

BSR
Balkan Society of Radiology

XIV Balkan Congress of Radiology

Featuring an
ESOR Visiting Professorship Course

October 13-15, 2016 • Porto Palace Hotel • Thessaloniki



www.bcr2016.gr

Under the auspices of



BOOK OF ABSTRACTS

WELCOME LETTER

We are very pleased to welcome you at the **14th Balkan Congress of Radiology**, in **Thessaloniki, Greece** which is held from **October 13th to 15th, 2016**.

The Congress is organized by the **Balkan Society of Radiology (BSR)**.

An **ESOR Visiting Professorship Program** is organized the first day of the Congress and is funded by the European Society of Radiology (ESR) within the framework of the ESR Support Initiative.

The 14th Balkan Congress of Radiology (BCR 2016) aims to offer a unique opportunity to update knowledge on important Radiological topics. Radiologists and clinicians of different specialties, from Greece and the Balkan countries, and the rest of Europe as well, honour the congress as faculty members and offer their experience and expertise. Experts will discuss the key topics in plenary sessions, lectures and workshops. Also, sessions of oral and e-poster presentations will be included.

We hope that you will enjoy the event and that your interaction with your colleagues from many different countries will stimulate a creative exchange of ideas and will be personally rewarding.

Thessaloniki is a city of an uninterrupted 2300 year long history - a melting pot of cultures. A city to relax and have fun. A city of cordial meetings and fruitful events.

We warmly welcome you to beautiful Thessaloniki and we invite you to become one of the outstanding members of our friendly team in this engaging Congress.



Panos Prassopoulos
Professor of Radiology
President of the Balkan Society of Radiology (BSR)
President of BCR 2016



Stavros Efremidis
Professor Emeritus of Radiology
Co-President of BCR 2016



COMMITTEES

Executive Committee

Panos Prasopoulos	President
Nicholas Gourtsoyiannis	Honorary President, Chairperson of the Nominations Committee
Okan Akhan	Past President
Dimitrios Tsetis	1 st Vice President
Ruzica Maksimovic	2 nd Vice President
Nevra Elmas	Secretary General
Milan Totev	Treasurer
Dragos Negru	Chairperson of the Program Planning Committee
Nadica Mitreska	Chairperson of the Membership Committee
Zulejha Merhemic	Chairperson of the Bylaws Committee, Past Congress President
Vassil Hadjidekov	Member of Council of National Representatives
Şükrü Mehmet Ertürk	Member of Council of National Representatives

Program Planning Committee

Negru Dragos, Romania (Chair)
 Lupescu Ioanna, Romania
 Sarajlic Vesna, Bosnia and Herzegovina
 Çallı Cem, Turkey
 Marković Biljana, Serbia
 Triantopoulou Charikleia, Greece
 Zlatareva Dora, Bulgaria
 Antevska Grujevska Svetlana, FYROM

Local Organizing Committee

Argyropoulou Paraskevi, Alexandroupolis	Kazana-Sfouggarı Elpida, Thessaloniki
Chartambilas Evangelos, Thessaloniki	Kokkinis Konstantinos, Athens
Chourmouzi Danai, Thessaloniki	Koureas Andreas, Athens
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Kalogera-Fountzila Anna, Thessaloniki	Vassiou Ekaterini, Larisa
Karnabatidis Dimitrios, Patras	Xinou Ekaterini, Thessaloniki



Invited Faculty

Akata Deniz, Turkey	Karlović-Vidaković Marijana, Bosnia & Herzegovina
Akhan Okan, Turkey	Kauczor Hans-Ulrich, Germany
Alibek Sedat, Germany	Kelekis Nikolaos, Greece
Argyropoulou Maria, Greece	Koçer Naci, Turkey
Besim Aytekin Turkey	Kokkinis Konstantinos, Greece
Beslagic Vanesa, Bosnia & Herzegovina	Koutoulidis Vassilios, Greece
Brkljačić Boris, Croatia	Kovač -Djokic Jelena Djokic, Serbia
Calli Cem, Turkey	Kozic Dusko, Serbia
Čengić Anesa, Bosnia & Herzegovina	Lucic Milos, Serbia
Charitanti-Kouridou Afroditi, Greece	Maksimovic Ruzica, Serbia
Chartampilas Evangelos, Greece	Manfredi Riccardo, Italy
Chatziioannou Achilleas, Greece	Markovic-Vasiljkovic Biljana, Serbia
Chatzikyriakidis Kyriakos, Greece	Matayoshi Takashi, Japan
Chourmouzi Danai, Greece	Matsui Osamu, Japan
Chryssogonidis Ioannis, Greece	Merhemic Zulejha, Bosnia & Herzegovina
Cokkinos Dimosthenis, Greece	Michailidis Konstantinos, Greece
Courcoutsakis Nikolaos, Greece	Mihai Florin, Romania
Deftereos Savas, Greece	Mitreska Nadica, FYROM
Djilas Dragana, Serbia	Moulopoulos Lia - Angela, Greece
Efremidis Stavros, Greece	Nakajima Yasuo, Japan
Elmas Nevra, Turkey	Nedevska Maria, Bulgaria
Eraslan Cenk, Turkey	Negru Dragos, Romania
Erturk Mehmet, Turkey	Njagulj Vesna, Serbia
Fezoulidis Ioannis, Greece	Obuz Funda, Turkey
Filippiadis Dimitrios, Greece	Oktay Aysenur, Turkey
Glynos Michael, Greece	Palkó András, Hungary
Gourtsoyianni Sofia, United Kingdom	Papadaki Efrosini, Greece
Gourtsoyiannis Nikolaos, Greece	Papadopoulou Frederica, Greece
Groudeva Violeta, Bulgaria	Prassopoulos Panagiotis, Greece
Grounevski Michael, FYROM	Roussakis Arcadios, Greece
Hadjidekov George, Bulgaria	Sarajlic Vesna, Bosnia & Herzegovina
Hadjidekov Vassil, Bulgaria	Sofić Amela, Bosnia & Herzegovina
Hazirolan Tuncay, Turkey	Sotirović-Seničar Slavica, Serbia
Jefić Svjetlana, Bosnia & Herzegovina	Souftas Vasileios, Greece
Kalogera-Fountzila Anna, Greece	Stojanovic Sanja, Serbia
Kalogeropoulou Christina, Greece	Stojovska Elizabeta, FYROM
Karaman Can, Turkey	Stoupis Christoforos, Switzerland
Karantanas Apostolos, Greece	Tarnoki David Laszlo, Hungary





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Tavernaraki Kyriaki, Greece

Totev Milan, Bulgaria

Traykova Nikoleta, Bulgaria

Triantopoulou Charikleia, Greece

Tsetis Dimitrios, Greece

Tsili Athina, Greece

Tsitouridis Ioannis, Greece

Zlatareva Dora, Bulgaria

Official Congress Organizer & Travel Agency



105 Michalakopoulou str., GR11527, Athens – Greece

Tel.: +30 210 7711673, Fax: +30 210 7711289

Email: bcr2016@prctravel.gr

Web Site: www.bcr2016.gr

COMMITTEES





ACKNOWLEDGEMENTS

The Organizing Committee of the 14th Balkan Congress of Radiology (BCR 2016) wishes to acknowledge the contribution of the following companies for their financial support (in alphabetical order):



ACKNOWLEDGEMENTS



GENERAL INFORMATION

About Thessaloniki, a warm and generous city

From the ancient Greek Symposium to the meetings and events of present day, people convene to exchange ideas and goods, and they transform the world as they do so.

At the crossroads of East and West, the city of Thessaloniki has been witnessing these transformations for millennia as a proud host of great people and historic events. Today, the capital of the region of Central Macedonia and the second largest Greek city, Thessaloniki, is a significant business hub for Southeast Europe and a remarkable place to visit.

The city of Thessaloniki is a vibrant modern metropolis. Built on the waters of the North Aegean Sea, the city and its 1 million inhabitants are renowned for their hospitality and easy going lifestyle.

It takes a walk on the "paralia" - the longest urban waterfront in Europe - to relax and feel the charm of this unique Greek city.

The city is easy to explore. You can go anywhere in about 30 minutes. A modern International airport is just 15 km to the east, a railway station is in walking distance from the city centre, buses and taxis are trustworthy and inexpensive - everything in Thessaloniki puts you at ease. The climate is no exception: typically Mediterranean with warm-to-hot summers, mild winters and an annual average of 300 days of sunshine.

Warm and generous, Thessaloniki is at the same time historic and avant-garde: a mosaic of cultures, a safe haven for creative people and the perfect spot for international business and academic meetings.

Dates

13-15 October, 2016 – Thessaloniki, Greece

Congress Venue

Porto Palace Hotel

65, 26th Octovriou Avenue

54628 – Thessaloniki – Greece

T. +30 2310504504 & 2310504500

F. +30 2310540384 & 2310504517

Email: info@portopalace.gr

Web Site: www.portopalace.gr

Registration Fees

BCR 2016	
Registration categories	Onsite Registration Fee
Specialists	€ 100
Residents-in-training*	€ 70
Radiographers*	€ 60
Company Representatives	€ 100
Medical Students**	€ 20
Accompanying Persons	€ 50

* Residents-in-training and Radiographers must submit a certificate of employer, upon registration.

** Medical Students must submit a copy of student identity card, upon registration.

Registration Fee for and **BCR 2016** includes:

- Admittance Opening Ceremony & Welcome Cocktail
- Admittance to all Congress Sessions
- Admittance to the Exhibition area
- Coffee during official breaks
- Full Congress related material

Registration Fee for Accompanying Persons includes:

- Admittance Opening Ceremony & Welcome Cocktail
- Admittance to the Exhibition area

Social Events

The Opening Ceremony, followed by the Welcome Reception will take place on Thursday, October 13th 2016 at Hall A (Crystal) of Porto Palace Hotel at 18.15h. After the Welcome Addresses a Concert with traditional local tunes from Asia Minor “Smirneika” with the Organic Ensemble “En Chordais” will follow.

Official Language

English is the official language of the Congress. No simultaneous translation will be provided.

Congress Badge

Upon registration, participants will receive a badge with their names written on. Delegates are requested to wear their badge during all sessions. Entrance to the Congress halls, e-posters and exhibition areas will not be permitted to any persons without a congress badge, which will be scanned with a barcode system.

Congress Secretariat Opening Hours

Thursday, October 13 th 2016	08.00-18.00
Friday, October 14 th 2016	08.00-19.30
Saturday, October 15 th 2016	08.00-19.30

Accreditation

BCR 2016 was granted **18 European CME credits** (ECMEC) by the European Accreditation Council for Continuing Medical Education (EACCME).

Certificate of Attendance- ESOR Course

The certificate will be handed out to all registered participants on Thursday, October 13th 2016 by the end of the Course at 18.00hs

Certificate of Attendance-BCR 2016

The certificate will be handed out to all registered participants on Saturday, October 15th 2016 from 10:00am until 19.30pm, **after completing the evaluation form** provided by the Congress Secretariat.

Speakers Ready Desk

A Speakers Ready Desk will be available for presenters, every day during Congress. Please note that you need to bring your presentation (PPT or PDF format) on a CD (not a ZIP disk!) or on a USB stick. Personal laptops are not allowed.

We advise you to **do this the day before your presentation or, if not possible, early in the morning of the day of your presentation.**

Wireless Access

The wireless network will be freely available by all the congress venue public areas.

Smoking

Smoking is not allowed within the Congress Venue. You can smoke though outside the building.

Liability and Insurance

The organizers accept no liability for any personal injury, the loss or damage of property or additional expenses incurred by participants either during Congress or as a result of delays, strikes or any other circumstances. Participants are advised to make their own arrangements with respect to health and travel insurance.



PRACTICAL INFORMATION

Currency

Euro is the official currency in Greece. Money exchange is available in most of banks. There are plenty of cash dispensers in Athens. Major international credit cards are widely but not always accepted in Greece (check in advance in small restaurants), and are not commonly used for small amounts. Banks are open from Monday to Thursday 08:00-14:30 and on Friday 08:00 – 14:00.

Electricity Supply

Electricity in Greece, as in the rest of Europe, comes out of the wall socket at 220 volts alternating at a 50 cycles per second. The sockets are for plugs with two or three round pins in a row (CEI 23-16/VII and CEE 7/4 German style Schuko). Appliances from North America require a transformer and British ones an adaptor.

Public Transportation

Public transport in Thessaloniki is served by buses. The bus company operating in the city is the Thessaloniki Urban Transport Organization (OASTH) and is the only public means of transport in Thessaloniki at the moment.

Bus

Standard bus fares:

- 1.00€ (purchased at a point of sale) or 1.10€ (when issued by ticket vending machines on the bus) – Valid for a single trip
- 1.20€ (purchased at a point of sale) or 1.30€ (when issued by ticket vending machines on the bus) – Valid for up to two (2) trips made within seventy (70) minutes from the time of issue
- 2.00€ Airport Ticket
- Detailed information on ticket options, bus routes and timetables is available at: www.oasth.gr Travel cards of various durations are also available.

Taxis

Taxis in Greece are economic. As a rough guide a taxi within the city will cost you approximately 5 Euros. Between 00:00 and 05:00 a double fare will be applicable.

Transfer from Thessaloniki Airport to the city centre

The website of Thessaloniki's Macedonia Airport is: www.thessalonikiairport.com

A public bus service is available 24 hours a day from the airport to the city centre, bus number 78 or 78N. These bus services operate from the airport approximately every 30 minutes. Tickets cost €2.00 one way.

The taxi fare to the city center is approximately 15–20€ from 5:00 am to 00:00 pm, while from 00:00 pm to 5:00 am expect to be charged an extra 10 Euros for this particular route.

International Calls

Dial 00 + country code + area code + phone number. The international code number from abroad is + 30 followed by the number code of the person you are calling, comprehensive of the “2310” of Thessaloniki region.

Emergency Calls

Police-Immediate Response: 100
Fire Brigade: 199
Ambulance Service: 166
Emergency Hospitals, Pharmacies: 14944
Medical Emergency Number: 112
Immediate social help: 197
Telecommunications info: 11888
Weather: 14944
Time: 14844
International Call Information: 139

Service of lost and stolen Credit Cards

American Express 210 3397250	MasterCard 00800118870303
Diners 210 9290200	Visa 00800116380304
Euro card 210 9503673	



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THURSDAY, OCTOBER 13TH, 2016

ESOR Visiting Professorship Program within the ESR Support Initiative “Body Oncologic Imaging”

08:00-08:45	Registration
08:45-09:00	Welcome and introduction
09:00-09:30	Lung Cancer <i>H.-U. Kauczor, Heidelberg (DE)</i>
09:30-10:00	Solid and cystic pancreatic neoplasms <i>R. Manfredi, Verona (IT)</i>
10:00-10:30	Preoperative image staging of colorectal cancer <i>S. Gourtsoyianni, London (UK)</i>
10:30-10:50	Coffee Break
10:50-13:00	Workshops <i>H.-U. Kauczor, H, R. Manfredi, S. Gourtsoyianni</i>
13:00-14:00	Break
14:00-14:30	Imaging of the immunocompromised patient <i>H.-U. Kauczor, Heidelberg (DE)</i>



THURSDAY, OCTOBER 13TH, 2016

- 14:30-15:00** MR imaging of endometrial and cervical cancer
R. Manfredi, Verona (IT)
-
- 15:00-15:30** Assessing treatment response of locally advanced rectal cancer
S. Gourtsoyianni, London (UK)
-
- 15:30-15:50** Coffee Break
-
- 15:50-18:00** Workshops
H.-U. Kauczor, H, R. Manfredi, S. Gourtsoyianni
-
- 18:00-18:15** Certificate of attendance
-

Hall A | Crystal

- 19:00** Opening Ceremony. "Thessaloniki meets Izmir"
Addresses
Honorary Award to Professor A. Besim (TR)
Opening Lecture
"Thessaloniki and Smyrna in modern and contemporary Greek History. Comparisons and Parallels"
Dr. K. Chatzikyriakidis
Aristotle University of Thessaloniki, Greece
Concert with traditional local tunes from Asia Minor
"Smirneika", with the Organic Ensemble "En Chordais"
Welcome Reception



FRIDAY, OCTOBER 14TH, 2016

Hall A | Crystal

- 08:00-09:00** **Registration**
- 09:00-10:30** **Thoracic Imaging and Interventions**
 Moderators: *R. Maksimovic (SR), D. Negru (RO)*
- Solitary pulmonary nodule new guidelines
H U. Kauczor (DE)
- CT in chest emergencies
C. Kalogeropoulou (GR)
- How to read HRCT - what every radiologist need to know
K. Tavernaraki (GR)
- Management of major haemoptysis. Bronchial artery embolization (BAE)
A. Chatziioannou (GR)
- 10:30-11:00** **Coffee Break**
- 11:00-12:30** **Abdominal Imaging**
 Moderators: *D. Akata (TR), A. Palkó (HU)*
- MDCT in the evaluation of the patient with HCV and cirrhosis
F. Mihai (RO)
- Malignant liver lesions and their masquerades
M. Erturk (TR)
- Acute pancreatitis: definition imaging and complications
C. Triantopoulou (GR)
- MRI-MRCP of Autoimmune Pancreatitis
R. Manfredi (IT)
- 12:30-13:30** **Siemens Symposium**
- New Applications in MRI
G. Koumerkeridis (GR)
- MRI of Breast. Current role and future perspectives
A. Roussakis (GR)
- 13:30-14:30** **Break**



FRIDAY, OCTOBER 14TH, 2016

Hall A | Crystal

14:30-16:00

Genitourinary Imaging

Moderators: **S. Stojanović (SR), I. Tsitouridis (GR)**

A typical and rare kidney tumours

A. Palkó (HUN)

Postimmunotherapy evaluation of kidney tumors: Thinking beyond RECIST criteria

B. Markovic (SR)

Adrenal tumors

N. Courcoutsakis (GR)

Multiparametric prostate MRI

S. Alibek (TR)

16:00-16:30

Coffee Break

16:30-18:00

Paediatric Imaging

Moderators: **M. Argyropoulou (GR), N. Mitreska (FYROM)**

What you should know about radiation protection in children

N. Mitreska (FYROM)

An update of Ultrasound Imaging evaluation of vesico-ureteral reflux

F. Papadopoulou (GR)

MRI and MR spectroscopy in neurometabolic disorders

C. Eraslan (TR)

Fetal MRI Imaging - The most common cases

G. Hadjidekov (BL)

18:00-19:30

The Balkan Society of Radiology (BSR) meets the Japanese College of Radiology (JCR)

Moderators: **O. Matsui (JP), S. Efremidis (GR)**

Molecular/genetic mechanism of Gb-EOB-DTPA enhanced MRI for hepatocellular carcinoma: From early diagnosis to personalized medicine

O. Matsui (JP)

Current imaging of breast cancer using tomosynthesis and high resolution MR

T. Matayoshi (JP)

FRIDAY, OCTOBER 14TH, 2016

Hall A | Crystal

Problem solving approach for breast cancer patients using dedicated PET and whole body DWI

Y. Nakajima (JP)

Radiology and multidisciplinary teams: role, structure and perspectives

N. Gourtsoyiannis (GR)

FRIDAY, OCTOBER 14TH, 2016

Hall B | Timber II

09:00-10:30

Breast Imaging

Moderators: **M. Grunevski (FYROM), A. Roussakis (GR)**

Breast calcifications Imaging

Ch. Geranou (GR)

Breast ultrasonography: an update

B. Brkljačić (HR)

Breast Tomosynthesis A - an update

D. Djilas (SR)

Breast MRI – How should I interpret?

A. Oktay (TR)

10:30-11:00

Coffee Break

11:00-12:30

Cardiovascular Imaging

Moderators: **N. Kelekis (GR), V. Sarajlic (BH)**

Cardiac Computed Tomography: beyond the coronaries

M. Nedevska (BG)

Morphological and functional assessment of congenital heart diseases

N. Kelekis (GR)

Non-ischemic cardiomyopathies with MRI

T. Hazirolan (TR)

FRIDAY, OCTOBER 14TH, 2016

Hall B | Timber II

Imaging of pericardial diseases

R. Maksimovic (SR)

12:30-14:30

Break

14:30-16:00

Keynote Lecture & Oral Presentations Session I

Cardiovascular Imaging

Moderators: **K. Michailidis (GR), D. Cokkinos (GR)**

Keynote Lecture

Updated guidelines for the use of CT in the assessment of CAD

K. Michailidis (GR)

OP01

DIAGNOSTIC SIGNIFICANCE OF MRI IN PATIENTS WITH MYOCARDITIS

Ružica Maksimović^{1,2}, Milica Djurdjić², Bojan Banko², Ivana Živković³, Ivan Milinković³, Petar Seferović^{1,3}

¹Faculty of Medicine, University of Belgrade, Serbia,

²Center for Radiology and Magnetic Resonance Imaging, Clinical Center of Serbia, Belgrade

³Clinic for cardiology, Clinical Center of Serbia, Belgrade

OP02

NON-APPLICATION OF DIAGNOSTIC ALGORITHMS LEADS TO OVER-PERFORMANCE OF CTPA FOR PULMONARY EMBOLISM DIAGNOSIS

Kalliopi Melaki, Demosthenes D Cokkinos, Alkmini Skoura, Angelos Charokopakis, Eleni Lazaridou, Anastasia Anagnostopoulou, Aikaterini Stavrou, Ploutarchos N Piperopoulos

Radiology Department, Evangelismos Hospital, Athens, Greece

OP03

NON-APPLICATION OF DIAGNOSTIC ALGORITHMS LEADS TO OVER-PERFORMANCE OF LOWER EXTREMITY ULTRASOUND IN PATIENTS WITH PULMONARY EMBOLISM.

Annabelle Hopkins, Demosthenes D Cokkinos, Alkmini Skoura, Eirini Antonakou, Theodoros Kolios, Angelos Charokopakis, Maria Skilakaki, Ploutarchos N Piperopoulos

Radiology Department, Evangelismos Hospital, Athens, Greece

OP04

RENAL ARTERY STENOSIS IN BULGARIA - 700 PATIENTS WITH PERIPHERAL ARTERIAL DISEASE (MDCT/DSA STUDY)

A. Georgiev, N. Sirakov, L. Chervenkov, M. Stoeva

Department of Diagnostic Imaging; Medical Faculty; Medical University – Plovdiv, Bulgaria

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FRIDAY, OCTOBER 14TH, 2016

Hall B | Timber II

- OP05** **THE EFFECT OF PERFORATING VEIN IN COMBINED CHRONIC VENOUS INSUFFICIENCY**
Durmaz Mehmet Sedat¹, Demirtas Hakan²
¹Department of Radiology, University of Health Sciences, Konya Education and Research Hospital, Konya, Turkey
²Department of Radiology, University of Isparta Suleyman Demirel, Isparta, Turkey
- 16:00-16:30** **Coffee Break**
- 16:30-17:00** **Keynote Lecture**
 Moderator: *P. Prassopoulos (GR)*
 Teaching Radiology in a very busy university hospital
A. Besim (TR)
- 17:00-18:00** **Oral Presentations Session II**
- Neuroimaging**
 Moderators: *S. Finitzis (GR), D. Chourmouzi (GR)*
- OP06** **CAN ANTIRETROVIRAL THERAPY SLOW DOWN THE PROCESS OF NEURODEGENERATION IN CHRONIC HIV INFECTION?**
Boban Jasmina¹, Kozic Dusko¹, Brkic Snezana², Turkulov Vesna², Prvulovic Bunovic Natasa¹, Lendak Dajana², Semnic Robert¹, Bjelan Mladen¹
¹Diagnostic Imaging Center, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia
²Clinic for Infectious Diseases, Clinical Center of Vojvodina, Novi Sad, Serbia
- OP07** **CONTRIBUTION OF ADVANCED MR TECHNIQUES IN DIFFERENTIATION BETWEEN LOW GRADE AND HIGH GRADE GLIOMAS**
Zigic Vedran, Stojanovic Sanja, Petrovic Kosta, Brakus Alma, Turkalj Ivan, Vulekovic Petar, Vuskovic Nada, Ostojic Jelena, Ilic Dalibor
 Klinicki centar Vojvodine, Centar za radiologiju, Novi Sad, Serbia

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FRIDAY, OCTOBER 14TH, 2016

Hall B | Timber II

- OP08** **BRAIN MICROSTRUCTURAL CHANGES IN PATIENTS WITH PSEUDOEXFOLIATION SYNDROME: A TRACT-BASED SPATIAL STATISTICS DIFFUSION TENSOR IMAGING STUDY**
Anastasia K Zikou¹, George Kitsos², Loukas Astrakas³, Chrysavgi Pappa², Maria I Argyropoulou¹.
 Departments of Radiology¹, Ophthalmology², and Medical Physics³
 Medical School, University of Ioannina, Ioannina, Greece.
- OP09** **MULTI-ECHO T2 RELAXATION TECHNIQUE IN DEMENTIA**
 Eleftherios Kavroulakis, Georgios Kalaitzakis, Panagiotis Simos, Ioannis Zaganas, Thomas Maris, Efrosini Papadaki
 University Hospital of Heraklion
- OP10** **ADVANCE MRI TECHNIQUES IN MS IMAGING**
 M.Penkov
 UH St Ivan Rilski- Sofia Bulgaria

Hall C | Timber I

- 09.00-10.30** **Oral Presentations Session III**
- Head and Neck Imaging**
 Moderators: *C. Karaman (TR)*, *A. Kalogera – Fountzila (GR)*
- OP11** **FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA VS FOLLICULAR ADENOMA. US AND DOPPLER US FINDINGS**
 Ahmet Aslan¹, Ercan Ayaz², Seda Sancak³, Ibrahim Inan², Mine Aslan¹, Sıdıka Şeyma Özkanlı⁴, Ali Yıkılmaz², Murat Acar^{2,5}
¹Department of Radiology, Ümraniye Training and Research Hospital, 34764, Ümraniye, Istanbul, Turkey
²Department of Radiology, Göztepe Training and Research Hospital, Medical School of Istanbul Medeniyet University, 34722, Kadikoy, Istanbul, Turkey
³Department of Endocrinology, Fatih Sultan Mehmet Training and Research Hospital, 34752, Kadikoy, Istanbul, Turkey
⁴Department of Pathology, Göztepe Training and Research Hospital, Medical School of Istanbul Medeniyet University, 34722, Kadikoy, Istanbul, Turkey
⁵Department of Radiology, King Hamad University Hospital, Bahrain



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Hall C | Timber I

- OP12** **ULTRASOUND FINDINGS IN THYROID INVOLVEMENT IN FMF**
Altunkas Aysegul, Albayrak Eda
Gaziosman Pasa University Faculty of Medicine Department of Radiology
- OP13** **THE ROLE OF COLOR DOPPLER FOR THYROID NODULES
NEEDED FINE-NEEDLE ASPIRATION**
Ozturker Coskun¹, Sildirolu Huseyin Onur², Sivrioglu Ali Kemal³,
Yurtsever Cagri²
¹Canakkale Military Hospital Department of Radiology, Canakkale
²GATA Haydarpasa Training Hospital Department of Radiology,
Istanbul
³Kasimpasa Military Hospital Department of Radiology, Istanbul
- OP14** **SHEAR-WAVE ELASTOSONOGRAPHY FINDINGS IN GLAUCOMA
PATIENTS**
Hekimoglu Azad, Ergun Onur, Sanal Dogan Aysun, Berk Ergun Sule,
Acar Mutlu, Gurdal Canan, Hekimoglu Baki
Diskapi Training and Research Hospital, Department of Radiology,
Ankara, Turkey
- OP15** **THE ROLE OF IMAGING IN PERINEURAL TUMORAL SPREAD
DETECTION**
Petrović Sladjana
Department of Radiology, Faculty of Medicine, University of Niš,
Serbia
- OP16** **CORRELATION BETWEEN PLASMA TOTAL HOMOCYSTEINE LEVEL
AND CAROTID BULB INTIMA – MEDIA THICKNESS IN THE GREEK
POPULATION**
Emmanuel Karras, Styliani Stouki, Ioanna Vlachou, Georgios
Giannikouris, Ioanna Staikidou, Livieris Livieratos, Constantinos
Kokkinis
Department of Radiology, KAT General Hospital, Athens, Greece

FRIDAY, OCTOBER 14TH, 2016

Hall C | Timber I

- OP17** **THE EVALUATION OF UVULA AND SOFT PALATE STRUCTURES BY USING MAGNETIC RESONANCE IMAGING IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME**
Celiker Metin¹, Beyazal Celiker Fatma²
¹Dept. of Ear, Nose and Throat, Rize Training and Research Hospital, Recep Tayyip Erdogan University, Rize, Turkey
²Dept. of Radiology, Recep Tayyip Erdogan University, Faculty of Medicine, Rize, Turkey
- OP18** **TRADITIONAL REPORTS OR TIRADS?**
Esra Soyer Guldogan¹, Onur Ergun¹, Tugba Taskin Turkmenoglu¹, Kerim Bora Yilmaz¹, Tuba Akdag², Hasanali Durmaz¹, Baki Hekimoglu¹
¹Diskapi Yildirim Beyazit Training and Research Hospital, Ankara, Turkey
²Mardin Government Hospital
- 10:30-11:00** **Coffee Break**
- 11:00-12:30** **Keynote Lecture & Oral Presentations Session IV**
- Genitourinary Imaging**
Moderators: *A. Tsili (GR), E. Stojovska (FYROM)*
- Keynote Lecture**
MRI ovary
A. Sofić (BH)
- OP19** **IS EVALUATION OF KIDNEY FUNCTION WITH DIFFUSION-WEIGHTED MRI AN EFFECTIVE METHOD FOR THE ASSESSMENT OF STAGE OF CHRONIC KIDNEY DISEASE?**
Eda Albayrak, Aysegul Altunkas
Department of Radiology, School of Medicine, Gaziosmanpasa University, Tokat, Turkey
- OP20** **INCIDENTAL FINDING OF RENAL MASS**
Dr Svetla Mureva¹, Mr Branimir Penev²
1. Radiology Department, Guys and St. Thomas Hospital, London, UK
2. Urology Department, Maidstone Hospital, MTW NHS Trust, Maidstone, UK

SCIENTIFIC PROGRAM



FRIDAY, OCTOBER 14TH, 2016

Hall C | Timber I

- OP21** **MRI SIGNS PREDICTIVE OF PARAMETRIAL INVOLVEMENT IN PATIENTS WITH CERVICAL CANCER AND HISTOLOGICALLY CONFIRMED FULL THICKNESS STROMAL INVASION**
Bourgioti Charis, Chatoupis Konstantinos, Antoniou Aristeidis, Panourgias Evangelia, Mouloupoulos Lia Angela
 1st Department of Radiology, School of Medicine, National and Kapodistrian University of Athens
- OP22** **EVALUATION OF LIKERT AND PI-RADS V2 SCORING IN THE DIAGNOSIS OF PROSTATE CANCER**
Ibrahim Inan¹, Senem Senturk Gucl², Ahmet Aktan², Ahmet Aslan³, Asif Yildirim², Ercan Ayaz², Murat Acar⁴.
 1^{Adiyaman University Training and Research Hospital, Radiology Department}
 2^{Istanbul Medeniyet University Goztepe Training and Research Hospital, Radiology Department}
 3^{Umraniye Training and Research Hospital, Radiology Department}
 4^{King Hamad University, Radiology Department}
- OP23** **SHEAR WAVE ELASTOSONOGRAPHY FINDINGS OF TESTICLES IN CHRONIC KIDNEY DISEASE PATIENTS WHO UNDERGO HEMODIALYSIS**
 Azad Hekimoglu¹, Idil Gunes Tatar¹, Onur Ergun¹, Aynur Turan¹, Mehmet Deniz Ayli², Baki Hekimoglu¹
 1^{Diskapi Training and Research Hospital, Department of Radiology, Ankara, Turkey}
 2^{Diskapi Training and Research Hospital, Department of Nephrology, Ankara, Turkey}
- OP24** **IS NORMAL TESTES ASYMMETRY RELATED TO DIFFERENCES OF APPARENT DIFFUSION COEFFICIENT AND MAGNETIZATION TRANSFER RATIO?**
 Athina C. Tsili¹, Alexandra Ntorkou¹, Christos V. Gkizas¹, Sotirios Skouros², Vasilios Maliakas¹, Nikolaos Sofikitis², Maria I. Argyropoulou¹
 1^{Department of Clinical Radiology, Medical School, University of Ioannina, Greece}
 2^{Department of Urology, Medical School, University of Ioannina, Greece}

SCIENTIFIC PROGRAM



FRIDAY, OCTOBER 14TH, 2016

Hall C | Timber I

- OP25** **IMAGING IN ASSESSING HARMFUL EFFECTS ON SPERMATOGENESIS IN ADULT TESTES WITH VARICOCELE**
 Athina C. Tsili¹, Olga N. Xiropotamou¹, Anastasios Sylakos², Sotirios Stavrou², Vasilios Maliakas¹, Nikolaos Sofikitis², Maria I. Argyropoulou¹
¹Department of Clinical Radiology, Medical School, University of Ioannina, Greece
²Department of Urology, Medical School, University of Ioannina, Greece
- 12:30-14:30** **Break**
- 14:30-16:00** **Keynote Lecture & Oral Presentations Session V**
- Abdominal Imaging and Emergency Radiology**
 Moderators: *Ch. Kalogeropoulou (GR), V. Koutoulidis (GR)*
- Keynote Lecture**
 DWI in diferential diagnosis of hypovascular solitary liver lesions
J. Kovac (SR)
- OP26** **CONTRAST ENHANCED ULTRASOUND SHOULD BE USED ROUTINELY FOR THE DETECTION OF HEPATIC METASTASES, AS IT DETECTS MORE LESIONS IN COMPARISON TO BASELINE SCANNING.**
Alkmini Skoura, Demosthenes Cokkinos, Eleni Antypa, Sofia Tsolaki, Annabelle Hopkins, Theodoros Kolios, Panagiotis Tserotas, Ploutarchos Piperopoulos
 Radiology Department, Evangelismos Hospital, Athens, Greece
- OP27** **ULTRASOUND FINDINGS IN PATIENTS WITH MALARIA in Bangui – Central African Republic**
Boban Krstić¹, V. Randelović-Krstić¹, N. Đenić²
¹Military Medical Academy Belgrade Serbia
²Military Hospital of Niš Serbia
- OP28** **TORSION OF SMALL BOWEL MESENTERY AND OMENTUM IN THE ADULT**
Evangelos Chartampilas MD, Elpida Kazana-Sfouggaris MD, Stavros Galanis MD, Stavros C. Efremidis MD, PhD
 Department of Clinical Imaging, Bioclinic Private Hospital, Thessaloniki, Greece

FRIDAY, OCTOBER 14TH, 2016

Hall C | Timber I

- OP29** **INVESTIGATION OF GI BLEEDING WITH CT ANGIOGRAPHY**
Dimoulia Sofia, Arvaniti Eleni, Valsamos Andreas, Zampakis Petros,
 Diamantopoulou Georgia, Petsas Theodoros, Kalogeropoulou
 Christina
 Department of Radiology, University Hospital of Patras, Greece
- OP30** **MR DEFECOGRAPHY FINDINGS IN PELVIC FLOOR PATHOLOGIES**
 OZMER Zafer, AKTAS Fatma
 Gaziosmanpasa University, school of medicine, radiology department
- OP31** **EVALUATION OF REFERRED RADIOGRAPHS IN AN EMERGENCY
 DEPARTMENT**
 Papageorgiou Evangelia¹, Markou Andreas², Vassakos Theodoros²,
 Zarbali Niki², Chionidou Roussoudan², Georgopoulou Vassiliki²
¹Medical Physics Dept., Hippokratio General Hospital, Thessaloniki,
 Greece
²Radiology Dept., Hippokratio General Hospital, Thessaloniki,
 Greece
- OP32** **PERFORMANCE OF EMERGENCY CONTRAST ENHANCED
 ULTRASOUND. REVIEW OF A 6 YEAR EXPERIENCE**
Aikaterini Stavrou, DD Cokkinos, Angelos Charokopakis, Anastasia
 Anagnostopoulou, Eirini Antonakou, Kalliopi Melaki, Anastasios
 Tsokas, PN Piperopoulos
 Radiology Department, Evangelismos Hospital, Athens, Greece

SATURDAY, OCTOBER 15TH, 2016

Hall A | Crystal

- 09:00-10:30** **Neuroimaging I**
 Moderators: **Z. Merhemic (BH)**, **T. Geroukis (GR)**
- Imaging findings in phakomatoses
D. Zlatareva (BG)
- MR in Dementia
E. Papadaki (GR)

SATURDAY, OCTOBER 15TH, 2016

Hall A | Crystal

Multiple sclerosis: An update

M. Karlovic - Vidakovic (BH)

18FDG PET CT/MR image coregistration in CNS disorders

C. Calli (TR)

10:30-11:00

Coffee Break

11:00-12:30

Musculoskeletal Imaging

Moderators: **A.L. Moulopoulos (GR), A. Karantanas (GR)**

Imaging of the Shoulder

V. Njagulj (SR)

Imaging of hip: What's new

A. Karantanas (GR)

Imaging of articular cartilage pathology

A. Cengic (BH)

MRI of bone marrow malignancies

L. A. Moulopoulos (GR)

12:30-13:30

Philips Symposium

Latest Techniques in Magnetic Resonance Imaging of Central Nervous System

New technologies and products

O. Benekos (GR)

Advanced techniques in CNS: optimization and quantitative analysis

E. Karavassilis (GR)

13:30-14:30

Break

14:30-16:00

Head and Neck Imaging

Moderators: **M. Lucic (SR), V. Hadjidekov (BG)**

Inflammatory diseases of the Orbit

D. Kozic (SR)

Imaging of the inner ear - diagnostic challenges

S. Jević (BH)

Imaging in parapharyngeal space

C. Karaman (TR)

SATURDAY, OCTOBER 15TH, 2016

Hall A | Crystal

Pathology of paranasal sinuses
N. Traykova (BG)

16:00-16:30 **Coffee Break**

16:30-18:00 **Abdominal Imaging and Intervention**

Moderators: *J. Fezoulidis (GR), Ch. Stoupis (CH)*

Imaging in portal hypertension
D. Akata (TR)

MR DW imaging in GI tract
S. Gourtsoyianni (UK)

Abdominal hydatid cyst imaging and intervention
O. Akhan (TR)

GI bleeding imaging and intervention
V. Souftas (GR)

18:00-19:15 **Thessaloniki meets Izmir: Imaging of Gynaecologic Malignancies**

Moderators: *S. Efremidis (GR), N. Elmas (TR)*

Carcinoma of the uterine cervix
E. Chartampilas (GR)

Carcinoma of the endometrium
F. Obuz (TR)

Ovarian epithelial tumors
N. Elmas (TR)

19:15 **Closing Ceremony**

Moderators: *S. Efremidis (GR), P. Prassopoulos (GR)*

Transition of BSR Presidency

Best Oral and e-Poster Presentation Awards

BCR 2017 Budapest, Hungary: *A. Palkó*

SATURDAY, OCTOBER 15TH, 2016

Hall B | Timber II

09:00-10:30

Emergency Radiology

Moderators: **A. Charitandi (GR)** - **Kouridou (GR)**, **D. Tsetis (GR)**

Non traumatic acute abdomen-left lower quadrant pain

D. Negru (RO)

Intestinal ischaemia -one disease with so many faces

V. Groudeva (BG)

Abdominal injuries - intra and retroperitoneal haemorrhage

V. Sarajlic (BH)

Bowel obstruction - usual suspects

S. Sotirović - Seničar (SR)

10:30-11:00

Coffee Break

11:00-12:30

Neuroimaging II

Moderator: **N. Traykova (BG)** - **D. Zlatareva (BG)**

Vascular Lesions of the spinal cord

Z. Merhemic (BH)

Imaging epilepsy: an update

K. Koprivšek (SR)

Multiparametric Imaging of Brain Tumors

M. Lucic (SR)

Pituitary gland imaging in children

M. Argyropoulou (GR)

12:30-14:30

Break

14:30-16:00

Interventional Radiology

Moderators: **O. Akhan (TR)**, **M. Glynos (GR)**

Interventional treatment of pain

M. Totev (BG)

Interventional techniques in unresectable liver tumours

D. Filippiadis (GR)

Endovascular abdominal aneurysm repair: Where do we stand now?

D. Tsetis (GR)

Brain aneurysm treatment

N. Kocer (TR)

SCIENTIFIC PROGRAM



SATURDAY, OCTOBER 15TH, 2016

Hall C | Timber I

- 09:00-10:30** **Keynote Lecture & Oral Presentations Session VI**
Paediatric Imaging
Moderators: *S. Deftereos GR), G. Hadjidekov (BG)*
- Keynote Lecture**
Lung Ultrasound in Neonatal Intensive Care Unit
S. Deftereos (GR)
- OP33** **SURVEY OF PRACTICE AND POTENTIAL FOR OPTIMISATION OF PAEDIATRIC CT ANGIOGRAPHY EXAMINATIONS. PRELIMINARY RESULTS**
D. Kostova-Lefterova, K. Genova, A. Kaneva, R. Antova, P. Popeski, P. Spasova
National Cardiology Hospital
- OP34** **FUNCTIONAL AND STRUCTURAL CONNECTIVITY IN PRETERM INFANTS: THE RELATIONSHIP WITH CLINICAL MEASURES**
Vassiliki Mouka¹, Loukas G. Astrakas², Vasileios G. Xydis¹, Aikaterini Drougia³, Anastasia K. Zikou¹, Styliani Andronikou³, Maria I. Argyropoulou¹
¹Department of Clinical Radiology, Medical School, University Of Ioannina
²Department of Medical Physics, University Of Ioannina
³Department of Neonatology, Medical School, University Of Ioannina
- OP35** **EVALUATION OF MEDIASTINAL AND HILAR LYMPH NODES BY USING MULTIDETECTOR COMPUTED TOMOGRAPHY IMAGES IN HEALTHY PEDIATRIC POPULATION**
Zuhal Bayramoglu, Ensar Yekeler
Istanbul Medical Faculty, Department of Radiology
- OP36** **USUFULNESS OF CONTRAST-ENCANCED VOIDING UROSONOGRAPHY IN IMAGING THE URETHRA OF CHILDREN**
Frederica Papadopoulou, Anastasia Kanaria, Aggeliki Gasimpaiazova, Dimitrios Daravigkas
Pediatric Ultrasound Center, Thessaloniki

SCIENTIFIC PROGRAM



SATURDAY, OCTOBER 15TH, 2016

Hall C | Timber I

OP37 **EVALUATION OF POSTOPERATIVE UNDESCENDED TESTICLES USING POINT SHEARWAVE ELASTOGRAPHY IN CHILDREN**
Salih Hattapoglu¹, Cemil Goya¹, Serkan Arslan², Birkan Alan¹, Faysal Ekici¹, Guven Tekbas¹, Ismail Yildiz³, Cihad Hamidi¹
¹Dicle University Medical School Radiology
²Dicle University Medical School Pediatric Surgery
³Dicle University Medical School

OP38 **AN EMPIRICAL STUDY ON THE REMEDIATION OF LANDSCAPE AND ECOSYSTEMS AFTER RADIATION ACCIDENTS AND RADIOLOGICAL INCIDENTS: SURVEY RESULTS FROM EUROPEAN AND INTERNATIONAL EXPERIENCE**
Psaltaki Maria, PhD, Stamatiou Eleni, PhD
 Greek Ombusman, Athens, Greece

Keynote Lecture

Imaging twin studies: the role of the radiologist
D. Tarnoki (HUN)

OP39 **MOLAR PREGNANCY-CASE REPORT: RADIOLOGIC FEATURES AND CLINICAL CORRELATION**
Prvulovic Bunovic Natasa¹, Spirovski Milena¹, Boban Jasmina¹, Mandic Aljosa², Solajic Nenad³
¹Diagnostic Imaging Center, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia
²Department for Gynaecology, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia
³Pathology Department, Oncology Institute of Vojvodina, Sremska Kamenica, Serbia

10:30-11:00 **Coffee Break**

11:00-12:30 **Oral Presentations Session VII**

Interventional Radiology

Moderators: **A. Chatziioannou (GR)**, **D. Karnabatidis (GR)**

SCIENTIFIC PROGRAM



SATURDAY, OCTOBER 15TH, 2016

Hall C | Timber I

- OP40** **ENDOVASCULAR TREATMENT WITH DRUG-COATED BALLOONS IN FEMOROPOPLITEAL ARTERY DISEASE**
Oz Ibrahim Ilker, Bilici Muammer, Bozay Oz Evrim, Caglar Emrah
 Bulent Ecevit University, School of Medicine, Department of Radiology, Esenkoy, Kozlu, Turkey
- OP41** **CAROTID ARTERY STENTING WITH DISTAL EMBOLIC PROTECTION**
Gjoreski Aleksandar¹, Nanceva Andrea¹, Prgova Biljana¹, Grozdanovski Miroslav²
¹Department of Radiology, General City Hospital "8mi Septemvri", Skopje, FYROM
²Department of Neurology, General City Hospital "8mi Septemvri", Skopje, FYROM
- OP42** **CLINICAL EFFICACY AND SAFETY OF TRANSCATHETER EMBOLIZATION FOR VASCULAR COMPLICATIONS AFTER PERCUTANEOUS NEPHROLITHOTOMY**
Poyraz Necdet, Koc Osman
 Department of Radiology, Meram Faculty of Medicine, Necmettin Erbakan University, Konya, Turkey
- OP43** **PACLITAXEL-COATED BALLOONS FOR THE TREATMENT OF DYSFUNCTIONAL DIALYSIS ACCESS. RESULTS FROM A RETROSPECTIVE ANALYSIS**
Sofia Sourouni, Stavros Spiliopoulos, Panagiotis M. Kitrou, Panagiotis Papadimatos, Christeas Nicolaos, Karnabatidis Dimitrios
 Interventional Radiology Dpt, Patras University Hospital, Patras, Greece
- OP44** **PACLITAXEL-COATED BALLOON ANGIOPLASTY FOR THE TREATMENT OF SYMPTOMATIC CENTRAL VENOUS STENOSIS IN DIALYSIS ACCESS. A PROSPECTIVE RANDOMIZED CONTROL TRIAL**
Panagiotis N. Papadimatos, Panagiotis M. Kitrou, Stavros Spiliopoulos, Nicolaos Christeas, Konstantinos Katsanos, Theodoros Petsas, Dimitrios Karnabatidis
 Interventional Radiology Department, Patras University Hospital, Greece

SATURDAY, OCTOBER 15TH, 2016

Hall C | Timber I

- OP45** **TRANSARTERIAL CHEMOEMBOLIZATION (TACE) IN PRIMARY LIVER TUMORS, OUR EXPERIENCES**
Gjoreski Aleksandar, Risteski Filip, Prgova Biljana, Rogac Eftimovska Irena
 Department of Radiology, General City Hospital "8mi Septemvri", Skopje, FYROM
 Department of Gastroenterology, General City Hospital "8mi Septemvri", Skopje, FYROM
- OP46** **CT GUIDED RF ABLATION OF OSTEOID OSTEOMAS: SINGLE CENTER EXPERIENCE**
 Karaman Bulent¹, Akyildiz Faruk², Akar Ali¹, Hamcan Salih¹, Tasar Mustafa¹ Asaf Abduramani
¹Radiology, Gulhane Military Medical Academy, Ankara, Turkey
²Orthopedia, Gulhane Military Medical Academy, Ankara, Turkey
- 12:30-14:30** **BSR General Assembly**
- 14:30-16:00** **Oral Presentations Session VII**
- Musculoskeletal and Breast Imaging**
 Moderators: *K. Kokkinis (GR), J. Chrysogonidis (GR)*
- OP47** **ULTRASONOGRAPHIC EVALUATION OF THE POSTEROLATERAL RADIOHUMERAL PLICA IN ASYMPTOMATIC INDIVIDUALS AND PATIENTS WITH OSTEOARTHRITIS**
Celikyay Fatih, Yuksekkaya Ruken, Inanir Ahmet, Bilgic Erkal, Ozmen Zafer
 Gaziosmanpasa University School of Medicine Department of Radiology Tokat, Turkey
- OP48** **SONOELASTOGRAPHIC ASSESSMENT OF THE GENDER RELATED CHANGES OF ACHILLES TENDON**
 Caglar Emrah, Oz Ibrahim Ilker
 Bulent Ecevit University, School of Medicine, Department of Radiology
- OP49** **CT and MR DIRECT ARTHROGRAPHY**
Daliborka Maric, Dražen Kovačević, Dragana Jefić
 University Clinical Centre of the Republic of Srpska, Department of Radiology, Bajna Luka, Bosnia and Herzegovina

SATURDAY, OCTOBER 15TH, 2016

Hall C | Timber I

- OP50** **PREVALENCE OF EXTENSOR MECHANISM PATHOLOGIES ON KNEE MRI**
Tuba Kayi Akdag, Aynur Turan, Esra Soyer Guldogan, Baki Hekimoglu
 Department of Radiology Diskapi Training and Research Hospital
- OP51** **THE ASSOCIATION BETWEEN MULTIPLE SCLEROSIS AND SPONDYLOSIS: WHEN AND WHY**
Vasileios Xydis¹, Anastasia Zikou¹, Vassiliki Kostadima², Loukas Astrakas³, Paraskevi Kosta¹, Maria Argyropoulou¹
¹Department of Radiology, Medical School, University of Ioannina, Greece
²Department of Neurology, Medical School, University of Ioannina, Greece
³Department of Medical Physics, Medical School, University of Ioannina, Greece
- OP52** **THE ASSOCIATION OF REAL TIME SONOELASTOGRAPHY FINDINGS WITH DISEASE RELATED PARAMETERS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS**
Mehmet Beyazal, Munewer Serdaroglu Beyazal
 Recep Tayyip Erdogan University, School of Medicine, Department of Radiology
- OP53** **BI RADS 4: Cancer or not?**
Marijana Basta Nikolic, Sanja Stojanovic, Olivera Nikolic, Dijana Niciforovic, Slavica Senicar, Daniela Donat
 Center for Radiology, Clinical Center of Vojvodina, Novi Sad, Serbia
- OP54** **EFFECTIVENESS OF SONOELASTOGRAPHY IN DIFFERENTIAL DIAGNOSIS OF BENIGN AND MALIGNANT SOLID BREAST LESIONS**
Arslan Harun, Akdemir Zulkuf, Yavuz Alpaslan, Islamoglu Necat, Ozgokce Mesut, Batur Abdussamet, Bora Aydin
 Yuzuncuyil University Dursun Odabas Medical Center, Department of Radiology, 65080, Van, Turkey

SCIENTIFIC PROGRAM





XIV Balkan Congress of Radiology

October 13-15, 2016 • Porto Palace Hotel • Thessaloniki

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ABSTRACTS

ABSTRACTS





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ABSTRACTS – INVITED LECTURES

ABSTRACTS - INVITED LECTURES



FRIDAY, OCTOBER 14TH, 2016

THORACIC IMAGING AND INTERVENTIONS

Solitary pulmonary nodule new guidelines

H U. Kauczor (DE)

Learning objectives

- To consolidate knowledge about the CT features of benign and malignant nodules
- To understand the rationale of guidelines for nodule management
- To appreciate the Fleischner Society guidelines and the LungRADS algorithm

The Fleischner Society guidelines for the management of solid nodules were published in 2005, and separate guidelines for subsolid nodules were published in 2013. These recommendations focus on incidental nodules detected in adult patients without fever and without a history of cancer. Following their publication, they have been widely accepted internationally as the standard of practice. Lung cancer screening using CT in a high-risk, but healthy population represents a different scenario. As new evidence has been generated by the lung cancer screening trials, the American College of Radiology has published the LungRads algorithm in 2014. It is designed as a tool to standardize CT reporting and nodule management in the screening setting. Together with new knowledge in the clinical arena the Fleischner Society Guidelines are currently revised to adequately address the management of pulmonary nodules in populations with different risk profile and prevalence (pre-test probability) for malignant nodules. The corresponding paper will be submitted later in 2016. These algorithms merely based on CT should be complemented further by clinical data and evaluated using dedicated risk models.

