed that there is a difference that depends on the ethnicity.

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INVITED LECTURES

Locoregional therapy of liver tumors

Dragan Mašulović (SRB)

Malignant lesions of the liver are very common and are a common cause of death from malignancy. Thus, in 2020, liver cancer was among the top three causes of death from cancer in 46 countries. Since these patients in a significant percentage of cases cannot be treated with surgical methods, as the optimal therapeutic modality, locoregional therapy has gained more and more importance in recent decades and years.

The objectives of this lecture are to: provide a comprehensive and up-to-date overview of available techniques; present the advantages and limits of different treatments; assist in choosing the right therapeutic modality, and inform about future perspectives.

Interventional radiology in the treatment of malignancies of hilar regionof the liver

Dušan Bulatović (SRB)

Malignancies of hilar region of the liver often lead to malignant biliary obstruction (MBO), when a hilar tumor located intraluminally or adjacent to bile ducts impairs bile flow from the liver. The most frequent hilar malignancies that cause MBO include cholangiocarcinoma, gallbladder adenocarcinoma, liver metastasis, hepatocellular carcinoma, and compressive metastatic hilar lymph nodes.

MBO is diagnosed by combining clinical data, diagnostic imaging, tissue sampling and minimally invasive procedures. At the time of diagnosis, only a minority of patients fit the criteria for curative treatment, while the rest are treated with chemoradiotherapy with the intent of downstaging the tumor or with strictly palliative procedures.

Biliary drainage has a key role in the palliation of MBO, with the goal of treating hyperbilirubinemia, preventing cholangitis, enabling patients to receive chemotherapy, and prolonging survival.

Percutaneous transhepatic biliary drainage (PTBD) is a procedure in interventional radiology that is performed with the aim of bile derivation in patients with obstructive jaundice, when endoscopic drainage is unsuccessful or is not feasible.

In patients with advanced unresectable hilar malignant biliary obstruction, a percutaneous approach is preferred to endoscopic drainage. Biliary drainage can be achieved as internal-external drainage or external drainage only, while in selected cases transhepatic biliary stenting can be performed.

Percutaneous CORE needle biopsy, as well as transhepatic intraluminal forceps biopsy can be conducted for tissue sampling of malignancies of hilar region.

Hilar cholangiocarcinoma can be treated with percutaneous transhepatic biliary stenting in combination with intraluminal brachytherapy.

The aim of this presentation is to provide insight of the role of interventional radiology in the treatment of malignancies of hilar region and to present some cases which were performed in our department.

TACE in the treatment of liver tumors

Milos Zakosek (SRB)

Innovations in image guidance and materials during the last decades has led to rapid advances in minimally invasive interventional oncology procedures and safe and effective treatment of different malignancies. These procedures are nowadays fully integrated into interdisciplinary clinical practice, among which, in treatment of liver tumors transarterial chemoembolization (TACE) is one of the most frequently performed. It is based on delivery of cytotoxic drug with embolic agent into the tumor through feeding arterial vessel which provide higher concentration of drug and at the same time spare of the surrounding parenchyma. Indications for TACE include primary and secondary liver tumors, of which are the most common hepatocellular carcinoma, intrahepatic cholangiocarcinoma, metastases from colorectal cancer and neuroendocrine tumors. It has classically been performed with an emulsion of lipiodol and chemotherapeutic drugs, but there are also other drug-delivery systems and techniques such as drug eluting beads (DEB-TACE) and degradable starch microsphere (DSM-TACE) or it can be performed only with embolic agent (TAE). TACE has become the standard of care for patients with unresectable HCC and has been included in all treatment guidelines, of which is in Europe most adopted Barcelona Clinic Liver Cancer group (BCLC) staging system. Beside treatment of HCC, TACE can be utilized for bridging to transplantation, downstaging to resection or transplantation and as a palliative procedure. In patients with liver dominant metastatic disease, when resection and ablation are not feasible, TACE can provide good alternative. Multidisciplinary team discussion and detailed treatment planning are essential for good practice and best patient outcome.

The aim of this presentation is to provide the latest treatment algorithms, discuss newly available evidences and technologies and to offer an outlook on combination of loco-regional and systemic therapy.

Interventional radiology in treatment of liver tumors - our experience

Aleksa Igić, (SRB)

Interventional radiology procedures are an indispensable choice in the treatment of hepatobiliary diseases. On one hand, IR procedures provide support for surgical interventions, both pre and post-procedurally, while on the other hand, they are an essential pillar in both palliative and curative treatment of hepatobiliary tract tumors. A multidisciplinary team approach is standard clinical practice, involving hepatobiliary surgeons, diagnostic radiologists, as well as oncologists,pathologists and radiation oncologists, jointly making decisions about the optimal patient treatment. This lecture provides a brief summary of everyday practice and our experiences in performing interventional oncological interventions. Percutaneous biliary drainage and biliary stenting are interventional radiological procedures performed to decompress malignant or benign obstructed bile ducts in the liver. Indications for biliary drainage include failed endoscopic retrograde pancreatocholangiogrpahy drainage, infection due to biliary obstruction such as cholangitis and biliary sepsis, along with preoperative decompression of the biliary system for surgical resections. Transarterial chemoembilsarion (TACE) represents a direct delivery of chemoembolic material into arterial tumor feeders, in both primary and secondary liver tumors. Nowadays, TACE is not

an intervention that is solely palliative but also curative, aiming for bridging to the liver transplantation or down-staging for surgical resection. Microwave ablation (MWA) of the liver represents a curative, minimally invasive thermal ablative interventional radiological procedure that is used for treatment of both primary and secondary liver tumors through the direct delivery of heat energy.

Paediatric lung ultrasound - between skepticism and (over)enthusiasm

Jovan Lovrenski, (SRB)

The first attempts to perform lung ultrasound (LUS) date back to the late seventies of the last century. However, the reflection of US waves on the air-filled lung and the bony structures of the chest has been considered a major obstacle for US evaluation of the lungs. The misconception lasted until the last three decades, when numerous studies pointed to the extraordinary possibilities and importance of this diagnostic method. What perhaps caused even more skepticism was the fact that LUS findings are often based on artifacts, not on the true images of the body. Although they still exist to some extent, the mentioned prejudices have mostly been overcome and in many parts of the world LUS is applied daily with great enthusiasm, maybe even overenthusiasm. Therefore, today it is extremely important to find the right balance in using LUS, because like any other diagnostic method, it has its advantages and disadvantages.

The lecture will include the examination technique, and the normal and pathological LUS patterns, with emphasis on the US diagnosis of pneumonia, pleuropneumonia and necrotizing pneumonia, which represent a very common and important lung pathology in children, and where US of the lungs has been shown to be significantly more accurate than chest X-ray (CXR) in numerous studies. Also, exceptional possibilities of monitoring therapeutic effects in children with pneumonia will be presented. The diagnosis of pneumothorax, partial pneumothorax and hydropneumothorax will be shown, as well as several interesting, unusual cases from everyday clinical practice. Part of the lecture will also be devoted to modern trends of the use of LUS in NICUs.

In conclusion, all the advantages, as well as disadvantages and limits of the US examination of the lungs and pleura will be commented, as well as a great potential of applying this method in daily clinical practice.

MRI of the fetus: an overview

Corina Banu (ROM)

Introduction:

Fetal Magnetic Resonance Imaging (MRI) has emerged as a powerful diagnostic tool in prenatal care, offering unique insights into fetal development and anomalies and also placental abnormalities. This presentation provides an overview of the applications, technical considerations, clinical impact, and illustrative case studies associated with fetal MRI.

The aim:

This presentation aims to provide a tool for a better understanding of fetal MRI with a focus on indications, technical considerations, and clinical impact, also emphasizing the distinctive features and individual characteristics of fetal anatomy. Additionally, several illustrative cases will highlight the practical application of this imaging modality.

Material and methods:

We will delve into basic technical aspects of fetal MRI, covering imaging protocols, safety considerations, and potential challenges. Additionally, we will review a selection of case studies to understand normal fetal anatomy and to illustrate the utility of fetal MRI in various clinical scenarios.

Results:

Fetal MRI consistently demonstrated its efficacy in cases where conventional ultrasound faced limitations. The detailed imaging provided crucial insights into complex fetal conditions, aiding in accurate diagnosis and treatment planning. The optimized MRI sequences and magnetic field parameters led to a notable improvement in anatomical visualization, allowing for a more thorough assessment of fetal structures and anomalies. Fetal MRI has proven invaluable in diagnosing and characterizing fetal anomalies, aiding in prenatal counseling, and guiding therapeutic interventions. With improved imaging techniques and better accessibility, its role in obstetric care continues to expand.

Conclusions:

Fetal MRI has emerged as a transformative tool in prenatal diagnosis, revolutionizing the way clinicians approach complex fetal conditions. Fetal MRI provides superior diagnostic information compared to conventional ultrasound, encompassing cases of fetal anomalies, neurodevelopmental disorders, and placental abnormalities. The integration of fetal MRI into prenatal care enhances patient management, facilitates informed decision-making, and ultimately leads to improved perinatal outcomes.

Should I say or should I not: misinterpretations of the most common pediatric normal variants

Tijana Radovic (SRB)

The diagnostic imaging of children poses many challenges. Imaging of children is different to imaging of adults. These challenges must be addressed step by step, beginning with the choice of the most appropriate imaging test, performing the test appropriate for age and clinical indication, and properly interpreting the examination in a pediatric context.

Most common setting for poor performance in interpretation is the evaluation of the pediatric skeletal radiography. They can be challenging because of the confusing appearance of growth plates, normal anatomic variants, and injuries that are unique to children. Errors in interpretation may lead to inappropriate further imaging, additional radiation exposure and cost, as well as psychologic effects on the patients and their families, especially in reporting non-accidental injury. Furthermore, radiographic imaging of the pediatric chest presents several unique challenges and nuances, stemming from congenital variants and pathologic processes specific to this population. The use of a systematic approach to image interpretation, with an awareness of common errors and the underlying root causes, can aid both general and pediatric radiologist in avoiding such pitfalls.

As well as in radiography, there are many errors that are commonly encountered during emergency ultrasound examinations. In normal ultrasound, pitfalls may arise from anatomic or physiologic variants or patient conditions, inappropriate ultrasound parameter settings, artifacts, inexperienced operator misunderstanding, or inadequate ultrasound exam performance. In some cases, common errors are usually due to wrong timing for follow-up exam

and unfamiliarity with pediatric sonography. Knowledge of these pitfalls helps improve a physician's performance and diagnosis.

This review lecture aims to present the most common misinterpretations of the normal anatomy and variants in pediatric imaging and to present some tips and tricks for avoiding potential errors using case-based and organ-based approach.

Imaging of atraumatic muscle disorder

Anesa Čengić (BIH)

Non-traumatic muscle disorders represent a heterogeneous group of medical conditions affecting skeletal muscles. These disorders, devoid of trauma-induced etiologies, encompass a diverse group of conditions, including congenital variants, inherited myopathies, acquired inflammatory or infectious disorders, ischemic conditions, neoplastic diseases, and those leading to muscle atrophy. Various imaging techniques are available for evaluating non-traumatic muscle disorders, with MRI being the primary choice due to its superior soft tissue imaging capabilities. Accurate differentiation can be challenging due to overlapping MRI features.

To facilitate interpretation, we can categorised non-traumatic muscle disorders into four distinct MRI patterns:

Abnormal Anatomy with Normal Signal Intensity: This category includes common anatomical muscle variants that do not produce signal intensity alterations. Edema/Inflammation: Muscle edema, the most frequent pattern, presents with a broad differential diagnosis. Symmetric involvement may suggest autoimmune or systemic conditions, while focal, asymmetric processes with architectural distortion hint at other causes.

Mass: Intramuscular masses encompass primary neoplasms, metastases, and benign lesions. While some lesions exhibit distinctive MRI features, many require biopsy for definitive diagnosis.

Atrophy: Irreversible muscle wasting dominates conditions like muscular dystrophies, denervation myopathy, and sarcopenia.

This MRI-based classification, along with clinical and laboratory data, aids radiologists in interpretation and emphasizes the importance of a comprehensive approach to diagnose and treat non-traumatic muscule disorders.

What the MRI can tell us about lesions caused by excessive knee usage in young physically active people

Goran Djuricic (SRB)

Introduction

Among children regularly exposed to physical activity, their immature skeleton might be especially vulnerable to injuries. Excessive use of the knee in patients with immature locomotor systems leads to a whole spectrum of morphological changes leading to potential consequences as adults.

The aim

The purpose of this presentation is to show morphological patterns in magnetic resonance imaging (MRI) associated with recurrent pain and lesions in children who are more physically active.

Material and methods

This presentation included the MRI findings of physically active pediatric patients with knee pain treated at the University Children's Hospital in Belgrade, who reported recurrent pain in the knee joint during physical activity and who were without any pathological findings on both clinical examination and knee radiographs. The participants underwent sports activities to 8 h per week.

Results

MRI findings were assessed: meniscus and cartilage lesions, bone bruises and ligament injuries, tibial plateau cartilage edema, chondromalacia patellae and retropatellar effusion.

Conclusion

Children reporting recurrent knee pain due to increased physical activity, without any detected pathological findings on clinical examination and knee radiography, may have morphological changes that can be detected on MRI. Observation of the knee morphometric parameters using MRI in physically active children might be very useful in to reduce the injury rate. As well as preventing permanent joint dysfunction in pediatrics, timely diagnosis of joint lesions may also contribute to the prevention of adult musculoskeletal diseases.

Keywords:

knee injury; children; magnetic resonance imaging; physical activity; overuse syndrome

CEUS in focal liver lesions

Vasileios Rafailidis (GRE)

Contrast-enhanced ultrasound (CEUS) is a valuable complementary ultrasonographic technique which has been used widely for the characterization of the focal liver lesions. It is characterized by its wide availability, repeatability, patient tolerability, lack of use of ionizing radiation and nephrotoxic contrast agent and has a good diagnostic accuracy for differentiating benign from malignant lesions. This lecture will present the basic principles of liver CEUS and will demonstrate the basic characteristics of benign and malignant focal liver lesions. In detail, the following benign entities will be presented: focal fatty infiltration and focal fatty sparing, haemangioma, focal nodular hyperplasia, hepatocellular adenoma, hepatic cyst, abscess, cystadenoma and cystadenocarcinoma. Malignant entities that will be presented include: hepatocellular carcinoma and precursor cirrhosis-associated nodules, cholangiocarcinoma, fibrolamellar carcinoma and metastases. In every type of lesion, the baseline ultrasound characteristics on B-mode and conventional Doppler techniques will be presented, along with the enhancement pattern on CEUS. Arterial and venous phase characteristics will be discussed in terms of timing and level of enhancement. The rationale for the analysis of pattern of enhancement, with the focus on arterial phase hyper-enhancement and wash-out will be presented. The diagnostic accuracy of CEUS for the characterization of benign versus malignant focal liver lesion will be discussed, along with indications in everyday clinical practice.

AI (Artificial Intelligence) in Digital Mammography and DBT

N.D. Dimitropoulos, (GRE)

More than half a million women die annually from breast cancer worldwide. Regular screening leads to an early diagnosis of the disease and achieves a reduction in mortality by approximately 30%. Preventive screening is carried out with an annual Mammogram from

the age of 40 (followed by an ultrasound exam in women with dense breasts). In women with a strong family history or gene mutations, regular screening with Mammography begins a decade earlier and includes regular Breast MRI.

In the US, approximately 40,000,000 mammograms are performed each year. Mammography is the most effective test in the early diagnosis of breast cancer, detecting about 75% of cancers about 1 year before they give clinical symptoms. Mammography correctly detects 85-87% of breast cancers. Despite strict quality control (QA) criteria and the use of high-tech equipment, Radiologists do not always manage to find breast cancer early. A number of lesions go undiagnosed or misassessed by Radiologists, which leads to delayed treatment (resulting in more intensive treatments and reduced survival).

Fatigue, neglect, poor image quality, uncertain indications of malignancy, and poor experience of the Radiologist may be reasons for failure. Reading mammograms by 2 Radiologists reduces errors, but leads to increased costs and administrative difficulties.

The Artificial Intelligence (AI) revolution in computing systems, based on deep learning (Deep Learning) and convolutional neural networks (CNN), finds important applications in the field of automated breast cancer detection and holds many promises for improving diagnosis in Digital Mammography (FFDM) and Breast Tomosynthesis (DBT).

Challenges in Breast Imaging

Dragana Bogdanović-Stojanović (SRB)

Breast imaging is fraught with unique challenges in decision making and patient management. The objective of not missing early-stage disease so as to fulfill the prime goal of diagnosing nonpalpable cancers to be balanced with keeping false positives low presents unique practice patterns and challenges. The list of controversies in breast imaging is long; some of the important ones are discussed in presentation.

Rare breast lesions

Dragana Roganovic (BIH)

Introduction:

Rare breast lesions pose a diagnostic challenge due to their diverse imaging characteristics, often presenting non-specific radiological features. Distinguishing between benign and malignant lesions becomes intricate, as certain benign entities can mimic malignancies. Accurate diagnosis is pivotal for appropriate clinical management.

The aim:

The aim is to give a short imaging review of selected rare benign and malignant breast lesions diagnosed in University Clinical Centre of the Republic of Srpska and correlate with clinical and pathological findings.

Methods:

This retrospective study analyzed cases from University Clinical Centre of the Republic of Srpska, focusing on selected rare benign and malignant breast lesions, such as granulomatous mastitis, phyllodes tumor, breast angiosarcoma, encapsulated intracystic papillary carcinoma...

Clinical, imaging, and pathological data were correlated to enhance diagnostic accuracy.

Results:

Analysis unveiled various rare breast lesions, each exhibiting distinctive imaging attributes. Many lesions displayed non-specific radiological features, necessitating advanced imaging and guided biopsies for precise diagnosis. The cases highlighted the complex differentiation between benign and malignant lesions.

Conclusion:

While encountering rare breast lesions is infrequent, their impact is significant. The study underscores the necessity for heightened healthcare professional awareness and stresses the value of a multidisciplinary diagnostic approach. Collaboration among radiologists, clinicians, and pathologists is crucial to optimize accuracy and prevent inappropriate treatments.

Renal lesion characterization with MRI

Mustafa Secil (TR)

Magnetic resonance (MR) imaging, with its supreme contrast resolution capability and with additional imaging biomarkers in use, is a helpful modality in characterization lesions in various body parts. Renal lesions display a spectrum of appearances that may represent a critical clinical decision dilemma of removing the kidney or not. The radiologist plays a critical role in that dilemma and commonly faces the difficulty of making the correct diagnosis in that situation. MR imaging is a very helpful tool for characterization of renal lesions as well and may help the radiologist.

The renal lesions include the cystic disease, inflammations, vascular disease, neoplasm and others. MR is the most helpful method to characterize the cystic lesions, particularly the complex cystic ones. Bosniak classification may safely and accurately be used in characterization. MR can differentiate solid lesions from complex cystic or hemorrhagic lesions with high sensitivity and specificity. Solid lesions may be characterized using the signal intensity, diffusion and contrast enhancement properties of the lesions. MR can also be used to differentiate the solid neoplastic and non-neoplastic lesions. Among the neoplastic ones the diagnosis of subgroups of tumors may be provided in most of the patients. This success of MR in characterization of lesions leads to the suitable clinical decision of surgery, follow-up or ablative treatments , the type of surgery to be used such as total or partial nephrectomy, and even the surgical approach as transperitoneal versus retroperitoneal.

The improvement of knowledge and experience of the radiologists in MR characterization of renal lesions plays an important role in patient care.

The relevance of stone density measurements in urolithiasis

Biljana Markovic Vasiljkovic, (SRB)

Last decades many researches and clinicians used Hounsfield units (HU) on non-contrast CT exams (Computerized Tomography) for possible prediction of kidney`s stone composition thus assumed the mostly influences the targeted therapy. However, many authors reported different ranges for each compound and admitted that ``pure`` compound renal stone is exceptional. The anhydrous uric acid and magnesium ammonium phosphate were identified in the HU ranges 400-550HU and 550-700HU respectively. For calcium

oxalate mono and dihydrate which are predominant compounds of the majority of kidney stones, density ranges 870-1200HU. The other stone factors also play a significant role in predicting the outcome of therapy, such as its location and morphology, stone volume and stone density. The stone density is calculated as the HU value divided by the stone greatest diameter. The thickness of kidney parenchyma and the ratio between stone volume and the collecting system volume influences possible complications and outcome of the percutaneous lithotomy procedure. Nowadays, for success prediction of endourological procedures various scoring systems are used considering different comorbidities, previous surgery, kidney`s anomalies, urinary tract infection, stone laterality etc. Some of them utilizes intravenous urography and ultrasound for initial evaluation and monitoring the patient and the procedure outcome.

Finally, measurements off stone densities are highly operator dependent. In published literature either a circular ROI (region of interest) in two perpendicular planes or more precise, grid measurements were reported. The stone diameter and volume are larger and stone density is lesser when measurements are obtained in soft tissue compared to bone window on CT exams. Recently, color-coded density-gradients stone mapping reporting system, on non-contrast CT was introduced.

The History of the Future: AI & Radiology

Milos A. Lucic (SRB)

Abstract body:

Artificial intelligence (AI) is starting to reshape not only radiology and neuroradiology, but also the very structure of human civilization and the world as we know and recognize. If the singularity would be considered as a time point where the creation of intelligence larger than human, then probably this time point may be imminently in front of us, or perhaps already reached. Anyhow, AI is already widely entering into the imaging field, changing and challenging our daily routine and concepts in radiology. Upcoming changes of our radiology profession are accelerated by rapid technological advances, most probably without any possibility to be brought to a standstill or even less likely stopped ever again. Therefore, to understand the impact of AI to diagnostic imaging may appear an issue of utmost importance in the very near future. In the light of many current and novel technologically performable applications and techniques, in this brief review we will try to lighten out some of the possible directions that may suggest where could the advance of technology lead our daily practice in radiology, but also how the expected further development of AI may irreversibly impact the radiological profession in the near future.

Diagnostic challenges in liver cirrhosis - architecture of dysfunction

Florin Mihai (RO)

Introduction:

Liver cirrhosis is a complex, progressive condition characterized by the disruption of the liver's architecture due to fibrosis and regenerative nodules. The architectural distortion in liver cirrhosis encompasses a wide spectrum of morphological changes, including nodular regeneration, fibrous septa formation, and vascular abnormalities.

These alterations pose significant obstacles to accurate diagnosis and disease staging, requiring a multidisciplinary approach that combines clinical, radiological, histopathological, and biochemical assessments.

The objective:

The purpose of the presentations is to explores the intricate diagnostic challenges that, both, clinician, and radiologist encounter when dealing with liver cirrhosis, focusing on the structural alterations that underlie the dysfunction of this vital organ.

Material and methods:

CT and MRI play crucial roles in the assessment of these architectural changes, offering complementary information to aid in diagnosis, staging, and treatment planning.

As our understanding of liver cirrhosis architecture deepens through advanced imaging, so does our ability to enhance patient care and outcomes in this challenging condition.

A comprehensive and patient-tailored approach that considers the strengths and limitations of these imaging modalities is essential for the effective management of liver cirrhosis.

Conclusion:

Imaging techniques play a pivotal role in unraveling the architectural complexities of liver cirrhosis and provide clinicians with a comprehensive view of liver parenchyma and its dysfunction, aiding in accurate diagnosis, staging, and monitoring of the disease.

Dual energy CT: Basic principles and applications

Saša Vujnović (BIH)

Introduction:

Dual energy CT represents a revolutionary advancement in the realm of medical imaging, promising to reshape our diagnostic capabilities and improve patient care.

Methods:

In this section, we delve into the technical aspects of Dual energy CT. Additionally, we provide insights into the challenges and considerations involved in implementing Dual energy CT in clinical practice.

Results:

Results section explores the transformative applications of Dual energy CT in clinical practice. We discuss its ability to eliminate bone structures from CT angiography scans, detect bone marrow edema, generate iodine maps of parenchymal organs, analyze urinary calculi, and create perfusion maps. Furthermore, we highlight how Dual energy CT effectively reduces metal artifacts, enhancing imaging quality for patients with metallic implants. Real-world examples and case studies underscore the practical impact of Dual energy CT on patient diagnosis and treatment.

Discussion:

Discussion section, provide a critical analysis of the findings and implications of Dual energy CT. We examine the strengths and limitations of the technology, considering its potential challenges and future developments. This section also explores the broader implications of Dual energy CT in the field of medical imaging and its potential to shape future research and clinical practice.

Conclusions:

Dual energy CT stands as a remarkable innovation with the potential to revolutionize medical imaging. This advanced imaging technique, based on dual-energy scanning, has demonstrated a multitude of applications that significantly enhance diagnostic accuracy and patient care.