CT in chest emergencies

C. Kalogeropoulou (GR)

MDCT is a well proven diagnostic gold standard for the evaluation of chest emergencies. Its role is crucial in traumatic and non traumatic emergencies

This presentation will focus on the importance of recognizing the CT signs used to diagnose major traumatic and non traumatic vascular emergencies. Other non vascular emergencies that the radiologist needs to be aware of will also be reviewed, such as those affecting the lungs, the diaphragm and the pleural space.

Potential diagnostic pitfalls will also be discussed.

Management of major haemoptysis. Bronchial artery embolization. (BAE)

A. Chatziioannou (GR)

- Pathophysiology of haemoptysis.
- Clinical presentation
- Treatment choices in the active bleeder. Conservative treatment vs interventional vs emergency surgery.
- Results of BAE – technical considerations.
- BAE overall and in specific clinical scenarios.(i.e bronchiectasis, cancer, aspergilloma)
- Complications of BAE

ABDOMINAL IMAGING

MDCT in the evaluation of the patient with HCV and cirrhosis

F. Mihai (RO)

Cirrhosis is an increasing cause of morbidity and mortality, being the 14th most common cause of death in adults worldwide, but the 4th in Europe. The main cause in most developed countries is the infection with hepatitis with C virus.

It is well known the role of multidetector computed tomography (MDCT) in assessment and follow up of the dysplastic liver nodule in patient with post viral C cirrhosis, which is associated with a markedly increased risk of hepatocellular carcinoma. Not considered as a first line tool in detection and staging the cirrhosis and fibrosis in the past, nowadays MDCT is capable to assess the pathological changes of cirrhotic liver. New therapies of the C virus hepatitis require a pretreatment evaluation to exclude the malignancy and therefore there is an increased number of CT evaluations in patients with cirrhosis. Common pathologic features include hepatic fibrosis, nodular distortion of hepatic architecture, and perfusion abnormalities.

Supplementary, the scanning protocol allows, in the same session, the evaluation of the extrahepatic abdominal manifestations of hepatic cirrhosis.

The purpose of the presentation is to underline the main aspects of pathological process as they appear on the MDCT, emphasizing the morphological transformation of the liver in volume and shape, the structural and textural changes and the response of the extra hepatic abdominal organs to the increased portal pressure.

In conclusion, MDCT is a useful tool to complementary evaluation of morphological changes of the liver in patient with post viral C cirrhosis and the assessment of extrahepatic manifestation.

¹Arcadia Medical Centre, Iași

²Radiology-Imaging Clinic of St. Spiridon County Emergency Hospital, Iași

Malignant liver lesions and their masquerades

M. Erturk (TR)

Hepatic imaging, in general, to achieve two main objectives: (1) to distinguish benign from malignant lesions and (2) to diagnose diffuse liver diseases confidentially because of the need to avoid unnecessary interventional procedures such as liver biopsies. Additionally, since the therapeutic approaches differ substantially, primary and secondary malignant liver lesions need to be properly characterized, as well. Nevertheless, Imaging of the liver presents a diagnostic dilemma due to several reasons. First, there are numerous different types of benign lesions such as hemangioma, focal nodular hyperplasia and adenoma. Second, primary malignancies of the liver are not rare. Third, liver is a common site for metastases. Fourth, infectious liver lesions may demonstrate imaging findings that are similar to those of malignant lesions. Furthermore, diffuse liver diseases such as chronic hepatitis and nonalcoholic fatty liver disease are other disease entities that require a thorough radiological workup and patient follow-up. Magnetic resonance imaging with its different components such as dynamic contrast-enhanced imaging, diffusion-weighted imaging and "fat and iron" imaging, imaging with hepatocyte-specific contrast agents, magnetic resonance cholangiography, computed tomography, and PET/CT imaging are tools that need to be effectively used to diagnose, characterize and monitor liver pathologies.

Acute pancreatitis: definition imaging and complications

C. Triantopoulou (GR)

Acute pancreatitis is defined as an acute inflammatory process of the pancreas with variable involvement of other regional tissues or remote organ systems. Local complications of acute pancreatitis include fluid collections, pseudocyst formation, abscess, pancreatic necrosis, hemorrhage, venous thrombosis, and pseudoaneurysm formation. CECT can help detect all major abdominal complications of acute pancreatitis and can guide percutaneous/interventional procedures such as diagnostic fine-needle aspiration or catheter placement. CECT can also be used as a prognostic indicator of the disease severity. The revised Atlanta classification defines acute pancreatitis as interstitial edematous or necrotizing pancreatitis and distinguishes an early phase (1st week) in which clinical parameters determine treatment, from a later phase (after the 1st week) in which treatment is determined on the basis of clinical parameters and morphologic criteria defined by CT. Severe acute pancreatitis is defined in the first phase as organ failure lasting more than 48 hours and during the second phase, as persistent organ failure or complications resulting from acute pancreatitis. Fluid collections are defined by presence or absence of necrosis and infection: acute peripancreatic fluid collections (in the first 4 weeks without necrosis), pseudocysts (encapsulated fluid collections after 4 weeks, without necrosis), acute necrotic collections (in first 4 weeks, with necrosis), and walled-off necrosis (encapsulated collections after 4 weeks, with necrosis). All four types of pancreatic fluid collections can be sterile or infected. Collections that contain nonliquefied material are more likely to become infected. Distinction between a sterile

and an infected collection is important because treatment and prognosis are different. Determination of superinfection is based on clinical presentation and on presence of air observed in collections by CT and if air is absent on CT, by percutaneous needle aspiration. Treatment planning is based on severity of pancreatitis and presence or absence of infection combined with clinical signs.

MRI-MRCP of Autoimmune Pancreatitis

Manfredi R., Negrelli R., Boninsegna E., Avesani G., Pozzi Mucelli R.

Purpose: to evaluate the MRI-MRCP findings in a large group of patients with autoimmune pancreatitis (AIP).

Method and materials: we retrospectively evaluated the MR-MRCP performed before therapy in 112 patients diagnosed with AIP in our hospital between 2001 and 2014. Image analysis included T1- and T2- signal intensity, DWI, pattern of enhancement, extra-pancreatic involvement and main pancreatic duct (MPD) characteristics.

Results: 61 patients showed a diffuse enlargement of pancreas and 51 patients demonstrated a focal pancreatic involvement. The affected parenchyma was hypointense on T1-WI in 110/112 (98,2%) patients and isointense in 2/112 (1,2%), hyperintense on T2-WI in 77/112 (68,8%), isointense in 30/112 (26,8%) and hypointense in 5/112 (4,5%). DWI was available in 52 patients and showed restricted diffusion in 36/52 (69,2%). After contrast injection, during the pancreatic phase it appeared hypointense in 104/112 (92,9%). During the delayed phases, 95/112 (84,8%) patients showed delayed enhancement. The MPD was normal in 7/112 (6,3%) patients, while ductal narrowing was observed in 44/112 (39,2%) and complete stenosis in 61/112 (54,5%); multiple stenoses were detected in 51/105 (48,6%). Dilatation of side-branch ducts was observed in 47/112 patients (42%). The median value of stricture length was 19mm and of the caliber of upstream duct was 3mm. Biliary involvement was observed in 32/112 (28,6%) patients and renal involvement in 23/112 (20,5%).

Conclusion: The MR features highly suggestive of autoimmune pancreatitis are represented by enlargement of the pancreatic gland, hypointensity on T1-WI, hypovascularization with contrast retention, restricted diffusion, multiple stenoses of the MPD.

GENITURINARY IMAGING

A typical and rare kidney tumours

A. Palkó (HU)

The detection and characterisation of renal space occupying lesions is based almost exclusively on imaging diagnostic methods. The differential diagnosis of typical conditions (simple benign cyst, angiomyolipoma, Wilms tumour, clear cell renal cell carcinoma, etc.) is not especially challenging in most of the cases; however the correct identification of lesions with atypical appearance and of rare entities may be rather difficult. Cyst-like malignancies,

low-fat angiomyolipoma, less frequent varieties of renal cell carcinoma (papillary, chromophobe, neuroblastoma-associated, multilocular cystic RCC, hereditary cancer syndromes, collecting duct and medullary carcinoma, mucinous tubular and spindle cell carcinoma, Xp11.2 translocation-*TFE3* carcinoma, etc.) and secondary neoplastic conditions (metastasis, malignant lymphoma) may be difficult. The use of advanced imaging techniques (multiphasic and perfusion CT, in/out-of-phase MR histogram, diffusion weighted MR and ADC mapping, contrast-enhanced ultrasound, etc.) may be frequently useful, nevertheless in many cases we have to rely on histological analysis of biopsy specimens, especially in cases that may be candidates for percutaneous ablation treatment. The lecture gives an overview of imaging findings in the most important entities and discusses the role of appropriate imaging techniques in their evaluation.

Postimmunotherapy evaluation of kidney tumors: Thinking beyond RECIST criteria

B. Markovic (SR)

Imaging based evaluation of tumor response to therapy was introduced more than three decades ago. A few categorization systems promptly proved their usefulness discriminating patients as a responders or non-responders to cytotoxic therapy. But during years, studies highlighted some inconsistencies such is significant rate of misclassification between readers or even repeated measurements made by the same reader. The Response Evaluation Criteria in Solid Tumors (RECIST) is simple and the most widely adopted system for evaluation of secondary tumors response to chemotherapy. Introduction of targeted cancer therapies with rather cytostatic than cytotoxic effects revealed that traditional size-based criteria are not sufficient. It became obvious that categorization system for evaluation target and immunotherapy effects should correlate quantitative and qualitative imaging parameters with tumor histology. The categorization system that includes metabolic response may be a better indicator of tumor regression or progression, but still there is no consensus about the optimal alternative imaging response criteria.

Adrenal tumors

N. Courcoutsakis (GR)

The purpose of the presentation is to describe the basic protocols on CT and MR using in the evaluation of the adrenal diseases. The imaging findings in the different adrenal tumors are presented. The sings on US, CT and MR of adrenal adenomas, adrenocortical carcinomas, pheochromocytomas, myelolipomas, lymphomas and neuroblastomas are presented. The diagnostic algorithm for incidentelomas is presented in detail.

Multiparametric prostate MRI

S. Alibek (TR)

Prostate cancer in incidence is steadily rising and the second most prevalent cancer in men worldwide.

In 2012 the European Society of Urogenital Radiology (ESUR) presented the Prostate Imaging—Reporting and Data System (PI-RADS) guidelines in order to standardize image acquisition and reporting of prostate magnetic resonance imaging (MRI). It included morphologic and functional imaging.

In 2014 PI-RADS v2 was presented by the American College of Radiology after work-up and modification of PI-RADS v1 according to experiences made and limitations found.

Basics of imaging technique, detection and reporting of multiparametric Prostate MRI are presented, along with PI-RADS v1 & 2, as well as cases from daily routine.

PAEDIATRIC IMAGING

An update of Ultrasound Imaging evaluation of vesico-ureteral reflux

F. Papadopoulou (GR)

Contrast-enhanced Voiding Urosonography (ce-VUS) is a radiation-free imaging-modality for detection and grading vesicoureteral-reflux (VUR) introduced more than 15 years ago. It is performed with ultrasonography and intravesical administration of Ultrasound-Contrast-Agent (UCA) either directly into the bladder or after pre-dilution in normal saline. During bladder-filling and voiding continuous US-monitoring enables detection of refluxing echogenic UCA microbubbles and VUR-grading in five grades in a way similar to voiding cystourethrography (VCUG). During voiding via a trans-perineal or trans-abdominal approach and with the use of high-resolution transducers the urethra can also be imaged in real-time. The urethral morphology can be evaluated in an excellent way and the urethral pathology can be depicted with high reliability in both boys and girls. Bladder structural abnormalities such as diverticulae or ureteroceles as well as functional abnormalities such as bladder wall hyperactivity or bladder-sphincter dyssynergia can also be diagnosed with a modification of the method. The ESPR urology-task-force and ESUR pediatric-work-group has issued procedural recommendations for ce-VUS performance with the previously available first-generation UCA Levovist®. The same procedural guidelines were updated for the current UCA SonoVue® with the important addition of urethral imaging. The diagnostic efficacy of ce-VUS compared to VCUG or radionuclide cystography in more than 2700 children in published comparative studies was found with an overall summary sensitivity and specificity of 90% and 92% respectively. Regarding its safety ce-VUS performed in more than 4000 children showed no adverse events directly related to contrast-agent. Some kind of post-procedural adverse events, mostly dysuria are apparently related to the catheter itself. In conclusion, ce-VUS is a radiation-free, highly sensitive and safe method for imaging VUR and urethral pathology in children.

Fetal MRI Imaging - The most common cases

G. Hadjidekov (BL)

Learning objectives:

- To describe the fetal MRI technique and preparation

- To illustrate the additional value and the benefit of the method for detection of sonographically occult abnormalities
- To present typical fetal MRI cases from the daily practice

Ultrasonography (US) is nowadays widely used as first method of choice in the evaluation of the fetus because of the safety, speed and cost-effectiveness of the method. However, fetal MRI is suitable to confirm or reject ultrasonographic findings and to evaluate the extend of some pathological conditions providing detailed anatomical orientation. This expandible complementary technique contributes to the accurate diagnosis not only of fetal brain, neck and spine but also is capable to distinguish separate fetal organs and structures such as lung, liver, heart, kidney and bowel, thus facilitating the visualization of larger fetal areas and evaluation of complex cerebral, thoracic and abdominal anomalies. Fetal MRI benefits of excellent soft tissue resolution, large field-of-view and relative operator independence, thus making it useful for prenatal diagnosis and counseling, in-utero surgery, postnatal treatment planning and management decision strategies. Further development regarding improvements in fetal motion and obtaining better tissue contrast and image quality especially using advance MRI techniques are needed to overcome the actual limitations of fetal MR imaging.

THE BALKAN SOCIETY OF RADIOLOGY (BSR) MEETS THE JAPANESE COLLEGE OF RADIOLOGY (JCR)

Molecular/genetic mechanism of Gd-EOB-DTPA enhanced MRI for hepatocellular carcinoma: From early diagnosis to personalized medicine

O. Matsui (JP)

We revealed the intense correlation between signal intensity of HCC on hepatobiliary (HB) phase of EOB-MRI and hepatocyte uptake transporter OATP8 (1B3) expression in HCC cells, and HB phase of EOB-MRI is an extremely sensitive (indirect) molecular imaging for hepatocyte uptake transporter OATP1B3 expression in HCC cells.

The expression of OATP1B3 significantly decreases in accordance with the elevation of the grade of malignancy of the nodules from dysplastic nodule to poorly differentiated HCCs, and is decreased compared to the surrounding liver in around 85% of pathological early HCCs, resulting in very high detection rate of hypovascular early HCC on HB phase of EOB-MRI. Hypervascular classic HCC showing hyperintensity on HB phase of EOB-MRI is biologically less aggressive with lower recurrence rate and longer survival, and often shows mature hepatocyte nature with beta-catenin mutation on immunohistochemistry. Microarray gene analysis revealed that OATP1B3-high (more than the surrounding liver) HCC had significantly different gene expression as compared with those in OATP1B3-low HCCs. Genes associated with mature hepatocyte function significantly up-regulated in these HCCs, and transcription factor analysis revealed that *HNF (hepatocyte nuclear factor)4A* encoding HNF4 α was most strongly activated. Knockdown of *HNF4A* in HCC cells obtained from hyperintense (OATP1B3 overexpressed) HCC resulted in the loss of OATP1B3

expression in vivo and less aggressive nature of the implanted tumor in nude mouse. Therefore, HNF4 α expression is considered to be an important regulator of OATP1B3 expression and tumor aggressiveness. It has been known that *HNF4A* regulates the expression of many genes including OATP1B3 and therefore EOB-MRI can be a biomarker for various molecular mechanisms in HCCs.

OATP1B3 expression pattern is different among FNH, adenoma and HCC according to their molecular basis and therefore EOB-MRI is valuable in differential diagnosis.

To understand the molecular/genetic mechanism of EOB-MRI is important not only for the accurate interpretation of imaging findings but also personalized medicine of HCCs.

Current imaging of breast cancer using tomosynthesis and high resolution MR

T. Matayoshi (JP)

This presentation covers two breast imaging technologies: Tomosynthesis and High resolution breast MR.

Tomosynthesis

This new tool can reduce the overlapping effect of tissue, which there for the marginal characteristics of malignant lesions appear clear, thus enabling an accurate image interpretation. Micro lesions that could not be delineated using conventional mammography because of the overlapping mammary gland area can now be confirmed. Furthermore, findings such as fibroadenomas formed by the overlapping of mammary tissue can be ruled out.

The distribution and location of calcification can be accurately ascertained and serve as a reference when searching for calcified lesions using ultrasound and when determining the position of the mammotome biopsy.

Compared with conventional mammography, the advantages are believed to lead to a reduced recall rate for detailed medical examinations and a reduced biopsy rate at the time of the second screening.

High resolution breast MR

Breast MR is the most accurate imaging technique to improve primary and recurrent tumor detection. Conventional examination, the equipment needs the exclusively for breast coils built in the table. Multichannel breast coils are commercially available.

High resolution breast MR, without such dedicated breast coil, we conducted the examination with twin multipurpose 8cm diameter surface micro coils. The images are high resolution rather than conventional images. That can depict the morphologic characteristic of tumor which is equal to the specimen.

The disadvantage of this method are small FOV and scan unilateral breast only.

Problem solving approach for breast cancer patients using dedicated PET and whole body DWI

Y. Nakajima (JP)

Cost effectiveness is the major issue when we select the imaging modality. Problem solving approach in each patient is important for both taller-made and value-based medicine. I would like to share with our two current projects in breast cancer patients.

MRI is the most reliable modality in decision making of further management in breast cancer patients. However, false positive result is not rare occasion in patients with diffuse parenchymal enhancement even though there is increased number of MRI detected lesion which no other modalities could demonstrate. In this situation, we have used breast dedicated PET to select the lesion which biopsy is indicated. I would like to share with the cases of HBOC.

Bone metastasis is the most frequent bad scenario in advance breast cancer. Bone scintigraphy is most frequently used for detection and follows up of bone metastasis. However, the sensitivity and specificity is not enough, and currently FDG-PET is widely used. Diffusion weighted imaging with background body signal suppression (DWIBS) is currently available in our institution and has been used for the patients with bone metastasis. As compared with FDG-PET, MRI without contrast is definitely cost saving strategy. The sensitivity of DWIBS is superior to bone scintigraphy especially in detection of inter-trabecular bone metastasis which is commonly appeared before bone destruction occurs. DWIBS must have a role in management of advanced breast cancer patients who has a risk of bone metastasis.

In conclusion, the problem solving approach using breast dedicated PET and DWIBS are useful tools in appropriate situation of breast cancer patients.

BREAST IMAGING

Complicated cysts and complex cystic lesions

V. Beslagic (BH)

Cysts are locally distended peripheral ductal segments filled with fluid; represent the most frequent masses in the female breast. Simple cysts are benign lesions. If there are palpable findings or pain, it is necessary to perform further diagnostic studies to differentiate benign from malignant lesions. Simple cysts are always benign, complicated cysts and complex cystic lesions can sometimes harbor malignancy. The term complicated cysts refers to cyst or conglomerate of cysts complicated by inflammation, bleeding or contain neoplastic tissue changes in their wall or lumen. Complex cystic lesions refer to predominantly cystic masses such as cavities in centrally necrotic tumors or as a result of secretion and recurrent bleeding as in intraductal papillomas and papillary carcinomas. Sonography is a method of choice for diagnosis cysts. In women under 40 it should be initial imaging study. If it confirms that the mass is a cyst, the work up is completed. Color Doppler sonography, elastography are a valuable tool in differentiation simple from complicated cysts and complex cystic lesions. If cyst is painful and equivocal sonographically aspiration is needed. In rare cases further assessment includes core biopsy, vacuum –assisted breast biopsy and surgery. The risk of malignancy increases beyond the age 40 and mammography with sonography are required. Contrast enhanced MRI is not recommended in cyst evaluation. When breast MRI is done for other reasons, if there is cysts malignant growth it can be easily confirmed.

Breast ultrasonography: an update

B. Brkljačić (HR)

Ultrasound is excellent imaging method with many advantages: it does not expose patients to ionizing radiation, it is harmless for patient and staff, it can be repeated as many times as needed, it is cheap and widely accessible. Ultrasound enables considerably increased visualization of small lesions in mammographically dense breasts and in young women it is the initial imaging method in the work-up of breast lesions. Color Doppler enables assessment of flow within lesions. Compound imaging and harmonic imaging are routinely used in high-resolution transducers, and 3D US is also available. US-guided biopsies, preoperative localizations / markings and minimally invasive treatment like RFA are available for all breast lesions visible on ultrasound. High-resolution ultrasound can also be used to demonstrate majority of breast lesions containing suspicious microcalcifications, particularly those associated with the adjacent mass.

Sonoelastography is established method to evaluate stiffness of breast lesions. Elastographic features can be quantified using shear-wave sonoelastography and stiffness of lesions expressed in kilopascals.

The role of ultrasound in screening is increasing, especially in patients with mammographically dense breasts, of ACR C and D types, where sensitivity of detecting cancer drops considerably and addition of ultrasound is very helpful to detect mammographically occult lesions. Automated whole breast ultrasound is recently introduced in clinical practice and its role in screening is widely studied.

Ultrasound is also excellent method to perform focused, "second-look US" biopsies of most of the lesions observed at contrast-enhanced MRI of the breast.

Breast MRI – How should I interpret?

A. Oktay (TR)

To standardize breast MRI reporting, the American College of Radiology (ACR) introduced the Breast Imaging-Reporting and Data System (BI-RADS) MRI lexicon in 2003, the last version was published in 2013 along with the updated version for mammography and breast ultrasound, all contained in a single volume.

Clinical history and comparison to old studies might influence breast MRI interpretation. Therefore a breast MRI report should include clinical history, comparison to old studies, followed by the technique, and overall assessment and recommendation.

In a standardized evaluation of a breast MRI, first the background parenchymal enhancement pattern should be assessed, and looked for any contrast enhancing lesion. Analysis of both morphology and kinetic curve should be taken in to account in the interpretation.

Morphologically, lesions can be separated into focus, mass, and non-mass enhancements. Focus is a tiny spot of enhancement, less than 5 mm in size, and it is so small that can not otherwise be characterized. A mass is a three dimensional space-occupying lesion and is characterized by shape (round, oval, irregular), margin (circumscribed, irregular, spiculated), and internal enhancement characteristics (homogeneous, heterogeneous, rim

enhancement, dark internal septations). Lesion shape and margin analysis are similar to BI-RADS in mammography. As in mammography, margin assessment is one of the most important features with high positive predictive value in characterization of a breast mass. Non-mass enhancement is characterized by the distribution and internal enhancement patterns. Evaluation of enhancement kinetic curve is based on the temporal enhancement characteristics of the lesion over time. Both the initial and delayed enhancement phases are evaluated. Finally, based on the morphological and kinetic features, overall assessment and recommendations should be done.

CARDIOVASCULAR IMAGING

Cardiac Computed Tomography: beyond the coronaries

M. Nedevska (BG)

Cardiac multidetector computer tomography (MDCT) is a well-established noninvasive modality for anatomical imaging of coronary artery disease (CAD).

Significant advances since the advent of MDCT make it feasible for a more complex and comprehensive examination of the heart. A broad spectrum of extra coronary CT findings can be diagnosed on cardiac CT examinations, but also it is possible to calculate ejection fraction, ventricular volumes, myocardial mass and the presence of wall-motion abnormalities. Another intriguing clinical application of coronary CT is the possibility of quantitative assessment of myocardial perfusion, allowing for a global anatomic and functional assessment of the heart in patients with CAD.

The purpose of this presentation is to discuss and illustrate the newest application of MDCT in assessment of myocardial function, ischemia, infarction, and viability.

Morphological and functional assessment of congenital heart diseases

N. Kelekis (GR)

Advances in diagnostic modalities and treatment have led to increased survival in patients with congenital heart disease (CHD) through adulthood. Diagnosis and follow-up in patients with CHD relies greatly on imaging studies. These until relatively recently relied principally on plain X-rays, echocardiography and angiography, the latter two being almost exclusively practiced by cardiologists. With the advent, however, of multislice CT and the evolution of cardiac MR imaging these modalities play an evolving role in the management of patients with CHD. Radiologists should be familiar with cardiac anatomy and specific characteristics used in diagnosis and classification of CHD.

A morphologic systematic approach to CHD includes assessment of the atrial situs in conjunction with abdominal and thoracic anatomy, atrioventricular connections, morphology of the ventricles, ventriculoarterial connections and anatomy of the great vessels, venous connections to the cardiac chambers, and finally presence of valvular abnormalities, as well as abnormal communications such as atrial or ventricular septal defects.

MR imaging in addition to morphology provides functional parameters such as volumes and function of cardiac chambers throughout the cardiac cycle, ventricular mass and flow through aorta, pulmonary artery, atrioventricular valves and virtually any vessel, permitting non-invasive quantification of flow and volumes, and pulmonary to systemic flow ratio (Q_p/Q_s), thus yielding comprehensive assessment of patients with CHD.

This lecture focuses on depiction of cardiac anatomy on imaging modalities with emphasis on specific anatomical characteristics of cardiac chambers and vessels, anatomical variants which are useful in diagnosis and management of patients with CHD, as well as functional assessment with calculation of cardiac chamber volumes, flows through vessels, cardiac valves, abnormal vessels, native or iatrogenic shunts yielding combined, cross-validated in-vivo non-invasive assessment of hemodynamic parameters.

Non-ischemic cardiomyopathies with MRI

T. Hazirolan (TR)

Cardiac magnetic resonance (CMR) is well-established modality of cardiovascular imaging, providing superior resolution, infinite imaging planes, and the ability to obtain multiple types of information without ionizing radiation. CMR is an invaluable tool, not only in differentiating nonischemic from ischemic cardiomyopathy, but also in aiding the accurate diagnosis and management of the subtype of nonischemic cardiomyopathy. The purpose of this presentation is to review the utility of CMR in the diagnosis and management of nonischemic cardiomyopathies.

Imaging of pericardial diseases

R. Maksimovic (SR)

In the evaluation of pericardial disease, computed tomography (CT) and magnetic resonance (MR) imaging traditionally have been used as adjuncts to echocardiography. However, CT and MR imaging are particularly useful as sensitive and noninvasive methods for evaluating loculated or hemorrhagic pericardial effusion, constrictive pericarditis, and pericardial masses. Both CT and MR imaging provide excellent delineation of the pericardial anatomy and can aid in the precise localization and characterization of various pericardial lesions, including effusion, constrictive pericarditis and pericardial thickening, pericardial masses, and congenital anomalies such as partial or complete absence of the pericardium. Both modalities provide a larger field of view than does echocardiography, allowing the examination of the entire chest and detection of associated abnormalities in the mediastinum and lungs. Soft-tissue contrast on CT scans and MR images also is superior to that on echocardiograms. Given the many potential applications of these modalities in the evaluation of pericardial diseases, familiarity with the CT and MR imaging features of these diseases is important.

KEYNOTE LECTURE GENITOURINARY IMAGING

MRI ovary
A. Sofić (BH)

Transvaginal ultrasound is for initial evaluation of ovary, because of its availability, high resolution, and lack of ionizing radiation. Ultrasound is often difficult to determine the etiology because of the similarity in appearance. CT is not indicated for differential diagnosis of adnexal masses because of poor soft tissue discrimination, except for fatty tissue and for calcification, and the disadvantages of irradiation. MRI has excellent high-contrast resolution- useful for definitively diagnosing many common benign adnexal lesions. MRI better characterizes indeterminate adnexal lesions seen on ultrasound. MRI has excellent high-contrast resolution therefore is modality for distinguishing benign from malignant ovarian tumors. This has the potential to avoid an unnecessary surgery. It can also state if the lesion is indeterminate or clearly malignant, allowing to properly referring the patient to surgery. T2W without fatsat sequences (at least two levels) are necessary to display the anatomy of the ovary. T1W without fatsat or T1W in and opposed -phase sequence are important for the differentiation of fat in teratoma. T1W with fatsat are mainly important for the differentiation of blood products ovarian lesions and the correlation with Gadolinium T1W images. PD or T1W sequences extended to the abdomen are important for assessing the involvement of lymph nodes. In T1W with fatsat with Gadolinium solid elements ovarian lesions raise intensity. DWI gives contribution in distinguishing benign from malignant ovarian tumor. Cystic components and components of solid tissue is no different, regardless of whether they are malignant or benign adnexal lesions. Benign group of solid components mainly composed of rich collagen that restricts the diffusion of water molecules and results in low ADC. ADC cancerous tissue is lower compared to non-cancerous cells as a result of high density and abundant cell membrane. DWI malignant lesions have increased cellularity and restriction of diffusion, amplification signal intensity with increasing b values and low signal on the ADC map. Contrast-enhanced MRI showed sensitivity and specificity of 100% and 94%, respectively, in diagnosis of malignancy.

KEYNOTE LECTURE ABDOMINAL IMAGING AND EMERGENCY RADIOLOGY

DWI in diferential diagnosis of hypovascular solitary liver lesions
J. Kovac (SR)

Intrahepatic cholangiocarcinoma is the second most common primary liver tumor that arises from bile duct epithelium, with mass-forming type being the most common. Intrahepatic mass-forming cholangiocarcinoma (IMCC) usually presents as large lobulated

hypovascular lesion at the time of diagnosis. The most common mimicker of IMCC is metastatic adenocarcinoma. When patient presents with a hypovascular solitary liver lesion differentiation among IMCC and solitary hypovascular liver metastases (SHLM) could be a diagnostic challenge. Several magnetic resonance imaging (MRI) features could be useful for distinction among IMCC and SHLM. Capsular retraction overlying the tumor and upstream biliary dilatation are typical signs of IMCC. Nevertheless metastatic lesions could also display these features. IMCC demonstrate gradual enhancement after contrast administration. Even though the most common enhancement pattern of metastatic lesions is ring enhancement they could also behave similarly to IMCC. In this regard, several new imaging techniques have been proposed for better detection and characterization of focal liver lesions, such as diffusion-weighted imaging (DWI) which provides information on tissue cellularity based on the detection of the extent of free water molecules diffusion. A few reports have shown that target sign on DWI is the most significant predictor of IMCC. This sign could be explained by pathohistological composition of IMCC which contain loose central fibrosis with accompanying edema, which is responsible for low signal intensity on high b value DWI. The periphery of the tumor is composed of densely packed viable cells which cause diffusion restriction and dark ring on DWI.

SATURDAY, OCTOBER 15TH, 2016

NEUROIMAGING I

Imaging findings in phakomatoses

D. Zlatareva (BG)

Learning objectives:

1. Understand clinical features of the most common phakomatoses
2. To provide an overview of their imaging features
3. Some practical points in imaging interpretation and differential diagnosis are highlighted

Phakomatoses or neurocutaneous syndromes are group of central nervous system disorders characterized by brain malformations or neoplasms and skin/eye lesions. Most of these diseases are inherited and most but not all have characteristic cutaneous lesions and visceral and connective tissue abnormalities. The most common syndromes are tuberous sclerosis complex (TBS), neurofibromatosis type I (NF1), neurofibromatosis type II (NF2) and von Hippel-Lindau Disease. There are consensus criteria for the clinical diagnosis of phakomatoses. Imaging diagnosis provides valuable information for diagnosis and in some patients gives the first suggestions for inherited neoplasms. The lecture discusses magnetic resonance imaging (MRI) findings of the main entities and highlights some tips in interpretation and differentiation from other diseases.

Conclusion: MRI is the modality of choice for imaging of neurocutaneous syndromes. Knowledge of the clinical and imaging findings of these disorders is very important for diagnosis and genetic counseling.

MR in Dementia

E. Papadaki (GR)

45 million people suffer from dementia worldwide and this is going to triple in 2050. Despite the development of advanced imaging techniques, diagnosis of dementia remains mainly a clinical diagnosis, while current therapeutic strategies have limited success in altering the course of the disease.

Dementia could be of primary or secondary origin. Primary dementing conditions are, usually, due to genetic mutations and risk factors that cause specific protein accumulation in brain parenchyma, but they can often co-exist with age-related pathologies, most commonly cerebrovascular disease. The most common subtype of dementia is Alzheimer's disease (60-70% of all dementias), while dementia with Lewy bodies and vascular dementia account for most of the remainder. Frontotemporal lobar degeneration is the second most common form of early-onset dementia (< 65 yr), after Alzheimer's disease.

Structural CT or MRI (T1w, T2w, GRE, SWI) is currently recommended in all patients at the initial diagnosis of dementia, for the detection of atrophy, as a marker of neurodegeneration. Although in the past structural imaging was mainly used for the exclusion of potentially treatable causes of dementia (subdural hematoma, NPH, intracranial tumors), nowadays it's, also, valuable for the qualitative or quantitative assessment of focal or global cortical atrophy and the detection of vascular disease, and supports the diagnosis of different subtypes of dementia, by fulfillment of respective radiological criteria.

Advanced imaging techniques (DTI, perfusion, MRS, functional MRI), although widely used in research studies, are not yet established in daily practice. Their ability to detect structural, hemodynamic, biochemical and functional abnormalities at the earliest stages of the disease should be further validated, in order to become part of the initial imaging work-up in dementia, aiming to detect patients at risk and perform early therapeutic interventions, before irreversible neuronal damage occurs.

Multiple sclerosis: An update

M. Karlovic - Vidakovic (BH)

Multiple sclerosis (MS) is the most common chronic inflammatory demyelinating disease affecting the central nervous system (CNS) of young adults. It is considered to be an autoimmune disease. The clinical course of MS is extremely variable and in most cases it causes severe, clinical disabilities.

Four types of MS are well known: relapsing-remitting (RS), primary- progressive (PP), secondary-progressive (SP) and progressive-relapsing (PR).

Regarding its high sensitivity to focal inflammatory demyelinating lesions, magnetic resonance imaging (MRI) is the most powerful tool for the early diagnosis of MS. The role of the brain and the spinal cord MRI in the diagnosis of MS is well established and standardized brain and spinal cord MRI protocols are required for the accurate diagnosis and monitoring purposes.

The current diagnostic criteria for MS are based on the detection of lesions within the CNS that demonstrate dissemination in space (DIS) and dissemination in time (DIT). In addition, exclusion of other disorders that can mimic MS is clinically and radiologically essential.

Other than the four types of MS, two other entities should be mentioned: Clinically isolated syndrome (CIS) and Radiological isolated syndrome (RIS) which could be closely tied to future MS development.

The revised McDonald's criteria from 2010 are currently in use.



MUSCULOSKELETAL IMAGING

Imaging of the Shoulder

V. Njagulj (SR)

Shoulder radiography is usually part of the initial workup in patients presenting with shoulder pain or impaired function.

Important clinical information in assessing the shoulder joint is possible to get by using magnetic resonance imaging (MRI). MRI allows clear depiction of the bones, muscles, tendons, ligaments, cartilage, nerves and vessels.

MRI is one of the most important imaging methods for evaluation of clinical shoulder abnormalities. MRI is helpful and, sometimes crucial, in making the appropriate diagnosis and to identify associated injuries.

Shoulder MRI imaging and MRI arthrography are frequently used to evaluate shoulder pain and instability and to assess different types of shoulder injuries.

The anatomy of the shoulder is recognized as complex and variable. MRI and MRI arthrography are currently the most accurate modalities in the visualization of labroligamentous complex anatomy and its related injuries.

Awareness and proper understanding of the known anatomical variants and other lesion mimics allow more accurate interpretation and help minimize errors and increase the diagnostic yield of shoulder MR imaging.

Knowledge of the anatomy of the glenoid labrum, cartilaginous structures, glenohumeral ligaments, joint capsule, muscles, tendons, and bones of the shoulder and of various variants is critical for accurate interpretation. Recognizing anatomical variants and familiarity with the limitations of MR imaging techniques are essential to avoid interpretation pitfalls.

Imaging of hip: What's new

A. Karantanas (GR)

Hip pain may occur in all age groups and osteoarthritis (OA) of this joint is a common clinical problem. One of the primary goals in the diagnostic evaluation in patients with hip pain is to identify and treat related pathologies. MRI has become an important method for characterizing hip anatomy and pathology. Understanding normal hip anatomy and common variants, in order to accurately detect and localize areas of pathology and to prevent misinterpreting normal structures as diseased. Plain radiographs should always be available when reporting MRI. MRI combined with arthrography, shows increased accuracy for labral tears and cartilage degeneration. This seems to be valid even in the era of the 3-T scanners.

MRI is an excellent imaging modality for the evaluation of acute hip pain in the emergencies since prompt diagnosis allows appropriate and timely management, reduces cost and improves prognosis.



Improvements in MRI hardware and techniques have allowed high spatial and contrast resolution images, able to detect subtle abnormalities, such as acetabular labral and articular cartilage injuries, which often contribute to patient symptoms. Newer MRI techniques, such as DGE-MRIC and T2 mapping, can give insight into the biochemical structure of the articular cartilage. Many reports have clarified the role of femoroacetabular impingement in early OA, particularly in athletes. The role of MRI in staging osteonecrosis has been established. Newer entities, such as the ischiofemoral impingement syndrome, have widened the horizons of differential diagnoses regarding the painful hip. Abnormal MRI findings seen in asymptomatics, particularly athletes, highlight the importance of clinical thinking among radiologists as an important part of their reporting and medical communication.

Both MRI and CT, combined with metal artifact reduction techniques and spectral imaging respectively, are able to substantially reduce artifacts created by metallic implants and thus allow significant information to be obtained in the postoperative patient.

Imaging of articular cartilage pathology

A. Cengic (BH)

Articular (hyaline) cartilage is important intraarticular tissue which plays an essential role in the function of the diarthrodial joints of the body. It is frequently exposed to trauma, degeneration, and repetitive wear and tear. Damaged cartilage has a little capacity to heal spontaneously, so early recognition of traumatic chondral injury and degenerative change is very important.

Magnetic resonance imaging (MRI) is the gold standard method for non-invasive assessment of joint cartilage, providing information on the structure, morphology and molecular composition of this tissue. It is also the most important modality in follow-up to assess treatment response.

In this lecture we will discuss the current understanding of the MRI appearance of articular cartilage, the appearance of both degenerative and traumatic chondral lesions, the appearance of the most common cartilage repair procedures, and future directions and developments of cartilage imaging.

MRI of bone marrow malignancies

L. A. Mouloupoulos (GR)

In the first part of the lecture, the consistency of normal bone marrow and the relative distribution of red and yellow marrow with age will be reviewed. The appearance of normal bone marrow (red and yellow) on the different Magnetic Resonance Imaging (MRI) sequences, including Diffusion-Weighted images, will then be discussed and an MRI protocol for imaging of the bone marrow will be presented. In the second part of the lecture, bone marrow malignancies (osteolytic and osteoblastic bone metastases, multiple myeloma and lymphoma) will be categorized into those manifesting with a focal MRI pattern and those manifesting with a diffuse MRI pattern. The MRI characteristics of each pattern will be discussed, together with all those signs permitting the differential diagnosis

of normal from abnormal bone marrow and benign from malignant lesions. Findings enabling a particular diagnosis, when present, will be shown. Information from other imaging modalities will be referred to when appropriate. Finally, there will be a brief discussion on the MRI appearance of acute vertebral compression fractures and those findings, which allow the diagnosis of a recent osteoporotic vertebral fracture or a pathological vertebral fracture due to replacement of normal bone from the underlying tumor.

HEAD AND NECK IMAGING

Inflammatory diseases of the Orbit

D. Kozic (SR)

Orbital inflammatory disease is a heterogeneous group of different inflammatory conditions representing a diagnostic and therapeutic challenge. Extraocular muscles are most frequently involved, while less commonly inflammatory process involves the uvea, sclera, retrobulbar soft tissue and lacrimal gland. Associated diseases may include sarcoidosis, systemic lupus erythematosus, Riedel thyroiditis and other conditions. The middle cranial fossa and cavernous sinus are the two most common locations into which extensions of the inflammatory process are observed. A direct intracranial spread can occur through the superior orbital fissure, the inferior orbital fissure or the optic canal. The CT findings do not unequivocally distinguish idiopathic orbital inflammation from other orbital mass lesions. MRI shows considerably higher sensitivity, providing excellent contrast resolution in the orbit, especially if fat suppression techniques are applied. Treatment consists of systemic corticosteroids in the form of oral or intravenous administration. The main differential diagnosis involves lymphoid lesions and orbital cellulitis.

Imaging of the inner ear - diagnostic challenges

S. Jefić (BH)

Anatomical complexity of the inner ear and its related pathology make this topic a diagnostic challenge for radiologists.

The clinical approach requires not only sound knowledge of the anatomy and pathology but also extensive understanding of capabilities of imaging modalities.

The anatomical particularity of the inner ear is related to: 1. its role as the part of the ear containing the sensory organs of the cochlea, vestibular system and sound-conducting system; 2. passage of the cranial nerves and magistral vascular elements (VII, VIII, ACI) and 3. its close position to the brain.

Pathological entities can be divided into three groups: a. congenital disorders, b. acquired diseases and c. conditions related to trauma, all of which need detailed visualization of very subtle pathological changes, such as cerebrospinal fluid fistulas, malformations of the inner ear and vestibulocochlear nerve, an aberrant course of the facial nerve and anomalies of

arterial and venous structures, dehiscence of the semicircular canals, verification of endolymphatic hydrops etc.

Requirement of the highest-possible spatial resolution and a three-dimensional approach are provided by both high-resolution computed tomography (CT) and magnetic resonance (MR). CT plays an important role in clinical practice by depicting the minute details of osseous structures, although MR is nowadays considered as the modality of choice because it permits visualization of fluid-filled spaces, the vestibulocochlear nerve, vascular structures and adjacent brain parenchyma. MR protocol usually contains heavily T2 weighted sequence, T1 weighted sequence with/without Gadolinium; FLAIR with/without Gd and T2 weighted routine sequence of the brain.

Selection of the most suitable modality and protocol, or complementary use of both of these modalities, depends on the character of investigated tissue and clinical context.

Imaging in parapharyngeal space

C. Karaman (TR)

The parapharyngeal space is one of the potential neck spaces. This paired space is relatively small but critical for acting as a crossroad to associate surrounding spaces. Starting from the skullbase the space may reach down to the thoracic inlet via the carotid sheath. It is generally divided into two compartments by the tensor-vascular-styloid fascia, the prestyloid and the poststyloid compartments, which may also be called as the parapharyngeal space and carotid space, respectively. The prestyloid compartment contains the minor or ectopic salivary glands, branches of the mandibular division of the trigeminal nerve, two arteries artery, and pharyngeal venous plexus. The internal carotid artery, internal jugular vein, cranial nerves IX–XII, cervical sympathetic chain, and glomus bodies lies in the poststyloid compartment. The space can easily be detected on cross sectional imaging for its fatty content, where MRI may be slightly superior to CT while evaluating the space and neighboring structures. Congenital or developmental and neoplastic lesions may arise from the above mentioned structures within these compartments. Infectious and inflammatory diseases mostly arising from neighboring spaces and structures may also involve the parapharyngeal space. For that reason neighboring compartments are vital for the space. In the lateral proximity, from anterior to posterior lie the masticator and parotid spaces. The pharyngeal mucosal space is located medially, and the retropharyngeal space posteromedially. Defining the origin of the pathological process in regard to the compartmental anatomy may be the first step in head and neck imaging. Moreover differentiating a prestyloid lesion from a poststyloid lesion located in the parapharyngeal space may be critical for appropriate clinical approaches and surgical planning.

Pathology of paranasal sinuses

N. Traykova (BG)

Learning objects: To present the most common pathology of paranasal sinuses-inflammation and malignant soft tissue tumors /SCC/ and the possibility of Computed

Tomography /CT/ and Magnetic Resonance /MRI/ for diagnostic, pre-operative staging and post-operative follow up.

Sinusitis and the malignant soft tissue tumors /SCC/ are the most common diseases involving the paranasal sinuses. Rhinosinusitis is defined as an inflammation of the nasal cavity and the mucous membranes of the sinuses, sometimes with involving the underlying bone. Diagnosing of inflammatory diseases will include the following: nasal endoscopy, CT and MRI. CT is the gold standard in the evaluation of the inflammation of the nose and paranasal sinuses and for delineation of inflammatory sinus pathology resulting from obstruction. It is very important in acute and subacute sinusitis when signs and symptoms suggest complication and especially in chronic, recurrent and fungal processes before endonasal sinus surgery /FESS/ and for post-operative assessment. CT is superior to MRI by routine evaluation of the paranasal sinuses and by planning endonasal surgery, but MRI is the modality of choice by patients with orbital or intracranial complications. The most common malignant tumor of the paranasal sinuses and nasal cavity is the squamous cell carcinoma, which represent 3% of all head and neck and 1% of all malignancies. The tumor sites are the maxillary-70% of the cases, ethmoid-20%, sphenoid-3% and frontal-1% sinuses. CT with intravenous contrast medium is important for tumour staging and preoperative tumour mapping and is the best method to evaluate bony changes such as erosion, destruction, remodelling, sclerosis and thickening of bone. MRI is the modality of choice in order to characterize the soft tissue components of the tumour and to evaluate the extent of tumour invasion beyond the bony sinus walls. MRI may better illustrate the soft tissue abnormality than CT and is particularly helpful in detecting recurrence following surgery.

ABDOMINAL IMAGING AND INTERVENTION

Imaging in portal hypertension

D. Akata (TR)

Portal hypertension (PH) is defined as an increased portal pressure gradient of 12 mm Hg or greater within the portal venous system. The most common cause of PH is cirrhosis. In cirrhosis the scar tissue blocks the flow of blood through the liver and causes portal hypertension. There are also prehepatic (e.g. portal and splenic vein thrombosis) and post hepatic (e.g. Budd-Chiari syndrome, IVC obstruction) causes of PH.

The main complication of portal hypertension is gastrointestinal bleeding, due to the spontaneous rupture and hemorrhage from varices. Other most common findings are ascites, and encephalopathy or confusion caused by poor liver function. The diagnosis based on the presence of ascites or of dilated veins or varices. Varices and portal hypertension are evaluated with several imaging modalities. The most commonly used method is measurement of the hepatic venous pressure gradient (HVPG), which is an indirect measurement that closely approximates portal venous pressure. In this presentation CT assessment of PH will be discussed. To be able to differentiate hepatic causes from extrahepatic causes is important for planning the treatment and predicting the

prognosis. Contrast enhanced CT displays all kinds of varicies. Varicies around esophagus and stomach carry high risk for bleeding, where as varicies draining into IVC can be considered protective.

Portal vein occlusion also causes perfusion abnormality in the liver. The typical finding is increased enhancement at the periphery and relatively hypodense area at the center during the portal venous phase of the study.

MR DW imaging in GI tract

S. Gourtsoyianni (UK)

Diffusion weighted imaging has been widely incorporated in clinical routine MRI examinations of the abdomen and pelvis, including of the GI tract.

It has been reported that DWI can help with lesion/cancer detection, allows for lesion characterization, may provide predictive for response to treatment insight and allows for non invasive treatment response assessment.

While its clinical role in inflammatory bowel disease is still investigated it has already been considered an important imaging tool for the assessment of rectal cancer treatment response as per recent 2012 ESGAR consensus statements.

Standardization and clinical validation of quantitative DWI related biomarkers is still in progress, although certain efforts have been undertaken to provide imaging guidelines for different clinical indications in the GI tract, which will be discussed.

Abdominal hydatid cyst imaging and intervention

O. Akhan (TR)

The percutaneous treatment of liver CE (hydatid cysts) was considered to be contraindicated due to two main potential risks: anaphylactic shock and abdominal dissemination of the disease. Since the first case percutaneously treated was published, several series of successful percutaneous treatment of the liver and the other abdominal organs, peritoneum, thorax, soft tissue and orbital cavity hydatid cysts have appeared in the literature.

The main indication for percutaneous treatment of hydatid cyst includes "viable cysts". Different types according to Gharbi or WHO classifications are treated by different percutaneous techniques. According to WHO classification, CE 1 and 3A are considered to be most appropriate for PAIR or Standart Catheterization technique; CE 2 and CE 3B Modified catheterization technique (MoCaT). No treatment is necessary in patients with CE 4 and 5 which are managed by "Wait and Watch approach". Although surgery is a traditional method of treatment, the indication for surgery is now limited by the hydatid cysts ruptured into biliary system, pleura or peritoneum.

Considering the number of percutaneously treated patients, it is reasonable to conclude that the mortality rate is about 0.047%. Dissemination after percutaneous treatment of the liver hydatid disease was never reported in any of the published series. Other major complications need to be addressed are superinfection of the cavity, cystobiliary communication and severe anaphylactic reaction with a reported overall rate of about

10%. Minor complications such as urticaria, severe itching and hypotension can easily be treated with antihistaminics. In some patients fever, not exceeding 38.5°C, may also be observed and generally does not necessitate any medication.

Recurrence rate varies among 0-4%. Recurrent cysts are also managed by percutaneous approach. Considering the overall data in the literature regarding hospital stay is about 2.5-4.2 days.

Percutaneous treatment of hydatid liver disease is an effective and safe procedure with its unique advantages (e.g., shorter hospital stay, low complication rate). Today, the percutaneous approach has an important role in treatment of hydatid cysts not only in the liver but also in the other organs and tissue. Therefore it must be first treatment option whenever it is indicated.

GI bleeding imaging and intervention

V. Souftas (GR)

Gastrointestinal tract (GIT) bleeding is an important cause for hospital admission with a significant related morbidity and mortality. Bleeding may relate to the upper or lower gastrointestinal tracts with the dividing anatomical landmark between these two regions being the ligament of Treitz. The site of bleeding may sometimes be gauged clinically with upper GI bleeding typically presenting with either hematemesis or melaena and lower GI bleeding often presenting with bright red blood passing per rectum. In many cases, however, GI bleeding may occur intermittently or cease spontaneously, is not always overt in nature and may sometimes present in an occult fashion with secondary symptoms related to anemia.