Perfusion imaging in patients with peripheral arterial disease

Nikolaos Galanakis (GRE)

Lower limb peripheral arterial disease (PAD) characterizes the impairment of blood flow to the limbs as a result of arterial stenoses or occlusions. Evaluation of PAD is based on clinical examination, calculation of ankle-brachial index and different imaging studies such as ultrasound, CT, MRI and digital subtraction angiography. These modalities provide significant information about location, extension and severity of macrovasular lesions in lower extremity arterial system and planning of revascularization strategy. However, they can be also used to evaluate limb perfusion, using specific protocols. This information may be valuable for assessment of the severity of ischemia and detection of hypoperfused areas. Moreover, they can be used for treatment planning in patients with severe PAD and evaluation of therapeutic outcome. Finally, these techniques can be used to determine prognosis and amputation risk in patients with PAD. This presentation gives a basic overview of the perfusion techniques for lower extremities provided by imaging modalities such as CT, MRI and digital subtraction angiography and their clinical applications for evaluation of PAD and revascularization outcome.

US and CEUS imaging of endoleaks in the post-EVAR aorta

Vasileios Rafailidis (GRE)

Abstract

Ultrasound (US) and contrast-enhanced ultrasound (CEUS) constitute the first-line imaging modality for the assessment of aorta prior and post to endovascular aortic repair (EVAR). Imaging in general plays a pivotal role in post-EVAR aorta, with the purpose to address the following queries: i) the integrity and place of stent; optimally addressed by plain radiographies and CT angiography (CTA), ii) the size of aneurysm sack; easily assessed with US and iii) the presence of endoleaks or other peri-aneurysmal complications. All these queries can be assessed by CTA, albeit with the burden of ionizing radiation and use of a nephrotoxic contrast agent. Given the fact of need of these patients for repeated scans in the setting of lifelong imaging surveillance, it is essential that alternative imaging techniques to be adopted. US has been shown to have a limited sensitivity for the detection of endoleak but CEUS has been extensively studied and proved to have good diagnostic accuracy not only for the detection of endoleaks but also for their characterization. This lecture will present the basics of aorta CEUS performance and interpretation for the diagnosis of endoleaks. The types of endoleaks will be presented, and their imaging appearance on CEUS and US will be illustrated through characteristic cases. CEUS being a real-time angiographic technique can adequately detect and image post-EVAR endoleaks. Diagnostic algorithms on how to incorporate CEUS in a post-EVAR imaging protocol will be discussed.

Brain Tumors: Known and Unknown

Edward Michals (USA)

Over the course of the last decade, much has been learned in regard to the pathophysiology, imaging and treatment of CNS brain tumors. However, much is still yet to be learned. I intend to give a brief review of how to use advanced and not so advanced imaging techniques to guide initial treatments as well as and during follow ups to determine recurrence versus treatment effects.

How tough is the tough body?

Martina Špero (CRO)

The corpus callosum, or the tough body, is the primary commissural region of the brain consisting of white matter tracts that connect the left and right cerebral hemispheres. Although there is considerable variability in the size and shape of the corpus callosum in humans, it is known that it contains approximately 200 million fibers that carry neural signals from one side of the brain to the other.

The primary function of the corpus callosum is to integrate and transfer information from both cerebral hemispheres to process sensory, motor, and high-level cognitive signals.

The corpus callosum has been implicated in many different pathology types.

Using three categories, tough, tougher, the toughest I will take you to a short journey through the radiology of different types of pathology processes that could involve tough body from the congenital, through vascular, demyelinating, toxic and acquired metabolic, to trauma and primary brain neoplasms. Going through some cases from praxis in which corpus callosum was involved, I will try to present „radiology in a nutshell of the corpus callosum" and prove how tough it can be.

CT evaluation of the aortic root

Violeta Groudeva (BG)

Learning objectives:

To review the specific imaging anatomy of aortic root and proximal aorta

To describe the most common pathological processes involving this area and how to assess them

To suggest probable pitfalls

Aortic root is a complex anatomical structure that is a conduit between the left ventricle and the ascending aorta. With the advent of modern surgical and intervention procedures the interest in the aortic root is increasing. Imaging can provide detailed and thorough analysis of the fine anatomical structure and subsequently guide interventions and surgery. Structural abnormalities and acquired pathologies of the aortic root with or without involving aortic valve dysfunction may be encountered. Aortic root pathologies secondary to acquired disease of the aortic valve and ascending aorta are more common . CT is able to reveal the subtle morphology using varying techniques non-invasively in pre -procedural and pre-surgical planning. Common cases of structural abnormalities and acquired pathology of the aortic root are presented.

Ischemic heart disease: the role of MRI

Milena Spirovski (SRB)

Despite the long-standing but persistently present clinical expectation of magnetic resonance imaging (MRI) to answer the question of whether coronary artery (CA) stenosis is significant, the answer is still primarily reserved for contrast angiographic techniques - computed tomography or catheter coronary angiography. Cardiac MRI, however, with the introduction of different MR techniques, provides answers to many other questions that are

far broader and more complex than the assessment of the degree of the CA stenosis, which are of great importance for making a decision on the need for myocardial revascularization, both in primary and delayed setting.

Mutiparametric MRI techniques allow detection of signal changes, perfusion abnormalities and contractility disorders, which actually provide comprehensive information for the detection of myocardial ischemic changes, risk stratification and assessment of the sequelae of the coronary artery disease (CAD), the unique combination of information that is possible exclusively with MRI. The advantage of MRI in patients with suspected or confirmed CAD is its superior sensitivity for detecting small infarcts compared to other diagnostic methods; on the other hand, MRI allows the most accurate assessment of the size, localization and transmurality of the infarct, possibility of detecting myocardium at risk, presence and extent of microvascular obstruction and hemorrhage - parameters that correlate better with the outcome of the disease compared to functional parameters. Evaluation of contractility, regional and global ventricular function is additional advantage of MR imaging, with outstanding reproducibility of calculated parameters, as well as assessment of the effect of ischemic disease on the myocardium, with the possibility of identifying ventricular remodeling, accurate assessment of aneurysmal dilatation and thrombosis.

Multiparametric MRI has become an important factor in clinical decisions and plays a major role in solving the most important clinical dilemma - whether CA stenosis is functionally significant and whether revascularization will provide benefit.

Cardiac MRI as a risk stratification tool in COVID 19 myocarditis

Olga Nedeljkovic-Arsenovic, Ruzica Maksimovic (SRB)

Introduction:

Myocarditis is a myocardial inflammation caused by infective agents, immune-mediated or toxic factors. Myocarditis has been related to 5–12% of sudden cardiac deaths (SCD) in young athletes. COVID-19 is associated with myocardial injury causing ischemia or inflammation and that injury is usually in a form of myocardial oedema, late gadolinium enhancement (LGE) fibrosis and pericardial effusion.

Aim:

Evaluation of myocardial function and tissue characterization in patients with COVID-19 myocarditis by cardiac magnetic resonance (CMR) imaging.

Material and methods:

Classic CMR protocol was used with T1 and T2 mapping before and after Gadolinium contrast application. CMR parameters for myocarditis include T1 global early enhancement, T2 ratio for edema and LGE. It is shown that prognostic information provided by overall CMR analysis includes left ventricular ejection fraction (LVEF) as a supplement to conventional risk factors.

Results:

LGE also provides additional value to LVEF for predicting all-cause mortality and SCD. In a large ITAMY study was presented that patients with septal LGE were at highest risk of death compare to those with free wall LGE who had similar risk like those without LGE. These data add important new information how LGE on CMR could be used in risk stratification as it was demonstrated that septal LGE has been associated with worse prognosis in

myocarditis. Therefore CMR findings, including impaired LVEF and LGE have prognostic value in myocarditis.

Besides of presence and extent of LGE, increased T1 and T2 mapping are associated with adverse cardiac events in myocarditis including ventricular arrhythmias and cardiac death.

A mid-wall septal pattern of LGE and increasing LGE extent at follow-up period are both-predictors of poor prognosis in myocarditis. Left and right ventricular systolic dysfunction is also associated with poor prognosis, showing LVEF<40% is associated with 4-fold higher risk of cardiac death.

Conclusion:

CMR is a potentially helpful diagnostic and prognostic tool in patients with COVID-19 presenting with myocardial injury and evidence of cardiac dysfunction.

Key words:

COVID 19, Cardiac magnetic resonance, myocarditis, prognosis

HOW DO I EXAM: ACUTE STROKE

Biljana Georgievski-Brkić(SRB)

Introduction:

Stroke is a worldwide leading cause of death and disability in adult patients. More than 85% of all strokes are caused by brain ischemia, which results from obstruction of one or more cervical and/or cerebral arteries. Fortunately, it also has the most effective therapeutic options: treatment with intravenous tissue plasminogen activator, endovascular thrombectomy and urgent carotid endarterectomy for patients presenting with a minor stroke.

The aim:

Awareness of the typical imaging findings, interpretation challenges, pearls and pitfalls are therefore critical for neuroradiologists to make accurate, complete and timely report of acute ischemic stroke.

Material and methods:

Different modalities of Computed Tomography (CT) include noncontrast CT of brain (NCCT), CT Angiography of head and neck (CTA), and CT perfusion (CTP). Computed tomography (CT)-based imaging is still the preferred and the most common imaging modality to evaluate patients with acute cerebral ischemia.

Results:

NCCT helps to rule out the stroke mimics, exclude the presence of hemorrhagic stroke and detect early signs of ischemia. Head and neck CTA is often used to help detecting large vascular occlusion. CTA is also integral in evaluating the extent of vessel stenosis or narrowing. It can be performed in a single phase or multiphase technique, for assessment of collateral status of intracranial vessels. CTP is another dynamic contrast-enhanced imaging technique that provides information about the perfusion in the brain tissue. This technique evaluates the flow of contrast through cerebral vessels, calculate the total cerebral blood volume (CBV), cerebral blood flow (CBF), mean transit time (MTT) and time to maximum (Tmax). Using CTP, we can distinguish irreversible infarcted tissues from salvageable tissue and identify accurate quantification of mismatch volume and ratio.

Conclusion:

Multimodal CT imaging approach is effective imaging protocol for ischemic stroke. It is fast, safe, available, easy performing and reproducible protocol, allowing adequate report.

How do I exam Cerebral Venous Thrombosis

Marija Jovanovic, (SRB)

Cerebral venous thrombosis (CVT), including dural venous thrombosis, cortical vein thrombosis and deep cerebral vein thrombosis, is a rare condition in patients mostly with underlying predisposing factors (87.5%), such as: hormonal, iatrogenic (steroids, oral contraceptive pill, COVID-19 vaccine), prothrombotic hematological conditions, local factors (trauma, compressing lesions, infection), systemic illness (dehydration, sepsis, malignancy, connective tissue disorders), and it is idiopathic in 12% of cases. The clinical presentation can be highly variable and range from asymptomatic to headaches, focal neurological deficits, seizure to coma and death. Venous hypertension can lead to edema, cerebral venous infarction (~50%) and even hemorrhage. Unenhanced CT, usually the first imaging investigation, when not associated with venous hemorrhage or infarction can be with a subtle finding. With contrast administration, especially with a CT venogram, a filling defect in a sinus can be found. MRI is able to both visualize the clot as well as the sequelae. 2D time of flight (TOF) venography is routinely performed in suspected cases. Contrast MR venography is more sensitive in detecting dural venous sinus thrombosis than TOF venography, since hypoplastic dural sinuses and low flow areas may be present. Although digital subtraction angiography (DSA) is the gold standard, the relative lack of experienced angiographic skills and invasive nature of the method has led to a decline in its use as a primary examination.

HOW DO I EXAM: DEGENERATIVE SPINE

Dejan Kostić (SRB)

Introduction:

Over 90% of people experience pain in the spine at some time in their life. The most common cause of pain is degenerative changes as a result of the joint action of combined metabolic processes, the degree of load to which we are exposed (macro and microtrauma) and risk factors (age, sex, occupation, genetic).

The aim:

The role of MR modality in the evaluation of all elements of the spine and making clear and complete neuroradiology reports of degenerative changes.

Materials and methods:

Radiological evaluation of the spinal column is possible in most cases comprehensively with magnetic resonance due to spatial resolution, multiplanar reconstruction, good contrast of anatomical structures, characterization of pathological changes, as well as the fact that the patient is not exposed to ionizing radiation.

Results:

Based on MR imaging of the spinal column, we have to made repots about degenerative changes of the intervertebral disc and/or vertebral body, the height of the intervertebral space/ disc, the presence of osteophytes, Schmorl's hernia, degenerative endplate changes classified by MODIC , the presence of annular fissure, bulging disc (diffuse or asymmetric), disc herniations classified by degree (protrusions , extrusions, migrations, disc sequestration and pseudoprotrusion); localization of disc herniation as central, subarticular, foraminal, extraforaminal or anterior; occurrence of spondylolisthesis with gradation from I-V;

facet arthrosis (grading from 0-3); presence of synovial facet cysts, edema and effusion of facet joints; thickening of the ligamentum flava; reduction of the diameter of the spinal canal (central, lateral, extraforaminal, foraminal); the existence of foraminal stenosis of different degrees (mild, medium and severe) and discoradicular conflicts with different degrees (contact, dislocation as well as obliteration of spinal nerve roots).