Patients with either overt or occult bleeding are typically referred for endoscopy as a first step to identify the bleeding source. When endoscopy is negative (in approximately 5%), the term “obscure bleeding” is often used and these patients require additional techniques to identify a bleeding source. Patients who fail or have negative endoscopy will also require additional investigations in an attempt to identify a bleeding source. In cases of acute GI bleeding, capsule endoscopy needing prolonged imaging time and patient preparation, is relatively labor-intensive and time-consuming for the clinician.

Radiological imaging of the GIT therefore retains a crucial role in the evaluation of GI blood loss. In the past, catheter angiography and radionuclide red cell labeling techniques were the preferred “next step” modalities used to aid in identifying the bleeding source. However, these techniques are also time consuming and in case of catheter angiography, relatively invasive and of limited sensitivity and specificity when bleeding is not active or is intermittent in nature.

CT has undergone major technological advances making it faster and more sensitive. Multiplanar angiographic sequences allow three dimensional (3D) demonstrations of the mesenteric vessels and their branches along with providing information on both the cause as well as anatomical location of GIT bleeding. Both the small and large bowel are well visualized on CT allowing for a “one stop” investigative tool for both upper and lower GI bleeding. In many centers CT has therefore become the “next step” technique in

identifying the source of an acute GI bleed following negative or failed endoscopy. Its widespread availability and ease of use make it an ideal modality for these patients.

Transcatheter angiography and embolization for the treatment of life-threatening acute nonvariceal UGI bleeding is widely accepted as safe and efficient method and is considered the gold standard for endoscopy-refractory patients. Several clinical and technical factors must be known by interventional radiologists because they may influence the clinical outcome of embolotherapy in such setting. Embolization may be effective for even the most gravely ill patients for whom surgery is not a viable option, even when extravasation is not visualized by angiography. Careful selection of the embolic agents according to the bleeding vessel plays an important role in a successful outcome.

Superselective embolization is a relatively safe and highly successful procedure in patients with significant LGI hemorrhage. Ischemic complications are uncommon but carry a high risk of morbidity. A higher level of vigilance must be adopted in patients with active hemorrhage from the small bowel, as well as in patients with very low Hct.

THESSALONIKI MEETS IZMIR: IMAGING OF GYNAECOLOGIC MALIGNANCIES

Torsion of small bowel mesentery and omentum in the adult

E. Chartampilas (GR)

Introduction: Mesenteric and omental torsion could be the result of diverse disease entities of intestinal, mesenteric and omental pathology. All of them have in common a quite similar clinical presentation in the form of acute abdomen and a strong probability to vascular compromise and ischemia leading to intestinal, mesenteric or omental infarction and necrosis. Some of them, such as closed-loop obstruction, small bowel (SB) obstruction related to congenital anomalies of intestinal rotation and complicated hernias represent real abdominal emergencies requiring an early diagnosis for prompt surgical intervention. Others, such as omental torsion, epiploic appendagitis, or incomplete closed-loop obstruction, may resolve spontaneously and timely recognized, can help avoiding unnecessary surgery.

Purpose: This review focuses on the main characteristic imaging findings of mesenteric and omental torsion in the adult as well as on findings of complications related to mesenteric, omental and intestinal ischemia in order to familiarize radiologists with the cardinal signs of these potentially catastrophic abdominal emergencies.

Materials and methods: We present our experience with torsion in adult patients admitted to our hospital with acute abdominal pain. All patients were scanned with computed tomography (CT) at initial presentation and as follow-up. For a better understanding of these findings, some pertinent pathophysiologic considerations are also presented.

Results and conclusion: Omental and mesenteric torsion and the potentially resulting ischemia may present with characteristic CT features. Acquaintance with these findings is necessary in the emergency setting for prompt diagnosis and management of patients with acute abdominal pain.

Imaging of Endometrial Cancer

F. Obuz (TR)

Endometrial cancer is the most common gynecologic malignancy. TVUS is the primary imaging technique in postmenopausal bleeding. Postmenopausal endometrial thickness is normally less than 5 mm. It is not possible to differentiate endometrial hyperplasia from early endometrial cancer (FIGO IA) with TVUS.

Preoperative local staging is important. The depth of myometrial invasion and cervical stromal invasion are used as a predictor of lymph node metastasis. MR imaging is the best imaging modality in the preoperative evaluation of myometrial invasion. The accuracy of T2-weighted imaging, dynamic MR imaging and DWI are 55-77%, 85-91%, 62-90% respectively.

There are some pitfalls of MRI in the diagnosis of myometrial invasion. These are postmenopausal myometrial atrophy, polypoid tumors thickening myometrium, distention of the endometrial cavity with pyometra, myoma or adenomyosis accompanying tumor, decreasing contrast between tumor and myometrium (grade 3 tumors) and progesteron treatment. In the cervical invasion of the endometrial cancer, the sensitivity, specificity and accuracy of MRI are 75-80%, 94-96% and 90-92% respectively. In N staging, the sensitivity of MRI is similar to that of CT.

MR has a leading role in the preoperative management and monitoring of the patients with endometrial cancer.

Imaging of Gynecologic Malignancies: Ovarian Epithelial Tumors

N. Elmas (TR)

Ovarian tumors are classified on the basis of tumor origin as epithelial tumors, germ cell tumors, sex cord-stromal tumors and metastatic tumors. 60% of all ovarian tumors and 85% of malign ovarian tumors are epithelial tumors. Epithelial tumors are known as serous, mucinous, endometrioid and clear cell, and Brenner tumors. Epithelial tumors are primarily seen as cystic lesions. When malignant formations develop they are associated with varying proportions of a solid component. Papillary projection is a distinctive feature of epithelial tumors. 60% of tumors are benign, 35% of malign and 15% of borderline group of ovarian epithelial tumors.

Sectional imaging modalities are helpful both of diagnosis and differentiation. CT and MRI techniques should be used by pre and postcontrast studies.

Benign tumors are generally cystic and they may have thin septa. Additional finding such as abdominal ascites isn't seen on the scan. Also malign tumors are seen as large soft tissue mass with central necrosis. They have thick, irregular septa and contrast enhanced papillary projection within the tumor. Additional finding peritoneal implants and abdominal ascites. Ovarian cancer staging can be provided by TNM and International Federation of Gynecology and Obstetrics (FIGO) Classifications.

Stage I (T1-N0-M0) consists of tumor limited to the ovaries or fallopian tubes.

In stage II (T2-N0-M0) tumor involves one or both ovaries or fallopian tubes, with pelvic extension (below pelvic brim) or primary peritoneal cancer.

In stage III, tumor involves one or both ovaries or fallopian tubes, or primary peritoneal cancer, with cytologically or histologically confirmed spread to the peritoneum outside the pelvis and/or metastasis to the retroperitoneal lymph nodes (T1/T2-N1-M0). Stage IV (any T-any N-M1) consists of distant metastasis such as pleural effusion, parenchymal or extra-abdominal organ metastasis, excluding peritoneal metastases.

EMERGENCY RADIOLOGY

Non traumatic acute abdomen-left lower quadrant pain

D. Negru (RO)

Rapid and accurate detection of urgent conditions is vital for managing patients.

Imaging plays an important role in the treatment management of patients because clinical evaluation results can be inaccurate.

There are colonic, gynecologic and renal causes for left lower quadrant (LLQ) pain, acute diverticulitis being the most frequent.

Computed tomography with oral and intravenous contrast media is recommended for patients with LLQ.

Magnetic resonance imaging can be used to assess LLQ pain but it is expensive and requires more time.

Transabdominal ultrasound with graded compression is effective but it is limited by its high operator dependency. Pelvic ultrasound is the preferred method in women of childbearing age.

Intestinal ischemia -one disease with so many faces

V. Groudeva (BG)

Introduction: Mesenteric ischemia is a rare disease with nonspecific clinical presentation often mimicking various intestinal diseases.

The learning objectives of this presentation are:

- To review the different types and appearance of mesenteric ischemia
- To discuss the role of computed tomography in evaluating patients with suspected intestinal ischemia especially in the acute setting.
- To discuss the morphological and radiological findings in acute and chronic mesenteric ischemia in different subtypes of ischemia

A selection of cases of different types of mesenteric ischemia and clinical scenarios will be presented.

Acute mesenteric ischemia (AMI) is a potentially life threatening condition that has been recognized as a cause for critical abdominal events. Therefore the condition is an emergency that needs prompt diagnosis. If untreated, acute mesenteric ischemia will cause mesenteric infarction, intestinal necrosis, and eventually death. Less common mesenteric ischemia is due to a chronic process. Chronic mesenteric ischemia is almost exclusively associated with diffuse atherosclerotic disease.

The ischemic symptoms depend on the extend of the changes, their progression, and the patency of collateral vessels.

Multi detector computed tomography angiography MDCTA with intravenous contrast enhancement is a fast, noninvasive method with high sensitivity and specificity in diagnosing mesenteric ischemia that outruns the gold standard conventional angiography in acute and chronic cases

Conclusion: MDCTA with multiphase imaging – including noncontrast, the arterial and venous phase, is suggested method for correct diagnosis of AMI.

MDCTA is useful for appropriate treatment planning and provides important prognostic information as it is able to define the nature of the disease and the extent of the anatomical damage.

Radiologists should routinely describe the mesenteric vessels in patients with acute abdomen.

Abdominal injuries - intra and retroperitoneal hemorrhage

V. Sarajlic (BH)

According to the WHO report from 2012, injuries continue to kill 5 million people each year, making it among the 10 leading causes of death. Injuries of the abdominal organs can be 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 currently 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 politrauma CT protocol includes portal venous phase images of the abdomen and pelvis, acquired 65–80 seconds after the beginning of intravenous contrast material administration. In addition to the portal venous phase series, delayed phase (5–10 minutes after intravenous contrast material administration) images are necessary in patients with injuries suspected or confirmed on the portal venous phase images. 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.

Bowel obstruction - usual suspects

S. Sotirović - Seničar (SR)

Bowel obstruction is frequent cause of non-traumatic abdominal emergencies. CT has been replacing plain radiographs recently, allowing to determine mechanical obstruction, localize site of obstruction, identify cause of obstruction, as well as assess complications and bowel viability. The spectrum of CT signs can influence therapeutic decision regarding surgical or conservative approach as well as open versus laparoscopic surgery. The spectrum of imaging findings is discussed regarding sensitivity to etiology and severity of bowel obstruction.

NEUROIMAGING II

Vascular Lesions of the spinal cord

Z. Merhemic (BH)

Vascular lesions of the spinal cord are rare but potentially devastating diseases affecting the cord. Lesions are divided into three primary or broad categories, spinal cord ischemia, neoplasms and arteriovenous. Spinal cord ischemia is uncommon condition, with tissue loss in spinal cord due to vessel occlusion, typically radicular branch of vertebral artery or aorta. Characterised, with sudden onset of paralysis, sensory loss, urinary and bowel dysfunction, with severe prognosis with permanent and disabling sequelae. Neoplastic vascular lesions include hemangioblastomas, paraganglioma and cavernous malformations, which occur sporadically. Spinal cord arteriovenous lesions, is divided into dural arteriovenous fistulas (DAVF) and arteriovenous malformations (AVMs). Fistula drains directly into venous outflow tract and is characterized by progressive, insidious, and non-specific symptoms. AVM is direct communication between artery and vein forming compact nidus intramedullary or extramedullary. Magnetic resonance imaging with angiography is a modality of first choice to establish the diagnosis of vascular lesions of the spinal cord. In some situations (DAVF and AVM) conventional angiography has to be performed to distinguish type of lesion and to treat it.

Imaging epilepsy: an update

K. Koprivsek (SR)

Magnetic resonance images (MRI) of the human brain provides a powerful tool for in vivo studies of cerebral cortex morphology. Abnormal cerebral cortex development results in atypical structural asymmetries, which in turn are related to abnormal functional organization. The morphometric MRI analysis of structural asymmetries of cortical gyri and sulci could be used in identifying the neuroanatomical basis of focal epilepsy. Here, we are going to present our results of gyral asymmetry detected in the group of patients with MRI negative focal epilepsy. Main characteristics of abnormal gyral morphology (depth, orientation, cortical thickness, gray-white matter interface) as well as concordant information on semiology, interictal surface EEG, will be thoroughly discussed. The remainder of this lecture will address strategies and further developments, which may hopefully improve MRI efficiency in patients with MR imaging-negative focal epilepsy.

Multiparametric Imaging of Brain Tumors

M. Lucic (SR)

Recent introduction of numerous different imaging techniques, most of whom derived from MRI, provided us with the unique possibility to obtain and to compare not only the images, but also to explore and scrutinize the multiparametric brain maps.



Consequently, these imaging techniques, whether CT based, MRI based, PET/CT or PET/MRI based, unfolded the fully new insight on brain tumours, allowing us to observe and to provide not only the common information regarding the tumour morphology, size, exact location, and relation to surrounding structures, but also to scrutinize minutely the structure and internal architecture of the brain tumours, and moreover, to investigate the functional and molecular features of the tumorous tissue. This actually introduces, gradually but indubitably, the "tissue is the issue" principle into our daily neuroradiological practice.

Understanding the concept of obtaining and interpreting the multi-parametric maps is therefore of utmost importance, by opening the wide spectrum of possibilities to the neuroradiologists to bring forth a more accurate and complete information on multiple tumorous features to neurooncologists on the one hand, and on the other hand by increasing our comprehension of the mechanisms of tumour behaviour and internal structural and functional organization of the tumorous tissue.

At the same time multiparametric imaging is emerging as a current cornerstone in brain tumour diagnosis and monitoring, and becoming an exceptional impetus for the future management of brain tumour patients.

Therefore, in this brief review we will try to bring the audience closer to the use of different techniques in brain tumour imaging, to explain how these methods can add value to the imaging of brain tumours, and to provide the basic knowledge how multiparametric imaging can be used in the differential diagnosis of brain tumours.

Pituitary gland imaging in children

M. Argyropoulou (GR)

MR is the modality of choice for imaging the hypothalamo-pituitary axis in children. The normal neurohypophysis is located into the sella turcica and exhibits a high signal. An ectopic neurohypophysis, located at anterior recessus of the 3rd ventricle, is observed in the pituitary stalk interruption syndrome (PSIS). Lack of the neuro-hypophyseal bright signal has been associated with dehydration, infiltrative processes of the hypothalamus, such as tumours (germinomas, astrocytomas) and granulomatous disorders (histiocytosis X). The adenohypophysis appears with high signal during the first two months of life and with isosignal to the brainstem afterwards. Adenohypophyseal hyposignal is observed in iron overload. The pituitary gland height (PGH) decreases during the first years of life and then increases up to the puberty. A decreased PGH may be observed in PSIS, in genetically determined adenohypophyseal hormone deficiencies (mutations of Prop1, GH1, HESX1 genes etc) in hypogonadotropic-hypogonadism associated with iron overload states and in hypothalamic tumours. Pituitary enlargement may be found in Prop1, in idiopathic central precocious puberty (CPP) and in pituitary adenomas. The PGH may be normal or increased in CPP associated with CNS lesion (hydrocephalus, hypothalamic hamartomas, craniopharyngiomas). The pituitary magnetization transfer ratio (MTR) increases up to the age of twenty years. High MTR is found in secreting pituitary adenomas and low in the non-secreting ones. In contrast enhanced dynamic studies the neurohypophysis enhances within 9.2-18.5sec and the adenohypophysis within 30sec. Delay in the pituitary

enhancement may be found in processes infiltrating the hypothalamus and stalk (germinomas, Histiocytosis X) and in PSIS.

INTERVENTIONAL RADIOLOGY

Interventional treatment of pain

M. Totev (BG)

Neurolytic through nerve blocks, especially in patients with cancer pain is a well established procedure. We have covered a brief description of the concept of pain, the root causes of cancer pain, the classification of nerve blocks and neurolytic agents.

We particularly put a detailed look on the percutaneous neurolytic celiac plexus block (PNCPB). The celiac plexus is a network of ganglia that relay preganglionic sympathetic and parasympathetic efferent fibers and visceral sensory afferent fibers to the upper abdominal viscera. Neurolytic destruction of this structure is an excellent treatment option for patients with intractable abdominal pain due to upper abdominal malignancies or chronic pancreatitis. In these patients, chronic refractory pain significantly decreases quality of life and often requires high doses of narcotics, which can lead to serious adverse side effects. PNCPB has been shown to have long-lasting improvement in abdominal pain and decreased narcotic usage in 70 to 90% of patients. In addition, with fewer than 2% of patients experiencing major complications, PNCPB is a quick, safe procedure.

Consider except indications, the technique of perform the procedure and in particular the different ways of access to the plexus. We also discuss the necessary supplies, the neurolytic agents, especially the most frequent - ethanol, the expected outcome and possible complications.

Interventional techniques in unresectable liver tumours

D. Filippiadis (GR)

Hepatocellular carcinoma (HCC) represents the sixth most common neoplasm whilst ranks third among deaths related to cancer [1]. Patients with HCC are clinically managed according the Barcelona Clinic Liver Cancer (BCLC) classification [2]. Patients with intermediate stage HCC according to the BCLC classification system (ie performance status 0, Child-Pugh A-B, multinodular HCC with no evidence of vascular invasion or extrahepatic disease) are treated with trans-arterial chemoembolization (TACE) [1]. Nowadays in the literature there is level 1 evidence that TACE improves survival of patients with HCC [3, 4]. On the other hand, patients with advanced stage HCC according to the BCLC classification system (ie portal invasion, N1, M1, performance status 1-2) are treated with sorafenib. In the recent years throughout the literature there is a clear trend towards the use of personalized or innovative treatments (under reality check) for expansion of BCLC indications [5]. Nowadays expansion of the BCLC criteria is explored in specialized surgical and IR centers for multiple and larger tumors as well as vascular invasion. Ablation is more and more used as first line therapy in smaller sized HCCs and depending on portal

hypertension presence or effect surgical therapies target larger tumor sizes. Studies upon TACE and Y90-radioembolization (TARE) report excellent results and survival rates in patients with portal vein invasion. TACE seems to be the trans-arterial treatment of choice for patients with marginal hepatic reserve whilst TARE offers advantages not only in treating patients with portal vein thrombus but also in facilitation of surgical resection by providing compensatory hypertrophy of future liver remnant [6].

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Endovascular abdominal aneurysm repair: Where do we stand now?

D. Tsetis (GR)

Endovascular repair (EVAR) has evolved during the last 20 years to become a viable mainstream treatment for aortic pathology in both acute and elective settings. The constant evolution of devices and the introduction of novel procedures along with the accumulated experience of physicians are progressively tackling traditional anatomical barriers to include more subjects with complex and challenging anatomies that would otherwise have had to undergo major open surgery accompanied by serious mortality and morbidity. In the abdominal aorta, advances in endovascular aneurysm repair have been in the treatment of hostile aortic necks using new sealing concepts and ancillary procedures, and in branch preservation using fenestrations and snorkels. Certain geometrical factors, such as neck angulation, iliac bifurcation, EG curvature, neck- to-iliac diameter and length ratios, as well as iliac limbs configuration can exert significant influence on the hemodynamic behavior of the endovascular stent-grafts. Endoleak is the most common complication of EVAR. Type I and Type III endoleaks demand correction (proximal cuff or extension), while Type II endoleak may seal spontaneously in about 50% of cases. Totally percutaneous EVAR with the use of suture-mediated closure devices is safe and feasible and currently may be routinely used in clinical practice. This technique compared with surgical cut-down seems advantageous in terms of local complication rate and patients comfort. The additional use of local anesthesia in selected patients can potentially further reduce procedural times, total length of hospitalization and overall cost of the procedure. Last but not least, low-profile devices and standard protocols have improved mortality for ruptured aneurysms.

Brain aneurysm treatment

N. Kocer (TR)

Endovascular treatment of cerebral aneurysms becomes the first choice of treatment in most aneurysm presented with rupture or unruptured.

Minimal invasive treatment options for all pathology in the other system of the body like heart or abdomen getting more popular due to overall clinical benefit.

Intravascular evolution for one of the most dangerous pathology of the central nervous system and the body will be describe and present during lecture.

KEYNOTE LECTURES PAEDIATRIC IMAGING

Lung Ultrasound in Neonatal Intensive Care Unit

S. Deftereos (GR)

Lung (Chest) ultrasound (US) is a well-established diagnostic tool in adult emergency medicine. The resulting images from chest ultrasound are not representing a clear image. Actually images are artifacts that are (or may) combined in disease-specific profiles. The more useful artifacts are:

- ✓ Reflections of the pleural image appear as short straight lines parallel to pleural line (A-lines) and
- ✓ "Comet-tail" artifacts departing from the pleural line marching perpendicular to pleural line (B-lines).

A-lines are present in the normal lung while B-lines have been described in the adult wet lung. In Neonatal Intensive Care Unit (NICU) lung ultrasound requires adaptation to neonate (pre or full term) specific clinical issues. Normal lung is relatively unchanged throughout the age span. Presence of B-lines represents the fluid-to-air ratio of the neonatal lung. A homogeneous white lung (hyper-echogenic) with pleural line abnormalities and absence of spared areas is accurate in diagnosing Respiratory Distress Syndrome (RDS). "Double lung point artifact": normal lung (A-lines) in the upper lung fields with prevalence of B-lines at the bottom is indicative for Transient Tachypnea of the Newborn. Infantile pneumonia and Broncho-Pulmonary-Dysplasia are also entities which US has an important role in their diagnosis and follow up.

Lung ultrasonography has no ground to replace conventional chest radiology especially in NICU. However, when appropriately applied, a lung ultrasound can save time to achieve a critical diagnosis and is a very useful follow up tool (easy, safe, cheap, without radiation but of course operator dependent).



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ABSTRACTS – ORAL PRESENTATIONS

ABSTRACTS – ORAL PRESENTATIONS

CARDIOVASCULAR IMAGING

OP01

DIAGNOSTIC SIGNIFICANCE OF MRI IN PATIENTS WITH MYOCARDITIS

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Introduction: Myocarditis is an inflammatory disease of myocardium that has a wide spectrum of clinical presentation. Final diagnosis is based on several diagnostic procedures, one of them being magnetic resonance imaging (MRI). Although endomyocardial biopsy is still considered as a gold standard for diagnosis of myocarditis, MRI is as an important diagnostic tool for comprehensive assessment of these patients.

Purpose: The purpose of this study was to analyse significance of MRI parameters in assessment of patients with myocarditis and their relations to clinical data, ECG and laboratory findings.

Materials and Methods: The study included 73 patients, predominantly males 55 (75.3%), average age 55.3 years. All patients underwent clinical examination, ECG, laboratory testing and MRI examination within 14 days of establishing suspected myocarditis. MRI parameters were: LVEDD, LVESD, LVEF, LVESV, LVEDV, presence of oedema and late gadolinium enhancement (LGE).

Results: The edema was present in 22 patients (30.1%), LGE in 42 (57.5%), both LGE and edema was seen in 11 (15.1%) of patients. Patients with oedema has significantly lower EF $42,7 \pm 21,7\%$ in comparison to those without oedema ($53,7 \pm 16,7\%$), $p < 0,05$, increased EDV ($181,5 \pm 85,4$ ml vs $161,0 \pm 55,9$ ml, $p < 0,05$, respectively) and increased ESV ($126,9 \pm 96,1$ ml vs $78,6 \pm 55,4$ ml, $p < 0,01$, respectively). Patients with LGE had decreased EDV ($163,6 \pm 51,4$ ml vs $171,6 \pm 87,4$ ml, $p < 0,05$, respectively) and decreased ESV ($82,9 \pm 53,9$ ml vs $105,3 \pm 94,3$ ml, $p < 0,01$, respectively) but LVEF was not significantly different among two groups, $52,4 \pm 17,5\%$ vs $48,1 \pm 20,5\%$, respectively. There was a significant correlation between increased BNP and troponin and systolic parameters of LV function, ESV, $r = 0,45$, $p < 0,05$, $r = -0,35$, $p < 0,05$, respectively. Troponin was also associated with presence of LGE, $r = 0,38$, $p < 0,05$.

Conclusion: Presence of myocardial oedema and LGE has been associated with systolic function of the left ventricle and therefore has great importance in final evaluation and further therapeutical decision making in these patients.

OP02

NON-APPLICATION OF DIAGNOSTIC ALGORITHMS LEADS TO OVER-PERFORMANCE OF CTPA FOR PULMONARY EMBOLISM DIAGNOSIS

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Introduction: Pulmonary Arteries Computed Tomography (CTPA) should be performed for Pulmonary Embolism (PE) diagnosis only after pre-test probability evaluation (Wells Score) and D-dimer blood count estimation. However, Clinicians often request emergency CTPA without these tests performed.

Purpose: To assess if emergency CTPA without Wells Score and D-dimer blood count performed leads to CTPA overuse.

Materials and Methods: 64 patients subjected to CTPA as requested by Clinicians. We examined: 1. If Wells score was evaluated before CTPA, 2. If D-dimer count was performed before CTPA, 3. If these tests were abnormal when performed, 4. If CTPA was positive for PE.

Results: Only 8/64 patients (12.5%) were diagnosed with PE on CTPA: 8 patients 4 had high probability Wells score, no Wells score was performed in 4 patients. In the same 8 patients 7 had abnormally high D-dimer count, in 1 patient no D-dimer count was performed before CTPA. The remaining 56/64 (87.5%) patients were negative for PE on CTPA: 0 had high probability, 11 moderate probability and 19 low probability Wells score, no Wells score was performed in 26 patients. In the same 56 CTPA PE-negative patients 43 had abnormally high, 3 normal D-dimer count, no D-dimer count was performed before CTPA in 10 patients.

Conclusion: In patients with moderate-low probability Wells score and non-performance of Wells score, emergency CTPA is often negative for PE. High D-dimer count without Wells score estimation is not enough to request emergency CTPA. Application of international Guidelines is mandatory to avoid unnecessary emergency CTPA, saving patient ionising radiation, time and money.

OP03

NON-APPLICATION OF DIAGNOSTIC ALGORITHMS LEADS TO OVER-PERFORMANCE OF LOWER EXTREMITY ULTRASOUND IN PATIENTS WITH PULMONARY EMBOLISM.

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Introduction: Pulmonary Arteries Computed Tomography (CTPA) is the method of choice for Pulmonary Embolism (PE) diagnosis with no further imaging needed in 4 scenarios: 1. Negative CTPA, low PE probability clinical assessment (Wells score), positive D-dimer count, 2. Positive CTPA for main-lobar bronchus PE, low PE probability assessment, positive D-dimer, 3. Positive or negative CTPA, moderate PE probability assessment, positive D-dimer, 4. Positive CTPA, high PE probability assessment. Leg veins ultrasound (US) for DVT

diagnosis is additionally needed only in cases with high PE probability assessment and negative CTPA (scenario 5). However, Clinicians often request emergency leg veins US in scenarios 1-4.

Purpose: To assess if non-indicated emergency leg veins US leads to overperformance of the procedure.

Materials and Methods: Files of 64 patients subjected to emergency CTPA for PE diagnosis as requested by Clinicians. In all patients we examined: 1. If Wells score and D-dimer blood count were evaluated before CTPA, 2. if high probability Wells score and negative CTPA combination were met (scenario 5), warranting emergency leg veins US, 3. If CTPA was eventually positive for PE.

Results: Only 11/64 (17.2%) patients were evaluated with Wells score and D-dimer count before CTPA. 2. None (0 patients) showed high probability Wells score and negative CTPA, therefore none needed emergency leg veins US. 3. Only 8/64 patients (12.5%) were diagnosed with PE on CTPA.

Conclusion: No patient followed scenario 5 (high PE probability assessment, negative CTPA). Therefore none needed an emergency leg veins US. International PE Guidelines application can avoid unnecessary emergency US examination of leg veins.

OP04

RENAL ARTERY STENOSIS IN BULGARIA - 700 PATIENTS WITH PERIPHERAL ARTERIAL DISEASE (MDCT/DSA STUDY)

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Introduction: Renal artery stenosis (RAS) is often rare and clinically silent disease, which is usually manifested by resistant to therapy hypertension. Varying causes can lead to RAS: Atherosclerosis, Arteritis, Fibro muscular dysplasia, embolization and others. Chronic arterial insufficiency of the lower extremities is a disease arising most often due to atherosclerotic involvement of the abdominal aorta and vessels of the lower extremities. And it is the most frequent disease of the arteries in these anatomical locations.

Purpose: How often, at what degree, the renal arteries are involved? How to better diagnose? Are important questions for diagnosticians, clinicians and vascular surgeons. We hope our study can shed some new light on these topical questions.

Materials and Methods: The present study includes 700 patients, aged between 60 and 75 years. All surveyed patients show one or more symptoms of peripheral arterial disease, and their complaints date back to at least 2 years prior the exam.

All CTA studies included in the study are performed on 64/128 slice CT equipped with an automatic injector system. Standard, angiographic system is used for the implementation of digital subtraction examinations in the study.

Results: Stenotic changes of one or more renal arteries are seen in 32.5% of the surveyed patients, suffering from chronic arterial insufficiency of the lower limbs.

Conclusion: In fact even the best and most experienced diagnostician is limited by the capabilities of physical examination. There are no effective means to manually examine the

renal arteries. That is the reason why Imaging is an essential part of the modern diagnostic approach in those patients.

OP05

THE EFFECT OF PERFORATING VEIN IN COMBINED CHRONIC VENOUS INSUFFICIENCY

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Introduction: Superficial venous insufficiency can be observed at the saphenoefemoral junction (SFJ), at the Great Saphenous Vein (GSV), at the Giacomini Vein, at the saphenopopliteal junction, and finally at the Small Saphenous Veins (SSV) including perforating Vein. Multilevel venous insufficiency or combined can be detected in approximately half of venous insufficiency. Perforating vein evaluation should be part of lower extremity venous systems examination in venous insufficiency

Purpose: The aim of this study was to assess the impact of perforating venous insufficiency in combined chronic venous insufficiency of lower extremity detected by color Doppler ultrasound.

Materials and Methods: Between 2012 to 2016, a total of 1154 patients presented with symptoms of venous insufficiency were examined by using color Doppler US. Primarily patients were evaluated in the supine position in terms of deep and superficial venous thrombosis. Patients with acute venous thrombosis were excluded. Then the patients were evaluated while they were standing up, in terms of deep and superficial venous insufficiency. Statistical analysis was performed with spearmann rank correlation, χ^2 and Mann- Withney testing.

Results: 1154 patients (781 female, 373 male) were underwent Doppler US examinations. 228 was unilateral, 926 was bilateral lower extremity examinations. 2080 lower extremities (%31.4 male (n=653) and %68.6 (n=1427) female, 1056 left leg and 1024 right leg) were examined by using Doppler US. The patients were in the age range of 14-87 (mean, 46). Deep venous insufficiency was %14.2 (n=295) . Perforating venous insufficiency was %27,5 (n=571), GSV insufficiency was % 19,9 (n=414), SSV insufficiency was %7,1 (n=147). Perforating vein insufficiency associated with deep and superficial venous insufficiency was % 44,7 (n=929). All of those have GSV insufficiency, have perforating venous insufficiency too(p<0.001). There was statistically significant relationship between perforating venous insufficiency and SSV insufficiency (p<0.001). There was statistically significant relationship between perforating venous insufficiency and deep venous insufficiency (p<0.001). There was statistically significant relationship between perforating venous insufficiency and chronic deep vein trombosis (p<0.001).

Conclusion: Our results revealed that perforating venous insufficiency is quite common in combined venous insufficiency. We think perforating vein evaluation should be part of lower extremity venous systems examination in venous insufficiency.

NEUROIMAGING

OP06

CAN ANTIRETROVIRAL THERAPY SLOW DOWN THE PROCESS OF NEURODEGENERATION IN CHRONIC HIV INFECTION?

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Introduction: Combination antiretroviral therapy (cART) has transformed HIV from a rapidly fatal disease to a manageable chronic condition. Unfortunately, chronic HIV infection results in the development of HIV associated neurocognitive disorder (HAND) even with continuous administration of cART.

Purpose: The aim of this study was to compare neurobiochemical changes reflecting neurodegeneration in white and grey matter of the normal appearing brain in chronically infected HIV+ patients on combined antiretroviral therapy and therapy-naïve ones, using three-dimensional (3D) multivoxel magnetic resonance spectroscopy (MRS).

Materials and methods: We performed long echo 3D multivoxel MRS in 60 chronically HIV infected patients (32 on cART and 28 therapy-naïve) on 3T MR unit. The NAA/Cr and Cho/Cr ratios were analyzed from 12 different voxel locations covering cingulate gyrus, frontal and parietal subcortical and frontal deep white matter. All the patients were neuroasymptomatic or with the signs of mild cognitive impairment on neuropsychological testing.

Results: There was a significant decrease ($p < 0.05$) of NAA/Cr ratio in HIV+ patients on cART only in one voxel location (deep frontal white matter on the left), compared to therapy-naïve patients. In all the other voxel locations there was no statistically significant difference in NAA/Cr ratios between two groups. Considering Cho/Cr ratios, there was no statistically significant difference between HIV+ patients on and off therapy in any of the observed locations.

Conclusion: 3D multivoxel MRS is a potent tool that can present the process of neuronal loss and dysfunction that seems to affect the brain in HIV+ patients independently of the administration of cART. In chronic neuroHIV infection there is slight difference in neurobiochemical changes in the brain between treated and untreated patients. Further studies considering the effect of cART regimens penetration in the brain on metabolite ratios are needed.

OP07

CONTRIBUTION OF ADVANCED MR TECHNIQUES IN DIFFERENTIATION BETWEEN LOW GRADE AND HIGH GRADE GLIOMAS

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Introduction: Proper differentiation between low grade (LGG) and high grade gliomas (HGG) is very important as therapeutic strategies differ significantly. Distinction of histological types based on conventional imaging may be challenging as typical features are not specific, features may be overlapping. Proper characterization is mandatory in order to avoid misdiagnosis and an unnecessary extend of surgery and is necessary step in preoperative planning. These dilemmas in everyday radiologic practice require implementation of advanced MR techniques.

Purpose: Our study aimed to investigate the potential value of DWI, DTI and ASL in discrimination in differential diagnosis of intracranial neoplasms.

Materials and Methods: Our series consists of 45 patients admitted to our Center for advanced MR exam whose findings included intracranial neoplasms. In all patients, pathohistological verification of lesion was done. All patients underwent presurgical conventional MR imaging, in vivo single-voxel MRS at short echo time (TE, 35 ms) and multi-voxel MR spectroscopic imaging at long TE (144 ms), DTI and ASL.

Results: Pathohistological findings shows 31 HGG and 14 LGG. Our MR findings show accuracy of 75% in standard MR protocols and 85% with multiparametric imaging protocol (DWI, DTI and ASL).

Conclusion: Multiparametric MR imaging contribute in differentiation of intracranial neoplasms. These methods are complementary and DWI and spectroscopy have been shown to provide additional diagnostic information so, thereby, they are included in routine protocol in our Centre.

OP08

BRAIN MICROSTRUCTURAL CHANGES IN PATIENTS WITH PSEUDOEXFOLIATION SYNDROME: A TRACT-BASED SPATIAL STATISTICS DIFFUSION TENSOR IMAGING STUDY

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Introduction: There is evidence of chronic cerebral hypoperfusion and cerebrovascular disease in pseudoexfoliation syndrome (PXS).

Purpose: The purpose of the present study was to evaluate structural brain changes in patients with PXS by assessing white mater hyperintensities (WMHs) and by using the tract-based spatial statistics (TBSS) method of diffusion tensor imaging (DTI) analysis.

Material and Methods: Eighteen PXS patients (mean age±SD; 62.75±0.4 years) and 18 control subjects (mean age±SD; 62 ± 0.6 years) underwent brain magnetic resonance imaging and complete ophthalmological examination. The imaging protocol consisted of

sagittal fluid attenuated inversion recovery sequence and a spin-echo, echo-planar diffusion-weighted sequence.

Results: WMHs were observed in 14 of the 18 patients with PXS (77.7 %) and in 8 of the 18 control subjects (44.4 %) ($P = 0.42$). A significantly larger number of WMHs was found in the patients with PXS (median: 6, range: 0-29) than in the control subjects (median: 0.5, range: 0-15) ($P = 0.002$). TBSS showed increased MD, AD and RD values in the following white matter tracts bilaterally: superior longitudinal fasciculus, inferior longitudinal fasciculus, corticospinal tract, anterior thalamic radiation, inferior fronto-occipital fasciculus, cingulum, uncinate fasciculus, and forceps minor in PXS patients compared to control subjects. No significant differences were observed in FA values between patients and control subjects.

Conclusion: Patients with PXS showed increased WMHs probably related to chronic cerebral hypoperfusion. The increased MD, AD and RD values in major white matter tracts may be a secondary phenomenon, representing demyelination and axonal degeneration.

OP09

MULTI-ECHO T2 RELAXATION TECHNIQUE IN DEMENTIA

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Introduction: T2 relaxation time is composed of a long component (80-100ms) attributed to intra/extracellular water, and a short component (20-35ms) originating from myelin water. Myelin water fraction (MWF) is the ratio of the myelin water amplitude to the total signal. These measures could be informative of changes induced by demyelination, inflammatory edema, or gliosis in patients with Alzheimer's dementia (AD).

Purpose: To investigate: (1) regional changes in long/short-T₂ and MWF values in the normal appearing white matter (NAWM) of AD and Mild Cognitive Impairment (MCI) patients, and (2) associations between MWF/ T₂ values and neuropsychiatric test scores.

Materials and Methods: Multiple Echo Spin Echo (MESE) sequence was performed in 25 AD, 43 MCI and 35 healthy controls (HC). MWF/ T₂ values were measured in 20 areas of NAWM.

Results: AD patients showed significantly increased long-T₂ values in bilateral temporal, periventricular and left parietal NAWM, increased short T₂ values in left temporal, parietal and periventricular NAWM and reduced MWF values in bilateral periventricular, left temporal and parietal NAWM, compared to HC and MCI patients. MWF/ T₂ values in several regions correlated with neuropsychiatric test scores in MCI, who have, also, age-related decline in episodic memory capacity, mediated by the effect on age on Short-T₂ and MWF values.

Conclusion: There are changes in short-T₂, long-T₂ and MWF values, in several NAWM areas of AD and MCI patients, probably due to demyelination, coupled with inflammatory edema and gliosis. Enhanced age-related demyelination takes place in prodromal dementia states (MCI) and is associated with the severity of episodic memory deficiency.

OP10

ADVANCE MRI TECHNIQUES IN MS IMAGING

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Introduction: The topic of this presentation considers the most promising MRI approaches to the study of MS that have emerged recently or are under development/ refinement and are likely to impact significantly the clinical arena in the near future. Indeed, these techniques have undoubtedly contributed to define the mechanisms through which MS causes the accumulation of irreversible disability. For instance, their application to MS has shown that the pathology of the disease is not limited to macroscopic focal lesions but also involves diffusely the normal-appearing white (NAWM) and gray matter (GM), directly or through retrograde and transsynaptic degeneration. Correlative pathological/MRI studies have also demonstrated that these MRI techniques may have a different sensitivity towards the heterogeneous pathological substrates of the disease (which, among the many others, include axonal loss, demyelination, and remyelination), and, as a consequence, might provide a valuable tool for their in vivo monitoring.

The majority of the techniques that are discussed provide quantitative, objective, and reproducible measures of disease severity that are likely to improve the strength of the correlation between clinical and MRI findings in MS. It is foreseen that, if adequately optimized and standardized across centers, they might be applied in the near future in clinical trials to monitor tissue damage and repair.

Purpose: To report critically the advantages and pitfalls obtained from the clinical use of modern MR techniques as MRS and DTI.

3.Materials and Methods: In this presentation we describes results from study with included 50 MS patients and 30 healthy controls who undergo a MRI examination with conventional MRI, MRS, DTI and Volumetric 3D T1 with hippocampal volume measurement and report critically the advantages and pitfalls obtained from the clinical use of such modern MR techniques.

Results: Due to its unique advantage to provide information with high biochemical specificity for tissue changes, proton magnetic resonance spectroscopy (1H-MRS) is reviewed. Among the many 1H-MRS-derived metabolic measures, the level of N-acetylaspartate (NAA) represents a highly specific correlate of neuronal and axonal viability. Despite the sensitivity of MT MRI, DT MRI, and 1H-MRS to disease changes, the correlation between quantitative MR-derived measures of tissue integrity and clinical scales of impairment/disability are still scanty. During the last few years, the availability and then the extensive application of functional MRI to the assessment of central nervous system (CNS) function in MS patients has demonstrated that the presence and efficacy of brain adaptive mechanisms might contribute, at least in some phases of the disease, to limiting clinical consequences of diffuse disease-related tissue injury and, conversely, that the failure of such mechanisms might be among the factors responsible for the accumulation of irreversible disability. All these aspects are discussed in the presentation.

Conclusion: The unprecedented and extensive evolution of conventional and quantitative MR-based techniques and their application to the study of MS has undoubtedly improved

our ability to diagnose and monitor the disease, as well as our understanding of its pathophysiology. Nevertheless, there are many remaining challenges in front of us. New techniques need to be refined and validated before they can be integrated properly into clinical research and practice. New acquisition schemes and analysis procedures require standardization and optimization so that they can be used in multisite settings. From the data presently available, it is becoming clear that combining different MR modalities, which are sensitive to different aspects of MS pathology, is a promising way to increase further our understanding of the mechanisms accounting for the accumulation of disability.

HEAD AND NECK IMAGING

OP11

FOLLICULAR VARIANT OF PAPILLARY THYROID CARCINOMA VS FOLLICULAR ADENOMA. US AND DOPPLER US FINDINGS

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Introduction: Follicular adenoma (FA) is a well-encapsulated benign thyroid gland neoplasm and displays benign sonographic features with no capsule infiltration. Follicular variant of papillary thyroid carcinoma (FVPTC) is a subtype of papillary thyroid cancer (PTC) including follicles with same nuclear features as PTC and having a good prognosis since it displays noninvasive pattern. However, the differentiation of FVPTC from FA can be challenging since they had similar features on histopathological specimens.

Purpose: To introduce the utility of gray-scale ultrasonography (US) and spectral duplex Doppler US (DDUS) findings of FVPTC and FA for differentiation.

Materials and Methods: The US and DDUS findings of 25 thyroid nodules which were diagnosed histopathologically after thyroid surgery were evaluated retrospectively. US findings of shape (round or oval), structure (solid, < 75% solid, semisolid), echogenicity compared to normal appearing thyroid parenchyma (hypo-iso-hyperechogenic), margins (regular or irregular), and the presence of halo and microcalcifications were noted. Spectral DDUS parameters of systolic to diastolic (S/D) ratio, pulsatility index (PI), and resistivity index (RI) were calculated and noted. Mann-Whitney U test and Pearson Chi-square test were used to compare the US and DDUS findings. An ROC analysis was performed to find

the optimal cut-off values for the statistically significant continuous variables. Statistical significance was accepted at a $p < 0.05$.

Results: Seven FVPTC and eighteen FA were included in the study. The sex and age of the patients, size, shape, structure, echogenicity and the presence of microcalcification were insignificant. Regular margins in FA, absence of halo in PVPTC were significant US findings ($p=0.043$ and $p=0.045$ respectively). The S/D ratio, PI, and RI were significant ($p=0.004$, $p=0.005$, and $p=0.004$ respectively).

Conclusion: The Gray-scale US and spectral DDUS are easy to use and widely available imaging methods and have a valuable role in the differentiation of FVPTC and FA.

OP12

ULTRASOUND FINDINGS IN THYROID INVOLVEMENT IN FMF

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Introduction: Familial Mediterranean Fever (FMF) is an autoinflammatory disease characterized by recurrent pleuritis, peritonitis, arthritis and fever, is characterized by amyloid deposition in tissues. Family history, serosal recurrent attacks and suspicion are required in FMF diagnosis. FMF is an autosomal recessive hereditary disease. Its prevalence varies between 1/200 and 1/1000 in Eastern Mediterranean countries.

Purpose: In this study, we tried to present thyroid ultrasonography (US) findings in FMF patients with normal thyroid hormone levels and normal thyroid examinations.

Materials and methods: Thyroid US examination was performed to 62 patients with a diagnosis of FMF admitted to endocrinology and nephrology clinic of our hospital and 72 controls compatible with patient group in terms of age and gender. Thyroid autoantibody positive patients were excluded from the study. Thyroid volumes, parenchymal echogenicity and presence of solitary-multinodule were evaluated.

Results: In statistical analysis, there were significant differences in terms of parenchymal heterogeneity between the two groups. No significant difference was observed in terms of solitary-multinodule and thyroid volumes. While parenchyma of 67 patients of the control group (93.5%) was evaluated as homogeneous, parenchymal echogenicity of 30 FMF patients (40%) was evaluated as normal.

Conclusion: Although amyloid deposition is known to accumulate in thyroid tissue in FMF, changes in thyroid tissue were not sonographically evaluated previously. In our study, parenchymal heterogeneity associated with presence of millimeter hypoechogenic multiple focuses similar to thyroiditis took the attention in the group of patients with FMF. Therefore, the presence of parenchymal heterogeneity in thyroid US examination of FMF patients must first bring thyroid involvement to the mind.

As a conclusion, thyroid tissue involvement is present in FMF patients even during the period they remained euthyroid, and these patients should be monitored sonographically in terms of the progression of thyroid tissue involvement.

OP13

THE ROLE OF COLOR DOPPLER FOR THYROID NODULES NEEDED FINE-NEEDLE ASPIRATION

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Introduction: Fine-needle aspiration biopsies were routinely used in the evaluation of thyroid disease. Ultrasonography guidance is simple and easy for the patient and the physician. There are some techniques to improve the diagnostic results.

Purpose: We evaluated the diagnostic performance of fine-needle aspiration (FNA) under Color Doppler guidance and compared with the initial non-diagnostic results under gray scale sonographic guidance for thyroid nodules.

Materials and Methods: After the ethical approval a total of 621 suspicious thyroid nodules (558 patients) were performed between January 2015 - February 2016 by 2 staff radiologist. Non-diagnostic results were evaluated and analyzed retrospectively.

Results: 88 patients that have previously non-diagnostic FNA results, undergone Color Doppler Ultrasonography to evaluate the type of the nodule. 54 nodules were found highly vascular and appeared that blood elements were reported in their initial FNA results. By using Color Doppler guidance second FNA were diagnostic except 3 nodules in these high vascular nodule group.

Conclusion: The diagnostic accuracy of Color Doppler Ultrasonography guided FNA especially in high vascular solid thyroid nodules achieved better diagnostic accuracy and must be used as a standart method for FNA of the thyroid nodules.

OP14

SHEAR-WAVE ELASTOSONOGRAPHY FINDINGS IN GLAUCOMA PATIENTS

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Purpose: Glaucoma is an insidious disease associated with intraocular pressure elevation which is the most common cause of secondary blindness. The aim of our study was to examine the different regions of the eyes of glaucoma patients with shear-wave elastosonography (SWE) for the first time and to compare with the normal eyes. We aimed to evaluate the usefulness of SWE in the diagnosis and follow-up of glaucoma patients.

Materials and methods: Twelve diagnosed glaucoma patients and thirty-two healthy individuals were compared. After assessment of both globes with B-mode ultrasonography, the elasticity values of optic nerve head, retrobulbar optic nerve, sclera-retinal complex, retrobulbar adipose tissue, cornea, lens and anterior chamber were measured with SWE and recorded as kiloPascals.

Findings: There was no significant difference in the elasticity values of different regions of the eyes between the patient and control groups.

Results: Although, SWE is a more easily applicable method than strain elastosonography in the evaluation of eyes, there was no significant difference between patient and control groups in our study with limited number of patients. However, the reference values for different parts of the eye were determined for SWE.

OP15

THE ROLE OF IMAGING IN PERINEURAL TUMORAL SPREAD DETECTION

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Objectives: The purpose of this study is to review the imaging characteristics of perineural tumoral spread in patients with head and neck tumors.

Methods & Materials: In this retrospective study, the patient population was composed of 65 male and 35 female patients (mean age 48 years) with head and neck tumors. Patients were examined by MDCT and MRI.

Results: Imaging studies depicted the location and extent of tumor involvement, helped determination of the type of head and neck tumor and their staging. Twenty patients had the signs of perineural tumoral spread on MR or MDCT imaging. The method of choice for diagnostics of perineural spread is MRI which can determine the spread of neural foramen, voluminosity of affected nerve, postcontrast increase of nerve signals, obliteration of surrounding fat and muscle denervation atrophy. MSCT can also provide useful information about perineural spread relating to spread of neural foramen on skull base and obliteration of fat spaces. Muscle denervation atrophy may also be the consequence of perineural spread of tumor.

Conclusion: 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.

OP16

CORRELATION BETWEEN PLASMA TOTAL HOMOCYSTEINE LEVEL AND CAROTID BULB INTIMA – MEDIA THICKNESS IN THE GREEK POPULATION

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Introduction: Numerous studies have linked cardiovascular morbidity to increased serum homocysteine levels but without determining the casual relationship between those two¹. Intima – Media thickness has been suggested to be involved in the atherosclerotic process of the Carotid artery² where the Carotid Bulb is the part of the carotid artery most prone to plaque formation.

Purpose: The aim of the study was to investigate the correlation between total serum homocysteine levels and the thickness of the Intima –Media layer at the level of the Carotid Bulb. This would suggest a mechanism of action of serum tHcy in the process of thickening of the Intima-Media layer of the Carotid artery.

Materials and Methods: We studied nearly 200 Greek outpatients with and without known carotid artery disease. We measured the intima-media thickness at the level of the carotid bulb (cb-IMT) in all patients and correlated it with serum homocysteine levels.

Results: The mean value of cb-IMT in those patients with serum homocysteine concentration above 15 $\mu\text{mol/L}$ was statistically higher than those with serum homocysteine concentration below 15 $\mu\text{mol/L}$.

Conclusion: In this study there is a clear correlation between serum homocysteine levels and cb-IMT. Serum homocysteine levels in combination with measured cb-IMT may prove to be a useful tool in risk stratification for later on carotid artery plaque formation.

OP17

THE EVALUATION OF UVULA AND SOFT PALATE STRUCTURES BY USING MAGNETIC RESONANCE IMAGING IN PATIENTS WITH OBSTRUCTIVE SLEEP APNEA SYNDROME

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Introduction: Obstructive sleep apnea is being increasingly recognized as an important cause of medical morbidity and mortality. It is a relatively common sleep disorder that is characterized by recurrent episodes of partial or complete collapse of the upper airway during sleep. The ensuing reduction of airflow often leads to acute derangements in gas exchange and recurrent arousals from sleep. The health consequences of obstructive sleep apnea are numerous. If left untreated, it leads to excessive daytime sleepiness, cognitive dysfunction, impaired work performance, and decrements in health-related quality of life.

Purpose: This study aims to compare soft palate and uvula volumes of patients with mild and severe OSAS with MRI.

Materials and Methods: Examinations of cranial MRI taken for various reasons from 30 patients with mild OSAS and 30 with severe OSAS diagnosed with PSG were evaluated retrospectively. Sagittal T2 images on the cranial MRI images were evaluated. The volumes containing the soft palate and uvula from the incisions were measured automatically with Multi Planar Reformat (MPR) Roy Free measurement technique.