Conclusion:

MRI is the imaging modality of choice to assess degenerative abnormality.

Knowledge of spine anatomy and imaging features of degenerative changes allows appropriate reporting.

How do I exam: Hydrocephalus

Milos A. Lucic (SRB)

Understanding the physiological and anatomical substrate of the cerebrospinal fluid movement is still largely in the domain of insufficiently known and understood areas in medicine. Due to exceptional technological progress in the field of diagnostic imaging, we have been given the opportunity to recognize some of the consequences in the still incompletely and/or insufficiently explained processes of creation, flow and absorption of cerebrospinal fluid, which in routine radiological practice may most often present as hydrocephalus. Aware of the existence of a large number of uncertainties in our true understanding of the basic physiology and pathology of the cerebrospinal fluid flow, which unequivocally require further and more advanced investigations, as a neuroradiologists, we are constantly challenged by numerous questions in an attempt to achieve relevant and comprehensive, and the most accurate and reliable diagnostic information about the type of cerebrospinal fluid flow disorder with the aim to provide the most accurate diagnosis. On the other hand, the technical/technological limitations of currently available diagnostic methods do not make it easier for us to achieve the desired diagnostic goal. Although in the routine radiological approach to the patients with hydrocephalus MDCT and MRI techniques are still mostly oriented towards observing and monitoring morphoanatomical aspects, it is necessary to try to include the hydrodynamic concept in the radiological analysis. Considering the acquisition of dynamic CSF movement information as a key point for future improvements in the diagnosis and treatment of patients with hydrocephalus, in this brief review we will try to provide a few answers to frequently asked questions arising from our daily radiological practice and our still insufficiently established knowledge about cerebrospinal fluid pathophysiology.

Essential findings for structured reporting of rectal cancer MRI

Bengi Gurses (TR)

MRI, with dedicated rectum protocol has crucial role, both for the initial staging and evaluation of neoadjuvant treatment response, in rectal cancer. Different from colon cancer with pathological staging after surgical resection, rectal cancer is staged at the time of diagnosis, MRI being an indispensable component. Traditionally, radiologists have relied on free text reporting in rectal MRI. On the other hand, emerging data have shown that free text reports lack critical items (e.g. morphology, mucinous component, specific stage, CRM involvement, presence of EMVI and TDs etc.) Absence of critical prognostic and staging parameters have the potential to result in over- and/or understaging. Using structured proformas is beneficial in

many ways; better communication with other colleagues, decreased rates of variation among radiologists, making sure to include all the critical information in reports and enhances comparison after neoadjuvant treatment. Different proformas exist, which are used at the time of initial staging evaluation for "early stage", "locally advanced", "beyond TME disease" and for treatment response evaluation. This lecture will be focused on essential items for structured reporting at the time of initial staging/evaluation of rectal cancer.

The importance of structured report in pancreatic cancer

Evangelos Chartabilas (GRE)

Pancreatic cancer is one of the most lethal malignancies, with no significance change in the mortality rate over the last 30 years. Unfortunately, it is very difficult to diagnose early and the tumor often presents in advanced stages. Therefore, accurate staging with imaging is crucial for the proper management of these patients. The presence of local spread, distal metastases and the relationship of the tumor to adjacent structures – and particularly the vascular ones – are essential parameters in order to make the correct therapeutic decisions. Resectability is based on specific criteria, the most commonly used being the ones proposed by the National Comprehensive Cancer Network and the MD Anderson Cancer Center. Detailed assessment of vascular contact or infiltration is necessary and should be explicitly recorded in the radiological report. To ensure that no critical information is omitted, a structured reporting template is necessary; moreover, it enables accurate communication among multidisciplinary team members and allows large-scale collection and analysis of standardized data.

In this presentation the importance of detailed structured reporting will be stressed and highlighted by numerous examples from everyday clinical practice. The key imaging findings of resectable, borderline resectable and unresectable pancreatic cancers will be presented and discussed. The ultimate goal is to familiarize radiologists with the use of structured reporting forms and facilitate correct and accurate imaging staging of this common malignancy.

Lung Cancer Screening with Low Dose CT. An overview.

Kiriaki Tavernaraki (GRE)

There is by now solid scientific data regarding the value of Low Dose CT (LDCT) as a screening method for lung cancer. The results of the two landmark LDCT Screening trials are explained, in particular the NLST trial and the most recent European NELSON trial, as well as of several other screening trials, based on which the benefit of LDCT screening is highlighted. In view of this benefit, the basic pillars and essentials of lung cancer screening are analyzed in order for safe and successful screening programs to be implemented in European countries. These include technical aspects of LDCT, evaluation of lung nodules, state-of-the-art lung nodule algorithms as well as the elements that should be included in the LDCT structured report. In terms of lung nodules evaluation the basic parameters including size and growth of the lung nodule, the density, specific morphologic features and the location are analyzed, while CT volumetry of lung nodules for size estimation is explained. Furthermore, the significant role of Radiologists in lung cancer screening is highlighted and future perspectives are discussed.

The many faces of pulmonary sarcoidosis detected on HRCT- our experience

Kristina Dimitrijevic (RNM)

Introduction:

Sarcoidosis is a multisystemic disease of unknown etiology that mostly affects the lung parenchyma with interstitial and granulomatous changes of varying intensity and expression depending on the stage of the disease.

The aim of the study:

To analyze the distribution and characteristics of interstitial lung lesions as well as atypical variants of sarcoidosis and the involvement of mediastinal lymph nodes with high resolution computed tomography.

Material and methods:

In our study 25 patients diagnosed with sarcoidosis were included. HRCT was made on a 128 slice CT scanner PHILIPS INCISIVE, using 1 mm thickness of section and high spatial frequencies algorithm for image reconstruction. Lymph nodes are classified as hilar and mediastinal. Pulmonary changes are classified as nodules, reticular opacities, fibrous lesions, ground-glass opacities and consolidations. The disease is graded in 5 stages with the Scadding classification.

Results:

We analyzed 25 patients with sarcoidosis, all of whom are woman in the age group of 30-60 years. 2 patients each are in stage I and III of the disease, 12 patients are in stage II of sarcoidosis and 9 are in stage IV of the disease. Dry cough as a symptom predominates in all patients, while dyspnea is graded according to the mMRC scale. Mediastinal lymphadenopathy with and without calcifications was present in 18 patients.

Conclusion:

HRCT is the method of choice in the evaluation of pathological changes in pulmonary sarcoidosis. It very precisely show us the characteristic appearance of nodules and lesions, their distribution and atypical changes and help us in grading the disease and its treatment.

Key words:

lung, sarcoidosis, interstitial lung disease, HRCT

CTPA beyond pulmonary embolism- the pulmonary arterial obstruction index

Sonja Nikolova, (RNM)

Pulmonary thromboembolism (PTE) and deep vein thrombosis (DVT) are different manifestations of the same condition, venous thromboembolism (VTE), which is the third most common cardiovascular disease after the ischemic heart and cerebrovascular diseases. Thus, we have to be mindful that acute pulmonary embolism (APE) is a medical emergency and a very serious clinical manifestation of VTE, that occurs due to discharge of emboli in the pulmonary arterial system which leads in subsequent arterial occlusion and an increase in the pulmonary vascular resistance, an increase in the right heart afterload and acute right ventricular failure, which is a life- threatening condition. Taking into account the fact that patients with right heart dysfunction have a high mortality rate, timely diagnosis and prompt management are the basis for the reversibility of the condition.

The significantly improved image quality and upgraded diagnostic performance of CT pulmonary angiography are essential in acknowledging this diagnostic modality as the imaging technique of choice in suspected pulmonary embolism. The last decade has shown a dramatic improvement in the CTPA depiction quality of the pulmonary vasculature, and through additional enabling of the PAOI calculation, offers a quantitative value to the severity of APE, as well as detailed assessment of RV function.

The objective of this lecture is not only to confirm the importance of CTPA in the prompt diagnosis of APE, but also to help radiologists conduct a detailed assessment of the CTPA's in patients with APE, and by evaluating the relationship between the pulmonary arterial obstruction index (PAOI) and several CT cardiovascular markers of right heart dysfunction, to determine its prognostic value in the risk stratification of potential RHD. Besides confirming the prognostic value of CTPA in predicting possible complications, we also want to make a meaningful contribution into the decision making of the APE management, in forming an interdisciplinary consensus regarding follow up CTPA protocols in patients with PTE, and through the evaluation of PAOI and PAOI- associated right ventricular dysfunction, to optimize the duration of therapy and avoid unnecessary imaging examinations, i.e., over- diagnosis.

MRI of shoulder joint-anatomy and basic knowledge

Miloš Gašić, (SRB)

The shoulder joint is one of the most mobile joints, but with little stability. The aim of this lecture is to show the basic soft tissue structures on MR images, on different sections, as well as to show the anatomical static and dynamic stabilizers of the shoulder joint.

From the static stabilizers, the anatomical position, characteristics and varieties of Lig. coracoacromiale, Fossa glenoidalis & cartilage, Caput humeri & cartilage, Labrum glenoidale, Ligamenta, Tendo m.biceps brachii, Joint capsule, as well as some of the most common pathological conditions of these structures will be shown.

This lecture will also include a description of the rotator cuff muscles, with the most common pathological conditions and their characteristics on MR imaging.

MRI of the shoulder joint is the most reliable diagnostic modality for examining pathological conditions. Due to the comprehensive presentation of anatomical details as well as non-conclusive echo findings, MRI represents the method of choice in the diagnostic algorithm of examination

MRI of the spine: How to recognize and report

Jelena Kostic, Dragan Mašulović, Ružica Maksimović, (SRB)

Aim:

By sharing our collective experience through interesting patient cases, we can make a real difference in how people are imaged and diagnosed.

Material and methods:

Approximately 3 % of patients who present to the emergency department as the result of a motor vehicle accident or fall have a major injury to the cervical spine. 10-20% patients with head injury also have a cervical spine injury. Up to 17% of patients have a missed or

delayed diagnosis of cervical spine injury, with a risk of permanent neurologic deficit after missed injury of 29%. Most cervical spine fractures occur predominantly at two levels. One third of injuries occur at the level of C2, and one half of injuries occur at the level of C6 or C7. In this overview we will discuss the most common cervical spine injuries. On x-rays this can only be suspected when there is angulation or translation. MR will demonstrate subtle injuries to the soft tissues.

Disscussion:

If we exclude myelopathy due to cord compression as seen in trauma, degeneration and metastatic disease, which is usually not a diagnostic dilemma, then the most common diseases of the spinal cord are demyelinating diseases. Many patients who are diagnosed as having acute disseminating encephalomyelitis (ADEM) or Transverse Myelitis, may have recurrent disease and later turn out to have MS. We will discuss the differential diagnosis including tumors, inflammatory and vascular disorders. We will also discuss disc herniation, facet arthrosis, synovial cysts, spondylolisthesis and epidural lipomatosis. At these four levels there can be a lot of overlap of pathology.

Conclusion:

It is essential to differentiate type of spine disease, level of injury and to obtain enough of evidence for proper therapy. Using CT and MRI techniques today is very crucial in monitoring patient condition and effects of therapy treatment.

Must know pseudolesions in head and neck

Darka Hadnađev-Šimonji (SRB)

The presentation " Must know Pseudolesions in Head and Neck" will focus on imaging entities that can be confusing in everyday radiological practice. These may be normal variant anatomy, normal anatomy in an atypical location or iatrogenic placed foreign bodies. When imaging a patient with wide range head and neck symptoms, radiologist should keep in mind that multiple pseudolesions may mimic pathology. This presentation will show common pseudolesions that can be found in the Head and Neck, with their typical imaging characteristics and appearance. Being familiar with these pseudolesions radiologist will avoid misdiagnosis and mismanagment of the patient. The programme of this presentation will cover pseudolesions in skull base, oral cavity, submandibular, parotid and masticator spaces, buccofacial space, supraclavicular fossa, visceral space. Learning objectives of this presentation are: to review normal variant anatomy in the head and neck, to describe the imaging entities that can cause misinterpretation, to discuss differential diagnosis and to highlight the importance of pseudolesions.

Prostate Cancer: What Radiologist Should Know?

Tomislav Pejčić (SRB)

Prostate cancer is today the most common malignant disease in men, in people living in developed countries. In addition to genetic inheritance, dietary habits are thought to play a major role. Namely, the incidence of prostate cancer is very low in rural areas in China, where the diet is based on plant foods, and higher in Chinese cities. On the other hand, the incidence of prostate cancer is very high in countries where the Western diet, which is based on roasted meat and fried foods, prevails.

The basis of the early detection of prostate cancer is digital rectal examination of the prostate (DRE), determination of the level of prostate specific antigen (PSA) in the blood, transrectal ultrasound of the prostate (TRUS). The diagnostic method that today has the highest sensitivity in the early detection of localized prostate cancer, i.e. which is limited to the prostate is multiparametric magnetic resonance imaging (mpMRI). Depending on the score determined by the radiologist in describing changes in the prostate on mpMRI, considering the value of PSA and DRE, the urologist will perform a TRUS-guided biopsy of the prostate.

The treatment of localized prostate cancer and in some stages of locally-advanced cancer is surgical-radical prostatectomy, or radical external beam radiation, in elderly patients with pronounced comorbidity.

In the cases where there is a suspicion of the dissemination of the disease, additional diagnostics are completed with bone scan, computerized tomography (CT), or MR examination of the abdomen and pelvis. In unclear situations, when there is a discrepancy between the PSA level and skeletal scintigraphy findings, PSMA PET CT is indicated. This method also has its place in situations where PSA increases after surgery or radical radiation, while other radiographic methods cannot detect the presence and localization of metastases.

Diagnostic Value of mpMR in Evaluation of Prostate Cancer: Are We Happy?

Ružica Maksimović, (SRB)

Multiparametric magnetic resonance imaging (mpMRI) of the prostate is a sophisticated imaging technique used to detect and evaluate prostate cancer. mpMRI has become the initial evaluation of biopsy naïve men with a clinical suspicion for prostate cancer. It combines several different MRI sequences to provide detailed information about the prostate gland. Scanning protocol includes:

T1-weighted Imaging (T1WI): anatomical assessment of the prostate: size, shape, and structure of the gland.

T2-weighted Imaging (T2WI): high-resolution images of the prostate tissue.

Diffusion-Weighted Imaging (DWI): DWI measures the movement of water molecules within the prostate tissue; cancerous cells typically restrict the movement of water molecules more than healthy tissue, leading to brighter areas on DWI.

Apparent Diffusion Coefficient (ADC) Mapping: ADC maps are derived from DWI and provide quantitative information about the diffusion of water in prostate tissue.

Dynamic Contrast-Enhanced Imaging (DCE-MRI): enables visualization of blood flow, in tumor tissue there is increased blood supply.

Based on these sequences, a standardized system used for interpreting and reporting system was developed, Prostate Imaging Reporting and Data System (PI-RADS). The aim is to improve the consistency and accuracy of prostate cancer detection. The combination of these sequences allows radiologists to create a comprehensive assessment of focal lesions, staging, biopsy guidance, active surveillance and treatment planning. The system assigns a score to lesions or abnormalities detected in the prostate on MRI scans, with scores ranging from 1 to 5. A score of 3 suggests that the lesion is indeterminate and requires further evaluation. A score of 4 or 5 indicates a higher probability of clinically significant prostate cancer,

and additional tests, such as a biopsy, are typically recommended. PI-RADS has become an important tool in the diagnosis and management of prostate cancer, helping to reduce unnecessary biopsies and improve the accuracy of cancer detection.

MpMRI has become an important tool in the diagnosis and management of prostate cancer, as it can reduce unnecessary biopsies and improve the accuracy of cancer detection and staging. It allows for more personalized and precise treatment decisions, potentially leading to better outcomes for patients.

Prostate cancer theranostics

Miloš Veljković, (SRB)

The presentation will be focused on modern nuclear medicine role in the diagnosis and therapy of prostate cancer. After a short introduction, we will discuss about conventional nuclear medicine methods in follow-up of prostate cancer (most notably, bone scintigraphy), and then the focus of the presentation will be the theranostic approach in the treatment of the aforementioned malignancy, in accordance with the modern guidelines of the European Association of Urologists. Positron emission tomography (PET/CT) is widely used in oncology, and the most important radiopharmaceutical is 18F-fluorodeoxyglucose (18F-FDG). However, FDG did not have a significant historical role in monitoring prostate cancer patients, because prostate cancer cells do not uptake labeled glucose to a significant extent. More recently, there has been an expansion in the importance of nuclear medicine in prostate cancer diagnosis, particularly PET/CT, by labeling antibodies to certain antigens expressed on the surface of prostate cancer cells. The theranostic approach itself is based on the labeling of antibodies to the prostate specific membrane antigen (PSMA), which can be found in prostate cancer cells. With certain positron radiopharmaceuticals, such as fluorine-18 (18F) or gallium-68 (68Ga), we can label PSMA antibodies and detect prostate cancer metastases in the setting of very small serum levels of prostate specific antigen (PSA). After detection of recurrence or metastasis of prostate cancer using labeled PSMA antibodies with positron radiopharmaceuticals, it is possible to label the same antibodies with other, therapeutic radionuclides, such as yttrium-90 (90Y) or lutetium-177 (177Lu); these radionuclides are beta minus emitters and by specific binding to PSMA they can deliver high therapeutic doses of radiation to prostate cancer cells with the aim of killing tumor tissue. It is important to note that prostate cancer can be a very heterogeneous tumor and for this reason not all prostate cancer patients are suitable for radionuclide therapy with beta minus emitters; there are also certain prognostic factors that determine whether radionuclide therapy is an adequate choice for the treatment of these patients, which will be discussed near the end of presentation.

Imaging or Spinal Tumors

Sebnem Orguc (TR)

Spinal tumors consist of a large spectrum of various histologic entities. Primary spinal tumors may arise from the spinal cord (intraaxial or intramedullary space), the surrounding leptomeninges (intradural extramedullary space), or the extradural soft tissues and bony structures (extradural space). Almost 60% of the spinal tumors are located in the extradural space, whereas 40% are located within the dural sac.

Clinical signs and symptoms of spinal tumors are variable and nonspecific, which are often attributed to degenerative disease. Delayed diagnosis is quite common.

Multiple spinal lesions frequently represent known metastatic or lymphoproliferative disease. Primary tumors of the spine are uncommon and represent < 5% of all bone neoplasms as compared with secondary metastatic disease, multiple myeloma, and lymphoma. A wide variety of benign neoplasms can involve the spine including enostosis, osteoid osteoma, osteoblastoma, aneurysmal bone cyst, giant cell tumor, and osteochondroma. Common malignant primary neoplasms are chordoma, chondrosarcoma, Ewing sarcoma or primitive neuroectodermal tumor, and osteosarcoma.

Imaging features of the primary spinal lesions are often characteristic, and the various available imaging modalities provide useful tools for narrowing the differential diagnosis and for planning further clinical treatment. Although plain radiographs may be useful to characterize some spinal lesions, magnetic resonance imaging is indispensable to determine the extension and the relationship with the spinal canal and nerve roots, and thus determine the plan of management.

In this lecture characteristic imaging features of extradural spinal lesions will be covered.

Infections of the spine

Merhemic Zulejha (BIH)

Infections of the spine may involve different anatomic compartment, including intervertebral disk , vertebral bone, paraspinal soft tissues, epidural space, meninges, and spinal cord. . Infections can be bacterial, fungal, parasitic, or viral in origin. Predisposing factors for developing spinal infections include: immunodeficiency; drug abuse; the widespread use of broad-spectrum antibiotics, corticosteroids, and immunosuppressive drugs; diabetes mellitus; and spinal surgery. Inflammatory lesions of the spine are often indistinguishable on imaging and even on pathologic examination. However, infectious causes are treatable so it is important for the radiologist to make the diagnosis.

Imaging of the pubic symphysis

Mujdat Bankaoğlu (TR)

Imaging of symphis pubis is becoming more important as pubal pain is often seen in people of any age and gender with a variety of sports actions..

Trauma is always a majör cause of discomfort in the pelvic and pubic areas where fracture and major bony articular issues can be detected by X- ray easily.

Computerized tomography (CT) is good for detecting subtle fractures.It is also useful in preoperative planning with its three dimensional (3D) computer reconstruction capabilities.

Magnetic resonance imaging (MRI) is the second most used modality in diseases of the pelvis and pubis.

Ultrasound and other modalities are complimentary for diagnosis and has limited use.

Besides its good capability of showing soft tissues in detail ,MRI has some new developmental sequences like “zero echo time” which yields good accuracy in detecting cortical-medullary bony structures like CT had.

The cases of so called chronic symphyseal injury needs to be clarified radiologically, which consist of rheumatological diseases, degenerative changes, osteitis – inflammation or tumoral diseases.

Up to this time, we are so far away from the beginning of the century for managing public diseases with the development of so many diagnostic criteria, especially in chronic cases through MRI.

Blunt abdominal trauma

Vesna Sarajlic (BIH)

Injuries of the abdominal organs are very frequent pathology in emergency radiology, weather penetrating, caused by different sharp objects or weapons, or caused by blunt abdominal trauma. The most common causes of blunt abdominal trauma are motor vehicle collisions, falls from height, blow to the abdomen, and sports accidents. The most commonly injured abdominal organs and structures are the spleen, liver, kidneys, small bowel and/or mesentery, bladder, colon and/or rectum, diaphragm, pancreas, and major vessels. Multiple organs are often affected simultaneously. Computed tomography (CT) imaging is the method of choice for the assessment of clinically stable patients with blunt or penetrating abdominal trauma. CT can provide rapid and accurate examination of the abdominal viscera, retroperitoneum, abdominal wall, and pelvis. A typical polytrauma CT protocol includes portal venous phase images of the abdomen and pelvis, acquired 65–80 seconds after the beginning of intravenous contrast material administration. An early arterial phase 25 -30 seconds after the contrast administration is highly recommended for detection of trauma of vascular injuries and active contrast extravasation. In addition to the portal venous phase series, delayed phase 5–10 minutes after intravenous contrast material administration can be performed in some specific diagnostic dilemma.

Calm night for an emergency radiologist

Dejan Jovanović (SRB)

Aim of this lecture is to give an insight into the everyday routine of an emergency radiologist through 5 real-life cases from night shifts.

Idea of the presentation is to give examples of qualities, skills and knowledge every radiologist in an emergency setting must possess.

The cases will be presented briefly, in 2-3 minutes, with active participation from the audience in form of live voting during the presentation, answering questions anonymously, then results of the voting would be discussed, and finally, each case will be concluded with a solution,and short point or some useful hint to bring home.

Mimics of gallbladder adenocarcinoma.

Sofia Papaioannou, (GRE)

Gallbladder carcinoma is the most common biliary tract malignancy worldwide and the fifth most common gastrointestinal malignancy.

Clinical presentation of the disease is often delayed relative to pathologic progression, contributing to advanced staging and dismal prognosis at the time of diagnosis. Imaging detection at early stages of gallbladder carcinoma remains tricky.

The differential will depend on the growth pattern of the tumor. Gallbladder carcinoma may appear as an intraluminal polypoid lesion,as a mass completely occupying or replacing the gallbladder lumen or as focal or diffuse asymmetric gallbladder wall thickening.

Preoperative imaging for tumor recognition, ifferantial diagnosis and staging is essential for appropriate care

Differential diagnostic clues for pancreatic tumors

C. Triantopoulou (GRE)

There is a great variety of benign and malignant pancreatic tumors as well as precancerous lesions of different types and biological behavior. Accurate characterizations is mandatory. Due to the advances of imaging techniques, there is an increase in the number of incidental pancreatic lesions in asymptomatic patients, while the mortality rate of pancreatic cancer remains high.

The discrimination between solid and cystic tumors is not important as some cystic neoplasms are precancerous lesions (IPMN, MCN), others have a solid subtype (pseudosolid serous adenoma) or present with a mixed solid and cystic appearance (solid pseudopapillary neoplasms). On the other hand, many solid tumors present with necrosis and appear as cystic lesions.

Contrast uptake is crucial for the differential diagnosis. Hypovascular tumors are the adenocarcinomas, the cystic precancerous lesions, lymphomas and some metastases. Hypervascular tumors are the neuroendocrine, the acinar cell carcinomas, Gists, sarcomas and metastases from hypervascular primary tumors like the renal cell carcinoma. Atypical presentation could be seen, like isoattenuating adenocarcinoma, or hypovascular neuroendocrine tumors.

Hypervascularity should not be considered as a sign for malignancy taking into consideration that pancreatic adenocarcinoma is hypovascular while malignant neuroendocrine tumors may show less vascularity. Concerning the parietal nodules, only the presence of a nodule vascularity is considered as a worrisome feature in IPMN. Parietal nodular projections in neoplasms without other worrisome features are not considered as signs of malignancy. The size of a parietal nodule and the change over the years is related to the probability of malignancy.