Results: While average soft palate and uvula volumes of the patients with mild OSAS were measured as 8.49+/-2.37 cm³, average soft palate and uvula volumes of the patients with severe OSAS were measured as 11.29+/-4.22 cm³. There was a significant difference between the soft palate and uvula volumes of patients with mild and severe OSAS (p<0.05).

Conclusions: The difference of the soft palate and uvula volumes playing a role in the pathogenesis of OSAS, in mild and severe OSASs has concluded its correlation with the severity in OSAS.

OP18

TRADITIONAL REPORTS OR TIRADS?

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Introduction: Ultrasonography (US) is the best diagnostic tool in the evaluation of highly prevalent thyroid nodules. Studies have shown that less than 10% of thyroid nodules are malignant. Nodules have highly diverse US findings but some US features are in favor of benignity or malignancy, especially when grouped together.

Purpose: There are many Thyroid Imaging Reporting and Data System (TIRADS) classifications to characterize nodules which are rarely used because the systems are difficult to use. We aimed to compose a TIRADS classification that can be used more practically.

Materials and Methods: 116 patients (96 female, 20 male) included in the study. Before the fine needle aspiration biopsy procedure the nodule was characterized with TIRADS classification by the same radiologist and biopsy applied on site of the same cytopathologist. TIRADS 1 is defined as normal glandular parenchyma. TIRADS2 is defined as benign nodules. TIRADS3 is defined as probably benign nodules. TIRADS 4a is defined as undetermined nodules. TIRADS4b is defined as suspicious nodules. TIRADS4c is defined as highly suspicious nodules. TIRADS5 is defined as probably malignant nodules. TIRADS6 is defined as biopsy-proven malignancy.

Results: According to the biopsy results 64.6% was benign, 4.3% was malignant, 27.6% was atypia of undetermined significance or follicular lesion of undetermined significance, 2.6% was suspicious for a follicular neoplasm, 0.9% was nondiagnostic. 81% of the patients were TIRADS2 and 3, and there was no malignancy. 19% of the patients were TIRADS4 and 36% of this group was malignant. Statistical analysis showed that TIRADS classification correlation is significant to determine malignant nodules. High TIRADS scores are correlated with malignancy, low TIRADS scores are correlated with benignity.

Conclusion: TIRADS classification based on the suspicious criteria like microcalcification, irregular margin, marked hypoechogenicity, taller than wide shape, perinodular parenchymal invasion and microlobulated contour is reliable in predicting thyroid malignancy. Also TIRADS will lead to unification of terminology among all physicians who evaluate the results of a thyroid ultrasound.

GENITOURINARY IMAGING

OP19

IS EVALUATION OF KIDNEY FUNCTION WITH DIFFUSION-WEIGHTED MRI AN EFFECTIVE METHOD FOR THE ASSESSMENT OF STAGE OF CHRONIC KIDNEY DISEASE?

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Introduction: Functional renal imaging methods, such as diffusion-weighted magnetic resonance imaging (DW-MRI) has been shown to be a promising technique in the evaluation of renal function. The apparent diffusion coefficient (ADC) is a quantitative parameter calculated from DW-MRI images, and represents the water diffusion in the extracellular and extravascular space and capillary perfusion.

Purpose: The aim of this study is to evaluate the relationship between ADC values of renal parenchyma and serum markers of renal function and stage of chronic kidney disease (CKD).

Materials and Methods: 74 patients with CKD and 50 healthy controls were examined with diffusion-weighted MRI (DW-MRI) at 1.5 Tesla. The patients were grouped according to five stages as indicated by the MDRD (The Modification of Diet in Renal Disease) formula. Three circular ROIs were placed one each in the upper pole, interpolar region and lower pole of both kidneys and three ADC measurements were calculated for each kidney. The mean ADC values were recorded for each patient. The relationship between ADC values and stage of CKD and glomerular filtration rate (GFR) were evaluated. A receiver operating characteristic (ROC) curve was constructed for mean ADC value to determine the effectiveness of various cutoff points for presence of CKD.

Results: The mean ADC value was significantly lower in the CKD group and ADC values showed decrease with more severe stages of the disease ($p < 0.001$). There was a significant positive correlation between ADC and GFR ($r = 0.746$, $p < 0.001$). Based on ROC analysis, optimal ADC cut-off value for detecting CKD was found as $1.88 \times 10^{-3} \text{ mm}^2/\text{s}$, with sensitivity and specificity values of 0.500 and 0.960, respectively.

Conclusion: ADC values can play a role in the evaluation of renal dysfunction. However, population- and protocol-based cut-off ADC values are needed to identify renal dysfunction and to distinguish between different stages of CKD.

OP20

INCIDENTAL FINDING OF RENAL MASS

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Introduction: Nowadays, it appears that newly diagnosed renal masses are increasingly found incidentally on imaging performed for non urological complaints and there might be a shift in the initial tumor staging at presentation.

Purpose: To assess the incidence of newly diagnosed renal mass we audited six months period, looking at reasons and source of imaging referral, type of initial imaging, age and gender distribution, tumour size and staging at presentation.

Materials and Methods: The data was obtained from MDM records over the period from January 2015 to June 2015. Data collected included number of patients, source of referral, primary examination USS or CT, reason for scan, tumour staging and method of management.

Results: 23 new cases of renal mass were diagnosed for the period of six months. There were 8 female and 15 males. From GPs there were 16 referrals and the rest were from secondary care: general surgery 3 cases and one case from gynaecology, urology, medicine and accident emergency.

Ultrasound was used as initial imaging in 17 cases, CT in 5 cases and in one occasion a plain X- Ray. Urinary tract reasons were: haematuria in 5, abnormal creatinine in 3 and recurrent UTIs in 2 cases. Non urinary (incidental) reasons-13. Size distribution was: <4 cm in 6, 4-7 cm in 10, 7-10 cm in 3 and >10 cm in 4 cases.

Outcomes were: Surgery in 14, Embolisation in 1, Conservative in 6 and two patients died.

Conclusion: Incidental finding is now the most common presentation of Renal Carcinoma. Classical triad of Mass, Pain and Haematuria were rare. This is in keeping with other studies. Careful evaluation of kidneys in all scans is needed and fast track system is important. This makes Implications for monitoring and treatment.

OP21

MRI SIGNS PREDICTIVE OF PARAMETRIAL INVOLVEMENT IN PATIENTS WITH CERVICAL CANCER AND HISTOLOGICALLY CONFIRMED FULL THICKNESS STROMAL INVASION

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Introduction: There is limited information regarding the imaging characteristics of tumor extension to the parametria in cervical cancer patients with full thickness stromal invasion. MRI evaluation of parametrial status, which is important for the selection of optimal treatment, is more common in this group of patients and quite difficult to evaluate.

Purpose: To record the T2 appearance of the cervical rim in cervical cancer patients with histologically confirmed full thickness stromal invasion in order to identify signs predictive of parametrial involvement.

Materials and Methods: During a 5-year period, 26 /115 patients surgically treated for early (FIGO<IIB) cervical cancer had full thickness stromal invasion on surgicopathological examination; 13/26 patients had parametrial invasion on histology. All patients were evaluated with pelvic MRI prior to surgery. Two expert radiologists retrospectively reviewed all T2-W MR images and the following imaging characteristics for each side of the cervical rim were recorded: complete loss of the hypointense rim, diffuse signal inhomogeneity, shaggy inner rim border, presence of small focal disruptions and

peritumoral fat stranding. The above signs were analyzed alone or in combination for possible correlation with parametrial involvement.

Results: Diffuse signal inhomogeneity of the cervical rim (RT side: 66.7%, LT side: 64.3%), shaggy inner cervical rim border (RT side: 66.7%, LT side: 61.9%) and small focal disruptions (RT side: 47.1%, LT side: 45%) were the most frequently observed T2 imaging features of full cervical stromal invasion. Peritumoral fat stranding was the only feature significantly associated with tumor parametrial extension. Complete loss of the low signal cervical rim was observed only in one third of the cases with parametrial involvement. In a small number of cases (n=4) the cervical rim appeared intact.

Conclusion: T2 features of full thickness stromal invasion from cervical cancer vary. Peritumoral fat stranding seems to be highly suggestive of extension of tumor to the parametrial fat in these patients.

OP22

EVALUATION OF LIKERT AND PI-RADS V2 SCORING IN THE DIAGNOSIS OF PROSTATE CANCER

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Introduction: Prostate cancer is the most frequent malignancy of male population and early diagnosis is essential for proper treatment. Recently, multiparametric prostate MRI (mpMRI) with different scoring systems is used in the evaluation.

Purpose: The aim of this study is to compare the inter- and intra-reader reliabilities of PI-RADS v2 and Likert scales and to assess the performance of 1.5 T MRI without endorectal coil in the diagnosis of prostate cancer.

Materials and Methods: MRI of 53 patients who had histopathologic diagnosis of prostate cancer and 51 patients who had one or more negative TRUS guided prostate biopsy were included. Three independent observers blinded to histopathologic results evaluated the images. Intra-observer and inter-observer variabilities were calculated. A final score for Likert and PI-RADS v2 were determined for each patient with the agreement of observers and sensitivity and specificity were calculated.

Results: Kappa values of 0,59-0,71 for intra-observer and 0,48-0,67 for inter-observer variability for 4 or higher PI-RADS v2 and 0,54-0,69 for intra-reader and 0,42-0,75 for inter-reader variability were obtained for 4 or higher Likert scores. Sensitivity and specificity were %74.5 and %71.7 for PI-RADS v2 and %72.5 and %69,8 for Likert scoring, respectively.

Conclusion: PI-RADS v2 and Likert scoring both have moderate inter- and intra-observer agreement. Diagnostic accuracy of PI-RADS v2 is better than Likert scoring system. mpMRI without endorectal coil can be useful with 1,5 T MRI systems in the diagnosis of prostate cancer.

OP23

SHEAR WAVE ELASTOSONOGRAPHY FINDINGS OF TESTICLES IN CHRONIC KIDNEY DISEASE PATIENTS WHO UNDERGO HEMODIALYSIS

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Introduction: Chronic kidney disease (CKD) is known to cause significant deterioration in the function of testicles and sexual dysfunction in male patients who undergo hemodialysis.

Purpose: The aim of this study was to show the changes in testicles which occur due to hypogonadism secondary to CKD and to analyse the elasticity in paranchyme by shear wave elastosonography.

Materials and Methods: We studied 28 male patients who undergo dialysis three times a week and 25 healthy volunteers. First B mode ultrasonographic evaluation was performed in both testicles for structural analysis and the presence of focal lesions. Afterwards the stiffness of the paranchyme was evaluated by shear wave elastosonography in terms of kiloPascal.

Results: CKD group had lower right, left and mean testicular volume ($p < 0,001$). CKD group also showed stiffer right, left and mean testicular parenchyme values ($p < 0,001$).

Conclusion: CKD patients who undergo hemodialysis demonstrate significant changes in testicular size and stiffness compared to healthy volunteers.

OP24

IS NORMAL TESTES ASYMMETRY RELATED TO DIFFERENCES OF APPARENT DIFFUSION COEFFICIENT AND MAGNETIZATION TRANSFER RATIO?

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Introduction: In humans, the left testis generally hangs lower than the right and the right testis is larger than the left. Magnetic resonance imaging (MRI) represents an important adjuvant modality in the investigation of testicular pathology.

Purpose: The aim of this retrospective study was to assess if normal testes asymmetry is related to the measurement of apparent diffusion coefficient (ADC) and magnetization transfer ratio (MTR).

Materials and Methods: The study cohort included normal testes from 106 men. MRI examinations were performed on a 1.5 T system. Testicular volume (TV) was calculated by using the ellipsoid formula: length × width × height × 0.52, based on measurements on conventional T2WI. Diffusion-weighted imaging was performed using a single shot, multi-slice spin-echo planar diffusion pulse sequence and b -values of 0 and 900 s/mm⁻². Magnetization transfer imaging was obtained using a three-dimensional gradient-echo sequence both with and without an off-resonance radiofrequency pulse. Magnetization

transfer ratio (MTR) maps were obtained by the following formula: $(S_{lo}-S_{lm})/(S_{lo}) \times 100\%$, where S_{lo} and S_{lm} represent the signal intensity in the baseline image and that in the corresponding image acquired with an off-resonance MT pulse, respectively. The mean and standard deviation of TV, ADC and MTR of right and left testis was calculated for each participant and compared using a paired sample *t*-test.

Results: The mean TV was 16.77 ± 4.84 ml for right testis and 15.97 ± 4.45 ml for left testis, and that of the right testis was greater ($P=0.006$) than that of the left testis. ADC of the right testis ($1.09 \pm 0.12 \times 10^{-3} \text{ mm}^2 \text{ s}^{-1}$) was not different ($P=0.064$) from that of the left testis ($1.07 \pm 0.12 \times 10^{-3} \text{ mm}^2 \text{ s}^{-1}$). Differences ($P=0.032$) were observed between MTR of the right ($46.6 \pm 2.1\%$) and left testis ($46.0 \pm 2.2\%$).

Conclusions: Genital asymmetry defined by differences in paired testes size might also include a structural and functional asymmetry, based on differences of MTR between right and left testis.

OP25

IMAGING IN ASSESSING HARMFUL EFFECTS ON SPERMATOGENESIS IN ADULT TESTES WITH VARICOCELE

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Introduction: Varicocele is one of the main causes of male infertility. However, many controversies exist regarding the effect of varicocele on male infertility and whether repair leads to improvement of the fertility status. A non-invasive imaging technique providing answers to questions regarding which patients with varicocele are at risk for infertility and which will benefit after varicocele repair would be extremely useful.

Purpose: The aim of this study was to review the available literature on the possible role of imaging in assessing harmful effects on spermatogenesis in adult testes with varicocele.

Materials and Methods: A search for original articles published before May 2016 using the Pubmed and Medline databases was performed. Key words used were 'varicocele', 'varicocelectomy', 'testicular ultrasound', 'color Doppler sonography', 'testicular blood flow', 'resistive index', 'contrast-enhanced sonography', 'elastography', 'magnetic resonance imaging', and 'diffusion-weighted'.

Results: Testicular arterial blood flow assessed by color Doppler Sonography was found significantly reduced in men with varicocele, reflecting an impairment of spermatogenesis. Improvement of testicular blood supply was found after varicocelectomy on spectral Doppler analysis. Testicular contrast harmonic imaging and elastography provide information on the influence of varicocele on intratesticular microcirculation and tissue stiffness, respectively. Magnetic resonance imaging with measurement of apparent diffusion coefficient may be used to assess the degree of testicular dysfunction and also evaluate the effectiveness of varicocele repair.

Conclusions: Non-invasive imaging modalities, including sonography and MRI might provide useful information on early damage of testicular function by varicoceles.

ABDOMINAL IMAGING AND EMERGENCY RADIOLOGY

OP26

CONTRAST ENHANCED ULTRASOUND SHOULD BE USED ROUTINELY FOR THE DETECTION OF HEPATIC METASTASES, AS IT DETECTS MORE LESIONS IN COMPARISON TO BASELINE SCANNING.

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Introduction: Baseline unenhanced ultrasound (US) is inadequate for detecting liver metastases. Contrast enhanced ultrasound (CEUS) is useful for improving US results.

Purpose: To evaluate CEUS ability for improving liver metastases detection compared to US.

Materials and Methods: Prospective study of 91 patients (52 men-39 women, aged 22-88 years) with known extrahepatic malignancy, imaged for excluding liver metastases. All patients were scanned with US and CEUS. All patients were also imaged with either abdominal computed tomography (CT-29 patients) or magnetic resonance (MR-26), or both CT and MR (36). In addition, 11 patients were also scanned with PET-CT. CEUS was performed for one of the following indications: 1. Suspicion of hepatic metastases on baseline US-2. Hepatic intensely inhomogeneous echogenicity, but no definitive lesion on US-3. Focal liver lesion on CT/MR/PET-CT, but no definitive lesion on US. CEUS findings were compared to those of US for the ability of detecting metastases. CT/MR/PET-CT were used as reference standard modalities.

Results: One or more liver metastases were detected in 26/91 patients on baseline US and 57/91 on CEUS. CEUS showed statistically significantly more metastases ($p < 0.0001$, two tailed Fisher's exact test) than baseline US. In all 57 patients, findings were confirmed by at least one of the three additional imaging modalities (CT, MR, PET-CT).

Conclusion: CEUS detected more liver metastases in comparison to baseline US in patients with known extrahepatic malignancies, thus increasing the diagnostic performance of US altogether. CEUS could be useful if used routinely in patients with a known extrahepatic malignancy in order to rule out liver metastases.

OP27

ULTRASOUND FINDINGS IN PATIENTS WITH MALARIA in Bangui – Central African Republic

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Introduction: Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes. The highest incidence is in the tropics of Africa.

Purpose: This is a study done in SRB MED MINUSCA Military Hospital Level II in Bangui Central African Republic, from Jun 25 to October 10 2015.

Material and Methods: Total of 392 patients (275 malaria verified, and 117 malaria presumptive) is sent to the ultrasound examination of the abdomen and pelvis. In 96 complicated cases of malaria (24,5%) in all cases(100%) was found hepatomegaly and splenomegaly. In 8 cases (8%) were changes in the kidneys consistent with nephritis. Ascites was present in 12 cases (12,5%) and 2 cases (2%) had pleural effusion. In uncomplicated 179 patients, and 117 patients suspected of malaria 164 (55,4%) had splenomegaly, 59 (20%) hepatomegaly, 3 (1%) had changes of kidney, there was no ascites and pleural effusions.

Conclusion: Ultrasound examination is very important in the process of detection, treatment and monitoring treatment effects in patients with malaria.

OP28

TORSION OF SMALL BOWEL MESENTERY AND OMENTUM IN THE ADULT

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Introduction: Mesenteric and omental torsion could be the result of diverse disease entities of intestinal, mesenteric and omental pathology. All of them have in common a quite similar clinical presentation in the form of acute abdomen and a strong probability to vascular compromise and ischemia leading to intestinal, mesenteric or omental infarction and necrosis. Some of them, such as closed-loop obstruction, small bowel (SB) obstruction related to congenital anomalies of intestinal rotation and complicated hernias represent real abdominal emergencies requiring an early diagnosis for prompt surgical intervention. Others, such as omental torsion, epiploic appendagitis, or incomplete closed-loop obstruction, may resolve spontaneously and timely recognized, can help avoiding unnecessary surgery.

Purpose: This review focuses on the main characteristic imaging findings of mesenteric and omental torsion in the adult as well as on findings of complications related to mesenteric, omental and intestinal ischemia in order to familiarize radiologists with the cardinal signs of these potentially catastrophic abdominal emergencies.

Materials and methods: We present our experience with torsion in adult patients admitted to our hospital with acute abdominal pain. All patients were scanned with computed tomography (CT) at initial presentation and as follow-up. For a better understanding of these findings, some pertinent pathophysiologic considerations are also presented.

Results and conclusion: Omental and mesenteric torsion and the potentially resulting ischemia may present with characteristic CT features. Acquaintance with these findings is necessary in the emergency setting for prompt diagnosis and management of patients with acute abdominal pain.

OP29

INVESTIGATION OF GI BLEEDING WITH CT ANGIOGRAPHY

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Introduction: Gastrointestinal (GI) bleeding is a common major medical emergency and an important cause of morbidity and mortality, defined as upper and lower depending on its localization, proximal or distal to the ligament of Treitz. Endoscopy is usually successful in the management of upper GI bleeding whereas CTA is the main diagnostic method for the management of lower GI bleeding.

Purpose: We present the imaging findings in 51 patients with GI bleeding and underline the diagnostic role of CTA in the management of these patients.

Materials and Methods: A total of 51 patients with a history of acute GI bleeding underwent CT angiography the last 4,5 years in our department. Half of the patients were on antiplatelet/anticoagulant therapy.

Results: Positive CTA findings were detected in 42/51 patients. The findings included the presence of contrast extravasation and the identification of the underlying cause. Active bleeding was found in 22/51 patients while in 11/22 the underlying cause was also recognized. The underlying cause with no active bleeding was identified in 20/51 patients. In our study, the main causes of GI bleeding were colonic diverticulas, arteriovenous malformations, tumors and ischemic colitis. No abnormalities were found in 9 of the patients with GI bleeding. The majority of the patients who were treated as emergencies had positive CTA findings.

Conclusion: CTA is a reliable method of identifying the source and causes of GI bleeding and is instrumental to guide management of these patients.

OP30

MR DEFECOGRAPHY FINDINGS IN PELVIC FLOOR PATHOLOGIES

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Objective: The main of this study was to detect, classify and grade existence of the pathology found through MR Defecography (MRD) in patients who were thought to have pelvic floor disfunction.

Materials and Methods: 39 patients with problems like constipation, fecal incontinence were involved in the study. Images were obtained in supine position with 1.5 Tesla closed MRI system device. The images were examined by two experienced radiologists by forming MRD protocol. MRD images included dynamic images involving axial static and midsagittal rest, squeezing, straining, defecation phases. The images were evaluated in terms of the presence and grade of cystocele, rectocele, enterocele, intussusception, paradox contraction, urethral hypermobility, and the vaginal and rectal descent based on PCL, H and M reference lines defined in literature.



Results: Pelvis diameter, cystocele and rectocele were higher in females compared to males. In dynamic images, 29 patients out of 39 were able to defecate, and there were identification of rectal intussusception in 12.8%, urethral hypermobility in 30.8%, paradox contraction in 7.7%, cystocele in 30.8% anterior rectocele in 38.5%, uterovaginal prolapse in 7.7%, enterocele in 15.4% and posterior compartment descent in 53.8%. Presence and grade of pathology in defecation phase was higher than the one in straining phase when the phases were compared.

Conclusion: MRD is a method which can be applied easily to diagnose pelvic floor dysfunction and to follow-up after the treatment. In addition to the open MRI system, defecation phase can also be applied in supine position in closed MRI system devices and the defecation phase is the most sensitive phase to show the presence and degree of pathology. MRD can detect pathology related to pelvic floor with a high rate of accuracy.

OP31

EVALUATION OF REFERRED RADIOGRAPHS IN AN EMERGENCY DEPARTMENT

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Introduction: Crowding at the Radiology Lab of a Hospital's Emergency Department (ED) is a well-known situation which is thought to be attributed to the excessive amount of radiographs the non-urgent patients are referred for.

Purpose: The scope of this research was to register and study the non-urgent patients in association with the dose and the radiological findings of their radiographs.

Materials and Methods: Patients' data were recorded for non-urgent ambulatory adult patients who were referred for x-rays in a Greek Hospital's Radiology ED. Each patient's adsorbed dose was calculated.

Results: Data were collected for 400 non-urgent patients. A total number of 732 radiographs were taken. The majority were chest, abdomen and knee. There were no radiological findings in 78% of the radiographs. Lower limb injuries were the most frequent referrals with the highest number of x-rays per patient and the lowest percentage of positive findings. Abdominal pain patients had the highest doses and there was statistical difference between the number of radiographs referred and the referring specialty. Cervical/low-back pain had the highest percentage of positive findings with the onset of symptoms being more than a week before.

Conclusion: The number of radiographs could be reduced in the cases of lower limb injuries, abdominal pain and cervical/low-back pain ED ambulatory patients after a more detailed clinical evaluation and implementation of referral criteria for decreasing dose, crowding and cost in the ED.

OP32

PERFORMANCE OF EMERGENCY CONTRAST ENHANCED ULTRASOUND. REVIEW OF A 6 YEAR EXPERIENCE

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Introduction: Besides scheduled examinations, Contrast Enhanced Ultrasound (CEUS) is often used under emergency conditions.

Purpose: To evaluate CEUS emergency performance.

Materials and Methods: 187 patients scanned with emergency CEUS between 2011 and 2016, with intravenous injection of US contrast agent for blunt abdominal trauma (111), splenic/renal/liver infarcts (19), carotid artery obstruction/dissection (12), testicular pain (11), abdominal vessel emergencies (thrombosis, aneurysm endoleak, obstruction: 11), gallbladder pathology (cholecystitis, haemobilia: 10), extremity vessels obstruction-thrombosis (8), penis trauma (2), appendicitis (1). 2 patients were examined with intravesical injection for urinary bladder rupture. Time needed for CEUS was noted. CEUS results were studied to evaluate its ability for emergency diagnosis.

Results: Time for CEUS (excluding baseline scan): 9-23 min (median 13.6 min). CEUS imaged abdominal trauma in 71/111 patients, injuries confirmed by CT in 59. Infarcts were seen in 13 abdominal organs. 4 carotid obstructions on baseline US were confirmed on CEUS; 1 dissection seen on CEUS was confirmed on angiography. In all scrotal-penis cases CEUS confirmed baseline US diagnosis. IVC thrombosis was noted in 2 cases. In 1 case aortic stent endoleak-extravasation was diagnosed. 4 patients showed gallbladder pathology (rupture, wall abscess, polyp haemorrhage). Extremity vessel obstruction was noted in 3 cases. 1 patient showed an appendiceal abscess and 2 patients urinary bladder rupture. Altogether, CEUS elucidated or increased baseline US confidence in 131 patients. CEUS set a new diagnosis in 48 cases. In 8 cases CEUS was not diagnostic.

Conclusion: In 179/187 (95.7%) cases CEUS was useful in detecting emergency pathology quickly, increasing baseline US confidence or revealing new findings.

PAEDIATRIC IMAGING

OP33

SURVEY OF PRACTICE AND POTENTIAL FOR OPTIMISATION OF PAEDIATRIC CT ANGIOGRAPHY EXAMINATIONS. PRELIMINARY RESULTS

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Introduction: CT angiography (CTA) is able to provide excellent vascular diagnosis for paediatric patients with congenital heart diseases and clarification of the cause of secondary hypertension. This examination is important in cases of evaluation of patient's pathology, for the purposes of the interventional and surgery planning and postoperative

assessment. The image quality and the radiation dose from such examinations are of a big concern. There are various strategies for optimising the radiation dose from CTA, including new approaches of the modern technologies, new software solutions, low kV values, tube current modulation and etc.

Purpose: The purpose of this study was to survey the important aspects of paediatric radiological practice and patient doses from CTA examinations, performed in one hospital, and to apply a team approach between cardiologist, radiologist, medical physicist and radiographer, for the development of clinical protocol for children.

Materials and methods: The paediatric patients attend general radiology departments, because there is no paediatric dedicated radiology department in Bulgaria. The departments perform few CT examinations on children, and as a result optimisation is challenging but important issue.

Image quality is of a great importance for clinicians and both dose and image quality has been defined by a radiologist and a medical physicist. For each patient, image quality has been scored by one experienced radiologist and two resident radiologists applying 4-grade scale and image quality criteria. Patient dose was defined in terms of $CTDI_{vol}$, DLP and effective dose. Effective dose was estimated from DLP, multiplied by a conversion factor. A CT-expo software was also used.

Results and conclusion: The collected data provided preliminary information on how the radiology practice in paediatric CTA could be optimised and patient doses reduced. Recommendations were given based on the findings and corrective actions have been applied.

OP34

FUNCTIONAL AND STRUCTURAL CONNECTIVITY IN PRETERM INFANTS: THE RELATIONSHIP WITH CLINICAL MEASURES

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Introduction: Prematurity may affect normal brain maturation and MRI indices related with functional (FC) and structural connectivity (SC) might be useful to monitor developmental progress.

Purpose: To evaluate the relationship between FC and SC indices and clinical measures reflecting brain maturation process.

Materials and Methods: Forty very premature infants {gestational age (GA) <33 weeks} were examined at term equivalent age (TEA). The MRI protocol consisted of conventional MRI, resting state functional MRI (rsfMRI) and DTI. Eighteen infants with normal brain on conventional sequences were evaluated with rsfMRI and DTI. We examined FC using MVPA analysis and SC using TBSS analysis and probabilistic tractography from the medial prefrontal cortex (MPFC). Fractional anisotropy (FA) and connectivity distribution values were correlated with GA, body weight at birth (bBW), head circumference at birth (bHC),

body weight at term equivalent age (tBW) and head circumference at term equivalent age (tHC).

Results: FC analysis resulted in positive association between GA and the connection of an area in the medial orbitofrontal cortex with the rest of the brain. SC analysis highlighted positive association between tHC and FA or the connectivity distribution values of the inferior frontooccipital fasciculus (IFOF). Finally tBW appeared to be the only independent predictor of the mean value of the connectivity distribution maps from the MPFC.

Conclusion: GA and tBW are important factors for monitoring FC and SC of the MPFC with the rest of the brain in premature infants. Maturation of IFOF, a tract associated with the MPFC, follows increase of tHC.

OP35

EVALUATION OF MEDIASTINAL AND HILAR LYMPH NODES BY USING MULTIDETECTOR COMPUTED TOMOGRAPHY IMAGES IN HEALTHY PEDIATRIC POPULATION

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Introduction: Visible mediastinal and hilar lymph nodes are more common than the past due to increasing diagnostic examinations.

Purpose: As there is not enough study have been published about pediatric chest CT mediastinal and hilar lymph nodes, we need to investigate the lymph node distribution and to compare the diameters among the age groups.

Materials and Methods: Chest CT scans using 1mm collimation on MDCT scanners with intravenous contrast material to the 150 patients aged 0-24, 25-60, 61-120, 121-180 and 181-216 months were performed. We documented the lymph node short and long axis, age groups, distribution of the lymph nodes. Spearman correlation analysis was used in correlation analysis.

Results: The mean ages were 11.53 ± 10.1 , 39.4 ± 11.1 , 84 ± 15.9 , 154.9 ± 17.6 , 190 ± 9.3 months in group 1, 2, 3, 4, 5. The most frequent regions with visible lymph nodes were subcarinal (64%), right lower paratracheal (57%), right tracheobroncheal (56%), right upper paratracheal (49%) and left tracheobroncheal (39%) regions. The maximum values of short and long axis were 4, 6, 6, 8, 8mm and 9, 12, 11, 13, 16mm for group 1, 2, 3, 4, 5 respectively. Both short and long axis of lymph nodes in highest mediastinal, prevascular, subcarinal, right and left paratracheal and right and left tracheobroncheal regions were correlated with the age ($p < 0,05$).

Conclusion: A lymph node larger than 6×11 mm in a child younger than 5 years-old and a lymph node larger than 8×12 mm in older than 10 years old children must be managed carefully.

OP36

USFULNESS OF CONTRAST-ENHANCED VOIDING UROSONOGRAPHY IN IMAGING THE URETHRA OF CHILDREN

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Introduction: Contrast-enhanced Voiding-Urosonography (ce-VUS) is a reliable method for Vesicoureteral-Reflux (VUR) detection. However, it is not yet a well-established method for urethral imaging.

Purpose: To assess the usefulness of ce-VUS in urethral imaging.

Patients and Methods: In the last 2 years the urethra of 363 children (254 boys, 109 girls, mean-age 2.2 years) was examined during voiding-phase of ce-VUS performed for UTI, or prenatal hydronephrosis. The US examination was performed with contrast-specific software after bladder-filling with 0.5ml of a 2nd generation Ultrasound contrast-agent (Sonovue) diluted in 250ml of normal saline. The width of posterior and anterior urethra was measured and the continuous free flow of contrast through the urethra was evaluated and recorded in video-clips and still images during voiding.

Results: Urethra was imaged in 351/363 children who managed to void (97%). The rest 12/363 children did not void and excluded from the study (4 boys, 8 girls). The urethra appeared normal in 347(99%) children (240 boys, 97 girls) and abnormal in 4 (2 boys, 2 girls). Posterior urethral valves (PUV) and post-injury membranous-urethral stricture were diagnosed in 1 boy each and verified by cystoscopy. "Spinning-top urethra" was diagnosed in 2 girls with dysfunctional voiding (detrusor sphincter dyssynergia) and verified by urodynamics. Mean posterior- and anterior-urethral width measured 5.3mm and 4.4mm in normal urethra and 14mm and 4mm in abnormal male-urethra respectively. All children with normal urethra on US imaging were clinically followed-up for 6 to 30 months and remained well.

Conclusion: ce-VUS is a useful method for urethral imaging in boys and girls and it could be used as a first-line radiation-free method to detect reflux and urethral pathology in both sexes.

OP37

EVALUATION OF POSTOPERATIVE UNDESCENDED TESTICLES USING POINT SHEARWAVE ELASTOGRAPHY IN CHILDREN

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Introduction: Undescended testicles are one of the foremost pediatric genital pathologies requiring surgical correction. Histopathological degeneration and atrophy can also develop in undescended testicles. Virtual Touch Quantification (VTQ) is a point shear wave elastography (p-SWE) technique that allows quantitative assessment of tissues according to

their stiffness. To our knowledge, there is no study of p-SWE in the literature that differentiates postoperative undescended testicles from normal testes.

Purpose: To demonstrate the difference in tissue stiffness by comparing the value of the shear wave velocity (SWV) of postoperative undescended testicles with that of normal testes.

Materials and methods: This study included 39 patients and 30 healthy controls. US and p-SWE (VTQ) were performed using with a linear probe (4-9 MHz). Forty-seven operated undescended testicles comprised "Group A", and 27 testes with a normal scrotal placement "Group B". A total of 60 testes in 30 healthy controls were included as "Group C". Finally, the testes of Group A, B, C were statistically compared in terms of the SWV and volume.

Results: The shear wave values of the 47 testes in Group A were 0.75- 2.8 (median, 1.1) m/s, and the SWVs of the 27 testes in Group B were 0.62- 1.2 (median,0.84) m/s. The SWVs of the 60 testes in Group C were 0.65- 1 (median, 0.82) m/s. The testicular volumes of Group A ranged from 0.19-4.7 (median, 0.15) cm³, Group B ranged from 0.34-8 (median, 0.74) cm³ and Group C ranged as 0.4-15.5 (median, 0.91) cm³.

Conclusion: VTQ method of p-SWE is a new method that may reveal the difference in stiffness between scrotally placed testes and postoperative undescended testicles. SWV can be used a new parameter in the surveillance of postoperative testes besides testis volume.

OP38

AN EMPIRICAL STUDY ON THE REMEDIATION OF LANDSCAPE AND ECOSYSTEMS AFTER RADIATION ACCIDENTS AND RADIOLOGICAL INCIDENTS: SURVEY RESULTS FROM EUROPEAN AND INTERNATIONAL EXPERIENCE

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Introduction: Remediation of landscape and ecosystems contaminated with radionuclide by radiation accidents, radiological incidents and other past activities on European area (e.g. Chernobyl) but also on other areas of the planet (e.g. Fukushima). Is a serious issue with diverse and international dimensions requiring a resolution priority. Number of world points, after major nuclear disasters or accidents, which occurred in the 20th and 21st centuries, experienced, beyond the obvious and known effects, impacts also on the landscape and ecosystems, which are characterized by depopulation, disuse, decline, complete obsolescence, even after a long period of time.

Purpose: The contribution to the creation of a standard multicriteria remediation plan, resulting mainly from the analysis of the research questionnaire survey findings.

Materials and Methods: Literature Review Search of related international literature studies, Journal and conference proceedings articles and books, and web sources from international bodies web content. Based on this material we prepared a questionnaire that was answered by scientists and domain experts. The questionnaire investigates legal, social ethical and economic considerations/implication of remediation. The resulting set of questions attempts mainly to capture whenever possible root causes which may assist in the creation of a possible remediation plan which could provide solutions to future

occurrences of accidents such as Chernobil / Fukushima, and also to other possible incidents related to our research objectives.

Results: The exploration of the questionnaire answers and recommendations together with the statistical analysis of the exported data contributed to the development of a knowledge base for the future creation of a standard remediation plan.

Conclusion: Given the serious consequences by radiation accidents, radiological incidents and other past activities, and then study of literature sources including international organizations websites and using best practices we were able to draw conclusions from the questionnaire research, and succeeded in the creation of a knowledge base for the creation of a standard multicriteria remediation plan, to help resolve future accidents having similar characteristics.

OP39

MOLAR PREGNANCY-CASE REPORT: RADIOLOGIC FEATURES AND CLINICAL CORRELATION

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Introduction: Gestational trophoblastic disease (GTD) comprises a spectrum of disorders from the pre-malignant conditions (complete/partial hydatidiform moles) to malignant (invasive mole, choriocarcinoma, placental site trophoblastic tumour and epithelioid trophoblastic tumour). In Serbia there are no relevant data on its incidence. Benign forms are treated surgically, with follow up of bHCG level and fertility preservation in young women. In malignant forms, chemotherapy is treatment of choice, while surgery and irradiation are adjunct methods. Risk factors for GTD are the age (risk is 5 times higher in women over 40 and highly increased in women under 20) and history of molar pregnancy.

Case report: We present a case of a 19-year-old women referred to gynaecologist due to secondary amenorrhoea lasting for several weeks, stomach ache, nausea and non-specific vaginal bleeding. Due to indecisive ultrasound exam and pathological level of bHCG, she was referred to Oncology Institute. We performed native and contrast pelvic magnetic resonance (MR) on 3T MR unit. Distended cavum of uterus was filled with T1/T2 heterogenous mass, showing irregular postcontrast enhancement. Multiplanar thin slices and postcontrast images covering the region of interest showed small area of potential extension to myometrium. It suggested aggressive nature of the mass and made differential diagnosis towards choriocarcinoma difficult. The role of MR was crucial in staging of the disease. CT of the thorax and abdomen were normal. Explorative curettage was performed and pathohistological finding showed complete hydatidiform mole. Multidisciplinary team decided to introduce metotrexat and monitor bHCG. On 6, 18 and 24-months follow up MR scans we did not notice the signs of recurrent disease. Most of the affected women are cured with preserved fertility. MR is the imaging modality of choice in GTD that leads the clinical decision on the treatment regimen, in addition to clinical examination and bHCG level.

INTERVENTIONAL RADIOLOGY

OP40

ENDOVASCULAR TREATMENT WITH DRUG-COATED BALLOONS IN FEMOROPOPLITEAL ARTERY DISEASE

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Introduction: Percutaneous transluminal angioplasty (PTA) is the standard endovascular treatment in the femoropopliteal artery disease (FAD). However, PTA has high restenosis and target lesion revascularization (TLR) rates. Drug-covered balloons (DCB) deliver antiproliferative drugs to the arterial wall at the time of angioplasty. It is intended to inhibit intimal hyperplasia and reduce the rate of restenosis by using simultaneous antiproliferative drugs.

Purpose: In this study, we aimed to evaluate the one-year follow-up findings of endovascular treatment with DCB in FAD.

Materials and Methods: From June 2012 to March 2015, 43 patients were enrolled in the study. Twenty-eight patients, 31 limbs and 39 lesions were treated with PTA. Twenty-nine patients, 31 limbs and 47 lesions were treated with DCB. At 12 month, all patients were examined with magnetic resonance angiography.

Results: Primary patency was seen 47.4% of the treated lesions in the PTA group and 80.5% in the DCB group. There was statistically significant difference in primary patency between the groups ($p=0.011$). Freedom from TLR and restenosis through 12 months was higher in DCB group (log-rank $p=0.041$ and 0.009 respectively). Clinical improvement was seen 56.3% of the treated limbs in the PTA group and 83.9% in DCB group. There was no statistically significant difference in clinical improvement between the two groups ($p=0.075$). Freedom from clinical deterioration through 12 months was higher in DCB group (log-rank $p=0.027$).

Conclusion: DCB with low restenosis rate can be used safely for the endovascular treatment in FAD as an alternative of standard balloon.

OP41

CAROTID ARTERY STENTING WITH DISTAL EMBOLIC PROTECTION

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Introduction: Atherosclerotic stenosis of the internal carotid artery is the cause of 10-15% of all strokes. In recent years carotid artery stenting has emerged as quite good alternative to carotid endarterectomy. In this study we present our initial results in CAS with the use of distal embolic protection devices in 20 patients.

Material and methods: In the period from November 2015 - May 2016 at the department of Radiology, General City Hospital "8th September", Division of interventional Radiology,

20 CAS procedures were performed with use of filters for distal embolic protection. 13 male (65%) and 7 female (35%) patients, all with symptomatic stenosis of the carotid artery. 19 procedures were on the ICA and 1 of the CCA. All patients were previously prepared with dual antiplatelet therapy and statins.

Results: Carotid artery stenting was performed in 20 patients. In 19 cases we used 3 different types of filters for distal embolic protection and in 1 case we performed stenting without filter. All of the procedures were technically successful. 19 cases went without any 30 day procedure related complications. In 1 patient we had minor ischemic event immediately after the procedure proven with brain CT scan. The ischemic stroke was without any permanent neurologic deficit and patient was discharged home after 4 days hospital stay. All patients were symptomatic due to stenosis of the treated carotid artery. Stenosis varied from 50-99%. After the procedure we achieved complete revascularization in all cases.

Conclusion: According to our experience CAS is safe and minimally invasive procedure for treatment of symptomatic carotid artery stenosis. Use of protection devices is essential for preventing any distal embolization during the procedure. Of course the safety of the procedure is dependent on the experience of the operator.

OP42

CLINICAL EFFICACY AND SAFETY OF TRANSCATHETER EMBOLIZATION FOR VASCULAR COMPLICATIONS AFTER PERCUTANEOUS NEPHROLITHOTOMY

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Introduction: Hemorrhage is one of the most important complication after percutaneous nephrolithotomy which can usually be controlled with conservative treatment. But occasionally transcatheter embolization may be needed in patients with massive hemorrhage or continuous hematuria.

Purpose: We present our experience with the treatment of vascular complications observed after percutaneous nephrolithotomy

Materials and Methods: Data of 14 patients who were referred to our clinic due to post percutaneous nephrolithotomy hemorrhagic complications and treated by transcatheter embolization between the dates of 2004 and 2011 were retrospectively analysed. Angiography and subsequent transcatheter embolization were performed for the patients with bleeding who did not respond to conservative therapy.

Results: 14 of 1056 patients (1.3 %) (mean age: 41 years, range: 19-71) were performed angiography and subsequent transcatheter embolization for bleeding control. Mean duration from the onset of hemorrhage was 8.2 ± 2.3 days (range: 3-17). We identified 10 pseudoaneurysms, 3 arteriovenous fistula and 1 pseudoaneurysm combined arteriovenous fistula in 14 patients in the renal angiography. Embolization was successful for the affected vessels in 14 patients. As embolization material, metallic coil, glue and coil plus glue were used in 9, 3 and 2 patients respectively.

Conclusion: Severe hemorrhage is a rare complication of percutaneous nephrolithotomy and may be treated successfully by transcatheter embolization. Transcatheter embolization is an effective, minimally invasive and relatively easy procedure in experienced centers.

OP43

PACLITAXEL-COATED BALLOONS FOR THE TREATMENT OF DYSFUNCTIONAL DIALYSIS ACCESS. RESULTS FROM A RETROSPECTIVE ANALYSIS

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Introduction: Stenosis treatment in dysfunctional vascular access is a major concern for patients undergoing dialysis.

Purpose: To report 1-year results for safety and effectiveness of Lutonix® paclitaxel-coated balloon (PCB) in the treatment of the dysfunctional dialysis access (DA).

Materials and Methods: A retrospective analysis was performed of 45 patients treated with Lutonix® PCB due to dysfunctional DA. Thirty nine patients were eligible for analysis (23 male; 59%), to whom 69 Lutonix® PCBs were used during 61 interventions. In total, 20/39 (51.3%) patients treated had an arteriovenous fistula (AVF) and 19/39 (48.7%) an arteriovenous graft (AVG). Among treated lesions, 35,9% (14/39) were de novo. Mean balloon diameter was 6.59mm and length 73.41mm. Study's primary outcome was 6-month lesion primary patency (LPP). Secondary outcome included circuit primary patency, minor and major complications, factors affecting LPP while in re-interventions (25/59; 64.1%). A longitudinal analysis of LPP results between PCB and previous treatment was also applied.

Results: Six-month lesion primary patency was 75% while median survival was 260 days according to Kaplan-Meier analysis. There was no significant difference between AVF and AVG (AVF: 311days vs AVG: 237days, $p=0.29$; HR 0.655, CI 0.298-1.439), or between de novo lesions and re-interventions (De novo: 270.5days vs Re-interventions: 267.5days, $p=0.45$; HR 1.311, CI 0.595-2.888). A statistically significant difference was observed in lesion patency patients receiving multiple interventions in favor of the 2nd intervention (1st: 179.5days vs 2nd: 273.5days $p=0.032$; HR: 0.353 CI 0.136-0.915).

Conclusion: In this retrospective analysis PCBs had a comparable to literature LPP. Interestingly, lesion patency following re-intervention was significantly better than when treated for the first time.

OP44

PACLITAXEL-COATED BALLOON ANGIOPLASTY FOR THE TREATMENT OF SYMPTOMATIC CENTRAL VENOUS STENOSIS IN DIALYSIS ACCESS. A PROSPECTIVE RANDOMIZED CONTROL TRIAL

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Introduction: Central venous stenosis constitutes a serious problem in vascular access maintenance.

Purpose: To report the results from a prospective single-center randomized trial comparing paclitaxel-coated balloon (PCB) versus plain balloon angioplasty (PBA) for the treatment of symptomatic central venous stenosis in dialysis access.

Methods: From January 2014 to August 2015, 40 patients with a dysfunctional dialysis access due to symptomatic central venous stenosis were randomized (1:1) to undergo angioplasty either with a PBA (group PBA, n=20) or 2µg/mm² PCB (group PCB, n=20). Both de novo and restenotic lesions [15/20; (75%) group PCB and 12/20; (60%) group PTA] were included. Primary endpoints were technical success and lesion primary patency (LPP) while secondary endpoints included complication rates and factors affecting LPP. In restenotic lesions in group PCB a separate subgroup longitudinal analysis was performed to compare present with previous treatment (PBA).

Results: Target lesion primary patency was significantly better in PCB group (Group PCB: 179 days vs. Group PBA: 124.5 days, p=0.026; HR 0.445 CI: 0.217-0.909). There was no significant difference between AVGs and AVFs (p=0.17), treatment of de novo and restenotic lesions (p=0.33) or prior presence of catheter insertion (p=0.21). No minor or major complications were observed. Longitudinal comparison between treatments also showed a significant difference in favor of PCB treatment (177 vs. 91days, p=0.01; HR 2.955, CI 1.292-6.760).

Conclusion: In this prospective trial, PCB had significantly better results compared with PBA for the treatment of central venous stenosis of dysfunctional dialysis access. Interestingly, longitudinal comparison of treatments in the same patients also showed a significant difference in favor of PCBs.

OP45

TRANSARTERIAL CHEMOEMBOLIZATION (TACE) IN PRIMARY LIVER TUMORS, OUR EXPERIENCES

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Introduction: Transarterial chemoembolization in liver tumors is an established interventional procedure which has important role in the treatment of unresectable hepatocellular carcinoma. In this study we want to present the procedure as well as to

show its efficiency through our case experience in the period from November 2015-May 2016.

Material and methods: In the period from November 2015 - May 2016 at the department of Radiology, General City Hospital "8th September", Division of interventional Radiology, 13 chemoembolizations were made in 10 patients with known primary hepatocellular carcinoma. 1 patient received 3 treatments, the other received 2 treatments. In each case TACE with drug-eluting beads was performed with combination of 75-150mg of Doxorubicin mixed with PEG particles of 50-400microns length. Maximal degree of necrosis and devascularisation of the tumor is attempted in each session.

Results: Our study includes 10 patients with primary HCC in which 13 chemoembolizations were performed. All the patients are in intermediate stage of the disease, according to the BCLC criteria and are previously declared not suitable for surgery. Patients are evaluated by a team of: oncologist, gastroenterohepatologist, surgeon and interventional radiologist and decision for performing TACE is made. The age of the patients ranges from 42-77 years, 5 male and 5 female. In every case pre and post interventional liver imaging studies are made (MDCT or MRI) with arterial and portalvenous phase included for follow-up and evaluation of the treatment efficacy.

Conclusion: According to our experience, transarterial chemoembolization with drug-eluting beads in patients with primary HCC in intermediate stage of the disease is an effective and safe interventional procedure. Regression of the tumor viability and size is achieved by making necrosis of tumor and injecting chemotherapeutic agent directly into the feeding arteries.

OP46

CT GUIDED RF ABLATION OF OSTEIOD OSTEOMAS: SINGLE CENTER EXPERIENCE Karaman Bulent¹, Akyildiz Faruk², Akar Ali¹, Hamcan Salih¹, Tasar Mustafa¹, Asaf Abduramani

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Introduction: Osteoid osteomas (OOs) are benign and painful lesions with specific CT appearance. Surgical excision of the nidus is curative and up to now it was the preferred treatment. But surgery has many disadvantages especially the difficulty of locating the lesion at intraoperative period. Radiofrequency (RF) ablation is a new and challenging way to treat OOs in recent years.

Purpose: The purpose of the presentation is to evaluate and demonstrate the safety and efficacy of CT guided RF ablation in the treatment of OOs. In the presentation we demonstrate entry images of the needles at different locations. We have demonstrated our experience at the locations that are close to vascular structures and nerves.

Material and methods: We retrospectively evaluated 14 patients results suffering from pain due to OOs treated with CT guided RF ablation. Distinctively from the literature spinal anesthesia was used instead of general anesthesia at all patients. First the nidus was localized and 13 or 14 G drill was introduced through a 7 F introducer sheath. A 16 G RF probe with an adjustable active tip was inserted through the sheath. RF ablation time and temperature was adjusted according to size and location of the lesions.



Results: All patients were successfully treated with RF ablation. Only one patient has a recurrent pain after 3 months. One patient has a minimal skin erythema. A drop foot was emerged at a patient having an OO at fibular head that is so close to peroneal nerve.

Conclusion: CT guide percutaneous RF ablation is safe, easy, fast and effective method for OOs treatment. Caution must be taken for the lesions that are close to vascular structures and nerves.

MUSCULOSCELETAL AND BREAST IMAGING

OP47

ULTRASONOGRAPHIC EVALUATION OF THE POSTEROLATERAL RADIOHUMERAL PLICA IN ASYMPTOMATIC INDIVIDUALS AND PATIENTS WITH OSTEOARTHRITIS

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Introduction: The radiohumeral (RH) plica is a synovial fold that is located peripherally to the humeroradial joint and protrudes into joint space.

Purpose: The aim of the study is to describe the morphological features of the posterolateral RH plica in asymptomatic individuals and patients with elbow osteoarthritis using ultrasonography (US).

Material and Methods: The control group included a total of 100 asymptomatic elbows and the study group consisted of 22 elbows with osteoarthritis confirmed by imaging methods. The presence dimensions, cross sectional area, shape, and echogenicity of the plica were evaluated in both groups. In addition, humeral and radial cartilage thicknesses were also measured. The radiographic degree of osteoarthritis in the study group was also evaluated.

Results: The posterolateral RH plica was present in all elbows of the control group (100%) and in 15 (68%) of elbows in the study group ($p < 0.05$). All sizes and cross sectional area of the plica were statistically significantly lower in the elbows of the study group ($p < 0.05$ and $p < 0.001$, respectively). The detected plicae were triangularly shaped in both groups. The plica was hyperechoic in 95 elbows (95%) in the control group and 7 osteoarthritis elbows (46.7%) ($p < 0.001$). The thicknesses of radial and humeral cartilage were also significantly higher in the control group ($p < 0.001$). There were no statistically significant relationships between the radiographic degree of osteoarthritis and US findings of the plica (all $p > 0.05$).