MRI presents advantages in the d.d. of cystic pancreatic neoplasms. No advantages have been proven in pancreatic adenocarcinoma diagnosis and local staging. The ability to show subtle changes of the pancreatic ducts on MRCP is helpful in the d.d. (focal chronic pancreatitis from pancreatic adenocarcinoma).

My most challening cases

Lukas Dagdilelis (GR)

A 45 – year old woman presented to the ED complaining for diffuse deteriorating abdominal pain during the prior three days. A few hours upon her arrival, the patient developed recurrent vomiting, tenderness and rigidity of the abdominal wall and hyperactive bowel sounds, suggestive of a high grade small bowel obstruction. Her medical history included two births with caesarean sections. No previous experience with abdominal pain was reported.

Imaging workup included an upright abdominal radiograph, a contrast enhanced abdominal CT, an upper and lower abdominal US and an abdominal MRI.

The ways of extraluminal gas in the abdomen – beyond pneumoperitoneum

Ksenija Mijović (SRB)

In the abdomen, gas is normally present in the colon and occasionally a small amount of gas can exist in the small bowel. We normally percieve physiological intraabdominal gas as lucencies on abdominal radiographs, or as intraluminal reverbaration and ringdown artifacts on ultrasound and areas of extremely low densities on CT.

Radiological finding of any form of extraluminal abdominal gas heralds an unfavorable diagnosis or even a catastrophic event. Most commonly encountered extraluminal gas in everyday practice is free intraperitoneal gas – pneumoperitoneum, after perforation of intraperitoneal portions of digestive tube, which is most readily seen on abdominal radiographs and CT, but can also be spotted on ultrasound. Nevertheless, gas can take various paths in the subperitoneal and retroperitoneal tissues of the abdomen, or even all the way through to the mediastinum and subcutaneous tissues. These compartments are an interconected continuum linked to one another by fascial tissue spaces along which large blood vessels and diaphragm fibers extend. This allows subperitoneal and interfascial spread of gas or any pathologic process, but also, if extensive enough, to the extraabdominal areas.

Through a presentation of a case, attention will be brought to possible differential diagnoses when encountering extraluminal abdominal gas, and to the subtle clues that would eventually lead to the correct diagnosis.

Bicycle handlebar injuries – a diagnostic challenge

Aleksandar Pavlović (SRB)

Bicycle handlebar injuries are an important cause of chest, abdominal and groin injuries, especially in the pediatric population. Diagnosis is often delayed and can be challenging, both clinically and radiologically. Injuries may be overlooked because of discrete clinical signs and the spectrum of associated internal injuries, while radiologic examinations may initially be nonspecific.

A15-year-old boy came tou our emergency radiology department complaining of severe epigastric pain two days after blunt abdominal trauma from a bicycle handlebar. Abdominal ultrasound sound revealed peritoneal free fluid. However, abdominal CT showed abscess collection and extensive retroperitoneal and intraperitoneal free air. The ascending colon was also edematous, and there was evidence of local peritonitis. So, which organ is injured?

It has been shown that CT should be considered the standard examination after bicycle handlebar injuries because the clinical presentation is nonspecific and there is a wide range of abdominal injuries, including surgical emergencies. In addition, CT can help in grading the injury and choosing a treatment approach.

Endovascular Treatment of Extracranial Carotid Artery Disease – Experience from University Clinical Center of Serbia

Vladimir Cvetic, Borivoje Lukic, Marko Miletic (SRB)

Introduction:

Carotid artery stenting (CAS) has become a standard alternative to surgical treatment of patients with hemodynamically significant carotid stenosis.

Purpose:

The aim of this study was to evaluate the results of endovascular therapy on the treatment of extracranial carotid artery stenosis.

Materials and Methods:

According to literature recommendations respecting the indications for CAS, starting from June 2006 to June 2023 at Clinical Center of Serbia more than 1000 patients with carotid artery stenosis underwent CAS (31% had restenosis after carotid endarterectomy, 7% patients had surgically unapproachable lesions, 2% were treated after radiation therapy, and more than 50% of the patients were with severe coronary or pulmonary disease). There were more asymptomatic, than symptomatic patients. Because of anatomical reasons we didn't finish the procedure in approximately 2% of patients

Results:

The overall rate of in-hospital adverse events (transient ischemic attack, minor stroke, major stroke, myocardial infarction, and death) was less than 3%. Implanted carotid stents open and closed design, and dual layer stents depending on the type of the lesions, with mandatory use of cerebral protection devices.

Conclusion:

CAS seemed feasible and relatively safe in our experience. CAS is the method of choice in the treatment of carotid disease in appropriately selected patients with a selection of the optimal material. Identifying complications during endovascular treatment of carotid stenosis, and the possibility of their solution is conditional upon the learning curve, experienced operator and the number of procedures performed in specialized centers.

MRI and CESM-guided biopsy: advantages and challenges in routine use

Mirjan Nadrljanski, (SRB)

MRI-guided biopsy is realized according to the algorithm, which includes the diagnostic imaging and the lesion characterization prior to VAB, with the predefined MRI protocol based on the dedicated software and mathematical models on 3T and 1.5T MRI units and the additional equipment for the realization of the biopsy, in order to verify the procedure feasibility in each specific case. The specific geometry of the compressed breast in prone position needs to be taken into account when planning the procedure. Posterior and superficially localized lesions together with those in the sub-areolar area are not suitable as the targets for the procedure. The selection of the adequate needle according to the breast and lesion specificities (acquisition chamber 20 mm or 12 mm) and the coordinates in the 3D navigating system of the specific lesion, together with the selection of the needle approach (lateral vs. medial) represent the specific criteria for the procedure realization. Specific localizations, together with the presence of the silicone implants represent the challenges for the safe and adequate procedure realization.

CESM-guided biopsy represents the technique, which is currently in the stage of standardization and may be realized with the use of one or two mammography units. The algorithm includes the maximal timespan (Tmax) of up to 10 min. following the application of the iodine-based contrast medium and the VAB procedure realization.

The lesion localization, the approach and the needle placement, together with the imaging modality specificities and the specific geometry of the VAB realized on the MRI and CESM, represent the challenges in the routine procedure use.

Keywords:
Magnetic Resonance Imaging, Contrast Enhanced Spectral Mammography, Vacuum-Assisted Biopsy

Atypical presentations of lung carcinoma

Ruža Stević, (SRB)

Introduction: Lung cancer(LC) is the second commonest cancer in men and women in the developed world and small cell lung cancer (SCLC) accounts for about 20-25% of cases. LC can have a wide spectrum of manifestations, some of which are not commonly known. Typical presentation of lung carcinoma can be peripheral lesion arising beyond the segmental bronchi or central, arising in a large bronchus close to the hilum. The majority of peripheral LC are approximately spherical or oval in shape except Pancoast's tumors or superior sulcus tumors that may resemble an apical pleural thickening

The aim of this presentation is to show uncommon presentations of lung carcinoma which can be as follows:

- Cystic presentation
- Stripe/scar like presentation
- Endobronchial presentation
- Pneumonia like presentation
- Pleural neoplasms like presentation
- TBC like presentation
- Not otherwise defined

In most of cases follow up can help make the diagnosis of lung carcinoma. Appearance of solid component in cystic and scar tumors, or resistance of pneumonia to antibiotics are sings suggestive of malignancy. Pleural based tumors are undistinguishable from pleural tumors on imaging. Lung cancer with so many radiological presentation can sometimes mimic a wide variety of pulmonary diseases. Apart from that, numerous inflammatory and infectious processes, such as tuberculosis or fungal infections, may mimic a malignancy. In these cases, when the clinico-radiological data and the multidisciplinary study is not sufficient, the correct diagnosis can be made certainly only by biopsy.

In conclusion, radiologists must be aware of these different forms of presentation of LC which can contribute to its rapid recognition and differential diagnosis.

RECIST 1.1 criteria in lung cancer response evaluation

Vesna Stokanović, (SRB)

Response Evaluation Criteria in Solid Tumors (RECIST) was developed as a standard for assessment of response to therapy in patients with solid tumors in clinical trials. It was introduced in year 2000, replacing the previous WHO response system, and it was updated in 2009. Besides in trials, it has also been widely used in a daily practice, as a guide for clinicians for making decisions.

It is based on morphological criteria we can see on imaging which allows objective assessment of tumor burden and its quantification. Definitions of target and non-target lesions is given. Guidelines for selecting and measuring lesions, as well as for determining

the overall tumor burden are discussed. Response to therapy is categorised as progressive disease (PD), stable disease (SD), partial response (PD) and complete response (CR) in comparison to baseline or Nadir. Several radiologic modalities can be used to image these patients, but computer tomography (CT) is the modality of choice. It is precise, highly reproducible, widely available and correlates well with the outcome of the treatment.

Some limitations have been recognized of the current version, RECIST 1.1. Being based solely on tumor size, it fails to consider other morphological features such as density, functional or metabolic changes that can occur after conventional or targeted therapy. Some modifications of criteria have been proposed in specific situations. For ssessment of malignant pleural mesothelioma response to treatment maximal tumor thickness can be used. Alternative measuring system has been suggested for cavitating tumors. The aim is to review the current and emerging criteria that can be used for therapy response evaluation in patients with lung cancer.

Regional Lymphadenopathy in head and neck cancer - what, where and why?

Dineva S. (BG)

Introduction:

Cervical lymphadenopathy is a common finding in everyday radiological practice. Individual differences in size and number are not-rarely the source of confusion in this region. Drawing a line between benign and malignant in the setting of a head and neck cancer can be a really challenging.

Aim:

The presentation gives a systematic radiological approach to cervical lymphadenopathy with respect to patient history – known or unknown head and neck malignancy. A short description of the present classification systems is provided.

Discussion:

Each primary malignant disease in the head and neck region has specific radiological features which can give a clue about the origin of cervical lymphadenopathy. Occult metastatic lymph nodes are a great challenge both to the radiologist or the maxillo-facial surgeon. Moreover the presence of a solitary lymph node metastasis from head and neck squamous cell cancer has a 5-year survival rate of 50% and an additional contralateral nodal metastasis reduces the survival to 33 % [1].

Conclusion:

The knowledge of different head and neck drainage areas, together with specific lymphonodular features and how they are recently classified is of immense help both for radiologists and clinicians when approaching head and neck cancer.

PET/CT in Oncology

Silvija Lucic, (SRB)

Timely and adequate diagnostic evaluation of the extent of the disease, as well as the therapeutic response, is an indispensable and important part of oncological treatment. Simultaneously with the aspiration of oncologists to obtain a quick and accurate assessment of the

therapeutic response as early as possible, preferably already after or during systemic or radiotherapy treatment, with the availability of a diverse range of innovative antitumor drugs, including specific "target" therapies, in the treatment of an increasing number of different cancers, a separate personalized approach to oncological diseases treatment based on the principles of theranostics is being developed, e.g. Ga68-labeled somatostatin analogs in the evaluation of therapeutic options for the treatment of NET tumors, PSMA (prostate-specific membrane antigen) in the treatment of Lu177 PSMA-labeled prostate cancer, and breakthrough of immunotherapy in oncological treatment that led to development of PET immunotherapy radiopharmaceuticals labeled with 89Zr-PET imaging. Understanding that a unique and/or universal response to these novel therapies is not probable, it is certain that not all patients will respond to the applied treatment to the same extent. It is therefore essential to choose the optimal and maximally individualized therapeutic approach for each individual cancer patient, not only in order to achieve the best possible therapeutic response, but also to minimize and/or avoid the appearance of adverse drug effects. Respecting the principles of pharmacoeconomics in order to maintain the treatment costs within realistic and acceptable limits remains a serious limit, so obtaining adequate and reliable data on therapeutic response as early as possible, optimally at the very beginning of therapy is of utmost importance in planning a personalized therapeutic approach to each cancer patient.

Already the diagnostic criteria based on the metabolic information obtained by 18F-FDG PET/CT examination, can be used to evaluate the therapeutic response and define it as complete metabolic response (CMR); partial metabolic response (PMR); metabolically stable disease (stable metabolic disease - SMD); and metabolic disease progression (progressive metabolic disease – PMD) unequivocally indicate that the introduction of standardized metabolic criteria in the early assessment of therapeutic response would provide an increase in sensitivity, specificity and diagnostic reliability compared to the exclusive application of already established, RECIST-based morphometric criteria, especially in the assessment of early effects of modern molecular oncology therapeutic protocols, and the novel radiopharmaceuticals implementation would certainly lead to the further improvement.

In this brief review we will try to provide the elementary knowledge on three important tasks of PET/CT imaging in oncology, including staging, therapy response assesment and the diagnostic part of theranostics, but also how theranostics may influence oncologic imaging and cancer patients treatment in the future.