Conclusions: The posterolateral RH plica can be successfully evaluated using US. The osteoarthritis can cause the reduction in dimensions of RH plica and affect its morphological appearance.

OP48**SONOELASTOGRAPHIC ASSESSMENT OF THE GENDER RELATED CHANGES OF ACHILLES TENDON**Caglar Emrah, Oz Ibrahim Ilker

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Introduction: Achilles is the largest and the strongest tendon in the body; therefore it is an excellent site for the radiologic investigation. Elasticity of Achilles tendon provides the storage and release of elastic strain energy. Decrease of tendon elasticity is related with increased tendon injury. Previous studies report that tendon elasticity is decreasing with aging. Furthermore, men have a higher risk than woman of developing Achilles tendon rupture. Virtual touch tissue imaging quantification (VTIQ) is a new elastography technique. To improve examiner independency and reproducibility the tissue compression is automated in VTIQ. In our knowledge, there is no study to research the gender -related alterations in Achilles tendons using VTIQ

Purpose: The aim of our study was to investigate the gender-related alterations in Achilles tendons using VTIQ.

Materials and method: Forty-eight volunteers included the study. All volunteers were recruited from healthy adults between the ages of 20 and 25 years. The levels of physical activity were calculated with metabolic equivalents (MET) scores. Shear wave velocities (SWVs) of each tendon in the states of relaxation were measured using VTIQ technology. The middle section of the Achilles tendon was selected for measurement. Longitudinal images of each tendon were obtained by ultrasound and quantitative assessment of the tissue stiffness was made with VTIQ.

Results: There was no statistically significant difference between groups in terms of age, BMI and MET scores ($p>0.05$). The values of SWVs showed no statistically significant difference between male and female cohorts. These data showed that SWV values of Achilles tendon had no apparent correlation with gender.

Conclusion: The effect of gender on Achilles tendon elastic property is not a significant co-variable in young, healthy population. Muscle strength might play a more important role in Achilles tendon injury rather than tendon elasticity.

OP49**CT AND MR DIRECT ARTHROGRAPHY**Daliborka Maric, Dražen Kovačević, Dragana Jefić

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Introduction: CT and MR direct arthrography is imaging technique in which contrast material is injected through a thin needle directly into the joint space under the control of fluoroscopy or ultrasound. This outlines the soft tissue structures in the joint and makes them more visible on the images. This is followed by a [magnetic resonance imaging](#) (MRI) or [computed tomography](#) (CT) scan.

Purpose: Comparison of findings without and with direct administration of contrast agents into the joint space with arthroscopy as a gold standard in the evaluation of intraarticular structures of the joint.

Materials and Methods: CT arthrography is associated with ionizing radiation. At our institution, CT arthrography is routinely performed with intraarticular injection of nondiluted iodinated contrast material. Spiral CT is performed with 1- and 2-mm-thick sections (Somatom Sensation; Siemens, Erlangen, Germany). MR arthrography is limited in cases of postsurgical metallic artifacts, claustrophobia, and other general contraindications to the procedure.

MR arthrography is performed with injection of a mixture of gadolinium and saline solution (1:200 dilution) into the joint space under fluoroscopic control.

Results: Our initial results show that direct CT/ MR arthrography is particularly effective for detecting disease of the structures within the joints such as ligaments, tendons and cartilage. It is more sensitive and specific in the diagnosis of pathology of postoperative menisci.

Conclusion: Good cooperation with orthopedic surgeons directs the proper selection of diagnostic modalities with suspicion of certain pathological conditions. CT arthrography has benefits in patients with intra-articular pathology in which a MRI scan is contraindicated.

OP50

PREVALENCE OF EXTENSOR MECHANISM PATHOLOGIES ON KNEE MRI

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Introduction: Magnetic resonance (MR) imaging is a commonly used tool when evaluating patients with acute knee injury or chronic knee pain. Although it has shown excellent accuracy in diagnosing knee pathology, extensor mechanism usually remain neglected in daily practice.

Purpose: In this study; it was aimed to determine the prevalence of incidental extensor mechanisms pathologies of the knee and review MRI findings.

Material-Method: 448 patients which 231(52%) of them were males and 217(48%) of them were females who underwent knee MRI with knee pain or knee trauma between January 2014 and March 2014 were included into the study. The mean age of the patients was 42.9 ±14.

Results: Among acute traumatic pathologies, patellar fracture was seen in 1, quadriceps tendon rupture was seen in 1 and spontaneous relocation following patellar dislocation was seen in 1 patient. Of the chronic pathologies; patellar tendinosis was seen in 3(0.7%), Osgood-Schlatter disease was seen in 3(0.7%) and chondromalacia patella was seen in 119(27%) patients. In the assessment of patellofemoral instability measurements; increased TTO measurement was seen in 44(10%), increased trochlear groove angle in 257(57%), patella Alta in 4(0.9%), patella baja in 13(3%), lateral dislocation of the patella in 298(66%) and abnormal patellar tilt was seen 162(36%) patients. As regards the pathologies of the soft tissues; bursitis was seen in 13(3%) patients and Hoffa fat pad

compression syndrome was seen in 2(0.4%) patients. Furthermore, 4 patients (0.9%) had bipartite patella.

Conclusions: Contrary to the common belief, extensor mechanism injuries are frequent in patients that knee MR is performed. Knowing the normal MRI appearances of the extensor mechanism of the knee and its acute traumatic and chronic pathologies is important in explaining the symptoms of the patient and determining the therapeutical method.

OP51

THE ASSOCIATION BETWEEN MULTIPLE SCLEROSIS AND SPONDYLOSIS: WHEN AND WHY

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Introduction: Multiple Sclerosis (MS) and cervical spondylosis may coexist, especially to older patients, with sometimes overlapping symptoms. A few studies have reported on the association of MS with cervical spondylosis. A pathogenetic mechanism leading to the development of spondylosis in patients with MS has never been proposed.

Purpose: To evaluate risk factors for the development of cervical spine spondylosis (CSS) in patients with multiple sclerosis MS and to propose a pathogenetic mechanism.

Materials and Methods: Forty-two consecutive patients aged 23-66 years with MS were evaluated retrospectively; Clinical disability was evaluated with the expanded disability status scale (EDSS) and spasticity with the Asworth score. Total brain lesion volume (BLV), total grey matter (GM) volume and deep GM volume were evaluated on 3D, T1 weighted images using the SPM12 software package and the lesion segmentation tool. Saggital T2 weighted images were used to evaluate CSS and the spinal cord lesion load (SLL).

Results: All patients had spasticity. CSS was present in 28 patients (66.6%). Patients with CSS were younger (37.5 ± 11.1 years) than patients with a normal cervical spine (45.4 ± 8.6 years), $P=0.024$. Logistic regression analysis showed that age ($P=0.008$), EDSS ($P=0.045$) and BLV ($P=0.084$) were significant independent predictors of CSS. Younger age combined with worse EDSS and increased BLV predicted CSS.

Conclusions: Younger MS patients with increased BLV present a higher risk for the development of CSS. Spasticity induced by the brain lesions and abnormal expression of extracellular matrix proteins in the brain and the intervertebral disk constitute a possible pathogenetic mechanism.

OP52

THE ASSOCIATION OF REAL TIME SONOELASTOGRAPHY FINDINGS WITH DISEASE RELATED PARAMETERS IN PATIENTS WITH AXIAL SPONDYLOARTHRITIS

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Introduction: Real-time sonoelastography (SE) is a new ultrasound-based technique able to assess tissue elasticity. Using conventional ultrasound, it is sometimes difficult or even impossible to distinguish pathologic tissue because it often presents with the same echogenicity as the surrounding healthy tissue

Purpose: The aims of this study were to evaluate the real time sonoelastography findings of achilles tendon in axial spondyloarthritis (SpA) and to assess its' relationship with disease related parameters.

Methods: Sixty-four consecutive patients (37 men, 27 women; mean age, 39,7 years; range 20–65 years) with axial SpA and 30 sex and age-matched healthy controls were enrolled in the study. Disease activity was evaluated using the Bath Ankylosing Spondylitis Disease Activity Index (BASDAI), whereas functional capacity was evaluated using the Bath Ankylosing Spondylitis Functional Index (BASFI). Erythrocyte sedimentation rate (ESR), C-reactive protein (CRP), Spondyloarthritis Research Consortium of Canada (SPARCC) enthesitis index were recorded. Spinal pain intensity was evaluated visual analog scale (VAS). SE examinations of achilles tendons were performed for all participants and the strain ratio (SR) scores were measured.

Results: The mean right and left SR scores were significantly higher in axial SpA patients than in controls (2.96 ± 0.94 vs. 1.90 ± 0.45 ; $p < 0.001$; 2.95 ± 0.95 vs. 1.92 ± 0.48 , $p < 0.001$, respectively). There was no statistically difference in the left SR scores between groups ($p > 0.05$). In axial spondyloarthritis patients, both right and left SR scores were significantly correlated with BASDAI, BASFI, spinal VAS, and SPARCC enthesitis index, but not with ESR or CRP.

Conclusions: Axial SpA patients had an increased SR scores compared to healthy subjects and these values are associated with disease related parameters. Real time SE may be a usefull tool for the evaluation of achilles tendon pathologies.

OP53

BI RADS 4: CANCER OR NOT?

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Introduction: Breast cancer is the most common malignant tumor and leading cause of early death among women in Europe. Mammography screening has proven to be a useful method for early cancer detection.

Purpose: To analyse management of BI RADS 4 category assigned to women in National breast cancer screening program and review the results obtained by further diagnostic tests.

Material and methods: Retrospective study included 23 202 women aged 50-69 who underwent screening mammography programme in Vojvodina from 2013-2016. All mammograms were independently interpreted by two radiologists. Patients with BI RADS 4 findings were reviewed by a third, senior radiologist through consensus which in most cases included additional breast ultrasound examination. If BI RADS 4 category was confirmed at consensus, patients were appointed to either follow up mammography, breast MRI, core biopsy or VAB.

Results: Out of 23 202 women included in the National breast cancer screening program, 1.787 (7.7%) women were classified as BI RADS 4 category after the first and second reading. After consensus, BI RADS 4 category was confirmed at 583 (32.62%) women. 202 patients (34.65%) underwent breast MRI, which confirmed cancer in 64 patients. 238 women with BI RADS 4 findings underwent biopsy- 174 core and 64 vacuum assisted biopsy (VAB) were performed. Core biopsy confirmed malignancy in 67 cases (38.5%), while VAB confirmed 24 (37.5%) malignancies.

Conclusion: Management of BI RADS 4 category can be challenging, and requires specific diagnostic approach for each individual patient. All BI RADS 4 lesions require further diagnostic tests as FU mammography, breast MRI, CORE biopsy and VAB to confirm or exclude malignant lesion.

OP54

EFFECTIVENESS OF SONOELASTOGRAPHY IN DIFFERENTIAL DIAGNOSIS OF BENIGN AND MALIGNANT SOLID BREAST LESIONS

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Aim: In the current study, we aimed to evaluate effectiveness of ultrasonographic elastography in differential diagnosis of breast lesions which were detected by B-mode ultrasonography, in terms of being malignant and benign.

Material and method: A hundred and thirty-three patients in which lesion were detected with B-mode ultrasonography were included to the study. B-mode sonography and sonoelastography images were obtained for each lesion. The lesions were graded according to breast-imaging report and data systems (BIRADS) scoring with B-mode ultrasonography (US) and at the same sequence, colored coded maps which were obtained by elastography method were evaluated. The elasticity scores of the lesions were determined by using 5-number scoring method which is obtained by sonoelastography method. The findings were compared with histopathology. The diagnostic performance of sonoelastographic scoring and B-mode sonography methods were determined. The elasticity scores and strain ratio measurements were compared with histopathological results.

Results: The mean age was 40.8 ± 15.25 years. While histopathological diagnosis of 39 patients that were retrospectively evaluated within last two years were malignant, histopathological diagnosis was benign in 94 patients. Mean value of strain ratio of 133 patients was found as 4.419 ± 1.43 . According to this value, benign mass was detected in 94



patients and malignant mass was detected in 39 patients. ROC analysis was done for calculation of cut off value to differentiate benign and malignant breast tumors by considering strain ratio. According to the results of ROC analysis, cut off value for strain ratio was found as 4.95. According to this value, sensitivity was found as 97.4% and specificity was found as 86.2%. The area under curve was found as 0.9767 ± 0.011 according to the results of ROC analysis and there was statistically significant difference between the patients with benign and malignant breast disease in terms of strain ratio values ($p < 0.001$). According to cut off value of 4.95, positive predictive value was found as 74.5% and negative predictive value was found as 98.8%. The sensitivity was 89.1% and 97% in malignant and benign mass, respectively for B-mode sonography and it was 92.7% and 97% in malignant and benign mass, respectively for sonoelastographic scoring method.

Conclusion: Evaluation by using 5-number scoring that is obtained by sonoelastography method after B-mode sonography examination could be a complementary diagnostic method which increases specificity in differentiation of benign and malignant solid breast mass.



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ABSTRACTS – EPOSTERS

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PP001

HANDS POSITION IN THE RADIOTHERAPY OF BREAST CANCER

Keywords: chest movement, CBCT, IGRT and body markers

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Introduction: Verifying system like XVI (Elekta) or OBI (Varian) always has been used before a radiotherapy treatment of breast using IGRT. The chest is a mobile organ therefore it is necessary to pay attention not only on a tumor position, but on supraclavicular lymph nodes too. Hands position on the “wing board” fixation system has an especially big effect on it, because position of chest can have form of “convex” or “cavity”.

Purpose: Studied influence the hands position on chest position.

Methods: When patient holding hands in slightly relax position then the chest is going to posterior direction. We used data from MOSAIQ Record and Verify system and did mathematical calculations to verify these movements.

Results: We analyzed patient position with “wing board” fixation system. After mathematical calculations we saw, that most of our patients have Posterior shifts.

We checked Z-coordinate of the treatment table to study body markers positions and they were within the normal range – 1- 1,5 cm. The differences between CBCT shifts and Z position of the treatment table was 2,5 cm. And the dose from field distribution didn't change significantly – 1-2% according to our observations.

Conclusion: Monitoring hands position on “wing board” fixation system requires permanent observation because it do not have strong fixation of cubit and can influence on chest position. The dose distribution does not change significantly, but it can be a cause of early skin reaction in the supraclavicular lymph nodes area. The additional XVI (CBCT) images for supraclavicular lymph nodes are not necessary, because they increase the error of images matching.

PP003

PANCREATIC ADENOCARCINOMA IN EMERGENCY CENTER: HOW MANY PATIENTS ARRIVE ON TIME?

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Pancreatic adenocarcinoma is progressive malignancy witch rapidly metastasize, with poor prognosis and with 5-year survive rate less than 5%. Small number of pancreatic adenocarcinomas can undergo radical resection of the tumor and even then patients have 5-year survival rate of about 20%. Most patients visit a doctor when they have symptoms of advanced pancreatic tumor.

The purpose of our study was to investigate how many patiens with resectable pancreatic tumor were initially administered to emergency center, and using multidetector scanner (MDCT), to perform early tumor detection and accurate staging, considering TNM classifications and surgical criteria of resectability.

The study comprised 45 patients who were sent to emergency radiology department by on call surgeon due to suspected pancreatic lesion. All patients underwent multiphase abdominal imaging on MDCT. In all patients with detected pancreatic adenocarcinoma radiological staging was performed. In 3 patients there was no pancreatic tumor. About 71% (30/42) of patients were diagnosed with pancreatic tumor. In about 19% (8/42) patients' potentially resectable tumor of the pancreas was diagnosed.

MDCT have primary role in diagnosis and staging of patients with suspected pancreatic tumor and identification of patients who are still proper candidates for radical resection of the tumor and who have higher survival rate.

PP004

MULTIPARAMETRIC ULTRASOUND FINDINGS OF NEOPLASTIC THROMBUS IN INTERNAL JUGULAR VEIN

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Introduction: Venous thrombosis is a common complication in patients with malignancies. Differentiating bland from neoplastic thrombus is a crucial clinical question as it influences prognosis and management of these patients. Ultrasound is usually the first-line imaging modality for evaluation of venous thrombosis affecting various venous systems including the portal system, lower limb veins and the internal jugular vein. The term "multiparametric ultrasound" has been recently introduced to describe the combination of various ultrasonographic techniques to establish a diagnosis. These ultrasonographic techniques include B-mode, colour Doppler, power Doppler, spectral Doppler analysis, flow imaging techniques like X-flow and contrast enhanced ultrasound. The differential diagnosis of bland and neoplastic thrombus relies on ultrasonographic findings from various techniques.

Purpose The purpose of this e-poster is to present multiparametric ultrasound findings in a case of neoplastic thrombus of the internal jugular vein, with particular focus on the neovascularization of the thrombus on Doppler techniques, x-Flow and contrast-enhanced ultrasound.

Materials and Methods: A patient with history of pharyngeal cancer complicated by neck lymphadenopathy and internal jugular vein thrombosis is presented. Various ultrasonographic techniques were used to evaluate the thrombus and differentiate between bland and neoplastic thrombus. Contrast-enhanced ultrasound was performed following the intravenous administration of 2.4 ml of SonoVue.

Results: The diagnosis of neoplastic thrombus was established based on the various ultrasonographic findings. Namely, colour, power Doppler and xFlow technique revealed the presence of blood vessels within the thrombus. Spectral Doppler analysis identified these vessels as neoplastic vessels with arterialized flow. Contrast-enhanced ultrasound demonstrated the perfused part of the thrombus, delineating neovessels and demonstrating perfusion on arterial phase.

Conclusion: Multiparametric ultrasound with the advent of high spatial resolution flow imaging techniques like xFlow and contrast-enhanced ultrasound represents a valuable imaging modality for the evaluation of venous thrombosis and the diagnosis of neoplastic thrombus.

PP005

MR IMAGING OF BREAST IMPLANT RUPTURE

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Introduction: Magnetic resonance imaging (MRI) is the most useful imaging modality for the characterisation of breast implants, because of its high spatial resolution and contrast between implants and soft tissues and absence of ionising radiation. An intracapsular rupture (85%) occurs when the shell of the implant ruptures but the fibrous capsule formed by the breast remains intact. A gross extra-capsular rupture (15%) is evident as free silicone, separate from the implant, which has extended beyond the implant capsule into the breast or axilla. Free silicone has an increased signal in STIR sequence without any enhancement in T1 weighted fat-suppressed sequence.

Purpose: Asymptomatic 20-year-old lady with previous implants due to subcutaneous mastectomy, and with chronic extracapsular implant rupture of the left breast. The rupture was seen on MRI. She underwent puncture and aspiration several times, but at the end, the implant was surgically removed.

Materials and Methods: Axial T2W tomograms and dynamic T1W studies of both breasts were performed.

Results: The left implant had small volume but held in the integrity of the capsule. The implant was surrounded by a large amount of clear liquid content. Left breast was significantly larger in volume, comparing to the right breast. After administration of the contrast, there was no significant gain in signal intensity in the remaining breast tissue. No MR elements of disease relapse were found; nor pericapsular/capsular signal intensity gain was seen, which would indicate inflammation. In the left axilla no significant lymph nodes enlargement was seen.

Conclusion: Radiologists need to be able to recognise the normal appearance of commonly used implants on various imaging techniques. The role of MRI in the evaluation of breast implants resides in implant integrity evaluation and breast cancer detection (especially in women with oncoplastic reconstructive surgery).

PP006

LOCAL DIAGNOSTIC REFERENCE LEVELS IN DIGITAL MAMMOGRAPHY

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Introduction: Patient dose surveys and the establishment of Diagnostic Reference Levels (DRLs) in screening mammography constitute valuable tools towards the optimization of radiation protection.

Purpose: To obtain patient dose data from screening mammography examinations conducted at the University Hospital of Patras, in order to establish preliminary local DRLs and to compare them with the corresponding national and European values.

Materials and Methods: Three hundred women, 40-80 years old, participated in the study. All mammographic examinations were performed with a Hologic Selenia Dimensions digital mammography unit. The patient characteristics (age, weight, height), exposure and technical parameters (tube voltage, tube load, target/filter material, projection, compressed breast thickness (CBT), compression force), entrance surface dose (ESD) and average glandular dose (AGD) were recorded. The DRLs were estimated for CBT 55-65 mm for all projections, craniocaudal (CC) and oblique (MLO), as the 75th percentile of AGD and ESD distributions.

Results: The local DRL values were 1.44 mGy and 6.01 mGy for all projections, 1.41 mGy and 5.79 mGy for CC and 1.48 mGy and 6.17 mGy for MLO, for AGD and ESD distributions, respectively. The estimated values for CC projections were 8.4% and 17.3% lower than the national DRL values, while the estimated values of AGD for all projections were 42% lower than the corresponding European values. The local DRLs reported could contribute in the performance evaluation of the local practice and in the effort for further optimization.

Conclusion: The estimated local DRL values were lower than the corresponding national and European values. Furthermore, they could contribute in the effort for further optimization and radiation protection in screening mammography.

PP007

RADIOGRAPHIC FEATURES OF SPINAL COLUMN FRACTURE AND PSEUDOARTHROSIS IN ANKYLOSING SPONDYLITIS – LONGITUDINAL CASE STUDY

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Introduction: Ankylosis of spinal column in the late phases of ankylosing spondylitis and accompanying osteoporosis are the main reasons for increased sensitivity of the spinal column in these patients to trauma and occurrence of fractures. These fractures usually occur at the level of intervertebral disc and extend transversally through the posterior elements leading to the complete loss of continuity of the spine. They are most frequent at the cervical spine, in its lower parts.

Purpose: Fractures in the thoracic and lumbar region are less common and are not easily clinically recognized. Spontaneous healing with the callus formation is rare, and they often result in pseudoarthrosis.

Case report: We are presenting a male patient at the age of 45 years. Diagnosis of ankylosing spondylitis was established in 2008 in our Institution and since then he has been under regular follow-up and treatment.

On the presented series of thoracic spine x-rays (AP and lateral) performed in 2010, 2011, 2013, 2014 and 2016 we are displaying progression of changes at the Th10-Th11 level in the form of joint space widening, erosions on the articular surfaces and subchondral sclerosis, as the result of spinal column fracture and subsequent pseudoarthrosis.

Conclusion: Spinal column fractures present serious complication of ankylosing spondylitis. It is important to look for and recognize radiographic signs of these fractures in patients suffering from ankylosing spondylitis in order to facilitate adequate treatment and care.

PP008

RENAL TRAUMA: IMAGING FINDINGS IN COMPUTED TOMOGRAPHY

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Introduction: Injury to the kidney is seen in approximately 8-10% of patients with significant blunt abdominal trauma. Moreover, pre-existing renal lesions increase the risk of renal injury.

Purpose: This study includes all renal injury incidents due to blunt abdominal trauma that examined with Computed Tomography in our department during the last 3 years.

Materials and Methods: Between June 2013 and May 2016, non-enhanced and contrast-enhanced MDCT of the abdomen and pelvis were performed in 10 patients with renal injury. 4 of these patients had pre-existing renal lesions. Where appropriate, delayed images were performed. Patients' age range was 18-89 years (6M-4F), with a mean age of 57.4 years.

Results: Regarding the patients with no pre-existing renal abnormality, in 2 patients subcapsular hematomas were demonstrated. Parenchymal lacerations without extension to the collecting system were depicted in 3 patients; furthermore, in 1 perirenal hematoma was depicted. 1 patient sustained major parenchymal laceration with disruption of the collecting system, as well as large perirenal hematoma.

Concerning the 4 remaining patients, with known renal cysts from their past history (1 of them with adult polycystic kidney disease), all sustained intracystic hemorrhage. Additional complications were: rupture into the perirenal space with hematomas in 2 patients and rupture with communication of the cyst with the collecting system of the kidney in 1.

Conclusion: Computed Tomography is the preferred imaging method for the assessment of renal injuries. It can provide precise delineation of renal lacerations, hematomas and possible involvement of the collecting system.

The imaging findings in renal injuries should be integrated with clinical information, to assist in developing a treatment plan.

PP009

RECURRENT MULTICYSTIC PERITONEAL MESOTHELIOMA

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Introduction: Multicystic peritoneal mesothelioma (MPM) is a rare reason of cystic lesions in the abdomen. It occurs especially in young females after an abdominal surgery.

Purpose: We want to discuss a case of twenty- nine years old female patient with MPM by the literature.

Materials and Methods: Twenty- nine years old female patient admitted to our hospital with abdominal pain. She has an history of appendectomy two years ago. Ultrasonography and magnetic resonance imaging (MRI) was applied.

Results: There was a cystic mass which was T1 hypo, T2 hyperintense, posterior to the uterus in the pelvic region. The dimensions of the mass were 73*43 mm. There were thin septal contrast enhancements in the cyst. The cyst had no neighbouring with the two ovaries. After operation, the pathological diagnosis was MPM. After one year, she admitted to our hospital with the same complaints. In the pelvic MRI, there was a new cystic mass with the same features. This was diagnosed as the recurrence of MPM.

Conclusion: Although it is a rare condition; MPM must be considered in the differential diagnosis young female patients with pelvic cystic mass. It is a benign condition but could reoccur like in our patient.

PP010

IMPORTANCE OF NEUROIMAGING IN DIAGNOSIS OF TUBEROUS SCLEROSIS

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Introduction: Tuberous sclerosis (TS), also known as Bourneville disease, is a neurocutaneous disorder (phakomatosis) characterized by development of multiple benign tumors of the embryonic ectoderm. TS is an autosomal-dominant disorder, classically presenting with: seizures, mental retardation and adenoma sebaceum.

Purpose: The aim is to show the role of neuroimaging in diagnosis of TS.

Material and Methods: 20 - year- old man was admitted in hospital with symptoms of seizures. The first symptoms started 6 years before. Three years ago patient stopped taking antiepileptic therapy. We performed EEG, brain MRI, brain MDCT, echocardiography, MDCT of the chest and abdomen.

Results: MR of brain showed cortico/subcortical tuber in frontal, occipital, parietal and temporal lobe bilaterally without contrast enhancement. Focal lacune-like cystic lesions were seen in white matter near the occipital horns and bodies of lateral ventricles. Subependymal nodules associated with calcifications (hamartomas) were seen along the walls of the lateral ventricles bilaterally. In the left frontal horn of lateral ventricle, near the foramen of Monro was inhomogeneous, intense enhancement lesion, incompletely calcified, with diameter of 13,5 mm, which implicated subependymal giant cell astrocytoma. MDCT was used to clearly demonstrate all calcifications. We also noticed cutaneous changes as facial angiofibroma. Those findings suggested the TS. MR brain angiography, echocardiography, MDCT of the chest and abdomen were normal.

Conclusion: MRI of brain is the procedure of choice in the diagnosis of TS, but CT is more sensitive for identification brain calcifications. Giant cell astrocytoma could cause hydrocephalus and follow up MRI is also required.

PP011

LEUKEMIA WITH NORMAL BLOOD FINDINGS

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Introduction: Leukemia is the most common malignancy in the childhood. The diagnosis usually made by the blood samples. But sometimes blood samples could be normal and magnetic resonance (MR) imaging must be done for the differential diagnosis.

Purpose: We want to discuss bilateral lower extremity magnetic resonance imaging of 4 years old boy with the diagnosis of leukemia.

Materials and Methods: A 4 years old boy admitted to our hospital with the complaint of difficulty in walking. The pediatrician sent the patient to our clinic for the bilateral lower extremity MR.

Results: There were bilaterally T1 hypo, T2 hyperintense areas in the metaphysis of bilateral femur. After contrast administration, there were contrast enhancement of right pubic bone and ischium. The findings might be a systemic disease manifestation, like leukemia and neuroblastoma. The bone marrow aspiration confirms the diagnosis of acute lymphoblastic leukemia.

Conclusion: Leukemia must be considered in the childhood with musculoskeletal complaints. Although it is a rare condition; sometimes peripheral blood smear may be inadequate. In these circumstances, MR imaging might be useful for the differential diagnosis. MR allows the selection of the patients for bone marrow biopsy which is an invasive method and also shows the other pathologies, such as infections.

PP012

CARDIAC LYMPHOMA OF THE RIGHT ATRIUM: A CASE REPORT

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Introduction: Cardiac lymphoma is usually present as one aspect of disseminated disease and rarely occurs as a primary malignancy. It is most commonly diffuse large cell lymphoma and frequently manifest as an ill-defined, infiltrative mass, located typically at the right atrium with extension along epicardial surfaces. Clinical manifestations may include pericardial effusion, cardiac arrhythmias, and a variety of nonspecific electrocardiographic abnormalities.

Purpose: To report a case of lymphoma of the right atrium and to highlight the imaging findings and the significance of CT and MRI for the diagnosis.

Materials and Methods: A 56 year-old man was admitted to our emergency department after the sudden onset of dyspnea and palpitations. The ECG displayed third-degree atrioventricular block and the physical exam revealed signs of heart failure and superior vena cava syndrome. Echocardiography disclosed abnormally thickened myocardium of the

right atrium and a moderate amount of pericardial effusion. Thoracic CT scan and Cardiac MRI was performed.

Results: CT showed a large, ill-defined right atrial mass that extended into the inferior vena cava and infiltrated the pericardium. CMR demonstrated the presence of hyper to isointense signal of the mass at T1 weighted images relative to cardiac muscle and delayed-enhancement imaging with nulling of normal myocardium. Transvenous intracardiac tumor biopsy revealed a diffuse large B-cell non-Hodgkin's lymphoma. The patient died one week after the beginning of chemotherapy.

Conclusion: The prognosis of cardiac lymphoma is usually poor and late diagnosis is one of the major factors affecting outcome. Although the initial diagnosis of a cardiac mass is obtained with echocardiography in many cases, cross-sectional imaging becomes paramount in further characterization of the tumor and the extent of involvement. Both CT and MR imaging have significantly improved tissue and contrast resolution, allowing enhanced evaluation of tissue on the basis of attenuation or signal intensity.

PP013

COMPARISON BETWEEN CONVENTIONAL MRI AND MR ARTHROGRAPHY IN THE DIAGNOSIS TRIANGULAR FIBROCARILAGE TEARS AND CORRELATION WITH ARTHROSCOPIC FINDINGS.

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Introduction: The triangular fibrocartilage complex is one of the most important stabilizers of the wrist and a defect in its anatomical structures a possible cause of ulnar sided wrist pain. Magnetic resonance imaging is well established for assessing this structure but with certain limitations. MR arthrography with intra articular gadolinium administration seems to overcome these limitations.

Purpose: To compare the diagnostic accuracy between conventional MRI and MR arthrography in the depiction of triangular fibrocartilage tears (TFCC)

Materials- Methods: The study was performed between 2010-2015. A total of 43 patients with clinical findings suggestive of TFCC tear underwent wrist MRI, MRA and arthroscopy. All the results compared with the arthroscopic findings.

Results: 16 proven tears by arthroscopy. All tears were identified by MRA while MRI identified 11/16 tears. There was one false positive result from MRA and 5 false positives from MRI. 5 false negative results from MRI. No false negative results were identified in MRA.

Conclusion: MR arthrography is more sensitive and specific compared with conventional wrist MRI in the diagnosis of TFCC tears.

PP014

A RARE CAUSE OF ORTNER'S SYNDROME: PULMONARY ARTERY ANEURYSM

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Introduction and Purpose: Ortner's syndrome is a rarely seen cardiovocal syndrome. It describes left laryngeal nerve palsy due to several cardiovascular diseases. The most common underlying condition is mitral stenosis, other causes can be seen secondary to enlarged cardiovascular structures. We aimed to present computed tomography (CT) findings of a patient with Ortner's syndrome caused by left pulmonary artery aneurysm.

Case: A 37-year-old non-smoker male patient with a 6-month history of hoarseness admitted to our hospital. Laryngoscopic examination revealed left vocal cord paralysis with immobile vocal cord in paramedian position. The patient underwent neck and chest CT imaging. Neck CT demonstrated thickening and medial deviation of the left vocal cord, dilatation of the left piriform sinus suggesting left vocal cord palsy (Figure 1). Chest CT showed a fusiform aneurysmal dilatation of the proximal left pulmonary artery with 51 mm diameter (Figure 2). Left laryngeal nerve had been compressed between pulmonary artery aneurysm and arcus aorta.

Discussion: Ortner's syndrome is mainly characterized by hoarseness secondary to recurrent laryngeal nerve palsy due to compression of enlarged cardiovascular structures. It is also referred as cardiovocal syndrome. The most common cause of Ortner's syndrome is left atrial enlargement due to mitral stenosis. Cardiac causes in addition to mitral stenosis that may lead to this problem, such as thoracic aortic aneurysm, congenital heart disease, primary pulmonary hypertension, aberrant subclavian artery syndrome, an enlarged pulmonary artery and iatrogenic reasons. Pulmonary artery aneurysm is described as an enlargement to more than 1.5 times the normal artery. CT is crucial for differential diagnosis of hoarseness and can provide high quality images of aneurysm and related thoracic structures. Echocardiographic evaluation may not satisfactory for definitive diagnosis. In conclusion, detection of left vocal cord paralysis during laryngoscopy should remind cardiovascular structural enlargement.

PP015

DEHISCENT HIGH JUGULAR BULB

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Introduction and Purpose: Dehiscent jugular bulb describes the condition for jugular bulb bulge into the middle ear cavity due to occurrence of dehiscent sigmoid plate. Despite its rare frequency, dehiscent jugular bulb is one of the common causes of pulsatile tinnitus. We present the computed tomography (CT) findings of 41-year-old-woman with pulsatile tinnitus.

Case: A 41-year-old-female patient with 2 year history of tinnitus in right ear admitted to our hospital. The patient underwent temporal bone CT imaging. CT demonstrated right dehiscent high riding jugular bulb with absence of the right sigmoid plate (Figure).

Discussion: Inferior petrosal sinus and sigmoid sinus drain into the internal jugular vein in the jugular fossa of the temporal bone. Internal jugular vein appears dilated at its origin. This enlargement is named as jugular bulb. A dehiscent jugular bulb is defined as a normal venous variant with superior and lateral extension of the jugular bulb into the middle-ear cavity through a dehiscent sigmoid plate (1). In a study, high resolution CT scans of 700 temporal bones of 350 patients were retrospectively examined for the incidence of vascular variations showed that dehiscent jugular bulb was seen in 27 (3.9%) temporal bones (2). Patients with dehiscent jugular bulb can be completely asymptomatic or may suffer from dizziness, pulsatile tinnitus and hear loss. Otoscopy may show a bluish, pulsatile mass. CT has a major role in outlining the defect of sigmoid plate. Magnetic resonance imaging (MRI) could show this vascular variation, but thin-section bone algorithm CT scans superior to MRI. During the middle ear surgery jugular bulb may injure; consequently it is important to warn surgeons about this pitfall before the operation. The differential diagnosis for dehiscent jugular bulb includes high riding jugular bulb, aberrant internal carotid artery, cholesterol granuloma, persistent stapedia artery, and glomus tympanicum and glomus jugulotympanicum.

PP016

COMPUTED TOMOGRAPHY FINDINGS IN A CASE OF TOLOSA HUNT SYNDROME (THS).

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Introduction: Tolosa Hunt is a rare syndrome associated with inflammation of structures surrounding the eye, such as cavernous sinus, supraorbital notch and orbital roof. Its etiology is unknown and affects equally both genders in the 6th-7th decade. It is characterized by severe sharp unilateral retrobulbar pain, with concomitant III-IV-V-VI cranial nerve palsies, eyelid ptosis, exophthalmos and double vision. It is usually CS corresponding.

Purpose: To present an interesting case of THS and its findings in brain CT study.

Materials and Methods: A 58-year-old woman with a history of epileptic crises, left optic neuropathy and negative CNS culture and cytology, admitted with lethargy, expressive aphasia and severe headache. On clinical examination presents ophthalmoplegia and left exophthalmos, while the laboratory tests reveal renal dysfunction. The patient underwent a 16 multislice CT brain scan, with 5 mm slice thickness and 1 mm 3D reconstruction of the attained images, in bone and soft tissue window, without intravenous contrast medium injection.

Results: CT scan revealed a soft tissue mass of homogenous density, occupying the roof of left orbit and expanding to the ipsilateral cavernous sinus, possibly due to inflammatory process. Intravenous contrast medium was not administered because of impaired renal function.

Conclusion: On encountering an orbital soft tissue mass, which also affects the cavernous sinus, THS should be included in the differential diagnosis. CT scan findings in THS are not specific, but could be a useful diagnostic tool. In combination with other imaging studies, a thorough clinical examination, laboratory tests and even a biopsy, CT would help setting the diagnosis of THS, which is one of exclusion.

PP017

RADIOLOGICAL IMAGING OF RARE INTRACRANIAL COMPLICATIONS SECONDARY TO OTITIS MEDIA AND MASTOIDITIS

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Introduction: Acute otitis media, used to cause fatal results because of its intracranial complications before the introduction of potent and effective antibiotics. After the introduction of antibiotics, complications have started to be observed more frequently as a result of chronic otitis media and especially in children. Because clinical findings changed and became indistinct, the diagnoses of otitis and mastoiditis have been made occasionally with imaging findings only after complications occurred.

Purpose: Multi-detector computed tomography and magnetic resonance imaging are efficient and sufficient methods in the rapid diagnosis and should be immediately referred methods.

Materials and Methods: Among the patients who applied to the department of ear, nose and throat in our hospital between 2011–2015 years with the suspicion of otitis and mastoiditis in their history and clinical examinations and had been detected to have otitis and mastoiditis with imaging methods, 10 of them was detected to have rare intracranial complications related with otitis and mastoiditis and investigated retrospectively.

Results: Among these patients, five of them had dural venous thrombophlebitis, three of them had meningitis and two of them had intracranial abscess.

Conclusion: Consequently, imaging methods play important role in early diagnosis of intracranial complications resulting from otitis and mastoiditis which have high mortality and morbidity. Even though MDCT is the primary imaging method in otitis and mastoiditis, especially in assessment of bone deformities and other intracranial complications, MRI is more sensitive than MDCT to demonstrate the pathological changes in soft tissues.

PP018

TRABECULAR ARCHITECTONICS OF CANCELLOUS BONE IN PRE AND POST FORAMINAL REGION OF THE BODY OF MANDIBLE

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Introduction: In dental implantology cancellous bone of the body of mandible is the region in which metallic implants are being inserted.

Purpose: Development of dental implantology necessitates further understanding of cancellous bone structure of the mandible. Trabecular architectonics of cancellous bone is one of the factors determining success of dental implantation procedure.

Materials and methods: 25 mandible examinations performed on 16- and 64-channel computed tomography machine were randomly selected from picture archiving communication system. Bodies of the mandibles were divided in two regions: 1) in front of foramen mentale (preforaminal) and 2) behind foramen mentale (post foraminal). Dominant angle of attachment of trabeculae of cancellous bone to the cortical bone was measured. Two groups for each region were formed: 1) dominant angle of attachment between 70 and 90 degrees and 2) dominant angle of attachment between 0 and 70.

Results: In preforaminal region dominant angle of attachment of trabeculae to the cortex was between 70 and 90 degrees in 84%, and between 0 and 70 degrees in 16% of mandibles. In post foraminal region dominant angle of attachment was between 70 and 90 degrees in 4%, and between 0 and 70 degrees in 96% of mandibles.

Conclusion: In body of mandible the angle of attachment of the trabeculae of cancellous bone to mandibular cortex is more acute in post foraminal compared to preforaminal region. Effect this fact poses to implantation procedure should be the subject of further investigation.

PP019

ESOPHAGO-BRONCHIAL FISTULA IN A PATIENT WITH LUNG CANCER: IMAGING FINDINGS ON MDCT.

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Introduction: The presence of a fistula connecting the trachea-bronchial tree and the esophagus is a rare finding in the adult population and is mainly caused by esophageal malignancies. Upper gastrointestinal fluoroscopy is the traditionally used method for the



diagnostic approach of such abnormalities. However, given the widespread use of multidetector computed tomography, the diagnosis of these entities can be performed in a much more tolerable and accurate way.

Purpose: The purpose of this e-poster is to present the imaging findings in a patient with an esophago-bronchial fistula, caused by a malignant lung nodule.

Materials and Methods: A 59-year-old male patient was referred for upper gastrointestinal fluoroscopy complaining of difficulty to swallow. Further imaging investigation was performed with multidetector computed tomography which detected a potential underlying cause for this fistula.

Results: Upper gastrointestinal fluoroscopy revealed the presence of an esophago-bronchial fistula. Multidetector Computed Tomography confirmed the presence of a thick-walled cavity connecting the esophagus and both main bronchi. Moreover, a potentially malignant lung nodule was identified. The exact anatomy of the fistula was evaluated using various three-dimensional reformatting techniques. Biopsy taken from the infiltrated esophagus revealed the presence of a low differentiation lung adenocarcinoma. A stent was placed in the esophagus to alleviate symptoms.

Conclusion Multidetector computed tomography is a non-invasive imaging modality offering superior spatial resolution and detailed anatomy through its capabilities for three-dimensional reconstructions. The presence of an esophago-bronchial fistula is a rare finding in the adult population and is mainly caused by malignancies.

PP020

FOCAL NODULAR HYPERPLASIA (FNH) IN CHILDREN

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Introduction: Focal nodular hyperplasia (FNH) is a rare benign tumor of the liver, which is extremely rare reported in children. There is a female predominance, between 8 and 11 years old. It is very important to make a differential diagnose with hepatoblastoma and liver cell adenoma. The usual therapeutic approach is to manage asymptomatic lesion conservatively and to resect the symptomatic ones.

Purpose: The purpose of this study is to show that the imaging diagnostic is the crucial tool to detect and define the liver lesions in cases like ours.

Materiala and Methods: We present a case of 6 month-old. The infant was referred to the hospital for further investigation of ultrasound incidentally established heterodense mass in the left lobe of the liver. In order to diagnose the FNH, ultrasound and CT examinations were performed. They were combined with laboratory and viral serologic tests.

Results: The liver function tests were normal, except AFP. Viral serologic tests for hepatitis B and C were negative. Abdominal ultrasound revealed a heterodense solid mass, welldefined from the surrounding liver tissue. On Doppler examination the blood supply is proven to be from a large artery. The findings on CT imaging include a solitary, homogeneous, and slightly hypoattenuating mass compared to the surrounding liver on unenhanced CT. After administration of i.v. contrast the lesion demonstrates rapid

homogeneous contrast enhancement at the arterial phase (except for the central scar). On venous phase, the mass becomes isodense as compared to the surrounding liver.

Conclusion: Although the diagnosis of FNH in children can be challenging and remains difficult, different imaging modalities like ultrasound, CT and MRI all offer specific advantages in the detection. When laboratory test are normal and typical features of focal nodular hyperplasia are present, biopsy is not needed to confirm diagnosis and conservative treatment with regular imaging surveillance should be recommended on every 6 month.

PP021

CHEST CT AND RADIATION DOSE: PERFORMANCE OF ITERATIVE RECONSTRUCTION IN 64-SLICE CT SCANNER

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Introduction: Computed tomography (CT) of the chest is an essential part of staging and follow-up for many patients with cancer. Given that imaging may be performed frequently, optimization of radiation dose is a priority.

Purpose: The aim of this study is to investigate whether iterative reconstruction (IR) used to reduce patients' radiation exposure adversely affects diagnostic image quality.

Methods and materials: Two independent centres performing dual-phase chest CT for ruling out pulmonary metastasis in extrathoracic malignancy were compared. Both used the same MDCT scanner model (GEHC LightSpeed VCT 64); one used iterative reconstruction (IR) (*ASIR*TM) in every case, the other did not. 33 consecutive patients were selected from each centre, and the radiation dose and image quality compared. In order to reduce the radiation exposure of patients without compromising diagnostic image quality, Noise Index (NI) was lower in the first group due to *ASIR*TM, compared to the second group. All other protocol parameters were similar. GEHC DoseWatchTM was utilized to collect data for gender, BMI, CTDIvol, and Effective Dose. Statistical analysis of these parameters followed and for image quality assessment, VGA as well as FROC analysis were used.

Results: There was no significant difference in objective or subjective image quality between the groups. Due to the differentiation of NI between the groups in the first phase, values of CTDIvol and Effective Dose were not statistically significantly different. In the second phase CTDIvol and Effective dose of the first group were by 4,8% and 9% respectively lower compared to the second group. There was no significant difference in patient BMI.

Conclusion: Iterative reconstruction significantly reduces radiation exposure of patients undergoing staging CT scans of the chest, without reduction in subjective or objective image quality.

PP022

ULTRASONOGRAPHY DIAGNOSTIC PARATHYROID ADENOMA

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Introduction: Adenoma is the most common tumor parathyroid glands and the most common cause of hyperparathyroidism. Adenoma usually occurs in one parathyroid gland (80%) or 2 and about 3 (10%) or all four of the (10 %) cases. It is important to determine the exact localisation of adenoma for preoperative planning.

Purpose: The show the possibility of ultrasonography in view parathyroid gland adenoma.

Materials And Methods: The paper presents three parathyroid glands adenoma (in three women) surgically confirmed. All patients come with the diagnosis of hyperparathyroidism. Review is done in the prone position. Use of linear multi-frequency transducer (5- 10 MHz). Work the transverse and longitudinal sections of the neck to the region expected parathyroid localization. Always review the thyroid gland and surrounding structures the neck including regional lymph nodes.

Results: Three females were examined with ultrasonography and one adenoma was defined (two on the bottom and one on the upper parathyroid gland). In all three patients scintigraphy showed coupled enlarged parathyroid glands. Surgeries were performed and results were confirmed by ultrasonography.

Conclusion: 1) Ultrasonography is highly sensitive and specific method in the diagnosis of parathyroid gland adenoma. 2) Together with scintigraphy contributes to the exact localization of adenoma which facilitates preoperative planning. 3) Ultrasonography is important to control in the postoperative period and ex-post controls within the prescribed period of monitoring the patients.

PP023

PRIMARY PLEURAL LYMPHOMA: A CASE REPORT

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Introduction: Primary pleural lymphoma is extremely rare, especially in immunocompetent patients. Primary [pleural lymphoma](#) accounts for <0.5% of all [non-Hodgkin lymphoma](#). Primary pleural [lymphoma](#) may be Hodgkin or non-Hodgkin lymphoma with diffuse large B-cell accounting for the majority (60%) of cases. Primary pleural lymphoma has been described in the setting of chronic inflammation or in immunocompromised patients. This case has no history of pleural disease and no evidence of lymphoma at any other site.

Purpose: The purpose of this report is to describe the case of a patient with pleural lymphoma and to review the literature on other such cases.

Case Findings: A 70-year-old male admitted to our hospital with right-sided chest pain for a couple of weeks. He had no smoking history and he had no fever or cough. The pain was dull in character and gradually increasing in intensity. On physical examination breath sounds were diminished on right upper and middle zones. The patient underwent thoracoabdominal CT which revealed right pleural mass extending to right paraspinal

muscles and spinal canal. There were no lymphadenopathy and no splenomegaly. The pleural biopsy result was pleural B-cell lymphoma.

Conclusion: Malignant lymphoma arising from lung and pleura is very rare. In contrast, pleural involvement secondary to systemic lymphoma is relatively common. Approximately 16% of non Hodgkin Lymphomas either present with or subsequently develop pleural involvement. The most common radiological features are; pleura based mass, pleural thickening, pleural effusion. All of these features can be recognized in our case. We here presented an extremely rare case of pleural lymphoma. It represented primary pleural lymphoma, as there was no evidence of any other site of involvement at the time of diagnosis. Here we are presenting imaging findings of a rare pleural lymphoma case in the light of literature.

PP024

KLIPPEL-FEIL SYNDROME ACCOMPANIED BY SPRENGEL DEFORMITY.

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Introduction: Klippel-Feil syndrome is a rare heterogeneous entity that results in cervical vertebral fusion, which can coexist with Sprengel deformity, the latter being a congenital complex deformity of the shoulder concluding in elevation of the scapula.

Purpose: This e-poster's aim is to present plain x-rays with a rather rare coexistence of Klippel-Feil syndrome and Sprengel deformity, plus highlighting their x-ray features.

Materials and Methods: Plain x-rays of the cervical spine and chest / thoracic spine.

Results: Typical plain radiograph findings of both entities are highlighted in our presented x-rays, such as elevated scapula, cervical vertebral fusion, scoliosis and rib synostosis.

Conclusion: Typical findings of Klippel-Feil syndrome and Sprengel deformity can be displayed in plain x-rays.

PP025

OSTEOGENESIS IMPERFECTA

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Introduction: Osteogenesis imperfecta (OI), is a non-sex-linked, congenital genetic disorder of collagen type I production. OI incidence is approximately about 1 to 20.000 births. The disease has a variable of clinical presentations but four major clinical features: bone fractures, blue sclera, hearing loss, osteoporosis, wormian bones (small, irregular bones along the cranial sutures), and scoliosis. Disease classification: OI is classified into nine major subtypes based on genetic, radiographic, and clinical characteristics.

Purpose: The aim of this poster is to present the common radiographic features of Osteogenesis Imperfecta that can be seen in plain X ray films

Materials and Methods: Plain film is the preferred initial examination.



Results: We were able to identify the typical radiographic findings of OI in accordance to most of the existing publications.

Conclusion: Plain films are the main diagnostic method that is commonly used in the diagnosis and classification of the disease.

PP026

MORPHOLOGICAL CHARACTERISTICS OF BASILAR ARTERY: AN ANALYSIS BASED ON NON-INVASIVE IMAGING

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Background: A study was performed to provide measurements of the basilar artery using non-invasive imaging modality.

Methods: 120 patients (43 man and 77 woman) were analyzed. All patients had undergone CT angiography, but without any vascular abnormality in the posterior circulation. Length and diameter of basilar artery was measured. Length was measured from vertebro-basilar junction to its terminus. Diameter was measured three millimeters distal to vertebro-basilar junction. The basilar artery curvature was also analyzed.

Results: The mean length of basilar artery was 32 mm. Mean length in man was 34 mm, while in woman was 30,8 mm. There was significant difference in basilar artery length between man and woman, man had a longer basilar artery ($p < 0,01$). The mean diameter of basilar artery was 2,97 mm, mean diameter in man was 3 mm, while in woman was 2,95 mm. There was no significant difference in basilar artery diameter between genders in our study ($p > 0,05$). Also, there was no significant difference in basilar artery length between patients younger and older than 60 years ($p > 0,05$). But, there was a significant difference between these groups in basilar artery diameter. Older patients had statistically larger diameter, mean diameter in older group was 3,3 mm, while in younger was 2,8 mm ($p < 0,05$).

Conclusion: Modern non-invasive imaging procedures can provide precise and useful information for vessels analysis. Our study showed that older patients tend to have larger basilar artery diameter, while man tend to have longer basilar artery than woman. This information may be useful for planning and performing endovascular procedures as well as for endovascular device development.

PP027

LOW BACK PAIN OR SOMETHING ELSE? WHY WE HAVE TO DO MR IMAGING OF SPINE?