MR imaging in 3D brachytherpy for cervical carcinoma

Aleksandar Tomašević (SRB)

Cervical cancer is still a major social and epidemiological problem in the world, especially in underdeveloped and developing countries. According to the Cancer Registry of Serbia data, cervical cancer has an incidence of 27.8, mortality of 10.6 per 100.000 citizens per year, and is responsible of 438 deaths annually.

The basis of cervical cancer treatment is a combination of surgery, radiotherapy and chemotherapy, used in an adjuvant or definitive setting. Radiotherapy is presented as a combination of External beam radiotherapy (EBRT) and Brachytherapy (BRT).

Due to its high irradiation doses that are delivered to the tissues near the irradiation source, BRT has an irreplaceable role in reaching the required radiotherapy dose in the

tumor region. For the same reason, BRT also presents a high risk in the development of irradiation toxicity to the surrounding healthy organs and tissues - organs at risk (OAR), especially high-grade (G3/4) toxicity that leads to a significant decrease in the patient's quality of life, even if a complete remission of the disease has been achieved.

The implementation of MR imaging in BRT treatment, created conditions for the development of 3D volume-based, "image-guided" brachytherapy planning. This provides high quality images of pelvic soft tissue structures, both tumor tissue and organs at risk, and enables us to be very precise in delivering high brachytherapy doses. That level of visual control leads to highly personalized form of radiation therapy adapted to the anatomical characteristics of each patient, with a proved better local control of the disease, and reduction of frequency and grade of irradiation toxicity at the same time.

Keywords:
3D brachytherapy, gynecology, radiotherapy

Cystic female pelvic masses

Olivera Nikolić, (SRB)

Cystic pelvic masses are frequent in women and most often related to the female reproductive system (gynecologic lesions-usually of ovarian origin).

A variety of fluid-filled lesions unrelated to the genital organs may be seen in pelvis as well, normally associated with the urinary system, gastrointestinal system or miscellaneous group of lesions. The aim of this talk is to present the imaging features of different cystic pelvic entities and their differential diagnoses and to learn the practical workflow in everyday clinical practice. Different types of cystic pelvic masses may have similar imaging characteristics, and therefore radiologic evaluation may be of limited diagnostic use. To avoid misdiagnosis, it is very important to understand the relationship of a mass with its anatomic location, to identify the ovaries at imaging and correlate imaging findings to the clinical history and laboratory findings.

Learning Objectives:

1. To learn the imaging characteristics of the different female pelvic masses.
2. To become familiar with a numerous fluid-filled lesions unrelated to the female genital organs.

Challenges in diagnosis of primary central nervous system vasculitis

R Perić, M Mastilović, J Boban, N Boban, (SRB)

Introduction:

The presence of cortical, subcortical, and deep white matter lesions associated with focal hemorrhage, and heterogeneous enhancement on MRI, in combination with clinical symptoms such as headache, hemiparesis, and mental disturbances suggest a diagnosis of primary central nervous system vasculitis (PCNSV). Using just conventional MRI sequences it is difficult to give accurate diagnosis of this type of pathology. The main differential diagnosis of PCNSV are tumorous or other inflammatory lesions. In order to give precise diagnosis it is necessary to perform biopsy. Leptomeningeal cortical biopsy is the gold standard for the diagnosis of PCNSV.

Case report:

We present the case of a 56-year-old patient who came to the hospital due to occasional headaches and confusion. Neurological examination showed right-sided pyramidal deficit with right-sided paresis and sensorimotor dysphasia. In outpatient settings the brain MRI exam and spectroscopy were done. The exam showed cortico-subcortical frontoparietal changes on the left side, and the main differential diagnosis included leptomeningeal carcinomatosis, lymphocytic infiltrate, etc. Considering these differential diagnoses, neurosurgeon decided to perform a stereotaxic biopsy. Histopathology described glial tissue with a diffuse mononuclear inflammatory infiltrate in the specimen. After a month and a half, a follow-up brain MR exam was performed in our department. The exam showed an increase in the number of cortical lesions, which where in various stages of healing. Some of the lesions showed increased signal intensity after contrast application, correlation on SWI tomograms and diffusion restriction. It was suspected that these are ischemic lesions resulting in vasculitis. Also, the thrombosis of certain venous sinuses was detected. Following these results, DSA examination was performed and it showed focal and multifocal segmental narrowing of both small and medium-sized blood vessels.

Conclusions:

The outcome of PCNSV is frequently fatal, and early diagnosis and treatment with high doses of corticosteroids is essential.

Keywords:

vasculitis; MRI; biopsy; ischemic stroke

JFR - AN ORDINARY DAY AT A DEPTARTMENT OF RADIOLOGY

Slobodan Torbica, (SRB)

Introduction

Interventional radiology, an invasive area of radiology, has a very important role both in diagnosis and the treatment of chronic diseases and acute conditions. In recent years, emergency interventional radiology has emerged as a method of choice in the treatment of many conditions, especially trauma.

The aim

Presentation of three urgent cases treated with interventional radiology procedures.

Material and methods

The presented patients were treated in the angiography room at the Emergency Center of the University Center of Vojvodina for acute intra-abdominal bleeding. In two patients the bleeding was caused by trauma to the solid organs. In the third patient, it was caused by the rupture of a visceral artery aneurysm. All patients underwent an initial CTA scan, where intra-abdominal hemorrhage and contrast extravasation were seen. Contrast extravasation was confirmed during the initial digital subtraction angiography and the endovascular treatment followed.

Results

All three patients were successfully treated by endovascular methods.

Conclusion

Interventional radiology has a lot to offer in the diagnosis and treatment of emergency conditions, especially traumatic injuries. The use of interventional radiological procedures can save the injured organ and avoid surgery. In order for everything to function smoothly, a quick reaction and a multidisciplinary approach are necessary.

Pancreatic postinflammatory collection communicating with common bile duct

Ivana Stojic, (SRB)

Pancreatic postinflammatory collections (PPCs) are well-recognized complications of acute pancreatitis, encompassing a spectrum of fluid-filled cavities that develop in the peripancreatic space. In some instances, these collections can establish an aberrant communication with the common bile duct (CBD), resulting in a unique clinical scenario that presents diagnostic and therapeutic challenges.

A 61-year-old female patient presented to the emergency department with symptoms suggestive of pancreatitis. Upon arrival, the patient complained of severe abdominal pain, radiating to her back, accompanied by nausea and vomiting. Physical examination revealed tenderness in the epigastric region and laboratory findings showed elevated serum amylase and lipase levels, confirming the diagnosis of acute pancreatitis. Further evaluation through imaging, including abdominal ultrasound and CT scan, demonstrated pancreatic necrosis involving more than 90% of the pancreatic parenchyma and ascites. The patient was promptly admitted to the intensive care unit for aggressive management. On a control CT scan a peripancreatic fluid collection with signs of infection was detected. Throughout her prolonged hospitalization that lasted 2 months, the patient faced numerous complications, including urinary infection and pneumonia. One month later the patient came to the emergency again with a high temperature and vomiting. On a repeated CT scan a high suspicion of communication between PPC and CBD was described. MRCP was done and it showed the communication between the PPC and retropancreatic segment of a CBD.

One month later, on a control CT scan, PPC reduced in size and the aforementioned fistulous tract was almost completely obliterated, so the patient did not have to undergo any further procedures.

PPCs can suffer complications such as infection, hemorrhage, rupture to the abdominal cavity, and fistulas. Of these complications, fistulization to neighboring organs is the least frequent, within which fistulas to the stomach, duodenum and colon are the most frequent while less frequent would be within the esophagus and very rarely in the common bile duct. Patients with PPCs and choledochal communication typically present with a distinct clinical profile, characterized by recurrent cholangitis, biliary obstruction, and symptoms of persistent pancreatitis. The management of this condition focuses on addressing both the pancreatic and biliary components. Timely diagnosis and appropriate management are crucial for achieving optimal outcomes in these challenging cases, with the ultimate goal of relieving biliary obstruction, preventing recurrent infections, and improving the patient's overall quality of life.

Hemangioblastoma in the cerebellum of a 70-year-old man: a diagnostic challenge, or maybe not so.

Aleksandar Ragaji, Kristina Polak, Stefan Stojanoski, Milena Spirovski (SRB)

Cerebellar hemangioblastomas are rare vascular neoplasms that primarily affect the central nervous system. They often present with a variety of neurological symptoms, making accurate diagnosis crucial. We report the case of a 70-year-old man who presented with vertigo and double vision, ultimately diagnosed with a cerebellar hemangioblastoma through magnetic resonance imaging (MRI). This case highlights the importance of considering a wide range of differential diagnoses in patients with such presentations.

The patient presented with a several-month history of progressive vertigo and double vision.

The patient's initial CT scan demonstrated a well-defined, cystic lesion in the cerebellum. Further characterization was achieved through MRI.

MRI of the brain revealed a well-defined cerebellar lesion with characteristic features of cerebellar hemangioblastoma, including a cystic component with a mural nodule and intense contrast enhancement.

Cerebellar hemangioblastomas are rare tumors that can mimic various neurological conditions, leading to diagnostic challenges. Imaging features, particularly those observed on MRI, play a crucial role in narrowing down the differential diagnosis.

Cerebellar hemangioblastoma should be considered as a differential diagnosis when encountering cystic lesions in the cerebellum, even in older individuals. Multimodal imaging, particularly MRI with contrast enhancement, plays a vital role in accurately diagnosing these lesions. Recognition of characteristic imaging findings, such as cystic components and intense nodular contrast enhancement, can aid in early diagnosis and appropriate management. Early recognition and intervention are essential to improve patient outcomes and quality of life. Timely intervention, which may include surgical resection or embolization, can improve outcomes in patients with cerebellar hemangioblastoma. This case highlights the need for a comprehensive approach to challenging neuroimaging cases in clinical practice.

Hepatocellular carcinoma in metastatic malignant melanoma

Stefan Stojanoski, (SRB)

Hepatocellular carcinoma in the cirrhotic liver is characteristically diagnosed by its hypervascular presentation, with increased enhancement in the arterial phase and washing out in the portal or later postcontrast phases. Similar contrast behaviour can also be expected in hypervascular metastatic tumors, which include malignant melanoma.

A 64-year-old patient diagnosed with malignant melanoma of the upper back and after 4 years of follow-up with metastatic dissemination to the supraclavicular lymph nodes, was referred for a magnetic resonance (MR) imaging of the abdomen as a part of the assessment of the metastatic disease extent. The evaluation of the MR images showed diffuse fatty infiltration of the liver and a solitary hypervascular lesion in the right liver lobe (segment 6), measuring about 20 mm. The lesion showed a small area of central necrosis, moderately decreased T1W, and moderately increased T2W signal, with restriction of diffusion, and was in accordance with the signal characteristics, also taking into account the stage of the underlying disease, concluded as a metastasis of malignant melanoma. Computed tomography of the neck, thorax and pelvis did not confirm other metastatic lesions, laboratory findings were within the reference ranges, and the patient underwent a liver metastasectomy. Histology, however, showed that the resected liver lesion was a well-differentiated hepatocellular carcinoma.

Hepatocellular carcinoma occurs in about 20% of cases in a non-cirrhotic liver, and despite the fact that a hypervascular lesion in the liver in metastatic malignant melanoma is most often metastasis, the possibility of a primary hypervascular tumor should not be a priori excluded.

Soft Tissue Tumor in a Colon Cancer Survivor: A Diagnostic Challenge Unveiling Lymphoma

Polak K, Ragaji A, Stojanoski S, Spirovski M (SRB)

Introduction:

Soft tissue tumors located in the intermuscular regions of the gluteal region are a diagnostic conundrum for radiologists. We present a case of a 45-year-old female with a history of successfully treated medullary cancer of the colon in Stage I, characterized by high microsatellite instability. The patient, initially deemed cancer-free, presented with a soft tissue tumor located in the right gluteal region, as identified through computed tomography (CT) and magnetic resonance imaging (MRI). The primary objective of this presentation is to emphasize the diagnostic challenges in distinguishing between recurrent cancer, benign lesions, soft tissue tumors and rare entities like lymphomas.

Metods:

The patient initially presented with a painless, palpable mass in her right gluteal region, which prompted further evaluation. MRI played a pivotal role in characterizing the lesion. Imaging demonstrated a well-defined, heterogeneous mass interposed within the gluteal musculature, displaying characteristics consistent with soft tissue sarcoma. The differential diagnosis at this stage included various sarcomas, such as fibrous tumors and leiomyosarcoma, among others.

Results:

Post-operative histopathological examination surprisingly revealed marginal zone lymphoma, a B-cell lymphoma that rarely infiltrates extranodal soft tissues. The unusual presentation of lymphoma in the gluteal region, initially mimicking a sarcoma, underscores the importance of considering diverse differential diagnoses.