-A CASE REPORT-

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Introduction: Standard protocol for examination of Low Back Pain has included X-ray film, Computed Tomography Imaging and Magnetic Resonance Imaging (MR imaging). But, there are some pathological conditions when MR imaging is the method of choice, because other methods are unreliable!

Purpose: is to prove that MR imaging is the most sensitive and specific method for detection of pathological changes of the bone marrow, especially when we have a patient with malignancy.

Materials and Methods: A 72-year-old man with intensive acute lumbal pain, fever and high temperature came to do MR imaging of lumbal spine. Thirteen days before he has been operated because of prostate carcinoma. MR imaging was done on GE machine, 1.5 T, using the following sequences: T1W/SEfs with and without contrast in axial and sagittal plane, T2W/FSE in axial and sagittal, T2/STIR in sagittal and T2W/frFSE in coronal plane.

Results: MR imaging showed multiple lesions at Th11, L3, S2 and S3 vertebrae, hypointense on T1W and T2W, hyperintense on T2/STIR, all with postcontrast enhancement.

We found vertebral collapse of L1 and L2 vertebrae, with ill-defined hypointense vertebral marrow on T1W, hyperintense on T2W and STIR, with paravertebral and epidural infiltrative soft tissue, loss of endplate cortex on both sides of disc and disc space narrowing, with post-gadolinium enhancement.

Conclusion: We presented the patient with prostate carcinoma and acute lumbal pain with fever. MR imaging showed multiple blastic metastases and spondylodiscitis L1-L2, probably because of immunocompromised state. Patient has been sent to the Orthopedic Clinic immediately for further treatment.

PP028

CT IMAGING OF THE POSTOPERATIVE PANCREAS: EXPECTED FINDINGS AND COMPLICATIONS

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Introduction: Various malignant and benign pancreatic conditions require surgical treatment. Whipple, distal and total pancreatectomy are the main types of pancreatic resection procedures.

Purpose: We are presenting our experience as a specialized in pancreatic diseases hospital. Various types of surgical, but also less invasive procedures are performed depending on the different underlying disease. Despite the existing great experience in pancreatic surgery, postoperative complications are always a possibility.

Materials and Methods: We have reviewed a great number of CT examinations in concordance with patient's clinical history, during the immediate postoperative period, but also during follow up. The examinations were performed in our 64 slice Brilliance Philips MDCT or in our 4slice Asteion Toshiba CT. The pancreatic imaging protocol was always applied.

Results: Postoperative imaging after pancreatic surgical procedures is challenging mainly because of the expected anatomical changes. Pneumoperitoneum, fluid collection, oedema and fat stranding surrounding the surgical bed are normal findings, while anastomotic

leaks, peripancreatic fluid collections, abscesses, superior mesenteric vein and portal vein thrombosis, post operative hemorrhage, acute pancreatitis, pancreatic fistula, hepatic infarction, delayed gastric emptying, pneumonia are some of the most common complications.

Conclusion: CT is a brilliant tool regarding the assessment of postoperative condition of the patient, when any queries have to be answered, in order to apply the best possible treatment.

PP029

FIBROUS DYSPLASIA

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Introduction: Fibrous Dysplasia (FD) is a benign congenital developmental disorder of bone with no sex predilection. FD may be either monostotic or polyostotic and may also be associated with a variety of syndromes (McCune – Albright, Mazabraud).

Purpose: The purpose of this e-poster is to present typical radiographical features of FD.

Materials and Methods: Plain x-rays of lower limb, pelvis – hip and chest plus thorax CT.

Results: Plain radiography is the first-line study and it is highly specific when characteristic features are present such as endosteal scalloping, bone expansion and abscess of periosteal reaction.

Conclusion: FD can be identified by x-ray and other modalities' role is complementary to this.

PP030

INTRAOSSEOS LIPOMA: A RARE BENIGN BONE TUMOR

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Intraosseous lipomas are rare benign lesions that account for about 0.1-2.5% of all bone tumors. It is however the most common lipogenic tumour in bone. The peak age at discovery is usually in the 4-5th decades of life. There may be a slight male predilection.

Pain is the leading symptom in the majority of cases, but more than 30% of bone lipomas are found incidentally on imaging studies done for other reasons. These lesions are mostly found in the metaphysis or epiphysis of the lower limbs. MRI signal characteristics can narrow down the differential diagnosis to fat-containing lesions. The lesions may display varying degrees of calcification and necrosis.

A 73 year old female patient admitted to our hospital with the complaint of right knee pain and locking. She had knee pain at rest for the last three months. She underwent MRI examination for possible meniscal pathology. The MRI revealed fat containing lesion in tibial plato which was found incidentally. The lesion had fat tissue signal and suppressed in fat suppressing sequences.

Intraosseous lipomas are amongst the rarest primary bone tumors. The majority of the symptoms present with minor symptoms while the rest are found incidentally like our case. MRI can easily detect this fat containing benign tumor. Therefore in most cases where involution has not occurred, MRI alone may provide a definitive diagnosis.

PP031

BERTOLOTTI'S SYNDROME AND SAME-SIDED ISCHIOFEMORAL IMPINGEMENT SYNDROME COEXISTENCE

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Introduction and Purpose: Bertolotti's syndrome is a form of back pain associated with lumbosacral transitional vertebrae. Also ischiofemoral impingement syndrome is known as one of the causes of hip pain. In this presentation, we aimed to present computed tomography (CT) and magnetic resonance imaging (MRI) findings of a patient with Bertolotti's syndrome coexisting with ischiofemoral impingement syndrome.

Case: 30-year-old female patient was admitted to our clinic with symptoms of lower back pain and left hip pain for 2 years. In the physical examination; tenderness at the lower lumbar region and increasing left hip pain with internal and external rotation were detected. Neurological deficits were not observed. She had no history of trauma or surgery at or around the lower lumbar region, hip joint and femur. Pelvic radiography, non-enhanced pelvic CT and non-enhanced hip MRI were performed. Pelvic radiograph and CT showed pseudo-articulation between the enlarged left transverse process of L5 vertebrae and the sacrum (Figure 1). MRI of the hip revealed quadratus femoris muscle edema with concurrent narrowing of the ischiofemoral space (Figure. 2). Radiological findings were compatible with Bertolotti's syndrome and same sided ischiofemoral impingement syndrome.

Discussion: Bertolotti's syndrome is characterised by the presence of a variation of the fifth lumbar vertebra with a large transverse process, either fused or articulated with the sacral basis or iliac crest. It may be cause of chronic, persistent lower back pain. Ischiofemoral impingement is the entrapment of the quadratus femoris muscle between the trochanter minor of the femur and the ischium-hamstring tendon. Patients with ischiofemoral impingement generally present with hip pain, which may radiate toward the knee. The combination of these two syndromes has not been previously reported in the literature. After treatment with nonsteroidal anti-inflammatory drugs, physical therapy, and exercise program for sacralization and ischiofemoral impingement, the patient's pains were relieved.

PP032

ISOLATED METASTASIS TO SUBCUTANEOUS SOFT TISSUE OF THE UPPER LIMB ENCOUNTERED IN TESTICULAR YOLK SAC TUMOR

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Introduction and Purpose: Testicular cancers are the commonest cancer in men between 15-35 years of age. Among these, germ cell tumors are the commonest type. Metastasis to subcutaneous soft tissue is an extremely rare entity for germ cell tumors. We have presented here a case of testicular yolk sac tumor with subcutaneous soft tissue metastasis of the upper limb.

Case: 23-year-old male patient with a diagnosis of malignant germ cell testicular cancer who underwent orchiectomy and treated with standard chemotherapy 2 years ago, came with a painful mass in the left arm. Ultrasonography (US) and magnetic resonance imaging (MRI) was performed for the left arm. US showed hypoechoic, well-circumscribed mass in size of 30x24x18 mm in the subcutaneous tissue in the medial side of the proximal left arm (Figure 1). In MRI, the mass was hypointense according to the muscle on T1-weighted images and hyperintense on T2-weighted images. It contained necrotic areas in its center. In contrast enhanced series, the mass showed homogeneous contrast enhancement except necrotic areas (Figure 2). Then PET-CT was performed and increased FDG uptake was determined. The mass was excised and pathology confirmed metastasis.

Discussion: The most common sites of metastasis of the testicular cancers are lungs, liver, and brain. Choroidal, eye, gingiva, skin and kidney also have been reported as uncommon sites for metastasis. But only five cases of subcutaneous soft tissue metastases of testicular cancer have been reported. Four of these patients had seminoma and one patient had immature teratoma. There is not any reported case of testicular yolk sac tumor metastasis to upper limb soft tissue in the literature. Subcutaneous tissue metastasis of testicular cancers and especially yolk sac tumors are extremely rare.

PP033

NECROTIZING FASCIITIS OF THE RETROPERITONEUM

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Introduction and Purpose: Retroperitoneal necrotizing fasciitis (NF) is a rare potentially life-threatening infection of the retroperitoneum. We aimed to present a case of retroperitoneal NF due to duodenal perforation.

Case: A 80-year-old male patient with abdominal pain, clouding of consciousness and fever admitted to our hospital. Generalized abdominal tenderness and abdominal defense were noted during physical examination. Computed tomography (CT) scan identified 73x63 mm retroperitoneal fluid collection with an air-fluid level from the third portion of the

duodenum to the right perirenal space. The fluid collection extends into the right femoral region along the iliopsoas muscle. Also enhancement of Gerota's fascia was observed. Patient diagnosed with NF of the retroperitoneum. Percutaneous catheter drainage was performed by using 14 French catheter and appropriate antibiotic treatment initiated. Patient whose symptoms failed to improve was operated. Retroperitoneal NF secondary to duodenal perforation have been reported during surgery. Patient who had been performed surgical debridement developed septic shock and exitus occurred on the second postoperative day.

Discussion: NF is a rapidly progressing necrotizing infection with a high mortality rates and tends to be a higher risk of developing in immunodeficient patients. This infection can be seen in almost any part of the body, but it most frequently involves the abdomen, perineum, and lower extremities. Retroperitoneal involvement is rarely encountered and more severe form of NF which is associated with increased mortality rate. The clinical presentation is variable. Initially, patients may report nonspecific symptoms including pain, fever, tenderness and redness of the skin. High fever, skin colour turns out blue, crepitations of soft tissues, abdominal rigidity, septic shock and severe hypotension can be seen as the infections progress. Ultrasonography, CT and magnetic resonance imaging are radiological imaging methods used in diagnosis. The treatment consists of early diagnosis, surgical debridement, broad spectrum antibiotics and supportive care.

PP034

AN UNUSUAL CAUSE OF PERSISTENT DYSPHAGIA: DYSPHAGIA LUSORIA

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Introduction and Purpose: Dysphagia lusoria is a rare diagnosis to describe association of dysphagia with vascular compression of the esophagus. The most frequent anomaly of aortic arch is aberrant right subclavian artery which appears in %0.5 to %1.8 of the population also known as arteria lusoria. We aimed to present barium esophagogram (BE) and computed tomography (CT) imaging findings of a patient with persistent dysphagia.

Case: A 50-year-old woman referred to our internal medicine clinic complaining of recurrent solid food dysphagia at her upper-middle chest for a year. The patient's history and laboratory test results were unremarkable. BE revealed a narrowing at the level of aortic arch depending on extrinsic compression. Upper gastrointestinal endoscopy confirmed a pulsatile extrinsic compression to esophagus. Unenhanced chest CT image showed the aberrant right subclavian artery origin from aortic arch and demonstrated esophageal compression.

Discussion: Dysphagia rarely causes by extrinsic compression of the esophagus due to a vascular anomaly of the aortic arch. The diagnosis of dysphagia lusoria can be difficult. As with our patient, it is common for patients with dysphagia lusoria to undergo repeated evaluations for dysphagia. Due to the cause of dysphagia is undetermined, these patients receive sedatives and tranquilizers for a presumed psychosomatic cause of their dysphagia.

BE can show extrinsic compression on esophagus and excellent method to evaluate for possible dysphagia lusoria. Also CT and magnetic resonance imaging are great methods for evaluating the cause of extrinsic compression such as solid tumors and vascular anomalies. Medical treatment with proton pump inhibitor is the first choice for these patients. For patients with severe symptoms, surgical repair and reconstruction of the aberrant vessel should be considered.

PP035

BENIGN EXTERNAL HYDROCEPHALUS

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Introduction and Purpose: Benign external hydrocephalus (BEH) in infants is a benign clinical entity which characterized by macrocephaly and typical neuroimaging findings of enlarged subarachnoid spaces especially overlying the frontal lobes and a normal or only slight increase in volume of the lateral ventricles. It is considered as a self-limiting condition and usually does not require any treatment. Neuroimaging is important in the differentiation between BEH and similar situations. We presented computed tomography (CT) findings of this condition accompanied by a case.

Case: A 10-month-old infant was admitted to our pediatric department for the serious increase in his head circumference (90th percentile) since he was born. Rest of the clinical examination revealed no significant abnormality. CT imaging of head was performed. We found bifrontal widening of the subarachnoid space (13 mm), widened inter-hemispheric fissure at the frontal lobe and only a slight increase in frontal horn of lateral ventricles. There were cortical veins in the subarachnoid space.

Discussion: BEH is seen in 0.5 to 0.8 per 1000 of the children as incidental finding on CT and magnetic resonance imaging. There is no obvious cause of the external BEH so it is classified as idiopathic. The pathophysiology of BEH is poorly understood. It is a self-limiting condition which usually resolves spontaneously by two years of age and does not require any active medical or surgical treatment. Although its benignity, BEH can influence psychomotor or motor retardation and behavioural disorders. Enlarged subarachnoid spaces represent a risk factor for the development of subdural haematomas following minor trauma. BEH can be differentiated from a subdural hygroma on imaging by the "cortical vein" sign. If there are cortical veins in the subarachnoid space, you can diagnosis BEH.

PP036

SPONTANEOUS SPLENIC RUPTURE IN INFECTIOUS MONONUCLEOSIS

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Introduction and Purpose: Splenic rupture is a rare cause of abdominal pain that may be idiopathic or occur as a complication of an infectious (especially Epstein-Barr virus (EBV), hepatitis, salmonella, malaria), neoplastic (lymphoma, leukemia), hematologic or connective tissue disease. Infectious mononucleosis is caused by EBV. Spontaneous splenic rupture is a very rare and serious complication of infectious mononucleosis. We present this rare condition's computed tomography (CT) findings.

Case: A 35-year-old white male was admitted to our emergency department with left shoulder and left upper quadrant abdominal pain for 12 hours and cough, fever, fatigue for a week. There was no history of trauma. Clinical examination revealed that tenderness at the left upper abdominal quadrant on palpation. Also he was febrile and mildly tachycardic. Laboratory examination showed leucocytosis and mild anemia. His blood pressure was 80/60 mmHg. Abdominal ultrasonography and CT scan showed spleen hematoma with a significant amount of complex fluid within the perisplenic and perihepatic space. Because of EBV antibody and monospot test for EBV was positive, we diagnosed spontaneous splenic rupture secondary to infectious mononucleosis.

Discussion: Spontaneous rupture of the spleen is a rare condition and constitutes up to 1% of all splenic ruptures. Spontaneous splenic rupture is the most common fatal complication of infectious mononucleosis that was first described by Rokitansky in 1861. Patients usually admitted to the hospital with acute abdominal pain in the left upper quadrant, nausea, vomiting, and dizziness. This pain radiate to the left upper extremity or shoulder, known as Kehr's sign. Hemodynamically unstable patients are often treated with splenectomy but stable patients are usually treated conservatively. CT scan is often essential to making the diagnosis and may reveal heterogeneous splenomegaly with lacerations of the spleen and intraperitoneal or subcapsular bleeding.

PP037

BILATERAL PETROUS APEX CEPHALOCELE

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Introduction: Petrous apex cephalocele (PAC) is a rare form of cephalocele centered typically in the posterolateral part of Meckel's cave with variable extension into the petrous apex. We aimed to present computed tomography (CT) and magnetic resonance imaging (MRI) findings of a patient with bilateral PAC.

Case: A 42-year-old woman presented with bilateral tinnitus and vertigo. There was no history of cerebrospinal fluid (CSF) leak or trigeminal neuropathy. Brain CT showed cystic lesions at bilateral petrous apex. Brain MRI demonstrated cystic lesions at the bilateral

petrous apex, which were isointense to CSF in all sequences and contiguous to Meckel's cave. They were not related to the inner or middle ear structures. The characteristic findings on CT and MRI suggested bilateral PAC. The patient also had coexisting partial empty sella.

Discussion: PAC is a rare lesion which typically arises from the Meckel's cave and secondarily extends into the petrous apex. It is usually asymptomatic. But in some patients PAC may cause CSF rhinorrhea, otorrhea, trigeminal neuralgia and recurrent meningitis. The exact cause of PAC is yet unclear, but it is likely due to congenital dehiscence in the dura along with CSF pulsation in Meckel's cave and weak bone at the petrous apex. The other proposed etiological factor is the disturbance of CSF circulation. The differential diagnosis includes other cystic lesions like mucocele, trapped fluid, cholesterol granuloma, cholesteatoma, trigeminal cystic schwannoma and petrous apicitis. PAC primarily arises from posterolateral part of Meckel's cave and secondarily erodes the petrous apex, whereas inflammatory lesions arise from and expand the petrous apex. CT may be useful to differentiate the cystic nature, extent and location in the bony structure. MRI allows the characterization of other cystic lesions like cholesterol granuloma, cholesteatoma and mucocele from PAC.

PP038

PERCUTANEOUS SCLEROTHERAPY OF SLOW-FLOW VASCULAR MALFORMATIONS IN HEAD AND NECK REGIONS. SINGLE CENTER EXPERIENCE

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Introduction: Vascular Malformations (VMs) include congenital vascular anomalies of veins, arteries and lymph vessels. Enlargement can occur with changes in pressure and flow, collateral formation, hormonal modulation and infection. The first step in the care of a patient with a VM is to determine whether it is a slow- or fast-flow lesion. Alongside surgical interventions, embolization and sclerotherapy have become mainstays of clinical management of such lesions.

Purpose: The purpose of this case-series study is to determine the effectiveness of percutaneous sclerotherapy with polidocanol for treatment of slow-flow VMs in head and neck regions.

Materials and Methods: From 2014 to 2016, 3 patients (median age 10 years, range 8-36) were diagnosed with slow-flow VMs in the head and neck region. All patients underwent angiography through the femoral artery to exclude arterial component. The VMs included venous malformations (n=2) and capillary lymphaticovenous malformation (n=1). The patients underwent percutaneous sclerotherapy using sclerosing foam from a mixture of polidocanol and gas. The procedures were performed in an angiography suite under ultrasound or fluoroscopic guidance. Several sessions were necessary to shrink VMs in all patients.

Results: Technical success was achieved in all patients and there was significant clinical improvement in all cases. There were no complications in 2 out of 3 patients apart from bruising of the skin in one case the 1st postprocedural day.

Conclusion: Sclerotherapy may be a safe and effective procedure for patients with slow-flow VMs in head and neck regions with high technical success and significant clinical improvement.

PP039

KALLMANN SYNDROME: MRI FINDINGS OF TWO CASES

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Introduction and Purpose: Kallmann syndrome is a neuronal migration disorder characterised by hypogonadotrophic hypogonadism and anosmia or hyposmia. It is generally accepted that defective rhinocephalon development result in olfactory tract abnormalities. We aimed to present magnetic resonance imaging (MRI) findings of two cases at the age of 14 and 16 years who were consulted for cryptorchidism and anosmi.

Case: First case, a 14-years-old male was consulted for cryptorchidism and anosmi. Second case, a 16-years-old male was consulted for anosmi. There was decrease of LH, FSH, and testosterone in the laboratory examinations of both patients. We used MRI to visualize the olfactory tract and evaluate the olfactory sulci in patient whose clinical and laboratory findings were compatible with Kallmann syndrome. Coronal images of the frontal region clearly demonstrated aplasia of the bilateral olfactory sulci and absence of the olfactory tracts in the patients.

Discussion: Kallmann syndrome is a rare cause of puberte tarda. Cases generally are admitted with hyposmia, anosmia and puberte tarda. If the clinician suspects Kallmann syndrome, than radiologic examinations are important for the diagnosis, especially MRI. MRI is very successful that show the hypoplastic or aplastic olfactory sulci and absence olfactory bulbs and tracts. A hypoplastic anterior pituitary may also be seen. There are other congenital disorders associated with decreased olfaction, such as holoprosencephaly, Down syndrome and Turner syndrome. But complete absence of the olfactory bulbs and tracts has been defined only in Kallmann syndrome. In conclusion, MRI is a useful method to demonstrate abnormalities of the olfactory system, which are always present among patients suffering from Kallmann syndrome.

PP040

A RARE, INCIDENTALLY FOUND LESION: CALVARIAL HEMANGIOMA

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Introduction and Purpose: Skull vault haemangiomas or haemangiomas of the calvaria are benign slow growing vascular neoplasms affecting the skull diploe in any location. These tumors, arising from the intrinsic vasculature of the bone, are mostly found in vertebral bodies and represent 0.2 percent of all benign neoplasms of the skull. We aimed to present computed tomography (CT) and magnetic resonance imaging (MRI) findings of a patient with frontal bone hemangioma at left side.

Case: A 66-year-old female patient with a long time history of headache admitted to our hospital. There was no problem in laboratory findings. The patient underwent brain CT and MRI. Brain CT demonstrated a lytic, high density (mean 172 HU), characteristic trabecular thickening radiating from a common centre lesion at left frontal bone. MRI showed a smooth, lesion which was hiperintens in all sequences. The characteristic findings on CT and MRI suggested hemangioma of frontal bone.

Discussion: The most commonly involved site of intraosseus hemangiomas is the vertebrae. Hemangiomas represent 0.2 percent of all benign neoplasms of the skull. The majority of these lesions are asymptomatic, but patients can present with focal pain or a palpable mass. The great majority of reported cases of hemangiomas are unifocal but multiple hemangiomas have been reported. Hemangiomas have been classified as cavernous which is predominant in hemangiomas of the skull, capillary or venous. Plain radiography or CT scan reveals this lesion as solitary lytic lesion with a sclerotic rim, while MRI shows isointense on T1-weighted images and hyperintense on T2-weighted images, consistent with regions of slow-flowing blood. Sometimes, the classic radiographic appearances are not evident and lesions can be misinterpreted as lesions like multiple myeloma or osteosarcoma. The gold standard treatment is en bloc resection of the tumor with the removal of a rim of normal bone.

PP041

PE/CTPA

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Introduction: Pulmonary Embolism (PE) is a partial/ complete obstruction of central or peripheral arteries of the lungs by emboli. This is a very common finding with annual incidence of 23 to 69 per 100,000. Acute PE is a third most common cause of death: 60,000 deaths each year in the UK. Clinical diagnosis is difficult and presentation ranges from asymptomatic to sudden death.



Purpose: To assess the risk factors for venous thromboembolism, Wells PE pre test probability score, different D-Dimer sensitivity and specificity, BTS guidance which assess the clinical probability.

Materials and Methods: The data was obtained prospectively on 35 inpatients that underwent CTPA in a 4 week period. Probability of PE was assessed using Wells score. Patient notes were assessed for documentation and request form. Quality and outcome of CTPA was assessed.

Results: 69% (24/35) had clinical probability assessed and documented in notes. 14% (5/35) Wells score documented either in the notes or on the Request form. Results from D-Dimer were positive in 3 patient and negative in 4 patients. The CTPA results show 13 positive in low risk group, 10 positive in intermediate and 5 positive in a high risk group patients. The scan quality was excellent in 43%, good in 9% and suboptimal in 9%. The results were assessed using Wells score and D-Dimer with low and intermediate probability of PE.

Conclusion: Negative D-Dimer and low probability Wells score- 100% exclude PE. Probability needs to be assessed and documented. Wells score is inadequate in isolation. CTPA – ordered inappropriately in many cases. SimpliRed D-Dimer assay not specific enough in intermediate risk.

Recommendation: Need more accurate and specific D-Dimer assay. Physicians to assess probability of PE, to consider alternatives before proceeding to CTPA.

PP042

CT AND MRI FINDINGS IN WALLEMBERG'S LATERAL MEDULLARY SYNDROME RADIOLOGIC AND CLINICAL CORRELATION

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Introduction: Wallenberg's syndrome comprise approximately 2% of ischemic stroke. They are most commonly associated with infarction in the territory of the posterior inferior cerebellar artery. In our case report we had cerebellar infarction, that usually can be seen as concomitant with lateral medullary syndrome. CT and MRI images are used to evaluate issues. The aim of this study is to show our case of Wallenberg's syndrome with following up.

Material and Methods: We received in our hospital an elderly female patient, age 81 year, with an acute onset of commonest clinical symptoms and signs of the Wallenberg's syndrome. She had headache, vertigo nausea, ataxia, and nystagmus. Patient was examined on apparatus MSCT SIEMENS DEFINITION, and MR apparatus SOMATOM 1,5T. During examinations we performed sequences t2, t1, FLAIR, t2 tf2d, DWI, ADC, TOF 3D, MIP. We performed nonenhanced CT, and MRI imaging with contrast media-Multihance /0,1mmol /kg.

Results: The nonenhanced axial CT scan shows low density zone, mainly along the right cerebellar hemisphere. The MR images obtained 2 days later, shows on t1w and hemo sequence, low signal in territory of the PICA. The t2w and FLAIR shows high signal, but shows also areas of low signal compatible with petechial hemorrhage

/hemorrhagic transformation/, DWI with restricted diffusion. T1w axial image following intravenous Multihance reveals discrete gyriform enhancement. The MRI angiogram reveals atherosclerosis of the both ICA, and occlusion of the distal PICA. After six months, MR images show mild resolution. Patient not completely recovered, now with instability.

Conclusion: Noncontrast CT remains the practical initial radiographic examination to exclude intracranial hemorrhage, or other pathology in the setting of possible acute stroke. Routine structural MRI is consistently more sensitive and accurate than CT in the positive identification of ischemic stroke.

PP043

INVESTIGATION OF GI COMPLAINS IN CHILDREN: DON'T FORGET THE "CLASSICS"

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Introduction: Undoubtedly, the evolution of newer imaging methods is fascinating, rendering this area of expertise, an exciting field. MRI (and in a lesser degree CT), with its superior ability of visualizing intra- and extraluminal pathology and the simultaneous evaluation of solid organs, seems ideal in GI investigation. However the risks of sedation, the availability of the methods and the cost-effectiveness (an important issue in present economical setting), should be weighed against the risk of radiation exposure from simpler radiologic examinations, when the information obtained is comparable

Purpose: To remind the value of "old school" examinations in diagnosing GI conditions in pediatric populations

Material and Methods: We present the cases of 7 children with previously undiagnosed conditions of GI tract (bezoar, duodenal stenosis, incomplete malrotation, anal ectopia, congenital short esophagus, intussusception in a 12 year old and Crohn's), where diagnosis was achieved by radiologic or sonographic examination.

Result: The application of a newer method (such as MR-enterography to the patient with Crohn's) would be preferable as to evaluate concurrent findings (such as fistulae in this case) but it wouldn't add much to the initial diagnosis. On the other hand, the value of newer imaging methods on follow-up is important

Conclusion: Despite the need for reducing ionizing radiation in children, common examinations such as barium meals or barium enemas, still play an important role in pediatric imaging.

PP044

UTILITY OF CHEST COMPUTED TOMOGRAPHY AFTER A CHEST RADIOGRAPH IN PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT WITH NON-TRAUMATIC CAUSES

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Introduction: Despite the widespread use of computed tomography (CT) in emergency department (ED), clinical utility of chest CT for non-traumatic emergencies have not been

fully described. Indications for chest CT in ED should be re-evaluated considering radiation exposure and the cost associated with the inessential examinations.

Purpose: The purpose of our study was to evaluate the utility of chest CT after a chest radiograph in patients presenting to the ED with non-traumatic thoracic emergencies and to determine how physicians' diagnoses and management decision are affected by the results of CT examination.

Materials and Methods: 500 consecutive patients with both chest radiography and CT who presented to the ER with non-traumatic causes (female: 225; male: 275; mean age: 70 years; age range: 18–97) were retrospectively included in this study. Chest radiographs and CT images obtained at the same day were evaluated for emergent pathologic findings including pulmonary edema, pneumonic infiltration, pleural effusion, atelectasia, pneumothorax and fractures. Impact of chest CT after a chest radiograph on diagnosis and management of the patient at the ED was evaluated.

Results: Radiographic findings were concordant in 246 (49.2%) of 500 patients. The leading diagnosis and management decisions according to the chest radiography changed after CT in 177 (35.4%) of the study group and this finding was negatively correlated with patient age. In 113 (55%) out of 205 patients, pneumonic infiltration and in 15 (14%) out of 109 patients, pulmonary edema were undiagnosed with radiography. 22 patients were misdiagnosed as pneumonic infiltration while 5 patients were misdiagnosed as pulmonary edema. Pulmonary edema was the most specific (93%) and sensitive (85%) finding of radiography.

Conclusion: Chest CT after a chest radiograph frequently changed diagnoses and management decision in patients presenting to the ED with non-traumatic causes, particularly in patients with pneumonia.

PP045

FREQUENCY OF ACUTE AORTIC SYNDROMES AND OTHER THORACOABDOMINAL EMERGENCIES DETECTED BY COMPUTED TOMOGRAPHY ANGIOGRAPHY IN SUDDEN ONSET CHEST PAIN

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Introduction: Acute coronary syndrome and pulmonary thromboembolism (PTE) are the pathologies to be considered in the differential diagnosis of AAS. However, it is not uncommon many thoracoabdominal emergencies imitating acute aortic syndromes (AAS).

Purpose: In this study, we aimed to evaluate the results of computed tomography angiography (CTA) images obtained for sudden onset chest pain in the emergency department because of a preliminary diagnosis of AAS.

Materials and Methods: We retrospectively evaluated the imaging archive of our hospital for images obtained for sudden onset chest pain in the emergency department because of initial diagnosis of AAS between January 2011 and July 2013. Detected AAS and acute thoracic and abdominal pathologies were recorded.

Results: Out of 631 CTA, 152 (24.1%) demonstrated thoracoabdominal emergencies. 34 of them (5.4%) were AAS. 27 (17.8%) of the AAS's were aortic dissection, while 7 (4.6%) of

them were a ruptured aortic aneurysm. Thoracic emergencies were detected in 26 cases (17.1%). More common ones were pneumonia (30.3%), pulmonary edema (9.9%), PTE (9.2%), urinary obstruction secondary to nefrolitiasis (5.9%), mesenteric lymphadenitis (3.3%) and acute cholecystitis (3.3%). Urgent complications due to primary malignancies such as lung cancer, lymphoma and colon cancer were detected in 13 (8.6%) of the cases. Triple rule out protocol was performed for 26 cases with a suspected pulmonary thromboembolism. 4 (15.4%) of them presented with an acute PTE.

Conclusion: In the current study, pneumonia, pulmonary edema, PTE, urinary obstruction secondary to nefrolitiasis, mesenteric lymphadenitis and acute cholecystitis were more commonly detected. Another remarkable finding was the frequency of urgent complications due to primary malignancies.

PP046

ULTRASOUND FINDINGS OF MIDGUT VOLVULUS

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Introduction: Malrotation and midgut volvulus is potentially one of the most serious pediatric surgical emergencies and the role of radiology in its diagnosis is critical. Delay in diagnosis carries the risk of infarctive necrosis of the entire small bowel and is potentially fatal.

Purpose: To demonstrate the role of Ultrasound (gray-scale and color Doppler) in the diagnosis of midgut volvulus. Our experience in two cases.

Materials and Methods: Two-months-old boy and full term two days old newborn girl presented to the emergency department with acute onset of bilious vomiting and abdominal pain. Ultrasound examination was performed in both patients.

Results: The ultrasound examination revealed inversion of the normal relationship of the superior mesenteric artery and vein, with the vein abnormally positioned to the left of the artery. Color-Doppler also showed the “whirlpool-sign”, which corresponds to a clockwise wrapping- twisting of the superior mesenteric vein and mesentery around the artery. In the older child, non-ionic contrast was administered via a nasogastric tube and the gastrointestinal study (GI) confirmed the diagnosis of the ultrasound examination. The GI revealed an abnormal position of the duodejejunal junction to the right of the midline.

Conclusion: Ultrasound is especially suitable for evaluating pediatric abdomen. “Whirlpool sign” is very specific sign of midgut volvulus. Using this sign for diagnosing midgut volvulus in appropriate clinical circumstances can expedite the surgical management of these patients and reduce the delay by avoiding upper gastrointestinal barium studies.

PP047

THE INCIDENCE OF SUBCLAVIAN ARTERY ANEURYSM (SAA) HAS BEEN REPORTED AS 3.5% OF ALL PERIPHERAL ANEURYSMS.

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A 42-year-old woman was taken to a regional hospital feeling decaying chest pain which was expanding on her back and lasting for 15 minutes. The chest X-ray revealed mediastinal widening on the right side. Contrast-enhanced MDCT scan of the chest demonstrated the presence of a 5cm sized right SAA involving the intrathoracic portion. It originated from the right subclavian artery just proximal of its origin. SAA was directed forward with active bleeding from a medial wall causing mediastinal hematoma compressing the posterior and right tracheal wall with its displacement. Right cervico-sternotomy was done with partial resection of the aneurysmal sac and interposition of tubular polyester fiber (Dacron). After one month the patient came in for a control MDCT examination which demonstrated normal width of right subclavian artery with homogenous post-contrast blood opacification with correct position of Dacron graft.

The possible origins for SAA include atherosclerosis, trauma, thoracic outlet syndrome (TOS), infection, fibro-muscular dysplasia, cystic medial necrosis and Marfan syndrome. Timely recognition of this entity is important in order to prevent complications such as thrombosis, embolism and rupture.¹ Arteriosclerosis is the main cause of aneurysmal developing dominantly covering the great arteries and lower extremities. It is seen in 60% of the reported causes. From 1926 to 1995, 20 cases of right SAA are reported in the literature, but 12 of them with intrathoracic localization. Until today 13 more cases have been described.

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PP048

CAROTID OCCLUSION VS PSEUDO OCCLUSION: CEUS AS A PROBLEM SOLVING TOOL.

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Introduction: Differential diagnosis between carotid occlusion and a pre-occlusive stenosis is of great clinical significance given the different treatment required for these two

conditions. Digital Subtractive Angiography is considered the reference method for the accurate differential diagnosis of these entities. Nevertheless, many non-invasive imaging modalities including conventional ultrasound, computed tomographic angiography and magnetic resonance angiography have been evaluated in terms of diagnostic accuracy for accurate diagnosis. Contrast-enhanced ultrasound has been recently introduced in the study of carotid disease with promising results in this diagnostic dilemma as well.

Purpose: The purpose of this e-poster is to present the value of contrast-enhanced ultrasound as a problem-solving tool for the differential diagnosis of carotid occlusion and pre-occlusive stenosis.

Materials and Methods: We present two patients where colour Doppler imaging raised suspicion of carotid occlusion due to the lack of colour signals within the lumen of the internal carotid artery. Contrast-enhanced ultrasound was used to further investigate these patients. Contrast-enhanced Magnetic Resonance Angiography and Multi-detector computed tomography angiography were used as reference methods to establish the final diagnosis.

Results: In the first case, this technique revealed the presence of blood flow in a high-grade stenosis whereas in the second case it confirmed the presence of carotid occlusion. In both cases, contrast-enhanced ultrasound accurately established the diagnosis of carotid occlusion or near-occlusive stenosis, accurately guiding patient treatment.

Conclusion: Contrast-enhanced ultrasound is a complementary ultrasonographic technique offering improved flow visualization and vessel lumen delineation which has been recently introduced in the study of carotid disease. The differential diagnosis of carotid occlusion and pre-occlusive stenosis is a highly significant clinical query which can be accurately and non-invasively addressed using this imaging modality.

PP049

CAROTID PLAQUE ULCERATION: AGREEMENT BETWEEN CONVENTIONAL AND CONTRAST-ENHANCED ULTRASOUND.

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Introduction: Grading of luminal stenosis represents the traditionally used criteria for the risk stratification of carotid disease and treatment planning. Nevertheless, increasing evidence during the last years has shown that factors other than degree of stenosis play a crucial role in rendering a carotid plaque symptomatic, giving rise to the term “vulnerable plaque”. Ulceration is an important feature of vulnerability and significantly increases the risk for ipsilateral neurologic symptoms.

Purpose: The purpose of this study was to compare the results of conventional unenhanced ultrasound and CEUS regarding the diagnosis of carotid plaque ulceration and evaluate the agreement of these two modalities.

Materials and Methods: 19 consecutive patients referred for carotid ultrasound (US) and identified with >50% carotid stenosis were included in the study (mean age 72, standard deviation 5.1). The patients underwent carotid ultrasound with B-mode, colour Doppler and pulse-wave Doppler technique. The plaque was diagnosed as ulcerated on ultrasound when a cavity at least 2 mm with a black wall and flow reversal. On CEUS ulceration was diagnosed when a cavity filled with microbubbles and measuring at least 2 mm was identified. The exams were individually evaluated by two radiologists reaching consensus for each modality. The kappa value for the agreement between US and CEUS.

Results: 6/19 (31%) of carotid plaques were classified as ulcerated on US, whereas 8/19 (42%) were diagnosed as ulcerated on CEUS. The kappa value for the agreement between US and CEUS was 0.553 which can be interpreted as a weak inter-observer agreement. The percentage in agreement was 78.9%.

Conclusion: There is a rather weak agreement between US and CEUS for the diagnosis of an ulcerated carotid plaque. Given the clinical significance of this diagnosis further studies are needed using a reference method, to establish the exact diagnostic accuracy of each method.

PP050

GASTROINTESTINAL STROMAL TUMOUR: IMAGING FINDINGS ON COMPUTED TOMOGRAPHY

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Introduction: Gastrointestinal stromal tumours (GIST) represent common mesenchymal tumours of the gastrointestinal tract. Accurate and timely diagnosis of a GIST is crucial as these tumours respond very well to chemotherapy. They can be found virtually in every part of the gastrointestinal tract but most frequently affect the stomach and the small intestine. They typically appear on computed tomography as masses of soft tissue density which may show central necrosis and are characteristically exophytic.

Purpose: The purpose of this e-poster is to present cases of patients with GISTs and their imaging findings on multidetector computed tomography.

Materials and Methods: Patients with GISTs of the stomach and small intestine were examined with CT and their findings are presented.

Results: CT findings of patients with GISTs are presented and the relevant literature is discussed. We present a case of a large ulcerated GIST of the stomach protruding into the lumen. We also present a second case of a GIST of the small intestine which showed smooth borders and extended out of the small intestine.

Conclusion: GISTs represent a common group of gastrointestinal tumours which present with characteristic findings on CT. Accurate diagnosis and exclusion of other types of gastrointestinal neoplasias is essential for appropriate treatment planning.

PP051

CORRELATION OF CAROTID PLAQUE HISTOGRAMS ON US AND MDCTA: A CASE SERIESVasileios Rafailidis¹, Georgios Pitoulis², Konstantinos Kouskouras¹, Bettina Haidich³¹Radiology Department, AHEPA General University Hospital of Thessaloniki, Thessaloniki, Greece²2nd Department of Surgery, G Gennimatas Hospital, Aristotle University of Thessaloniki, Thessaloniki, Greece³Faculty of Medicine, Aristotle University of Thessaloniki, Thessaloniki, Greece

Introduction: Carotid plaque composition is among the imaging features of the “vulnerable”, associated with increased risk for neurologic symptoms. Both ultrasound and computed tomography can be used to evaluate the plaque composition objectively using histogram analysis.

Purpose: The purpose of this case series study was to investigate the correlation of carotid plaque histograms of echogenicity with MDCTA histograms of density and subjective classification of echogenicity.

Materials & Methods: This prospective study included 10 consecutive patients referred for suspected carotid stenosis. The patients underwent carotid colour Doppler Ultrasonography and MDCTA. Echogenicity histograms were created by software incorporated into an US device. MDCTA histograms of HU density were also created and correlated with US histograms. There were 24 histograms created from plaques found in both internal and common carotid artery and analyzed. Kendall correlation coefficient was used to correlate the means of US with those of MDCTA histograms and the means of US and MDCTA histograms with the subjective classification of echogenicity. Kruskal-Wallis test was used to compare means of US and MDCTA histograms between different echogenicity classes.

Results: The observed Kendall correlation coefficient was 0.537 between the means of US and MDCTA histograms ($p < 0.001$). Between the means of US histograms and class of echogenicity the coefficient value was 0.57 ($p < 0.001$), whereas the coefficient between the means of MDCTA histograms and class of echogenicity was 0.616 ($p < 0.001$). Kruskal-Wallis test showed that both means of US and MDCTA histograms differ significantly between different classes of echogenicity ($p = 0.008 < 0.05$ and $p = 0.007 < 0.05$ respectively).

Conclusion: We observed significant correlation between US and MDCTA carotid plaque histograms and between US histograms and subjective classification of echogenicity. Our results suggest that echogenicity histograms created by software incorporated into ultrasonographic devices and during the actual examination represent an objective and reliable technique to characterize the composition of a carotid plaque.

PP052

NORMAL SONOANATOMY OF THE KNEE: A PICTORIAL ESSAY.

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Introduction: Ultrasonography represents the first-line imaging modality for investigation of suspected knee pathology, providing essential information about tendons, bursae, cartilage, menisci, fat pads and ligaments. As a result, young radiologists should be familiar with the normal ultrasonographic anatomy of the knee.

Purpose: The purpose of this e-poster is to present the normal ultrasonographic anatomy of the knee from all aspects, on both longitudinal and transverse planes.

Materials and Methods: Healthy volunteers underwent knee ultrasonography in order to visualize the various components and anatomic structures of the normal knee joint. The examinations were performed with an Aloka prosound α7 ultrasonographic device and a linear 7-13 MHz probe.

Results: We present images of the various anatomic structures of the normal knee from different aspects and on both axial and longitudinal planes.

Conclusion: Ultrasonography is a valuable imaging modality in the diagnostic approach of the knee joint components. Proper knowledge and familiarity with normal ultrasonographic anatomy is essential for accurate diagnosis of the various pathologic conditions.

PP053

HYPoxic-ISCHEMIC BRAIN INJURY IN CHILDREN

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Introduction: Hypoxic-ischemic brain injury represents a heterogeneous group of destructive lesions of different pathologic and radiologic presentation. There's a misconception that stroke is rare in pediatric patients, when in reality it is a major cause of child morbidity and one of the top ten causes of child death. Commonly it clinically presents with seizures, hypotonia, irritability or lethargy, but in neonates can be very subtle.

Purpose: Purpose of this paper is to illustrate sovereignty of MR imaging in diagnostic work-up of hypoxic-ischemic brain injury in children, and to present different patterns of brain destruction depending on affected region and age of the patient in the time of the insult.

Materials and Methods: A prospective-retrospective study of MR brain examinations done during a five-year long period in Center for radiology of Clinical center Nis was performed. Children included in the study were from 0 to 16 years old. All exams were performed on

Siemens Avanto 1,5T MRI machine, and standard pediatric protocols were used in correlation with children's age.

Results: Radiologic presentation of hypoxic-ischemic brain injury is very variable and depends upon several factors including: maturity of child's brain, severity and duration of insult, as well as the type and time of imaging. Fetal brain has limited capacity for astroglial reaction and insults result in liquefactive necrosis. Brain of older children reacts similarly to adult brain with significant astrocyte reaction forming irregular cavities with gliosis and resulting lesion called encephalomalacia. Neonate brain falls somewhere in between these two.

Conclusion: MR brain imaging in children is the method of choice, it enables earlier diagnosis and more precise localization of hypoxic-ischemic cerebral injury. Having in mind very different radiologic appearances it is important to know patterns of hypoxic-ischemic brain destruction in children of different age.

PP054

A RARE CASE OF MENINGEAL SPREAD OF ENDOMETRIAL CARCINOMA

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Introduction: Adenocarcinoma of the endometrium is the most common gynecological cancer in developed countries, while in the developing countries it is the second frequent to cervical cancer. Leptomeningeal carcinomatosis is a rare metastatic event in gynecological neoplasms, with most cases occurring in ovarian cancer. It is extremely infrequent in cervical cancer, with only few reports of this complication in association with endometrial cancer.

Case report: We present a case of a 70-year-old woman referred to Emergency Department due to aggravation of visual disturbances progressing to full loss of vision on both eyes. After initial neurological workup, she was referred to head CT examination. Anamnestic data revealed that patient had been diagnosed with endometrial carcinoma stage FIGO IIb and underwent total hysterectomy with adnexectomy and pelvic lymphadenectomy twelve months ago. This was followed by irradiation and chemotherapy. There were no signs of locoregional recurrence on follow up CT scans.

Head CT revealed irregular soft tissue mass infiltrating sellar region, with entrapment of both optic nerves and optic chiasma, spreading over anterior clinoid process into anterior cranial fossa. Infiltration showed significant contrast enhancement. Similar deposit was detected on the dura surface adjacent to the frontal bone, but with signs of inner bone cortex destruction. Multiple deposits were also found in the bones of the cranium.

MR of the brain better depicted these findings, with additional punctiform leptomeningeal deposits. Furthermore, MR confirmed that pituitary gland was intact thus facilitating the differential diagnosis of meningeal spreading versus pituitary metastasis.

Conclusion: Leptomeningeal carcinomatosis should be considered in patients with history of gynecological cancer, presenting with newly developed and unexplained neurological symptoms.

PP055

CONTRIBUTION OF DYNAMIC - CONTRAST ENHANCED MRI IN DIAGNOSIS OF WARTHIN TUMOR

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Introduction: Warthin's tumor (or papillary cystadenoma lymphomatosum), is a benign tumor with a tendency towards bilateral involvement, most commonly arising from the parotid gland tail and representing 4%–11.2% of all tumors of the salivary glands.

Purpose: The purpose of our study was to evaluate magnetic resonance images (MRI) in correlation with dynamic contrast enhanced MRI (DCE-MRI) in diagnosing Warthin tumor (parotid adenolymphomas) retrospectively.

Materials-Methods: Four male patients with an average age of 40-60 years and history of smoking presented with an asymptomatic palpable neck mass. The patients underwent DCE-MRI which was retrospectively reviewed.

Results: MR imaging revealed a unilateral oval lesion with smooth boundaries in the posterior – inferior pole of the superficial lobe of the parotid gland. In two (n=2) cases the tumor appeared homogenous with a low-signal-intensity on T1 sequence, whereas in the two (n=2) remaining cases it presented as a heterogenous tumor with a few small areas of slightly high-signal-intensity on T1 and low-signal-intensity on T2, representing cystic spaces with proteinaceous fluid. On DCE-MRI all tumors showed early enhancement and rapid wash-out. All tumors were surgically resected and histologically confirmed to be Warthin's tumors.

Conclusion: Our study showed the importance of DCE-MRI in differentiating Warthin's tumors from other benign or malignant tumors of the salivary glands.

PP056

EXTRACORONARY CARDIAC FINDINGS IN CARDIAC IMAGING WITH CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY

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Introduction: Coronary computed tomography angiography (CCTA) has now a wide use in the evaluation of the heart. Extracoronary incidental findings are not rare.

Purpose: We investigate the frequency and clinical significance of extracoronary cardiac findings in CCTA.

Materials and Methods: We have reviewed 290 consecutive studies of CCTA, performed at our institution during a 2-year period. The great majority of patients were referred to our



institution for coronary artery disease evaluation. We assess the extracoronary cardiac findings of cardiac chambers/myocardium, interatrial and interventricular septum, pericardium, cardiac valves and other great vessels of the heart.

Results: The subjects consisted of 220 males (76%) and 70 females with a mean age of 63,4 years old (range, 19-85). A total of 129 findings were found in 290 patients (44,48%), of which only 52 of them (40,31%) were clinical not significant.

Conclusions: There were a significant number of extracoronary cardiac findings in CCTA. Radiologists should be familiar with the imaging appearances of extracoronary cardiac findings and be able to distinguish clinical significant from clinical insignificant findings in CCTA.

PP057

TEMPORAL LOBE EPILEPSY AS CLINICAL PRESENTATION OF BRAIN TUMORS OF VARIOUS HISTOLOGICAL TYPES AND GRADES IN PATIENTS OF DIFFERENT AGE: MRI FINDINGS – A CASE SERIES

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Introduction: Epileptic seizures are the most common manifestation and frequently the presenting symptom of brain tumors. The incidence of tumors in patients with chronic epilepsy has been reported to be up to 50 %. Temporal lobe epilepsy (TLE) is the most common focal epilepsy in adults. Mesial temporal sclerosis is found in approximately 60 % of patients with TLE. The most common tumors which cause TLE are low-grade gliomas, predominantly ganglioglioma.

Purpose: We present a case series of six patients of different age with brain tumors of various histological types and grades that clinically manifested as TLE.

Materials and methods: Six patients were admitted to our Hospital with clinical presentation of TLE. Patients' age ranged from 6 months to 62 years.

Initial brain CT revealed temporal lobe lesions in 2 patients. In all patients MRI examination was performed on Siemens 3,0 T Skyra scanner. Standard brain sequences and special epilepsy protocol were done, T1 sagittal, T1, T2, FLAIR axial, DWI, ADC, SWI and GRE sequences were measured.

Results: On MRI examination in all patients tumors were found - pathohistological diagnoses were as follow: gangliogliomas of various types and grades in 4 cases, 1 case of pleomorphic xanthoastrocytoma and 1 DNET.

Advantages of MRI in imaging of the brain tumors include higher degree of tissue differentiation, better detection of the mass effect and better delineation of the edema, and more accurate assessment of lesion vascularity.

All tumors were treated surgically.

First follow up MRI's were done between 2 and 6 months after surgery.

We found residual tumor in 2 patients.

Conclusion: In all six presented patients of different age with TLE, brain tumors were discovered on MRI - pathohistological analysis showed various histological types and grades of tumors. MRI's done after surgery revealed residual tumor in 2 patients.

PP058

HUMAN SUBCUTANEOUS DIROFILARIASIS- CASE REPORT

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Introduction: Human dirofilariasis is a zoonotic disease caused by *Dirofilaria repens* and *Dirofilaria immitis*. It usually presents itself as a nodular lesion in the subcutaneous tissues, lung or eyes. The main natural hosts for the two *Dirofilaria* species that most frequently cause disease in humans are dogs, wolves, foxes and raccoons. Humans are infected with *Dirofilaria* larvae through mosquito bites. In Europe, human dirofilariasis is a very rare zoonotic disease even in endemic areas such as Italy, Spain and the Mediterranean.

Purpose: Display of ultrasonography possibilities in the diagnosis of subcutaneous changes caused by *Dirofilaria repens*.

Material and methods: we present a patient aged 43, from Belgrade, who came for an examination of a swelling in the region of the left Achilles tendon, accompanied by itching. It is alleged that the swelling appeared a year ago in the left upper thigh and descended to the region of the left Achilles tendon where it has remained in the last two months with an emergence of itching.

Results: During examination of the left Achilles tendon region, a swelling of about 2 cm in diameter was observed with a livid colouring of the skin. Through ultrasound, in the subcutaneous adipose tissue above the Achilles tendon, an oval, clearly circumscribed, avascular change, of 12x10x5 mm diameter was observed. Inside of the lesion there are curvilinear echogenic structures with a diameter of 0.7 mm, which are moving. The change was removed in its entirety, while parasitological analysis has proven that it was *Dirofilaria repens*.

Conclusion: It is very difficult to make the diagnosis of a subcutaneous nodule. The difficulties arise in the differential diagnosis because subcutaneous nodules are suspected to be malignant neoplasm or other pathologies such as sebaceous cysts, abscesses, and so on. Ultrasound is very helpful in the differential diagnosis of these changes.

PP059

ABDOMINAL AORTIC ANEURYSM WITH RUPTURE, AND A FISTULA TO THE LEFT RENAL ARTERY, RETROPERITONEAL HEMATOMA, AND HEMATURIA

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Rupture of an aneurysm of the abdominal aorta (AAA) is one of the most urgent surgical cases, with mortality around 90%. Most AAA ruptures in retroperitoneal cavity present a classical triad of pain, hypotension and pulsating mass in the abdomen. However, this triad is found only in 25-50% of patients. Many patients with ruptured AAA are not diagnosed



clinically. The level of rupture can determine the occurrence of unusual clinical symptoms. A rare but important symptom of ruptured AAA is hematuria.

PP060

OSTEOPOIKILOSIS - CASE REPORT

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Introduction: Osteopoikilosis is a very rare, asymptomatic, osteosclerotic dysplasia. It is equally represented in both sexes. Most cases are sporadic, but there is also a family burden to take into consideration. Clinical manifestations are usually absent or mild. In 25% of cases skin changes can be found, which consist of fibrocollagen infiltrates, a predisposition to form keloid scars and scleroderma-related lesions.

Purpose: The paper aims to show osteopoikilosis as a radiological diagnosis that occurs very rarely and may lead to differential diagnostic difficulties.

Material and methods: We present a patient aged 28 years, who visited the doctor due to an injury to the right wrist. After x-raying the right hand, radiologists proceeded with radiography of hands, feet, the pelvis and knees due to the suspicion of osteopoikilosis.

Results: Numerous, small, punctiform, periarticular, diffusely distributed, homogeneous, well circumscribed, circular and ovoid sclerotic regions were observed on these articulated skeletal and joint structures in the bones of the wrist, foot, pelvis, while epiphyses and metaphyses was registered in the long bones.

Conclusion: Osteopoikilosis is a radiological diagnosis. Although it occurs rarely, when interpreting radiographs it should always be kept in mind and distinguished from other osteosclerotic changes, primarily osteosclerotic metastases.

PP061

A VERY RARE CASE; CHIARI MALFORMATION TYPE III AND KLIPPEL-FEIL SYNDROME ASSOCIATION IN AN ADULT PATIENT

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Introduction and Purpose: Chiari type III malformation is a combination of encephalocele with of brainstem and cerebellar abnormality. Although Klippel-Feil syndrome (KFS) is mainly associated with varying degrees of cervical vertebral fusion anomalies. The main involvement in Chiari type III malformation and KFS is in the craniocervical junction. We aimed to present magnetic resonance imaging (MRI) findings of an adult female patient who have Chiari malformation type III and KFS association.

Case: 29-year-old mentally retarded female patient was admitted in our radiology department a history of seizer. MRI of the brain and cervical was performed. Occipital swelling was present from birth. By inspection and palpation, the swelling was soft in consistency in 5x3x3,5 cm and its surface was covered with normal skin in lower occipital region. MRI studies showed encephalocele in occipital region, fusion of cervical vertebrae,

and syringohydromyelia in the spinal cord cervical 3th-5th level. The posterior part of the right occipital lobe seen into encephalocele sac.

PP062

CASE REPORT OF A 90 YEAR OLD PATIENT DIAGNOSED WITH MERKEL CELL CARCINOMA A NEURO ENDOCRINE DERMAL TUMOR, AN EXTREMELY RARE ENTITY. RADIOLOGISTS IMAGING FINDINGS

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Introduction: Merkel cell carcinoma (MCC) is an extremely rare aggressive cutaneous neuroendocrine tumor malignancy originating from the neuroendocrine and mechanoreceptor Merkel cells of the skin. It consists of T-cell lymphoma, and basal rapidly growing hemispheric or less commonly plaquelike, nontender cutaneous mass that infrequently ulcerates. It appears in the seventh and eighth decades of life. The differential diagnosis of primary MCC includes other cutaneous malignancies, such as melanoma, cutaneous cell and squamous cell carcinoma. Definitive diagnosis of MCC requires biopsy.

Purpose: Aim of our case presentation is to pinpoint this rare entity to the radiologists, in order to have awareness of the disease in case of imaging of multiple subcutaneous nodules and lymph node metastases.

Materials and Methods: The 90 years old patient was addressed to the Emergency Department old showing multiple subcutaneous nodules and high temperature. The patient was referred to the Radiology department for further investigation. CT imaging of thorax and abdomen was performed at a 16 row MDCT scanner, slice thickness 1mm reformatted using MPR reconstruction tools.

Results: Results showed generalized dissemination of these nodules subcutaneously throughout the body surface, as well as lymph node metastasis to mediastinum, axillary areas and intraabdominally. Biopsy of nodules confirmed the diagnosis of a rare disease known as Merckel cell carcinoma staged IV. The patient died 2 months after diagnosis was made.

Conclusion: This case report depicts the role of radiologist in first time diagnosis, staging, workup, treatment, and follow-up of this rare entity of MCC.

PP063

NONINVASIVE EVALUATION OF CONGENITAL CORONARY ARTERY ANOMALIES OF THE ORIGIN WITH CT CORONARY ANGIOGRAPHY – OUR EXPERIENCES

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Introduction: Coronary artery anomalies (CAAs) are rare congenital disorders with prevalence of 0.3-1% in the general population. CT is an excellent non-invasive imaging modality for visualization of anatomy and anomalies of coronary arteries.

Purpose: To review CT appearance of congenital coronary anomalies of the origin in adults and point the value of CT coronary angiography in their evaluation.

Materials and Methods: During 5 year period we performed retrospective ECG gated CT coronary angiography in 871 patients. 771(89%) patients were scanned with 64-slice scanner (Lightspeed VCT, GE) and 100(11%) patients with 256 ICT Philips scanner. Coronary artery anomalies were found and analyzed in 9 (1%) patients, (7 male age range 42-82 and 2 female, age 47 and 50years).

Results: The following CAAs were detected: 1. The left coronary artery (LCA) originate from the pulmonary artery, 2. Right coronary ostium agenesis, 3. Right coronary artery (RCA) arising from the opposite sinus of Valsalva with a separate ostium, 4. RCA originate from left sinus of Valsalva, 5. RCA originate from left coronary artery LCA, 6. The Left circumflex Artery arising from right sinus of Valsalva with retroaortic course - 2 patients, 7. A single coronary artery that originated from the right sinus of Valsalva, 8. LCA originate from right sinus of Valsalva.

Conclusion: With its noninvasivity and 3D visualization of the coronary arteries as an attractive advantage over conventional angiography, CT coronary angiography is a safe and effective imaging modality for an easy diagnostic of CAAs.

PP064

ACUTE MESENTERIC ISCHEMIA (AMI) : THE KEY ROLE OF RADIOLOGIST

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Learning objectives: To present the versatility of imaging of acute mesenteric ischemia, a life threatening disease, requiring early diagnosis and treatment.

Background: Reported mortality of acute mesenteric ischemia ranges from 30 to 90% depending on the severity of ischemia. The etiology of ischemia is based on 4 main reasons: arterial embolism, arterial thrombosis, venous occlusion and non occlusive disease. Imaging findings are not always evident and vary widely depending on the time of ischemia ie mucosal or transmural necrosis, location and degree of haemorrhage or superinfection.

Imaging Findings or Procedure Details: We present 7 cases of AMI, covering a large spectrum of different morphological and attenuation imaging abnormalities, including bowel wall thickness, bowel wall attenuation, pneumatosis intestinalis, portomesenteric venous gas, dilatation of bowel lumen, arterial or venous mesenteric occlusion, mesenteric fat stranding, ascites.

Conclusion: The role of radiologist is considered crucial in pinpointing this vague entity. Correct diagnosis demands high level of clinical suspicion, appropriate technically CT imaging and accurate interpretation of images. Recognition of variations of imaging should be taken into account by radiologists in order to achieve correct diagnosis.

PP065

SURVIVAL OF DIFFERENT VASCULAR ACCESSES IN HEMODIALYSIS PATIENTS. CORRELATION WITH PREOPERATIVE VASCULAR MAPPING vs NON MAPPING. A SINGLE CENTER EXPERIENCE.

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Introduction: Vascular access is considered the thread of life for hemodialysis (HD) patients. Preoperative vascular mapping in HD patients is proposed in order to improve vascular access outcome. We compared survival of arteriovenous fistulas (AVFs), arteriovenous grafts (AVGs) and central catheters (CLs). Additionally, the preoperative mapping and survival between mapped and non mapped AVFs and AVGs was studied.

Purpose: To compare survival of different vascular accesses in hemodialysis patients as well as to investigate the role of prior Doppler mapping to the above patients.

Materials and Methods: The retrospective observational study comprised of data acquired from 2008 to 2013 (118 vascular accesses in 92 HD patients treated in a single Unit in Greece). Survival rates of AVFs, AVGs and central lines were calculated (mean value± SD). Graphical representations of survival curves were plotted using the Kaplan Mayer analysis. Survival curves for mapped vs. non mapped AVFs and AVGs were plotted.

Results: During the study period, 118 vascular accesses were performed in 92 HD patients that were recruited. Total mean survival rate was 28±29 mo for AVFs, 30±25 for AVGs and 15±14 for CLs. In this period, 44.8% of the AVFs were occluded. For the AVGs 52.9% occluded and for CLs 16.2% occluded. Concerning vascular access mapping prior to AVF or AVG creation, our study demonstrated 27.1% mapped vs. 72.8% of non- mapped. Total median survival for mapped/ non- mapped accesses was 21±19 vs. 31±30.

Conclusions: Our study showed better total survival rates for AVFs/AVGs than CLs. AVF was the first choice vascular access for the majority of patients, in agreement to international recommendations. Our study shows that functionality loss of AVFs is similar to AVGs. Finally, Survival of mapped limbs was not superior to non- mapped. However need for vascular access Doppler mapping is underlined, in order to detect anatomic variations or adequate patency.

PP066

ULTRASOUND FINDINGS IN PATIENTS WITH MANGO FLY MYIASIS IN BANGUI – CENTRAL AFRICAN REPUBLIC

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Introduction: Myiasis is the infestation of soft tissue with fly larvae (maggots). The infestation is most often subcutaneous and makes a furunculoid or boil-like lesion, but it is can be found in wounds and certain body cavities. Cordylobia anthropophaga, (mango fly, tumbu fly, tumba fly) common in East and Central Africa. It is a parasite of large mammals



(including humans) during its larval stage. The fly commonly infects humans by laying its eggs on wet clothes, left out to dry. The eggs hatch in 1-3 days and the larvae (who can survive without a host for up to 15 days) When clothes are dressed larvae penetrate the skin. Ironing clothes is a method of prevention because it is time to kill the larvae.

Material and Methods: This is a study done in UN Military MINUSCA SRB MED Hospital Level II in Bangui Central African Republic, from Jun 25. 2015. to January 16. 2016.

Results: Total of 14 patients suspected of Myiasis sent to the ultrasound examination of soft tissue.

Ultrasound examination of soft tissue shows clearly limited anehogenic do heteroeogenous zone corresponding to abscess cavity. Diameter change was found between 9 and 24mm. Two patients with clear anechoic changes are indicative of inflamed atheroma, while others 12 who had hyperrecogenics echoes pointed to Mango fly Myiasis.

Treatment: When Cordylobia anthropophaga causes cutaneous myiasis, the larvae can be removed without any incision. Covering the lesion (breathing hole) with petroleum jelly or similar substances interrupts the supply of air and makes the worms to the surface, where it easily removed with tweezers

Conclusions: Ultrasound examination is very important in the process of detection in patients with Myasis.

PP067

ILIOTIBIAL BAND FRICTION SYNDROME CAUSE OF HARDWARE RELATED COMPLICATIONS AFTER GRAFT RECONSTRUCTION OF THE ANTERIOR CRUCIATE LIGAMENT

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Introduction and Purpose: Iliotibial band friction syndrome is a potential complication of anterior cruciate ligament (ACL) reconstruction operation with the use of a autogenous graft and transfix device or endobutton. Partially dislodged or fragmented transfix device or endobutton may contact the adjacent iliotibial band and cause frictional thickening or tearing. We aimed to present X-Ray and magnetic resonance imaging (MRI) findings two case of iliotibial band friction syndrome cause of hardware related complications after graft reconstruction of the ACL.

Cases: 42-year-old male and 24-year-old male patients were admitted in our radiology department a history of knee pain. Both cases had ACL reconstruction operation history. X-Ray and MRI of the knee was performed both cases. Iliotibial band friction syndrome cause of hardware related complications was seen both cases. First case, metal transfix dvice was used as an external fixator, and tranfix dvice was contact and protruding lateraly to the iliotibial band, and cause frictional thickening and increase signal intensity. Second case, metal endobutton was used as an external fixator. There was endobutton displacement. Endobutton was contact the adjacent iliotibial band and cause frictional minimal thickening and increase signal intensity.

Discussion: After ACL reconstruction operation iliotibial band friction syndrome may occur as a result of contact of the external fixator to the iliotibial band. X-Ray and MRI can show incorrect position of external fixator. MRI can show increase intensity frictional thickening and partial tear of iliotibial band.

PP068

A RARE CASE REPORT: ATLANTO-OCCIPITAL ASSIMILATION WITH BASILAR INVAGINATION

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Introduction and Purpose: Atlas assimilation refers to the congenital fusion of the atlas with the base of the occipital bone. It is estimated to affect between 0.08 and 3.0% of the general population. In this report, we aimed to present computed tomography (CT) findings of a patient with atlanto-occipital assimilation with basilar invagination.

Case: A 46-year-old female patient was admitted to the Neurology department with headache and neck pain. Her physical examination, showed restriction in the range of the bilateral forward bending motion of his neck due to an electrical sensation that was running down his back and into his limbs. The patient underwent cervical CT imaging. Cervical CT demonstrated fusion of the anterior and posterior C1 arches with the basilar part of the occipital bone and incomplete block vertebrae on C2-3. Furthermore odontoid process above the foramen magnum and medulla spinalis was compressed.

Discussion: The occipital bone that forms the foramen magnum and vertebra originates in sclerotomes at the ventromedial portion of somites separated from the para-axial mesoderm. Maldevelopment may lead to craniovertebral junction abnormalities. Atlanto-occipital assimilation is associated with any coexistent anomalies such as fusion of C2 and C3 vertebra, basilar invagination, cleft palate, cervical ribs and urinary tract anomalies. The present case was associated with basilar impression, and the medulla was compressed by the odontoid process of the axis.

PP069

FAMILIAL MULTIPLE CAVERNOUS MALFORMATION SYNDROME PRESENTING IN A PATIENT WITH EPILEPTIC SEIZURE

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Introduction and Purpose: Cerebral cavernous malformations are vascular lesions formed by histologically enlarged capillary cavities without intermixed brain parenchyma. Two forms of cavernous angioma have been described. Sporadic form, in which patients usually have a single lesion, and a familial form, the hallmarks of which is multiple lesions and appear to be very rare. We aimed to present magnetic resonance imaging (MRI) findings of a patient with Familial Multiple Cavernous Malformation Syndrome.

Case: A 39-year-old male patient presented to our hospital with a secondary generalized seizure. MRI studies showed multiple cerebral cavernous malformations, with the largest one, measuring 16.6 x 10.5 mm, located in the left lentiform nucleus. One cerebral cavernous malformation located in the right frontal lobe also showed evidence of bleeding.

Discussion: A cavernous angioma is a blood vessel hamortoma that may affect any part of the central nervous system. In familial form, it is inherited in an autosomal dominant manner and carries a higher risk of haemorrhage. MRI is the best imaging modality for evaluation of cavernous angiomas. Superficial lesions lead to seizure origin and the patient would benefit from its surgical resection.

PP070

ROLE AND IMPORTANCE OF CT AND MR IMAGING IN DETECTION OF CEREBRAL VENOUS SINUS THROMBOSIS

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Introduction and Purpose: Cerebral venous thrombosis is less common than arterial and more frequent in women.

Clinical presentation:

- headache,
- paresis,
- generalized and focal seizures,
- altered mental status,
- disorder of consciousness
- other numerous symptoms that make thrombosis one of the "great neurological imitators"

Predisposing factors:

- oral contraceptives
- coagulopathies
- pregnancy and puerperium
- systemic diseases, cancer, ear-nose-throat infections, vasculitis, CNS infections, etc.

Purpose of the presentation is to show MR imaging sensitivity in CVST detection.

Material and Methods: Female patient, 69 years old, was admitted and examined because of incoherent speech and inadequate communication.

Neurological findings: Dysphasia sensomotoria, Hemiparesis lateralis dextri discreta

Neuroradiological imaging included Computed Tomography (CT) examination on GE machine, Bright Speed type. Magnetic Resonance Imaging (MRI) was done on GE machine, type SIGNA 1,5 T, using sequences without and with contrast agent.

Results: CT examination presented:



Left temporal hypodensity of the cerebral parenchyma with hyperdensity areas. According to the clinical picture and neurological findings, and after more detailed analysis of the CT findings, the differential diagnosis was: possible venous thrombosis with the consequent ischemic lesions, which was afterwards proven by the MR imaging with MR venography. Laboratory analysis: Significantly elevated D DIMER values.

Conclusion: The MRI is the method of choice in neuroradiological diagnosis of cerebral venous thrombosis.

PP071

A SUPRISING CAUSE OF NECK SWELLING IN A CHILD: ACUTE SPONTANEOUS NECK HEMATOMA

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Introduction: Magnetic resonance (MR) imaging is a commonly used tool when evaluating patients with acute knee injury or chronic knee pain. Although it has shown excellent accuracy in diagnosing knee pathology, extensor mechanism usually remain neglected in daily practise

Purpose: In this study; it was aimed to determine the prevalence of incidental extensor mechanisms pathologies of the knee and review MRI findings.

Material-Method: 448 patients which 231(52%) of them were males and 217(48%) of them were females who underwent knee MRI with knee pain or knee trauma between January 2014 and March 2014 were included into the study. The mean age of the patients was 42.9 ±14.

Results: Among acute traumatic pathologies, patellar fracture was seen in 1, quadriceps tendon rupture was seen in 1 and spontaneous relocation following patellar dislocation was seen in 1 patient. Of the chronic pathologies; patellar tendinosis was seen in 3(0.7%), Osgood-Schlatter disease was seen in 3(0.7%) and chondromalacia patella was seen in 119(27%) patients. In the assessment of patellofemoral instability measurements; increased TTTO measurement was seen in 44(10%), increased trochlear groove angle in 257(57%), patella alta in 4(0.9%), patella baja in 13(3%), lateral dislocation of the patella in 298(66%) and abnormal patellar tilt was seen 162(36%) patients. As regards the pathologies of the soft tissues; bursitis was seen in 13(3%) patients and Hoffa fat pad compression syndrome was seen in 2(0.4%) patients. Furthermore, 4 patients (0.9%) had bipartite patella.

Conclusions: Contrary to the common belief, extensor mechanism injuries are frequent in patients that knee MR is performed. Knowing the normal MRI appearances of the extensor mechanism of the knee and its acute traumatic and chronic pathologies is important in explaining the symptoms of the patient and determining the therapeutical method.

PP072

MAGNETIC RESONANCE IMAGING FINDINGS OF CENTRAL DIABETES INSIPIDUS IN A CHILD

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Introduction and Purpose: Central diabetes insipidus (CDI) is a disorder of excessive renal water loss caused by a deficiency of antidiuretic hormone (ADH). CDI is characterized by polyuria, polydipsia, and the inability to concentrate urine. Dysfunction of the system that maintains water homeostasis may result in life-threatening hyponatremia, seizures, dehydration, and failure to thrive. We aimed to present pituitary gland magnetic resonance imaging (MRI) findings of a patient with CDI.

Case: A 18-year-old male patient presented to our hospital with polyuria, polydipsia and nocturia. He reports drinking 4–5 gallons of water every day due to extreme thirst. Her laboratory tests revealed serum sodium in the range of 140–145 mEq/L, serum osmolality of 295 mOsm/kg, with a concomitant urine osmolality of 279 mOsm/kg. The patient underwent pituitary MRI. MRI studies showed pituitary gland height is 4.5 mm and adenohypophyseal signal in within normal limits. However, the hyperintense signal of the posterior pituitary lobe is absent in T1 weighted images.

Discussion: CDI is the end result of a number of conditions that affect the hypothalamohypophyseal region. MR images allow us to clearly delineate the clinoids, the clivus, and the two components of the pituitary gland. The posterior lobe has been described as a high-intensity structure in the posteroinferior margin of the pituitary gland on T1-weighted sagittal images. MRI should be performed in the diagnostic workup of central diabetes insipidus in childhood to search the hypothalamohypophyseal region abnormalities.

PP073

A RARE CASE: AN ADRENAL ENDOTHELIAL BENIGN CYST

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BEAH

Introduction: The adrenal cyst is a rare disease. Its incidence in autopsy series varies between 0.064% and 0.18%. When they are symptomatic, symptoms due to compression of adjacent structures may appear and can also simulate cases of renal cysts, splenic cysts, "body" and "tail" cysts of pancreas.

Purpose: We aim to report a case of a true adrenal cyst, accentuating its symptoms, features and differential diagnosis.

Materials and Methods: A 39 year old woman complaints about left sided abdominal pain. After the clinical and laboratory evaluation, Magnetic resonance imaging (MRI) was performed.

Results: In the MRI a lobulated cyst with thin septations near the spleen and left kidney in the diameter of 75x100x114 mm was seen. The differential diagnosis includes lenfanjioma,

omental cyst and duplication cyst. A pathology test was performed and the result was an adrenal endothelial cyst.

Conclusion: Adrenal cysts are rare. Its incidence in autopsy series varies between 0.064% and 0.18%. They are classified as pseudocysts, endothelial cysts, epithelial cysts and parasitic cysts. They are usually asymptomatic; mostly an occasional discovery during ultrasound (US), computer tomography (CT) or MRI. In our case the patient had initially abdominal pain. A cyst of unknown origin was found and the diagnosis could be made following the pathological analyses. In giant cysts intracystic hemorrhage may be present. Some other emergencies of the cyst are its rupture, acute hypovolemia or shock due to the intense bleeding. Insidious presentation of the cyst is represented by digestive disturbances due to the changes of the local anatomy. Because of the complications big cysts need a surgery. Small adrenal cysts do not necessary need surgical approach. They may be followed up by US or CT and hormonally.

PP074

ABDOMINAL AORTIC DISEASES—REVIEW OF EMERGENCY

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Introduction: Acute abdominal aortic disease is common and potentially the life threatening condition in clinical practice. The major disease entities include abdominal aortic aneurysm rupture, aortic dissection, occlusion or the penetrating aortic ulcer. The etiology is unknown, but some risk factors are smoking, age or family history. The imaging modality of choice for evaluation of aortic disease is computed tomography angiography (CTA) that gives more information important for treatment and follow-up of patients.

Purpose: This presentation is to point on prompt diagnosis of the aortic diseases using CTA which has high sensitivity for abnormalities of vascular structures

Materials and Methods: From January 2016 to June 2016 in Centre for Radiology- Clinical Centre of Vojvodina, 306 CTA procedures were done.

Results: Abdominal aortic diseases were diagnosed in about 13% of all exams over the period of six months- 30 patients with abdominal aortic aneurysm, four with dissections and 7 patients with aneurysm thrombosis. Endovascular aortic repair (EVAR) was done in 8 patients with good clinical outcome.

Conclusion: We show review of different presentations and radiological signs of these conditions.

PP075

CORRELATION OF ULTRASONOGRAPHIC AND COMPUTED TOMOGRAPHY FINDINGS IN A PATIENT WITH ULCERATED GASTRIC ADENOCARCINOMA.

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Introduction: Gastric ulcers account for approximately one third of peptic ulcers but in some cases they actually represent an ulcerated gastric carcinoma. Imaging investigation of gastric ulcers is mainly performed using upper gastrointestinal fluoroscopy and multidetector computed tomography. Ultrasonography is primarily used to exclude other causes of symptoms including the presence of gallstones and pancreatitis.

Purpose: The purpose of this e-poster is to present and correlate the imaging findings of a gastric ulcer on multidetector computed tomography and ultrasound. The appropriate ultrasonographic technique for imaging a gastric ulcer is presented and discussed.

Materials and Methods: A male patient with upper abdominal pain and discomfort was referred for ultrasound and multidetector computed tomography. Both techniques were performed after filling the stomach with water and ultrasound provided optimal visualization of the ulcer with the patient in the right decubitus position.

Results: A large ulcer was identified in the posterior wall of the stomach on both multidetector computed tomography and ultrasound. Moreover, gas-containing gallstones were identified along with an abdominal aortic aneurysm. Ultrasound confirmed the presence of the ulcer providing similar images to computed tomography after the appropriate preparation of the patient. Endoscopy confirmed the presence of an ulcerated gastric carcinoma.

Conclusion: Ultrasound can be used to successfully evaluate gastric wall pathology, provided the appropriate preparation is performed, providing imaging findings correlating those of computed tomography.

PP076

VASCULAR ABNORMALITIES AS THE MAIN CAUSE OF DIFFERENT INTRACEREBRAL HAEMORRHAGE TYPES - PROSPECTIVE STUDY

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Introduction: Patients with underlying structural vascular abnormalities (VA) may have the recurrence of primary intracerebral hemorrhage (PIH). The site of hemorrhage, the patient's age and pre-existing hypertension affect the likelihood of finding VA. However, the indications for angiography, the gold standard for the diagnosis of VA, still remain controversial.

Purpose: To determine the imaging and demographic characteristics of intracranial haemorrhages, frequency and features of finding VA in patients with IH.

Material and methods: 100 patients with PIH, without a history of trauma, coagulopathy, or known pre-existing brain abnormality, who were admitted to the Intensive Care Unit of the Emergency Department of Clinical Center of Serbia, Belgrade University, between January and June 2016 entered this prospectively designed study. In the group of 96 patients, 53 persons underwent conventional angiography within 10 days of administration to the Intensive Care Unit.

Results: Vascular abnormalities were found in 19 of 53 patients (35.8%); ruptured aneurysms in 10 patients (18.9%), arteriovenous malformations (AVM) in 5 patients (9.4%), venous angioma in 2 patient (3,7%) and cavernous angioma in 2 patient (3,7%). Vascular malformations were found in 12 of 25 patients with lobar hemorrhage, in 2 of 8 patients with hemorrhage originating in the thalamus and in 1 of 2 patients with hemorrhage originating in the pons. Angiographic findings were negative in 8 patients with hemorrhage in the periventricular white matter, in 8 with hemorrhage originating in the basal ganglia and in 2 patients with hemorrhage in the cerebellum. Patients with VA were significantly younger than patients without VA and they had a history of hypertension significantly less often.

Conclusion: Our data showed that a history of hypertension does not exclude the presence of VA and intraventricular hemorrhage or subarachnoid bleeding does not predict the presence of VA.

PP077

SAPHO/ CRMO SYNDROME: PRESENTATION AND EVOLUTION OF RADIOLOGIC FINDINGS

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Introduction: SAPHO is an acronym for the following conditions: synovitis, acne, pustulosis, hyperostosis and osteitis. It is a spectrum, inflammatory bone lesions being the fundamental component, which may or not be associated with dermatological components, with negative bacterial cultures and a clinical course marked by relapses and remissions. The main target area of skeletal involvement is the anterior chest wall, more rarely involves the spine, the pelvis and the long bones.

Many authors believe that chronic recurrent multifocal osteomyelitis (CRMO) is the pediatric presentation for the SAPHO syndrome. The most common sites of skeletal involvement include the long tubular bones and clavicle, but lesions have been described throughout the skeleton.

These diseases are thought to be uncommon, but may be underdiagnosed because of the lack of specific clinical findings on the laboratory tests.

Purpose: To describe the clinical and imaging features of seven patients diagnosed with SAPHO / CRMO syndrome and one patient with CRMO syndrome and compare these with the literature.

Material and Methods: We retrospectively identified seven patients with imaging findings suggestive of SAPHO/ CRMO, six adults diagnosed with SAPHO and one child diagnosed with CRMO. Their clinical, radiological, scintigraphic and histopathological data were reviewed.

Results: In five adult patients there was involvement of anterior chest wall whereas involvement of the spine was noted in three patients and of the mandible in one patient. The child had lesions located at the wrist and hand.

Conclusion: SAPHO and CRMO are diagnosis of exclusion. It is important that radiologists are familiar with the imaging findings of these entities because they can be the first to suggest this diagnosis.

PP078**SKELETAL INVOLVEMENT IN LANGERHANS CELL HISTIOCYTOSIS**

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Introduction: LCH is a rare disorder of unknown etiology that appears in childhood and early adulthood and is attributed to abnormal proliferation of histiocytes in various tissues. Bone involvement is common; a wide spectrum of imaging appearances may be seen ranging from a typical solitary osteolytic lesion of the skull to a permeative abnormality of the long bones that imitates a Ewing sarcoma or osteomyelitis. Imaging is based predominantly on radiography. Once a bone lesion is diagnosed, computed tomography (CT) or magnetic resonance imaging (MRI) may be necessary to assess precisely the degree of trabecular and cortical bone destruction in areas at risk of impending fracture, to guide a bone biopsy (CT), or to assess the degree of soft tissue infiltration in areas at risk of neurological complications (MRI).

Purpose: To familiarize the radiologist with a spectrum of radiographic manifestations of "Langerhans cell histiocytosis" (LCH).

Material and Methods: We reviewed the imaging findings with MRI and/ or CT and X-ray in five patients aged 9 to 18 yrs, with histologically proven histiocytosis.

Results: Two patients with well defined lytic lesion with no sclerotic margins in the occipital bone and in the femoral head, respectively; available MR in one patient showed the lesion hypointense on T1 and hyperintense on T2 images. One patient with vertebral plana on X ray and MR; the height of the vertebral body was restored after treatment. One patient with a permeative lytic lesion of the diaphysis of the RT humerus, which imitated Ewing sarcoma on X-ray and MR imaging. One patient with a destructive lesion of the posterior arch of a thoracic vertebra which resembled malignancy on CT and MRI.

The diagnosis of Histiocytosis Langerhans was based on biopsy in all cases.

Conclusion: Histiocytosis, though rare, should be considered in the differential diagnosis of lytic bone lesions presented either with discrete margins or with a permeative pattern of bone destruction, in children, adolescents and young adults. Radiographic features are variable, from a suggestive appearance to a more aggressive one, which may mimic malignancy. The final diagnosis should be confirmed on histology.

PP079

ULTRASOUND IMAGING OF PREMATURE CRANIAL SYNOSTOSIS (CRANIOSYNOSTOSIS)

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Intoduction: Plain radiography is the standard method of imaging clinically suspected premature craniosynostosis in infants. Ultrasound (US) although a well-established radiation-free imaging method it is not used in everyday practice for imaging cranial sutures.

Purpose: To assess the usefulness of US in imaging of craniosynostosis.

Patients and Methods: The study includes 240 infants (154 boys, 86 girls, mean-age 3.5m) clinically suspected of premature craniosynostosis with microcephaly, plagiocephaly, dolichocephaly or oxycephaly. All infants were assessed with high-resolution US from 2010 up to 2016. Positive US findings were verified with 3D-CT and/or surgery. Infants with negative US findings were followed clinically and in doubtful cases a repeated sonography was performed.

Results: In 17 infants premature synostosis of 1 or more sutures (7%) was diagnosed with US and confirmed with 3D-CT (10 infants) and/or surgery (12 infants). Craniosynostosis of sagittal suture was diagnosed in 11/17 infants (10 boys), frontal suture in 5/17 infants (4 boys, 1 girl), combined coronal-lambdoid suture craniosynostosis in 1 boy and sagittal-lambdoid suture craniosynostosis in 1 girl. In 2 infants with microcephaly US showed open sutures with reduced width and wormian bones which was confirmed on 3D-CT. In 3 microcephalic infants follow-up US after 3-6 months confirmed open-stenosed sutures. All 218 infants with negative US-findings were clinically followed for 24 months and were well developed. Totally, 3D-CT was performed in 12 infants (5%) and radiation was avoided in 228 infants (95%).

Conclusion: Ultrasound is a useful method of imaging premature craniosynostosis in infants and it could be used as radiation-free screening test in suspected cases.

PP080

DYNAMIC MR IMAGING OF THE MEDIASTINAL TUMORS

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Purpose: evaluation of usefulness of dynamic MR imaging in differential diagnosis of anterior mediastinal tumors

Material and Methods: Thirty-three patients with suspected medistinal tumors were examined during three years. All of them went dynamic MR imaging with gadopentate-dimeglumine administrated in bolus injection. Sequential images were obtained in 5 minutes. A comparison of mean peak time (MPC) of time intensity curves with microscopic findings (cytology, biopsy) revealed significantly different MPC for different types of tumors. Diagnosis was confirmed in 18 cases with fine needle aspiration, in 10 by biopsy and in 5 with surgical excision surgery.

Results: Statistically significant differences in MPC were found between thymoma and non-thymoma lesions. MPC was about 1.5 and 3.5 in non-thymoma cases. It was possible to differentiate of stages I and II with stage III based on MPC. MR showed optimal specificity and sensitivity at "cut of point of 2.5 minutes.

Conclusion: Dynamic sequences of MR may help in differentiation between thymoma and non-thymoma lesions in anterior mediastinum.

PP081

THE PULMONARY FINDINGS OF CRIMEAN-CONGO HEMORRHAGIC FEVER PATIENTS WITH CHEST X-RAY ASSESSMENTS

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Objective: Crimean-Congo Hemorrhagic Fever (CCHF), characterized by fever and/or hemorrhage, is a zoonotic viral disease with high mortality. The agent causing CCHF is a Nairovirus. The virus is typically transmitted to humans through tick bites. CCHF is a life-threatening disease observed endemically over wide geographical regions in the world and a little known about pulmonary findings in CCHF patients. We aimed to investigate the lung-related symptoms from a large CCHF patient cohort and determine any associations with laboratory findings and disease severity.

Methods: A total of 165 patients that were diagnosed with CCHF and underwent radiological evaluation due to respiratory symptoms at presentation and/or during hospitalization, and were included in this study. Besides demographical and laboratory findings of patients, radiological images of lungs were examined.

Results: Of the 165 patients examined, 96 were male (58.2%) and 69 were female (41.8%) patients. The mean age was 51.64 ± 17.95 years (4-81 years). Single and/or multiple pathological findings were detected in 93 patients (56.4%) as a result of radiological assessment during presentation. As a result of radiological assessments parenchymal infiltration in 74 patients (44.8%), pleural effusion in 64 patients (39.8%), alveolar infiltration in 49 patients (29.7%), and atelectasis in 30 patients (18.2%) were detected.

Conclusions: According to the results of our study, we suggest that radiological assessment in lungs should be performed primarily with CXR and pulmonary involvement (pleural effusion, parenchymal infiltration, alveolar infiltration) the negative affects associated with the survey in CCHF.

PP082

DIAGNOSTIC VALUE OF MAGNETIC RESONANCE IMAGING IN ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY

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Background: Arrhythmogenic right ventricular cardiomyopathy (ARVC) is predominantly a genetically determined heart muscle disorder that is characterized pathologically by

fibrofatty replacement of the right ventricular (RV) myocardium that can be visualized using magnetic resonance imaging (MRI).

Aim of the Study: This study aims to evaluate the diagnostic significance of MRI based scoring model for identification of ARVC in patients with MRI evidence of RV abnormalities.

Patients and Methods: Fifty three patients with RV myocardial abnormalities on MRI were included and divided into group 1 (17 patients) with ARVC and group 2 (36 patients) with other RV arrhythmias. Decision tree learning (DTL) and linear classification (based on a modified ARVC scoring model of major and minor criteria) were used to identify and assess MRI criterion information value, and to induce ARVC diagnostic rules. All major ARVC criteria were more frequent in group 1. Among minor criteria, regional RV hypokinesia, mild segmental RV dilatation and prominent trabeculae were more frequent in group 1 while mild global RV dilatation was more frequent in group 2. RV aneurysm achieved highest importance in ARVC diagnosis (predictive accuracy 76.8%). Better diagnostic accuracy (sensitivity 93.3%, specificity 89.5%) was achieved when the MRI score for the major and minor criteria reached threshold value of four: two major criteria, or, one major and two minor, or four minor criteria.

Conclusions: Combinations between major and minor criteria contributed to a statistically valid model for ARVC diagnosis.

PP083

BILIARY OBSTRUCTION CAUSED BY ECHINOCOCCOSIS

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Introduction: The Balkan region is still considered endemic for echinococcosis even today. This is a serious parasitic disease which can present with a wide range of complications. Echinococcosis may affect many organs in the body of which the liver is the most usual site of disease.

Purpose: The purpose of this study is to show that biliary obstruction, in rare cases, could be due to complicated hydatid disease.

Materials and Methods: We present three cases in which echinococcosis are causing biliary obstruction. In one of the cases obstruction results from hydatid cyst rupturing into the biliary tree and hydatid membranes blocking the common bile duct. In two other cases daughter cysts are found in d. choledohus. In order to determine the cause for biliary obstruction, ultrasound, CT and MRI examinations, or a combination of them, were performed. Cases have been verified through serological or hystological tests.

Results: Biliary obstruction as a complication of echinococcosis proves to be difficult to confirm, especially in cases where there is no previously diagnosed hydatid disease. More than one imaging modalities and additional serological verification is usually required. We perform US, CT and MRI studies to detect the cysto-biliary fistula. MRCP is a valuable non-invasive imaging technique to planing of surgery.

Conclusion: Biliary obstruction could be a result of complicated echinococcosis. Though rare, it is still important for medics especially in the endemic regions to keep hydatid disease in mind as one of the possible causes for this condition.

PP084

INITIAL CT EVALUATION OF HEAD TRAUMA

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Introduction: Head injuries are a common cause of patient hospitalization and they are associated with significant long-term morbidity and mortality. In Europe it is around 262 per 100,000, of which about 14% is hospitalized, and 2% of cases results in death.

Head trauma is classified as mild, moderate and severe based on the GCS (Glasgow coma scale) and the additional criteria one of which is the result of CT examination.

Purpose: Aim of this paper is to illustrate importance of CT examination in patients with head trauma, to present different types of CT findings and to asses its importance in patient management and outcome.

Materials and Methods: A prospective study of CT head examinations done during a two-month period at Center for Radiology of Clinical center Nis was done. It included 241 patients sent from Emergency center, aged 13-79 years. Examinations were performed on GE Bright speed scanner (slice thickness of 2,5 mm).

Results: CT scan revealed brain contusions in 182 patients (75.52%). Different types of intracranial hemorrhage were found: subarachnoid (17.81%), intraventricular (2,49%), subdural (23,24%) and epidural (14.11%). Bone fractures were detected in 109 patients (45,23%), diffuse axonal injury (DAI) in 9 patients (3,73%). Ct scan was normal in 25 patients (10,37%).

Conclusion: CT examination is essential for detecting lesions that require urgent neurosurgery, as well as those that require in-hospital observation and treatment. CT scan has a high sensitivity for the detection of the mass effect, fractures and acute hemorrhage, as well as for assessing the size and configuration CSF spaces. At the initial CT examination good outcome predictors were subdural hemorrhage volume and midline shift.

PP085

DIFFERENTIAL DIAGNOSIS OF MASSIVE CALCIFICATION IN BASAL GANGLIA SUSPECTED FOR FAHR DISEASE: A CASE REPORT

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Familial idiopathic basal ganglia calcification (FIBGC or Fahr disease) is a rare, genetically dominant, inherited neurodegenerative disease characterized by abnormally high deposits of calcium in areas of the basal ganglia. It is associated with a variety of movement disorders, neurobehavioral and cognitive manifestations. There are many causes of bilateral basal ganglia calcifications - metabolic disorders, ischaemic, infectious, toxic or traumatic. In case of idiopathic basal ganglia calcification and presence of progressive neurologic dysfunction and family history of neurological accidents, FIBGC is to be considered.

The aim of the study is to draw attention to the diagnostic criteria of Fahr disease.

We show a case of 51 years old male who came to the hospital in heavy condition with deterioration of motor functions and speech, seizures, cognitive and memory deficit. After discussion of multidisciplinary team of neurologist, neuroradiologist, neuropsychologist the patient was examined with an EEG and CT Toshiba Aquillion 64-slice scan.

4. On EEG focus of epileptiform activity on right central frontal area. On CT we found symmetrical bilateral calcifications in thalamus, nucleus caudatus, globus pallidus, and hyperdense symmetrical striation of cerebellar hemispheres and corona radiata. After discussion with endocrinologist Blood tests of the serum levels of Ca, Ca⁺⁺, phosphorus and parathormone were done. Paraclinical tests showed hypocalcemia and hypoparathyroidism. Due to the laboratory findings Fahr disease was ruled out in this patient.

On non enhanced CT findings of bilateral basal ganglia calcifications have a wide differential diagnosis. For Fahr disease the diagnostic criteria should be fulfilled.

PP086

PAEDIATRIC ACUTE SCROTUM: WHY, WHEN AND HOW MAY WE ACT FOR AN ACCURATE ULTRASOUND MANAGEMENT

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Introduction: Acute scrotum is a pediatric emergency. Scrotal pain, swelling, and redness are usually the initial manifestation. Pertinent history and physical examination are often sufficient to make a diagnosis in the majority of cases. Ultrasound (US) is often necessary to exclude torsion.

Purpose: To describe US technique for an accurate examination of scrotal emergencies in children and also be familiar with the US features of common and rare acute scrotal conditions in paediatric population. Furthermore, to discuss the key-imaging findings for differential diagnosis (DDx).

Materials and Methods: In a period of 30 months, 216 consecutive male patients (0-14yo) with acute scrotum were examined. The technique of examination is illustrated. Scrotal US presupposes high-frequency linear-array-transducers, supine position of the patient, scrotum supporting by towel and warm-gel. The spectrum of imaging findings and the key-points for differential diagnosis are described for common and uncommon scrotal emergencies including testicular torsion, torsion of a testicular appendage, epididymo-orchitis, Schönlein-Henoch purpura etc.

Results: Involvement was usually unilateral and US-study was started on the asymptomatic side to avoid further irritation and provide basis for comparison. Spermatic cord evaluation was an important part of the examination. Estimation of testicular dimensions was essential to assess changes in testicular size. Color Doppler imaging to investigate testicular perfusion and extra-testicular vascularization, with equipment parameters optimized to display low-flow velocities was also useful and Power Doppler imaging was a supplementary technique provides additional information in cases of suspected testicular torsion.

Conclusion: US is a valuable complementary tool to clinical examination. US facilitates DDX and provides imaging parameters important for prognosis. Color and Power Doppler techniques should be considered as part of the examination to assess testicular perfusion.

PP087

THE USEFULNESS OF DIFFUSION WEIGHTED IMAGING IN SPINAL CORD ISCHEMIA. TECHNIQUE AND DIAGNOSTIC ADVANTAGES

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Introduction: Although Diffusion Weighted Imaging (DWI) is an established technique in brain, especially in stroke imaging, in the area of the spine DWI remains technically challenging.

Purpose: A propos of a case series of spinal cord infarction, in this presentation, we try to highlight the significance of spinal DWI in supporting the diagnosis of spinal cord ischemia, especially in the acute stage.

Materials and Methods: Between 2015 and 2016 Echo Planar Imaging DWI (EPI-DWI) and Turbo Spin Echo DWI (TSE-DWI) were performed, in addition to conventional MRI of the spine, in all patients presenting with acute myelopathy of the spinal cord

Results: In the acute stage spinal cord ischemia presented as T2 hyperintensity, revealing in some cases the typical "owl's eye" sign. In one case there was contrast enhancement and enlargement of the spinal cord mimicking tumor. In all the cases, diffusion restriction in the spinal cord supported the correct diagnosis of cord ischemia and excluded other pathology. TSE-DWI was much less susceptible to distortions than the classic EPI-DWI.

Conclusions: Although DWI of the spinal cord is technically challenging, it is very helpful in the diagnosis of spinal cord ischemia. EPI-DWI and where available TSE-DWI, should be used in all cases of acute myelopathy especially when there is a clinical suspicion of ischemia.

PP088

OPTIMIZING IMAGING FOR THE DIAGNOSIS OF DUBLEX RENAL SYSTEM IN CHILDREN WITH URINARY TRACT INFECTION

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Introduction: UTI in children may have Dublex Renal System (DRS) as an underlying cause. Imaging work-up includes Ultrasonography (US), Voiding Cystourethrography (VCUG), Intravenous Urography (IVU), and Magnetic Resonance Urography (MRU). Radiographers should tailor VCUG and IVU in order to reduce radiation dose without compromising image quality and select the appropriate sequences and sequence parameters in MRU to reduce motion artifacts and increase signal-to-noise ratio, especially in small children.

Purpose: To present the role of radiographers in the optimization of imaging evaluation of children with Dublex Renal System (DRS) complicated Urinary Tract Infection (UTI).

Materials and Methods: Study enrolled sixteen children five months to nine years of age (mean age: 4,8) with DRS complicated by UTI (9 female, 7 male).

Results: Children were evaluated with VCUG, IVU, US and MRU. Surgical findings in 14/16 children and follow up in 2/16 were used as "gold standard". Imaging findings of UTI and VCUG and of each MRI sequence were separately analyzed. MRU was accurate in all cases in diagnosing DRS and in providing anatomic details concerning the exact length, position of the ureters and location of the orifices. Tailored IVU even with delayed views demonstrated anatomic details of the condition only in 11/16 cases.

Conclusion: Radiographers have an important role in obtaining technically adequate and tailored examinations of the urinary tract system in children. MRU is accurate in diagnosing and providing a detailed preoperative anatomic mapping of DRS and could be used as an all-in-one examination technique.

PP089

IMAGING METHODS IN THE DIAGNOSIS AND FOLLOW UP OF INFANTS AND CHILDREN WITH VESICoureTERAL REFLUX

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Introduction: Vesicoureteral reflux (VUR) is usually diagnosed in infants and young children. VUR increases the risk of urinary tract infections (UTI), which, if left untreated, can lead to kidney damage. So the early diagnosis and the follow up is very important.

Purpose: The use of imaging methods in early diagnosis and follow up of infants and children with VUR.

Patients and Methods: In one-year period we studied 186 patients (111 female/75 male) with symptoms of UTI (age: 3 months to 10 years, mean age:5,5 years). 66,6% (124/186) of children had repeated UTIs (22/124: 17,7% infants with first UTI episode) and the rest 33,3% were patients in follow up after surgical treatment. We use both radionuclide cystography (RNC) with instillation of technetium-99m pertechnetate into the bladder and observation with a gamma camera and voiding cystourethrography (VCUG). Renal and bladder ultrasonography and dimercaptosuccinic acid (DMSA) renal scan also used to assess kidney involvement.

Results: From 22 infants with first UTI episode 17(77,2%) had VUR usually to one ureter, while the rest with repeated UTIs had reflux in different grades. From all patients with VUR 121(65%) had renal scars in DMSA renal scan imaging. In the follow up patients with conservative management and those after surgical treatment the 121(97,6%) had no reflux.

Conclusions: Advantages of RNC include substantially lower radiation doses and potential increased sensitivity because of the ability to conduct prolonged periods of observation.

Radiation exposure from RNC is ~10% of this from VCUG with modern digital-equipment and digital-spot film recording and ~1% with conventional fluoroscopic equipment. Disadvantages primarily consist of the poor anatomic detail, especially of the male urethra. Grade I reflux is poorly detected by this study because the distal ureters are commonly obscured by the bladder. Grading by nuclear cystography is limited to mild, moderate, and severe grades.

PP090**PITUITARY GLAND ON 3T MRI**

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Introduction: Recent development of multislice imaging methods provides better opportunities in visualization and assessment of the pituitary gland. MRI as a method of choice in evaluating the hypothalamic-pituitary axis is an excellent, informative and noninvasive technique in everyday practice.

Purpose: The aim of this paper is to share author's initial experience on 3T MR examination of pituitary gland and present major imaging finding in pituitary lesions.

Materials and Methods: Patients referred by the endocrinology department, underwent 3T MR (Magnetom Verio, Siemens) examinations. Head coil was used to obtain images in coronal, sagittal and axial planes. The protocol included T1W and T2W-sequences in precontrast, FLAIR, Diffusion. The intensity of the adenohipophysis on T1W was compared to the one of the pons. After the administration of contrast medium in T1W imaging, fat saturation technique was applied in sagittal and coronal planes. A Syngo MAGNETOM Verio System is used for post processing and evaluation of the images. For each patient length of the examination, field of view, repetition time, time echo are noted down.

Results: Different types of pituitary lesions were observed: malformations, conditions of hypopituitarism and space occupying processes. T1W presented perfectly the anatomy of the gland. T2W images helped in evaluation the hypothalamus, pituitary gland, optic chiasm and olfactory bulbs in gonadotropin releasing hormone deficiency. MR-angiography clearly defined the vasculature of the gland.

Conclusion: MRI is the gold standard for analyzing the pituitary gland. High field-3T- MRI offers excellent resolution of pituitary region structures.

PP091**A RARE CASE; RETROPERITONEAL FIBROSIS**

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BEAH

Introduction: Retroperitoneal fibrosis (RPF) is a rare inflammatory fibrotic process, causing compression of retroperitoneal structures particularly the ureters.

Purpose: In this presentation, we aim to discuss magnetic resonance urography (MRU) findings of RPF which is a rare condition.

Materials-Methods: A 53 year old man was referred to our hospital with diffuse abdominal pain, nausea and vomiting. Subsequent to clinical evaluation and creatinin and

erythrocyte sedimentation rate (ESR) increasement in laboratory a contrast enhanced MRU exam was performed. Upon there was pyelocalyceal dilatation in right cidney, bilateral percutaneous nephrostomy and double j catheter procedure was applied to patient to reduce creatinin levels and treatment with corticosteroids was started

Results: The MRU scan revealed a contrast enhancing retroperitoneal concentric periaortic mass, starting from ifrarenal level and extending to common iliac arteries and bowing the right ureter with low signal on T1 and T2 images. There was also right renal pyelocalyceal and proximal ureteral dilatation. Retroperitoneal lymphoma was in differential diagnose with RPF. Because the ADC value was not as low as in lymphoma as in RPF, ureteral bowing and pelvic extension it was interpreted as RPF.

Conclusion: RPF is an inflamatuar and fibrotic reaction which usually occurs on L4-L5 level and surround infrarenal abdominal aorta, iliac vessels. It may extend to neighboring structures, frequently entrapping and obstructing the ureters and eventually leading to renal failure. RPF is generally idiopathic, but can also be secondary to the use of certain drugs, malignant diseases, infections, and major surgeries. It has medical treatment with drugs such as corticosteroids, immunosuppressive drugs and tamoxifen. But firstly it has to be distinguished from lymphoma because its treatment is simpler than lymphoma. As in our case follow-up examinations showed a progressive remission of the retroperitoneal mass and normalization of both ESR and creatinin levels.