Conclusion:

This case serves as a reminder to the radiology community that while sarcoma remains a primary consideration in soft tissue tumors, other entities, including lymphoma, should not be overlooked, and a collaborative diagnostic effort is essential for optimal patient care. By exploring this complex case, we aim to enhance our understanding of atypical presentations in cancer survivors and emphasize the importance of multidisciplinary collaboration in achieving accurate diagnoses and tailored treatment strategies for such patients.

Acute chest pain in teenaged boy – What should we do?

Vesna Topić , Saša Popović (SRB)

Introduction:

Myocarditis is an acute or chronic inflammatory reaction of the myocardium, usually caused by viral infections. Also, it can be a result of post-viral immune-mediated response or less common causes (drugs or toxins).

The spectrum of clinical symptoms is rather broad and unspecific. The presentation may vary from minimal symptoms to heart failure, life-threatening arrhythmias, or cardiogenic shock. The outcome can range from full resolution to chronic heart failure.

Electrocardiographic features in children are variable and nonspecific. The use of serologic biomarkers of myocardial injury is common and may assist with diagnosis, but they are neither specific nor sensitive enough.

Cardiac magnetic resonance (CMR) can provide good information and help in diagnosis. It can identify myocardial injury and detect inflammatory features.

Case report:

A 15-year-old boy was admitted to our hospital with acute chest pain, tachycardia, and a fever. ECG presented with ST elevation in V1-V5 leads, without other changes. Troponin T, C-reactive protein, and sedimentation rate were highly elevated.

On echocardiographic examination, LV (left ventricle) systolic function was preserved. LV wall thickening and laminar pericardial effusion were noticed.

CMR was performed. There was no dyskinetic movement of the left ventricle and EF was preserved. Oedema and LGE were noticed in several LV myocardial segments, subepicardial, and mesomyocardial distribution. Myocardial mass was enlarged. Laminar pericardial and pleural effusion were present. CMR findings were suggestive of perimyocarditis.

Antimicrobial and immunotherapy were applied, with good results.

Conclusion:

Cardiac magnetic resonance is a useful non-invasive diagnostic method, which provides cardiac morphology, function analyses, and tissue characterization. All of this gives important diagnostic and prognostic information.

The role of cardiomagnetic resonance in the evaluation of a pregnant woman with chest pain and elevated troponin

Maja Popović; (SRB)

Introduction:

Cardiovascular diseases lead to complications in about 1-4% of pregnancies and are the leading non-obstetrical cause of maternal morbidity and mortality, so acute coronary syndrome (ACS) should always be considered and excluded. ACS most often occurs in the third trimester and the early postpartum period as a result of spontaneous coronary artery dissection (SCAD), atherosclerosis, coronary artery thrombosis, and vasospasm.

Case report:

Female patient, 39 years old, 23 weeks pregnant, fourth pregnancy, hospitalized in the coronary unit due to chest pain, tightening type, spreading to the upper arms, accompanied by sweating. The pain started an hour before hospitalization and lasted 40 minutes. On admission, cardiospecific enzymes, D-dimer and NT-proBNP were normal. An electrocardiogram (ECG) showed ischemic changes. Transthoracic echocardiography (TTE) showed normal dimensions of the left ventricle, preserved global systolic function (EF 60%), without disturbances of segmental contractility, with laminar pericardial effusion. During the first day of hospitalization, there was an increase in cardiospecific enzymes and their dynamics. Cardiomagnetic resonance (CMR) was performed without the use of a contrast medium. CMR showed medial anteroseptal and anterior segments hypokinesia, preserved global systolic function (EF 57%) of the left ventricle, preserved volume, mass and hemodynamic parameters, as well as a laminar pericardial effusion. TIRM sequence showed transmural increased signal intensity of the myocardium in the medial anteroseptal and anterior segments, also myocardial mapping showed prolonged T2 and native T1 time in the same segments, starting from the subendocardial layers and sparing the laminar layer of the subepicardial myocardium, indicating acute myocardial lesions of vascular origin. Coronary angiography showed SCAD LAD.

Conclusion:

CMR is a non-invasive diagnostic method, which does not apply ionizing radiation, and has the possibility of comprehensive analysis of morphology and function, as well as characterization of the heart tissue of the mother in one study, without additional risks for the mother or the fetus.

Keywords:

Cardiovascular magnetic resonance, pregnancy, acute coronary syndrome.

Van Wyk-Grumbach syndrome- rare presentation of untreated hypothyroidism which can lead to unnecessary ovarian surgery

Jovana Tončev, Tanja Mijović, (SRB)

Introduction:

Van Wyk-Grumbach syndrome (VWGS) is a rare manifestation of prolonged pre-pubertal hypothyroidism in females characterized by bilateral multicystic ovaries, uterine bleeding and delayed skeletal growth. VWGS is considered as the only entity in which precocious puberty is associated with a delayed bone age.

Case report:

A 11-year-old obese girl was admitted to our hospital with vomiting, acute abdominal pain and distension, she had no fever or any report of trauma. WBC count was elevated, C-reactive protein, AFP and βHCG levels were normal. She had an early menarche at the age of 9 years, the menstrual cycles were irregular. There were no episodes of vaginal bleeding in last two months. Initial US examination in other hospital noticed only dilated bowel loops. Large, multicystic mass in right hemiabdomen and pelvis, with two compartments and suspected communications between them was described on the. Right ovary was described as normal, left ovary wasn't spotted. Surgical intervention was scheduled with suspected ovarian tumor or large mesenteric cyst. Preoperative MRI demonstrate an enlarged uterus, grossly enlarged both ovaries with multiple and bilateral cysts of various sizes and intraperitoneal effusion. Based on MRI findings, surgery was canceled and the patient was evaluated for ovarian hyperstimulation syndrome. Her breast development was normal (Tanner stage II), pubic and axillary hair just begun to grow (Tanner stage II). Her height was in normal range for her age (-1SD). Hormonal investigations revealed highly elevated TSH and Prolactin levels, with low fT4 level. X-ray of left hand showed a delayed bone age (8 years). Diagnosis of the hypothyroidism was made. Treatment with L-thyroxine was started and the child's condition improved in next few months.

Conclusion:

MRI findings can play a major role in identification the correct diagnosis, avoiding unnecessary surgery and starting appropriate treatment in female child with VWGS.

Needle localization of breast lesions

Maja Jakimovska Dimitrovska

Objective:

This study aims to provide an account of our experience with the needle localization technique for the diagnosis of small breast cancers.

Materials and Methods:

A retrospective analysis was conducted, involving 120 patients with impalpable breast lesions who underwent wire localization. All patients received mammography, ultrasound examinations, and pathohistological assessments. Our diagnostic tools included the Mammomat Inspiration Siemens digital unit for mammography, the Lorad Affinity machine with a fenestrated compressive pad for wire localization, and the Acuson X300 ultrasound machine with a linear array probe (10 MHz). Two types of wires, Bard hook wire and Kopans breast lesion localization needle (Cook), were used. Comparative radiologic and pathologic data were collected and subjected to analysis.

Results:

Among the 120 asymptomatic women, 68 cases of malignancy and 52 benign findings were identified through mammography and ultrasound. The mean age of patients with malignancies was 58.6 years. According to the BI-RADS classification for mammography, the distribution in our study group was as follows: BI-RADS 3 was observed in 6 (8.82%) patients, BI-RADS 4 in 56 (82.35%) patients, and BI-RADS 5 in 6 (8.82%) patients. Wire localizations were predominantly performed under mammographic guidance in 58 out of 68 patients with malignant lesions (85.29%) and with ultrasound in 10 (14.7%) cases. Based on mammographic findings, patients presented with mass on mammograms (29, 42.65%), mass with calcifications (9, 13.23%), calcifications alone (20, 29.41%), and architectural distortions or asymmetry (10, 14.71%).

Conclusion:

Wire localization remains a well-established and effective technique for managing impalpable breast lesions.

Keywords:

BI-RADS classification, breast cancer, mammography, wire localization.

Imaging of perineural tumoral spread in head and neck

Petrović Sladjana

Center of radiology, Clinical Centre Niš, Faculty of Medicine University of Niš, Serbia

Definition of perineural spread includes spread of tumoral cells along the nerves (along perineurium, epineurium or endoneural tissuae). Perineural spread persist in 2,5-5% of head and neck tumours and this tendecy most common demonstrate squamous cell carcinoma, adenoid cystic carcinoma, mucoepidermoid carcinoma, nasopharyngeal carcinoma and lymphoma. Imaging plays a critical role in the assessment and diagnosis because up to 50% of patients can be asymptomatic.

Imaging studies depicted the location and extent of tumor involvement, helped determination of the type of head and neck tumor and their staging.

The method of choice for diagnostics of perineural tumoral spread is MRI which can demonstrate enlargement of affected nerve, postcontrast enhancement, obliteration of surrounding fat and muscle denervation atrophy.

MSCT can also provide useful information about perineural spread relating to widening of skull base foramina and obliteration of fat spaces. Muscle denervation atrophy may also be the consequence of perineural spread of tumor.

Imaging plays an important role in detection of perineural tumour spread and good understanding of anatomy of cranial nerves is required. Recognition of radiological signs of perineural spread of head and neck tumour, as well as muscle denervation changes is necessary in order to establish the right diagnosis and determine adequate oncological treatment.

Anterior knee pain

Vesna Njagulj

Introduction and purpose:

Anterior knee pain is very common knee pain, usually the result of internal patellofemoral joint derangement. Overuse injuries in athletes include a broad spectrum of disorders that are usually caused by repetitive microtrauma or trauma. There are complex biomechanical forces during all levels of activity. Injuries can cause significant pain and functional disability.

Methodology:

Evaluation of the patellofemoral joint includes plain film radiography, usually as the first diagnostic tool, advanced diagnostic method, magnetic resonance imaging (MRI). MRI can provide a definitive diagnosis in the most of the cases. Knowledge of the imaging appearances of injuries of the patellofemoral joint is essential for early and accurate diagnosis.

Imaging findings:

Repetitive microtrauma at the entheses of the patellar tendon cause patellar tendinosis, tendon rupture (partial or complete). There are also findings of quadriceps tendon injuries, or structures of retinaculum. Bursea of anterior part of the knee can be inflamed from overuse, friction or trauma. There are, also, several impingement and plica syndromes. Imaging findings are very typical after patellar luxation. MRI is a reliable diagnostic modality for osteochondral injuries and fractures in the patellofemoral joint. It's important to be familiar with normal variants in the patellofemoral joint. Some of those variations can become symptomatic or be associated with other injuries.

Conclusion:

Correct diagnosis is important as some of those disorders mimic osteomyelitis or malignancy. Also, correct imaging diagnosis helps to avoid unnecessary arthroscopy.

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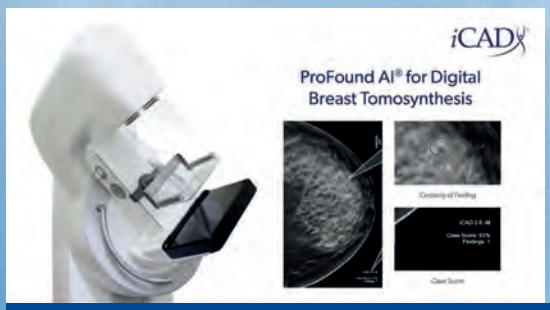

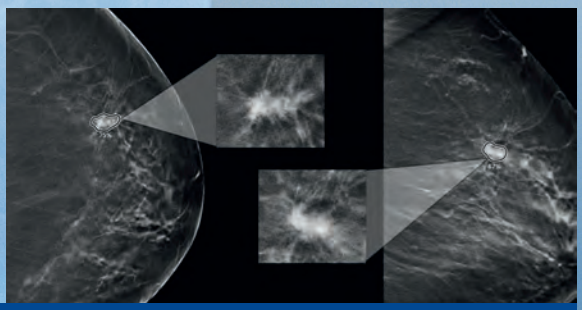

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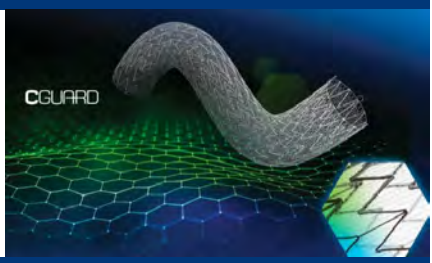
The **CGuard** Embolic Prevention System (EPS) is a novel mesh carotid stent designed to improve patient safety through sustained embolic protection.



AprioMed

AprioCore® plus
Semi-automatic biopsy needle

Gangi-SoftGuard® and Gangi-HydroGuard®
Coaxial needle

SeeStar® - CT guiding device

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