PP092

THE MANY FACES OF PANCREATIC NEUROENDOCRINE TUMORS IN CT

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Introduction: Pancreatic neuroendocrine tumors (pNETs) account for less than 5% of all pancreatic tumors. They have a distinct appearance, typically characterized by a well-defined hypervascular mass best visualized on arterial phase images.

Purpose: The aim of this study is to describe and demonstrate the typical and atypical imaging features in CT of histologically proven pNETs performed in a single centre over a 2 year period.

Materials and Methods: We retrospectively reviewed 17 triple-phase pancreatic CT examinations performed from February 2014 to May 2016 of 17 patients (6 men – 11 women, 18-80 years) with histologically proven pNETs. The triple phase acquisition included a late arterial, a portal venous and a delayed phase (12sec, 45sec, 250sec after bolus triggering) performed after the injection of contrast-medium (600mg iodine/kg) with a rate of 3,5-5,5ml/sec.

Results: Pancreatic CTs revealed 36 tumors (1-8/patient) with diameter ranging from 0,8cm to 13,8cm (mean 2,4cm), mostly situated in the body-tail region of the pancreas (25/36). Cystic degeneration was found in 33,3% of the tumors (12/36) and calcification in 11,1% (4/36). Pancreatic duct enlargement (diameter 0,6-1cm) was noted in 3 cases. The type of enhancement was homogenous in 50% (18/36), heterogeneous in 13,9% (5/36) and peripheral in 33,3% (12/36) of the lesions. Heterogeneous enhancement was noted only in

large tumors (>3cm) and peripheral enhancement only in lesions with cystic degeneration. The majority (66,7% - 25/36) of the tumors showed enhancement only in the late arterial phase, but some tumors showed both late arterial and portal venous phase enhancement (1/36) or both portal venous and delayed phase enhancement (5/36) or delayed phase enhancement only (5/36).

Conclusion: The diagnosis of a pNET on CT is challenging. Familiarity with the less common CT imaging features of pNETs may prompt earlier consideration of a neuroendocrine tumour, especially in sporadic cases.

PP093

RADIAL SCAR OF THE BREAST- A CONFUSING LESION

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Radial scar is a benign, well recognised, radiological and pathological entity in the breast. Histopathologically radial scars contain hyperplastic tissue cells and a central fibrous core, with radial extension of tubular structures (the spiculated peripheral borders), mimicking infiltrating carcinoma. This tubular formation has two rows of cells, epithelial and myoepithelial. The malignant potential is two times greater than in the normal population without radial scar.

We review five cases of radial scar diagnosed at Theageneion Oncological Hospital by percutaneous imaging-guided core needle biopsy or surgical excision to determine the radiologic features. Our aim is to deal with the different morphologic changes in view of mammographic characteristics.

Mammographically there are some typical but not specific signs:1)the presence of the central radiolucency, 2) the presence of radial long thin spicules, 3) varying appearance in different projection, 4) radiolucent linear structures parallel to spicules, and 5) absence of palpable lesion or skin changes. All these signs make the “black star” appearance.

Radial scar lesion is usually an unpalpable, subclinical lesion, which can be seen in mammography. This fact points out the importance of mammographic investigation.

PP094

PRIMARY SPINAL LYMPHOMA MASQUERADING AS MENINGIOMA: PRE-AND POST-OPERATIVE MAGNETIC RESONANCE IMAGING FINDINGS

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Fifty-five-year-old male often have back pains with the complaints accompanied by increasing weakness in the lower extremities was admitted to the Neurosurgery Department of our hospital. There were not any additional diseases in his history. With captured MRI, in the thoracic area, the anterior epidural space and paravertebral area,

approximately 55x9mm size forming pressure to spinal cord from anterior, fusiformed with dural tail, hypointense on sagittal T1 weighted imagines series and hypointense on sagittal T2 weighted imagines series compared to spinal cord, showing contrast enhancement pattern after gadolinium application the extra axial mass lesion was detected. The lesion was surgically removed from the patient whom we thought meningioma radiologically. Histopathology resulted in diffuse large B-cell non-Hodgkin lymphoma.

The spinal canal settlement occurs at the rate of 0.1-6.5% in NHL cases. It shows settlement mostly in the epidural space. It can show settlement in subdural and spinal cord less frequently.

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PP095

THORACIC SPINAL METASTASIS OF YOLK SAC TUMOR LOCATED IN THE ANTERIOR MEDIASTINUM

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In thorax CT of a 19-year-old male patient with back pain and a preliminary diagnosis of the masses, showing proximity to vascular buildings and contrast involvement after contrast agent approximately 119x88 mm size mass lesion was observed that is in the anterior mediastinum and cardiac area (Figure 1). Its contrast involvement detected after intravenos contrast agent injection, destructing bone structures and filling spinal canal the appearance of a second mass lesion which is hypointense in T1 Weighted imaging and hyperintense T2 Weighted imaging was observed in captured thoracic MRI (Figure 2 A, B, C). Biochemical and serum Alpha-fetoprotein values were found to increase. Thoracic biopsy done in the mediastinal mass resulted in primary yolk sac tumor and thoracic vertebral metastases in his histopathology (Figure 3).

Primary mediastinal neoplasm Yolk sac tumor is a rare tumor and forms only 1%-5% of all germ cell tumors (1). Diagnosis is made not only by morphological studies but also with patient's age and serum alpha-fetoprotein elevation. Despite modern chemotherapy the prognosis of mediastinal yolk sac tumor is bad. The single and most important prognostic indicator is that tumor mass is totally excised before or after chemotherapy (2). The prognosis is quite poor in anterior mediastinal yolk sac tumor cases. Spinal metastases are quite rare. As seen in our case, it metastases thoracic spinal when the anterior mediastinal yolk sac tumor was diagnosed. We present the images in our case as they are quite demonstrative images.

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PP096

POSTERIOR REVERSIBLE ENCEPHALOPATHY SYNDROME IN HENOCH-SCHÖNLEIN PURPURA: NEUROIMAGING OF A 14-YEAR-OLD CHILD

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Background: Henoch-Schönlein purpura (HSP) is a leukocytoclastic vasculitis and characterized by involvement of small vessels in skin, gastrointestinal system, joints, kidneys, and less frequently other organs. It is the commonest vasculitis in childhood and etiology is not completely known. Neurological manifestations of HSP are very rare and usually seen in patients with severe hypertension or as a uncommon feature such as peripheral neuropathy. Posterior reversible encephalopathy syndrome (PRES) is a clinic-radiologic entity characterized with temporary vasogenic edema developing typically in posterior circulation of the brain and has been reported as a rare manifestation of HSP.

Case Report: In this paper, a PRES case of 14-year-old male with HSP is reported and etiopathogenesis was discussed with literature. Diagnosis was made by magnetic resonance imaging because of the existence of neurological symptoms (headache and visual loss) during the course of disease. His radiological findings have resolved with therapy.

Conclusion: Although neurological involvement is a rare manifestation in HSP, we recommend magnetic resonance imaging in such patients for diagnosis and evaluation of complications.

PP097

EPIDURAL LIPOMATOSIS

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Introduction: Spinal epidural lipomatosis is a rare condition described as the accumulation of fat deposition in the epidural space of the spinal canal and often causes dural impingement.

Purpose: The purpose of this report is to show the features of MRI in excessive fatty structures in spinal canal.

Materials and Methods: We report a case of an obese 84-year-old male with a history of chronic back, irradiating into the front and back of right thighs, which developed spinal epidural lipomatosis due to the long-term use of inhaled steroids. There was a history of previous spine trauma. Spinal MRI was performed on a 3T Verio MRI machine. The protocol included sagittal and axial T1-weighted images T2-weighted image, sagittal STIR. The examination was performed without contrast.

Results: MRI of the lumbar spine revealed evidence of fracture at the level of L4 and spondylolisthesis at the level of L4-L5. We found abnormal deposition of epidural fat tissue visible as hyperintense signal on T1W images and as hypointense on T2W images leading to high grade compression of the thecal sac caudal to the level L3. A STIR sequence was performed and it showed complete suppression of fat tissue. The finding was consistent with epidural lipomatosis. An additional finding was spondyloarthrosis.

Conclusion: The features of MRI of visualizing fat tissue providing the opportunity of distinguishing between fatty lesions make MRI an essential tool in diagnosing rare condition such as epidural lipomatosis.

PP098

DIASTEMATOMYELIA TYPE 1 WITH MULTIPLE SPINAL CORD AND VERTEBRAL ABNORMALITIES IN A CHILD

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Introduction and Purpose: Diastematomyelia is a rare congenital abnormality of the spinal cord in which a part of the spinal cord is split in the sagittal plane into two hemicords. We aimed to present magnetic resonance imaging (MRI) findings of a patient with diastematomyelia type 1.

Case: A 7-year-old male was brought with a marked spinal deformity. The patient was referred for an MRI of the lumbosacral spine. MRI studies showed a left-convex rotational scoliosis and loss of lumbar lordosis. There was a fusion of T10-T11-T12 vertebral bodies with a partially. Spinal canal widening at the level L2-L4. The terminal cone was reaching the L5 level. At the level of T10 spine, the spinal cord was divided into two hemicords and two dural tubes up to the upper part of the L3 body. There was a bone septum, dividing the spinal canal into two separate canals including two hemicords in separate dural tubes.

Discussion: Diastematomyelia is a rare congenital malformation of the spinal cord, which belongs to the group of occult spinal dysraphisms. It may coexist with other spinal dysraphisms, such as myelomeningocele, meningocele, spinal lipoma, neuroenteric cysts or dermal sinuses and vertebral abnormalities, such as hemivertebrae, butterfly vertebrae or scoliosis. MRI should be performed for the diagnosis of dysraphic lesions of the spine.

PP099

A CASE OF PYLORIC VOLVULUS SECONDARY TO GASTROINTESTINAL STROMAL TUMOUR

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Introduction: Gastrointestinal stromal tumors (GISTs) are the most common mesenchymal tumours arising from the gastrointestinal tract. The clinical presentation depends on the size and site of tumor.

Material-Methods: 68 years-old woman presented to the emergency department with diffuse abdominal pain and vomiting. Attempts at nasogastric tube placement failed. CT scan showed a heterogenous expansile mass in direct contact with the wall of the pylorus that provoked a twisting effect, a volvulus of the pylorus around the bulb of the duodenum. The patient was diagnosed as having secondary volvulus and was operated.

The histopathological diagnosis was high-grade malignant (or benign??) gastrointestinal stromal tumor (GIST) of the stomach.

Discussion: GISTs most commonly originate from the stomach (60-70%), but they can also arise from any part of the gastrointestinal track (colon, esophagus, appendix) or even the omentum, mesentery and the retroperitoneum. GISTs tumours most commonly involve the muscularis propria. The description of the mutations of the KIT-gene greatly improved our understanding in the biology of the GISTs tumours.

Clinically they may remain quiescent until they grow and give secondary results such as in our case-study.

CT features also vary greatly, depending on the size and aggressiveness of the tumor. On CT scan they are typically large, hypervascular tumors, which enhance heterogeneously after contrast administration, due to necrosis, hemorrhage, or cystic degeneration at the time of presentation. Smaller tumors can be homogeneous. The connection with the gastrointestinal wall can be difficult to visualize.

In our case study, GIST caused the organoaxial rotation of the pyloric area of the stomach.

Conclusion: It is highly recommended that acute gastric volvulus is radiologically processed so as to exclude acquired abnormalities that may manifest with secondary effects.

PP100

ULTRASOUND GUIDED PERCUTANEOUS THROMBIN INJECTION IS USEFUL FOR TREATING FEMORAL ARTERY PSEUDOANEURYSMS. REVIEW OF THE TECHNIQUE

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Introduction: Ultrasound (US) guided injection of thrombin is a technique commonly used for the treatment of femoral artery pseudoaneurysms. This presentation aims to make it familiar to Radiologists.

Purpose: To present a guide to US guided percutaneous injection of thrombin for the treatment of femoral artery pseudoaneurysms. To review the indications, technique description, possible complications and limitations. To assess relevant guidelines in order to seek alternative treatment when this technique fails.

Materials and Methods: We review the predisposing factors for femoral artery pseudoaneurysm formation, clinical features and Doppler US diagnosis. We describe the technique, including step by step US guided femoral artery catheterisation, thrombin preparation and administration, variation of the procedure according to the size, form and number of the pseudoaneurysm's lobes. We highlight specific points that should be kept in mind in order to maximise success rates and avoid complications. We outline post procedure follow up, need for possible repetition of treatment and guideline flowchart in order to abandon the technique for surgical repair when needed are also explained.

Results: Data of patients from our Institution's experience accompanied by US images confirm that this technique can be often used for treating femoral artery pseudoaneurysms.

Conclusion: Ultrasound guided percutaneous thrombin injection is useful for the treatment of femoral artery pseudoaneurysms. Radiologists should be familiar with this procedure in order to ensure maximum results.

PP101

AORTA REVISITED. AN IMAGING ATLAS OF THE COMMONEST PATHOLOGIC CONDITIONS

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Introduction: The aorta is the largest vessel of the body. It shows a large variety of pathological conditions, some of which are life threatening.

Purpose: To review the various pathologic entities of the thoracic and abdominal aorta. To present imaging examples of aortic pathology on all imaging modalities.

Materials and Methods: Different chapters of the presentation include reviewing of the commonest pathological entities of the thoracic and abdominal aorta: atherosclerosis, ectasia, aneurysm, Marfan syndrome, coarctation, thrombosis, intramural haematoma, penetrating aortic ulcer, rupture, stent and graft placement, endoleaks, dissection etc. Risk factors, epidemiology, symptoms and prognosis are outlined. Examples of different pathologic findings on plain radiographs, colour Doppler and contrast enhanced ultrasound, CT, MR and angiography are presented, with special focusing on technique, indications, limitations, pitfalls, as well as dose monitoring issues.

Results: All imaging techniques are useful for assessing the different pathologic entities of the thoracic and abdominal aorta. This atlas helps in understanding and classifying them.

Conclusion: The aorta commonly presents different pathologic conditions, some of which should be diagnosed and treated under emergency conditions. Radiologists should be familiar with the variety of aortic pathology in order to ensure fast diagnosis and treatment.

PP102

USE OF THE MODIFIED BARIUM IMPAIRMENT PROFILE (MBSImP) SCORING IN CLINICAL PRACTICE: 4 -YEAR EXPERIENCE IN AN ONCOLOGIC HOSPITAL IN GREECE

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Introduction: MBSImP is a new modified barium swallow rating tool, which provides a standardized objective assessment of videofluoroscopic studies (VFSS), and permits the quantification of the swallowing impairment.

Purpose: The aim of this study was to examine the feasibility and the clinical usefulness of MBSImP scoring in clinical treatment protocol in an oncological hospital in Greece.

Materials and Methods: Between April 2012 and June 2016, 688 VFSS were performed in 526 patients (341 males/ 185 females; age range 23-91 years). All studies were completed

by a radiologist trained/certified in the data collection protocol, interpretation and scoring of the MBSImP. Radiation exposure and time needed to complete MBSImP overall impression form was calculated in all studies.

Results: The majority of the studies were performed in patients with head-neck (77%), lung (14%) and breast cancer (3%). Average radiation exposure time using the MBSImP approach was 3,3 min (range 1,5 -- 4,9 min) and the average time needed to complete MBSImP overall impression form was 11 min. Comparison of the oral score, the pharyngeal score and the score of the individual parameters within each patient permitted a better objective evaluation of swallowing improvement or deterioration and an easier communication with the clinicians.

Conclusion: The results of this study suggest that MBSImP scoring is feasible and practical in everyday practice. It does not lead to unnecessary radiation exposure during VFSS, even when compensatory strategies are included and facilitates comparison between and within patients. Moreover, the use of a standardized data collection protocol provides an evidence-based guide to the types and amounts of boluses presented during the VFSS. This ensures that VFSS is thorough and limits the need for repeated VFSS and the associated increased radiation exposure.

PP103

IMAGING OF THE ANATOMIC VARIATIONS AND DANGEROUS AREAS OF THE PARANASAL SINUSES IN PEDIATRIC PATIENTS

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Introduction: Local, systemic or enviromental factors appear to be more important in pediatric sinusitis than the anatomic variations. Nevertheless, endoscopic sinus surgery (ESS) is performed in the pediatric population with meticulous selection of candidates. Development process in children can present difficulties to the surgeon. Paranasal computed tomography (CT) is used to demonstrate anatomic variations and dangerous areas of paranasal sinuses before surgical intervention.

Purpose: The aim of study is to identify some of important anatomic variations and dangerous areas of the paranasal sinuses with CT and to report the frequency of these variations and areas in pediatric patients.

Materials and Methods: A total 267 children (age range 3 and 15 years) unresponsive to maximum medical therapy because of pediatric chronic sinusitis were evaluated with paranasal CT retrospectively.

Results: Septal deviation was the most common anatomic variation (53.1%) followed by concha bullosa, paradoxical middle turbinate, Haller cell and Agger nasi cell. The prevalence of septal deviation increase with age. The pneumatization of nasal septum was the most common dangerous area (21.3%) followed by pneumatization of clinoid process, overpneumatization of sphenoid sinus and Onodi cell. The distance of lamina cribrosa was grouped according to Keros' classification and type 1 was the most common (65.1%)

Conclusion: The knowledge of anatomic variations and dangerous areas of paranasal sinuses in children is important in order to achieve better surgical results and avoid complications. Children deserve more attention while evaluating paranasal CT due to their tiny and small bony structures.

PP104

DEVELOPMENT OF DURAL SINUS THROMBOSIS AND SUBDURAL HEMORRHAGE WITH NO SKULL FRACTURES FOLLOWING CLOSED HEAD TRAUMA IN A PEDIATRIC PATIENT: CASE REPORT

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Introduction: Dural sinus thrombosis is a rare life-threatening disease. It's more common in women due to pregnancy, puerperium, and oral contraceptive use. The other etiologies are cranial tumors, penetrating head traumas, lumbar puncture, various drugs, and connective tissue diseases. Despite all the research, it is encountered idiopathically in 20-25% of patients (1). Dural sinus thrombosis (DST) is most frequently seen in the sagittal sinus (70-80%); secondly in transverse, sigmoid sinuses, and least in the cavernous sinus. (2, 3, 4). The most common signs and symptoms of DST are headache (74-90%), focal neurologic deficits, and isolated intracranial hypertension findings (headache, papilledema, visual loss, nausea, dizziness, drowsiness – dizziness). (2, 3, 5, 6)

Purpose: In this paper, we report a case of sigmoid sinus thrombosis and subdural hemorrhage without any skull fractures admitted to our clinic after a non-vehicle traffic accident.

Materials and Methods: A 4-year-old male patient without any prominent feature in personal and family history was admitted to our clinic due to closed head injuries within one hour after a non-vehicle traffic accident. A cervical and cranial computed tomography (CT) was requested due to his complaint of decreased vision.

Brain CT scan without contrast and reconstructed VRT image showed no skull fractures. A cranial magnetic resonance imaging (MRI) – MR Venography showed a 7 mm in diameter extra axial-subdural hemorrhage along cerebellum near the left transverse sinus, and a filling defect in the left sigmoid sinus similar to thrombosis. T2- Fluid attenuation inversion recovery (FLAIR) sequence revealed a millimeter-sized hyperintense area in the left thalamus, most probably venous edema-ischemia area, associated with venous thrombosis (figure II). No diffusion restriction was noted.

Susceptibility weighted imaging (SWI) images revealed multiple millimeter-sized petechial hemorrhage findings with hypointense signals localized in the left occipital lobe and subcortical areas of superior temporal gyrus. Cervical CT scan showed no emergent pathologies.

Results: DST related head trauma is rare and its pathophysiology has not been clearly elucidated yet. (6) Various postulated hypotheses include skull fractures or intracranial hematomas causing thrombosis by direct compression of the sinus (1, 6, 7).

DST and subdural hemorrhage without any skull fracture after closed head injury in pediatric patients were reported a few times in the English literature to our knowledge (1). A spontaneous recanalization in early stages was seen in the radiologic follow-up of our case's dural sinus thrombosis.

Conclusion: We recommend the radiologists to be alert for DST in pediatric patients with hematoma after head trauma even in cases without any skull fracture.

PP105

IMAGING OF FAMILIAL HORIZONTAL GAZE PALSY WITH PROGRESSIVE SCOLIOSIS

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Introduction: Horizontal gaze palsy with progressive scoliosis (HGPPS) is a rare autosomal recessive disorder characterized by congenital absence of normal horizontal eye movements and progressive scoliosis through childhood and adolescence. Only a few cases have been previously described in the literature.

Purpose: We report imaging findings of a boy from a family affected by the condition and then review the literature on this rare clinical entity.

Materials and methods: A 23 month-old boy with early-onset thoracolumbar scoliosis was admitted to our institution. The patient revealed bilateral horizontal gaze palsy with normal vertical eye movements and normal convergence. The boy underwent MR imaging of the entire spine and brain.

Results: Brain MR imaging revealed butterfly configuration of the medulla, split pons sign, tenting of the 4th ventricle, selective volume loss of dorsomedial brainstem, relatively spared cerebellum, relatively prominent inferior olivary nucleus and absent posterior prominence of the facial colliculi and gracilis and cuneate nuclei. The double-curve thoracolumbar scoliosis was detected. Agenesis of corpus callosum was determined in our patient not reported in the literature previously.

Conclusion: The diagnosis of HGPPS is based on clinical, genetic and radiological. The radiological features of this disease are very characteristic. Radiologist may be the first one to raise the possibility of this diagnosis.

PP106

ENDOVASCULAR MANAGEMENT FOR UNRUPTURED INTRACRANIAL ANEURYSMS: SINGLE-CENTER REPORT

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Introduction: The exact treatment indications and optimal management strategies of patients with intracranial unruptured aneurysms remain controversial.

Purpose: In this study we present our results and clinical outcomes in a single center of consecutive patients with unruptured aneurysms treated with different endovascular techniques.

Material and Methods: Between April 2008 and October 2014, 106 unruptured aneurysms in 100 patients were treated with different endovascular techniques in our center. There were 35 male and 65 female patients with a median 53.2 years (range, 15-76 years). Endovascular primary coiling, coiling with balloon remodeling, stent assisted coiling, flow-diversion, intrasaccular flow-diversion or parent artery occlusion was done according to location, type, complexity and size of the related unruptured aneurysms.

Results: At sixth month follow-up complete (100%) occlusion was achieved in 101 aneurysms while near complete (90%-100%) occlusion was achieved in 5 aneurysms. Four patients had procedure-related complications including thromboembolism in 2 patients and aneurysm perforation during the procedure in 2 patients. Follow-up screening was performed with angiography in 61 patients, with CT angiography in 16 patients and with MR angiography in 23 patients. Our median follow-up time was 10.05 months (6-50 months).

Conclusion: Endovascular management of unruptured intracranial aneurysms seems to be an attractive and safe modality with appropriate patient selection based on risk-versus-benefit rules.

PP107

INVESTIGATION OF HEMATURIA WITH CT UROGRAPHY

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Introduction: Hematuria has a wide range of causes including urinary tract infections, lithiasis, trauma, renal parenchymal disease, metastatic disease and urothelial and renal neoplasms. When microscopic hematuria is detected, usually no source or cause is identified on imaging. Macroscopic hematuria is of more concern than occult hematuria. Patients require complete evaluation of the upper and lower urinary tracts with imaging to exclude neoplasms. Computed tomography (CT) urography is the diagnostic method of choice for the investigation of patients with hematuria.

Purpose: We present the imaging findings in 98 patients with non-traumatic hematuria who underwent CT urography the last three years.

Imaging Findings or Procedure Details: A total of 98 patients had hematuria diagnosed at the time of referral. The patients underwent CT urography in our department the last three years. In 18 patients a tumor of the urinary tract (renal, ureteral, or bladder) was detected as the underlying cause. Moreover, lithiasis and other causes (i.e. infection, anatomical abnormalities, oral anticoagulants) were found in 55 and 15 of the patients respectively. No abnormalities were detected at CT urography in 10 of the patients with hematuria. Lesions were found more frequently in patients with visible hematuria than in patients with non-visible hematuria.

Conclusion: CT urography is a valuable diagnostic imaging test for investigating patients

with hematuria. It determines the underlying cause and is instrumental to guide management of these patients.

PP108**SPLENIC METASTATIC DISEASE**

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Introduction: Splenic metastatic disease has seldom been investigated and is considered a relatively rare condition. Most often the splenic involvement appears as a part of multivisceral dissemination and very rare as a solitary involvement.

Purpose: The aim of this study was to evaluate the incidence of splenic metastatic disease in patients with other primary malignant tumors.

Materials and methods: The study includes 5760 patients, 2432 /42,22%/ males and 3328 /57,78 %/ females with primary malignancies at the following sites: breast 1612 /27,99%/ , colon 1389 /24,11%/ , lung 1104 /19,17%/ , stomach 302 /5,24%/ , pancreas 109 /1,89%/ , kidney 157 /2,73%/ , ovary 303 /5,26%/ , uterus 88 /1.53%/ , prostate 460 /7.99%/ , testis 86 /1,49%/ , liver 88 /1,53%/ , other 62 /1.08%/ . Mean age - 59 years /20-78/. Patients with lymphomas were excluded from the study. The patients were examined by CT routinely for staging or follow up of the malignant disease. The study includes a period of 8 years /2008-2015/.

Results: We found 26 spleen hypodense lesions, 5 of them were proved to be benign / one spleen infarction and 4 cysts/ and 21 / 0,36%/ were considered to be spleen metastases. All the lesions were clinically asymptomatic. In 2 cases the spleen lesions were multiple and in 19-solitary. In 2 patients the solitary spleen metastasis was the only site of metastatic disease.

Conclusion: Splenic metastatic disease is a relatively rare condition. Most often there are no clinical symptoms. The most common primary tumor sites with splenic metastases in our patients were lung, ovary, colon and breast.

PP109**INTRAOSSEOUS LIPOMA OF CALCANEUS AND TIBIA**

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Introduction and Purpose: Intraosseous lipomas are rare benign lesions that account for about 0.1-2.5% of all [bone tumours](#). It is however the most common lipogenic tumour in bone. Pain is the leading symptom in the majority of cases, but more than 30% of bone lipomas are found incidentally on imaging studies done for other reasons. Although intraosseous lipomas can be found essentially anywhere within the skeleton, the lower

limb accounts for the majority of cases. When located in long bones, they tend to be found in the metaphysis. We aimed to present Magnetic Resonance Imaging (MRI) findings in two patients with intraosseous lipoma.

Case 1: A 50-year-old male patient admitted to our hospital with foot trauma. Radiography showed osteolytic bone lesion with well-defined margins. The patient underwent foot MRI. Foot MRI demonstrated well-defined fatty lesion with small central cystic changes at the calcaneus.

Case 2: A 31-year-old female patient with admitted to our hospital with knee pain. The patient underwent knee MRI. Knee MRI demonstrated well-defined fatty lesion with central cystic changes at proximal metaphysis of the tibia. After using gadolinium detected minimally periferally enhancement.

Discussion: The radiographic appearance of intraosseous lipomas has a broad differential diagnosis, which includes many benign bone lesions. It may be typically seen as a rather benign-appearing osteolytic bone lesion with well-defined margins. By CT attenuation or MRI signal characteristics, the differential diagnosis can be narrowed down to fat-containing lesions of the bone. The fatty components of intraosseous lipomas may display varying degrees of involution and necrosis.

PP110

NECROTIZING FASCIITIS AS AN INCIDENTAL FINDING ON VASCULAR ULTRASOUND EXAMINATION FOR DEEP VENOUS THROMBOSIS EXCLUSION

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Introduction: Necrotizing fasciitis constitutes a relatively rare but rapidly progressive and possibly fatal soft-tissue fascial infection, often encountered in immunocompromised patients. Early diagnosis of this disease entity is crucial for the patient's survival and subsequent life quality.

Purpose: To point out the contribution of a readily available, relatively cheap and no time-consuming radiological examination such as ultrasonography in the early diagnosis and appropriate treatment of necrotizing fasciitis, whenever characteristic imaging findings are present.

Materials and Methods: A 72-year old female patient with a clinical history of right heart failure and diabetes mellitus, presented with fever and rapidly developing inflammation signs such as pain, tenderness, edema and erythema on both anterior tibial surfaces. In order to exclude venous thrombosis, our hospital's angiologists ordered a bilateral triplex ultrasound examination of lower-limb superficial and deep venous system. The ultrasound examination showed no signs of thrombosis in the major branches of the patient's superficial and deep lower-limb veins. However, the exam revealed excessive interstitial edema on both tibiae with turbid fluid accumulation and soft-tissue gas, findings suggestive of necrotizing fasciitis. The tissue biopsy that followed revealed infection from both aerobic and anaerobic organisms.

Results: The combination of clinical symptoms and signs, imaging findings and microbiological laboratory results set the final diagnosis of necrotizing fasciitis. The patient was immediately submitted to surgical debridement and broad-spectrum antibiotic coverage and was finally discharged from hospital 10 days later.

Conclusion: Necrotizing fasciitis is a severe soft-tissue infection with significant morbidity and mortality. Ultrasound examination may prove to be an important weapon in its early diagnosis and treatment, but absence of characteristic findings should neither preclude obtaining tissue biopsy nor exclude the possible clinical diagnosis of necrotizing fasciitis.

PP111

COMPLEX CYSTIC BREAST MASSES

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Masses due to cystic lesions of the breast are extremely common findings on mammography, ultrasonography, and magnetic resonance (MR) imaging.

Cystic lesions of the breast may present in women of any age but are most common between 30 and 50 years of age. They may be detected incidentally on screening mammography or present with such signs and symptoms as nipple discharge or a palpable mass. On mammography, a cystic lesion appears as a round, oval, or lobulated mass with circumscribed margins. However, the margins may become obscured due to pericystic fibrosis. Because a cyst cannot be reliably diagnosed with mammography alone, further evaluation with ultrasound is necessary. Ultrasound permits characterization of the mammographic mass because it can reliably differentiate cystic from solid lesions in most cases. Assessment of a mass seen on ultrasound includes evaluation of the lesion's shape, orientation, margin, boundary, internal echotexture, posterior acoustic features, surrounding tissue, calcifications, and vascularity. Acceptable descriptive terms for each of these features and the assessment categories according to the American College of Radiology breast ultrasound lexicon are summarized. When the lesion does not meet all criteria for a simple cyst (discussed next), imaging-guided intervention, including aspiration or core biopsy, is often necessary to exclude a solid mass.

PP112

ENDOVASCULAR COILING OF INTRACRANIAL ANEURYSMS

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Introduction: Endovascular treatment of intracranial aneurysms represents a prestigious method of modern medical practice. Endovascular procedures are representing a complementary method to open surgery or its addition when it is about high-risk aneurysms or those that can not be solved with open surgery.

Purpose: Purpose of this scientific work is to analyze current results endovascular treatment of intracranial aneurysms in Clinical Center of Vojvodina.

Materials and method: Retrospective study included 147 patients average age of 53,04 years. This research was performed in the period from May 2009 up to May 2016 (seven years). Based on the diagnosis that was made and which contained CT angiography, digital subtraction angiography and spatial reconstruction of blood vessels of the brain, patients were treated with endovascular treatment. The success of endovascular treatment of ruptured and unruptured intracranial aneurysms was analyzed.

Results: In 70,7% cases aneurysm expansion is more often diagnosed among women. About 58% of patients had aneurysm expansion diagnosed after a ruptured aneurysm. Internal carotid artery (64 – 37,9%) represents most frequent localization of all changes with an aneurysm. Of the total number of patients that were treated with endovascular treatment, the procedure was successfully completed in 95,23%.

Conclusion: After analysis and statistical data processing we concluded that due to successfully performed endovascular procedures in 95,23% of all cases without complications, in 93,88% of patients, the endovascular treatment took primacy instead of classical surgical approach and that this method is the first choice to treat an intracranial aneurysm in selected patients.

PP113

TUBEROUS SCLEROSIS – THE ROLE OF DIAGNOSTIC IMAGING

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Introduction: Tuberos Sclerosis is a genetic syndrome affecting multiple organs and presenting with benign tumors. The diagnosis is based on a series of clinical criteria.

Purpose: Our aim is to show the importance of diagnostic imaging such as ultra sound, computed tomography (CT) and magnetic resonance imaging (MRI) in confirming the diagnosis.

Materials and Methods: The 41 year old patient was diagnosed with tuberous sclerosis. Her symptoms began at the age of 6 months with facial angiofibromas, followed by multiple retinal nodular hamartomas. At the age of 27, the patient developed chronic renal failure and was admitted for monitoring. We used a 3 Tesla MRI Unit with a standard head coil and abdomen coil to visualize the patient's brain and abdomen. We injected contrast according to the patient's body weight. Furthermore, we performed a non-enhanced 64-slice multi-detector CT of the thorax using standard protocol.

Results: MRI exam of the brain revealed supratentorial cortical and subcortical tubers located in the frontal, parietal, occipital and temporal regions. Radial cerebral white matter migration lines were visualized in the left frontal and parietal regions. The abdominal exam revealed enlarged kidneys, visualized as large tumor formations amongst bands of preserved renal parenchyma. The lesions were interpreted as renal angiomyolipomas. The thoracic CT exam showed cystic transformations of both lungs. Pulmonary bullae were defined in both the left basal and right paramediastinal regions.



Conclusion: Patients diagnosed with tuberous sclerosis should undergo a brain exam to exclude some of the possible complications like subependymal giant cell astrocytoma.

PP114

ABERRANT RIGHT VERTEBRAL ARTERY

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Introduction and Purpose: The right vertebral artery is classically the first branch of the ipsilateral subclavian artery. Anomalous origin of the vertebral artery is rarely encountered and is mostly seen (2.4–5.8%) in the left vertebral artery, which originates directly from the aortic arch between the left common carotid artery and the left subclavian artery. Aberrant right vertebral artery is an extremely rare anomaly, with few case reports having been published. We would like to present rare case of aberrant right vertebral artery in a 59-year-old man. We diagnosed this condition incidentally when using a multidetector CT (MDCT) scanner to evaluate for pneumonia.

Case: MDCT showed an aberrant right vertebral artery originating distal to the left subclavian artery as the last branch of the aortic arch, with dilatation at the origin consistent with a Kommerel diverticulum. Although the proximal tortuous segment of the aberrant right vertebral artery passes posterior to the oesophagus.

Discussion: Aberrant origin of vertebral artery is a rare variant of vertebral artery pathologies implicating in not only cerebrovascular events, but also vertebral artery dissection and surgical anatomy of local regions in particular in the operation of the carotid artery or aortic arch.

PP115

FOURNIER GANGRENE CASE REPORT: DIAGNOSIS USING ULTRASOUND AND COMPUTED TOMOGRAPHY EXAMINATIONS

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Introduction: Fournier gangrene constitutes a fulminant type of necrotizing fasciitis, usually deriving from the scrotum in men or Bartholin's glands in women. Although its diagnosis is often based on clinical symptoms, radiological imaging examinations are considered necessary for the confirmation of clinical suspicion and proper disease handling.

Purpose: To highlight the contribution of ultrasonography and computed tomography in the early diagnosis and the determination of the extent and appropriate treatment of Fournier gangrene.

Materials and Methods: A 53-year old male patient with a clinical history of anorectal abscess, presented with scrotal pain, edema and erythema. The patient underwent an ultrasound examination on an emergency basis, revealing excessive edema and

hypervascularity of the left hemiscrotum with lack of homogeneity and a limited extent of soft-tissue gas. Additional findings were left epididymitis, and a small right hydrocele. The computed tomography examination that followed confirmed the aforementioned ultrasound findings.

Results: Based on the above imaging examinations, the patient was treated for Fournier gangrene using both limited surgical necrosis resection and antibiotics and was finally discharged from hospital almost 2 weeks later.

Conclusion: Fournier gangrene is a relatively rare disease with high rates of mortality, in need for immediate treatment with surgical debridement of necrotic tissue and administration of broad-spectrum antibiotics. Due to its rapid progressiveness and high mortality risk, early confirmation of clinical diagnosis using ultrasound and computed tomography examinations is of utmost importance.

PP116

A RARE CASE OF SCROTAL LIPOSARCOMA: ULTRASOUND EVALUATION

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Introduction: Liposarcomas are malignant neoplasms of adipose tissue usually located in the extremities and the retroperitoneum, with the spermatic cord being a rare site of origin. Most scrotal liposarcomas are spermatic cord neoplasms presenting as intrascrotal masses. Although preoperative diagnosis is quite difficult, imaging evaluation is considered valuable for the exclusion of other pathological conditions and for the disease's appropriate treatment.

Purpose: To present an interesting rare case of scrotal liposarcoma, clinically mimicking a left inguinal hernia.

Materials and Methods: An 87-year old neglected male patient with dementia was admitted to our hospital's Orthopedics Department for spinal stenosis treatment. During clinical examination, scrotal edema with a painless, palpable mass was incidentally found and was originally attributed to inguinal hernia. However, the performed ultrasound examination revealed a lobulated mass of the left hemiscrotum with mixed echogeneity and increased vascularity, with a maximum diameter of 6cm. The above mass displaced the ipsilateral testicle, which was presented with parenchymal heterogeneity. The appearance of the right testicle was normal, whereas bilateral scrotal edema and a small right hydrocele also existed. The above ultrasound findings were suggestive of malignancy.

Results: The patient was transferred to the Urologic Department and underwent radical orchiectomy. The histopathology examination revealed scrotal liposarcoma.

Conclusion: Scrotal liposarcoma constitutes a rare extra-testicular malignant tumor of the spermatic cord. Radical orchiectomy with wide local excision is the nowadays recommended treatment. Ultrasound imaging evaluation is important for the differential diagnosis of this disease entity from other benign or malignant, testicular and paratesticular scrotal masses.



PP117

ENTEROVESICAL FISTULA, COMPUTED TOMOGRAPHY DIAGNOSISE.Kasti¹, M.Georganas¹, N.Papanagiotou¹, M.Zorbas², E.Tsiompanou¹, E.Delaporta¹Computed Tomography and Magnetic Resonance Department, Rhodes General Hospital, Hellas ¹MD ²Radiographer

Introduction: Vesicoenteric fistulae, also known as enterovesical or intestino-vesical fistulae occur between the bowel and the bladder. Normally, the urinary system is completely separated from the alimentary canal. Connections may result from any of the following: incomplete separation of the two systems during embryonic development (eg, failure of the urorectal septum to divide the common cloaca), infection, inflammatory conditions, cancer, trauma or foreign body. Despite the fact that most vesicoenteric fistulas are the result of primary bowel disease, patients most often have urologic symptoms, with a significant absence of intestinal symptoms. Almost 75% of patients presents with symptoms such as fecaluria, pneumaturia, suprapubic pain, recurrent urinary tract infections, and haematuria.

Purpose: Is to demonstrate the unique role of Computed Tomography in documenting the site, the course, the complexity and the etiology of the fistula.

Materials and Methods: A 78 years old female patient was presented with lower quadrant abdominal pain, dysuria and tenesmus. Recurrent urinary tract infections and diarrhea were mentioned in physical history. The blood control revealed abnormal C-reactive protein levels and mild leukocytosis. X-Ray (Philips) and ultrasound (US Sonosite TITAN) of the abdomen were negative for findings. Instead CT (Phillips Brilliance 64-slice) was performed after administration of intravenous and per os contrast agents.

Results: The CT findings were suggestive of a communication between bladder and colon (enterovesical fistulae), with fecal and air contents in the bladder. The etiology was a regional chronic inflammation presumably a diverticulitis of the sigmoid-rectal tract.

Conclusions: The diagnosis of enterovesical fistula may however, be challenging. Radiological imaging, with CT scan plays the mai role in the diagnostic path. Inflammatory bowel disease accounts for approximately 3.5% of cases of vesicoenteric fistulas.

PP118

EPILOIC APPENDAGITIS, A RARE CAUSE OF ACUTE LOWER ABDOMEN PAIN, COMPUTED TOMOGRAPHY APPEARANCESE.Kasti¹, N.Papanagiotou¹, E.Tsiompanou¹, M.Zorbas², M.Georganas¹, E.Delaporta¹Computed Tomography and Magnetic Resonance Department, Rhodes General Hospital, Rhodes, Hellas ¹MD ²Radiographer

Introduction: Epiploic appendagitis is a rare self-limiting inflammatory/ischaemic process involving the appendix epiploica of the colon and may either be primary or secondary to adjacent pathology. Represents an uncommon cause of abrupt lower quadrant pain, difficult to diagnose due to lack of specific clinical signs and symptoms. When it occurs on the left lower quadrant of the abdomen is often mistaken for sigmoid diverticulitis, on the right lower quadrant, it can mimic appendicitis and right-sided diverticulitis. It may rarely

involve the vermiform appendix epiploic appendages as so called epiploic appendagitis of the vermiform appendix.

Purpose: To depict the Computed Tomography (CT) characteristics of this entity because correct identification is critical to eliminate the diagnosis of an acute abdomen. With diagnosis based on clinical manifestations alone, epiploic appendagitis is misdiagnosed in the majority of patients.

Material and Methods: A 56 years old, obese patient was presented with a localized acute abdominal pain and mild leukocytosis. No findings were depicted on abdomen x-Ray (Philips) and Ultrasound (US Sonosite TITAN), instead CT (Phillips Brilliance 64-slice) with intravenous contrast revealed inflammation signs of the descending colon.

Results: CT appearances were a fat-density ovoid structure adjacent to colon, surrounding inflammatory fat stranding and thickening of the adjacent peritoneum.

Conclusion: Epiploic appendagitis is a self limiting disease and thus correct identification on CT prevents unnecessary surgery. Treatment options for epiploic appendagitis often do not include surgery it usually responds well to NSAIDs.

PP119

INTRALUMINAL DUODENAL DIVERTICULUM, A RARE ENTITY, COMPUTED TOMOGRAPHY 64-SLICE APPEARANCE.

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Introduction: Intraluminal duodenal diverticulum (IDD) is an uncommon congenital anomaly. It is a pouchlike structure that develops in the second portion of the duodenum near the major papilla but sometimes extends distally up to the angle of Treitz. It is lined by a thin wall of two back to back layers that can include some fibers muscularis mucosa and islands of pancreatic tissue or Brunners glands. Develops during the embryonic life with equal gender distribution. The symptoms are usually non specific and their complications are related to their location and size of the opening of IDD.

Purpose: To depict the CT (multislice) appearance of this rare congenital anomaly correlated with mild clinical picture.

Materials and Methods: A 52 years old female patient presented at the Emergency Room with upper abdominal discomfort. A physical examination revealed epigastric tenderness without rebound or guarding and fecal occult blood. Laboratory findings mainly showed anemia and mild leukocytosis. A contrast-enhanced CT (Philips Brilliance 64-slice) revealed an invagination at this point of the duodenum. This "bowel-within-bowel" configuration was suggestive of intussusception. The sagittal reconstruction revealed a fluid-filled sac situated in the second portion of the duodenum. An endoscopy confirmed a sac-like, thickened mucosal fold with another opening immediately distal to the ampulla of Vater in communication with the true duodenal lumen consistent with a diagnosis of IDD.

Results: The diagnosis of IDD was made on certain CT radiologic features, endoscopy confirmed the hypothesis.

Conclusion: We report a rare case of IDD as diagnosed by a contrast-enhanced multislice CT, in an adult patient with mild clinical picture.

PP120

ELASTOFIBROMA DORSI, A RARE BENIGN TUMOR, RADIOLOGICAL FEATURES

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Introduction: Elastofibroma dorsi is a rare benign, slow-growing, connective tissue mass in the lower pole of the scapula. This pseudotumor is located at the lower pole of the scapula, between the serratus anterior and the latissimus dorsi muscle, bilateral (60%). Has prevalence up to 24% in patients over 50 years old, with a reported female predilection of 5-13:1. The etiology of this lesion remains unclear, although prevalence is increased in persons who had repeated trauma or perform manual labor involving the shoulder girdle.

Purpose: To highlight the radiological and clinical presentation of elastofibroma dorsi, to evaluate the differential diagnosis in patient with scapular pain, swelling or motility limitations of the region.

Materials and Methods: We present a case of 70 years old patient with severe pain and mild swelling of the right infrascapular region. Ultrasonography (US Sonosite TITAN) revealed a multilayered pattern of hypoechoic linear areas of fat. Computed Tomography (CT Phillips Brilliance 64-slice) confirmed a poorly defined soft-tissue mass bilateral. Complementary the Magnetic Resonance (MR Philips Intera 1,5T) showed an isointense mass with skeletal muscle and areas with signal intensity similar to fat in the areas of interest.

Result: The characteristic position, imaging appearances in correlation with the clinical findings and advance age patient, the primary diagnosis was bilateral elastofibroma dorsi.

Conclusion: Elastofibroma dorsi is an uncommon benign and often asymptomatic soft tissue mass occurring in the infrascapular region. Should be considered in the differential diagnosis of infrascapular soft tissue tumors.

PP121

MDCT NON GATED, EMERGENCY PROTOCOL FOR ACUTE AORTIC DISSECTION

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Introduction: Acute aortic dissection is an acute emergency condition of the aorta. The overall outcome is determined by the type and extent of dissection and the presence of associated complications, therefore, evaluation of the entire aorta, branch vessels, iliac and proximal femoral arteries is recommended. CTA is the modality of choice for initial assessment of suspected aortic dissection.

Purpose: To present an efficient CTA protocol that permits, correct evaluation of the dissected aorta in emergency basis.



Material and Methods: MDCT images, and various post processing algorithms such as volume rendering technique, multiplanar reconstruction, maximum intensity projection, Advanced Vessel Algorithm, were obtained with a CT (Phillips Brilliance 64-slice). Scanning area from the neck to the bifurcation of common femoral arteries. We performed a two phase examination (arterial and a venous). A 130-mL non-ionic contrast with addition 20ml saline solution at a rate of 4 mL/sec was injected via a 20-g intravenous cannula with bolus triggering. Section thickness 1mm. Automatic triggering set at 120 HU thresholds at the level of aortic arch, no ECG gating.

Results: The role of MDCT angiography can be summarized as to identify: intimal-medial flap, false and true lumen, presence of calcifications and thrombus, extent of the dissection and involvement of ascending - descending aorta, evidence of rupture, coronary and aortic branches, evidence of end-organ malperfusion, morphology and diameter of the aorta, iliac and femoral arteries.

Conclusions: MDCT is the modality of choice for the evaluation of suspected AAD in the emergency setting. Rapid acquisitions and easy access to the technique are its major advantages. Detailed assessment of the aortic morphology allows the classification of interlinked AAD and helps determining the treatment.

PP122

AN UNUSUAL COMPLICATION THAT DEVELOPS AFTER ENDOVASCULAR TREATMENT OF MASSIVE HEMOPTYSIS: DSA IMAGES

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Introduction: In patients with massive hemoptysis, bronchial artery embolization is a safe and effective method for bleeding control.

Purpose: We aimed to present a case that has lung cancer with massive hemoptysis and a pseudoaneurysm that developed a rare complication such as a coil fistulization to trachea after the coil embolization treatment.

Materials and Methods: A 54-year-old male was initially evaluated by thorax CT and referred to Interventional Radiology Department for bronchial artery and a pseudoaneurysm of pulmonary artery embolization.

Results: In CT images a necrotic mass in 6x7 cm size that located in 1/3 distal part of trachea which was invaded to adjacent tissues was seen. In emergency state embolization of bronchial artery which was showing tumoral blush was performed by the means of microspheres with superselective approach. Secondly a pseudoaneurysm which was originated from right lung segmentary artery was embolized with coil material. About nine days after the procedure the patient admitted to the emergency department with hemoptysis, cough and a foreign object that comes out from the mouth complaints. In thorax x-ray the coil material that reached to trachea from right hilus was seen. The coil that fistulized to trachea was pulled out from mouth with the aid of portable bronchoscopy. Control angiograms were taken and no contrast agent extravasation was seen.

Conclusions: The coil which was deployed inside the aneurysm is a potential risk factor of rupture. To prevent or minimize this complication, interventional radiologist should avoid from overdriving the catheter and coil inside an aneurysm.

PP123

ENDOVASCULAR EMBOLIZATION OF MASSIVE LOWER GIS BLEEDING DUE TO WIDESPREAD INTRAABDOMINAL METASTASES OF TESTICULAR CANCER

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Introduction: Lower gastrointestinal system (GIS) bleedings due to testicular metastases are not common.

Purpose: In this paper we aimed to present endovascular embolization treatment of massive intraabdominal bleeding that is caused by intraabdominal metastases of malignant testicular carcinoma which is rare in males

Materials and Methods: A 30-year-old male who have widespread intraabdominal metastases due to testicular carcinoma and whose hemoglobin and hemotocrit values were decreasing was evaluated with endoscopy and colonoscopy with the suspicion of GIS bleeding. The patient is referred to Interventional Radiology Department for digital subtraction angiography (DSA) of the mesenteric vascular structures.

Results: Active bleeding areas and fresh blood in ileocecal valve was observed in endoscopy and colonoscopy examination. With the suspicion of small bowel bleeding, DSA was performed. Superior mesenteric artery (SMA) was studied superselectively and widespread pseudoaneurysms and extravazation from distal branches of mesenteric artery were observed. Spherical embolization particles (Bead Block 500-700 μm , Terumo) were injected superselectively to the distal branches of SMA by microcatheter. In control angiograms pseudoaneurysms and extravazations were not observed.

Conclusions: Small bowel bleedings are not common among the causes of lower GIS bleedings. Also lower GIS bleeding due to testicular metastases is quite rare. DSA is very effective in diagnosis and treatment of these type bleedings and spherical particles can be applied successfully in mesenteric artery embolization.

PP124

ENDOVASCULAR EMBOLIZATION OF A GIANT HEMATOMA IN BLADDER DUE TO HEMORRHAGIC CYSTITIS BECAUSE OF CHEMOTHERAPY SIDE EFFECTS: CASE REPORT

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Introduction: Hemorrhagic cystitis may develop as a complication of high dose chemotherapy and hematopoietic stem cell transplantation that can lead to serious problems.

Purpose: In this paper we aimed to present endovascular embolization of a giant hematoma in bladder due to hemorrhagic cystitis which causes severe hemodynamic instability that occurred after chemotherapy cycle.

Materials and Methods: CT images and ultrasonography showed a giant hematoma in bladder of a 13-year-old girl who has hematuria after bone marrow transplantation (BMT). In scintigraphy there was no active bleeding focus. That is why possibility of intermittent bleeding is thought the patient was referred to interventional radiology department for diagnosis and treatment.

Results: Vesical arteries were studied superselectively, pseudoaneurysms and extravasations from distal branches were observed. Spherical embolization particles (Bead Block 300-500 μm and 500-700 μm Terumo) were injected superselectively to active bleeding distal branches in four sessions totally with one week break each session. In control angiograms pseudoaneurysms and extravasations were not observed.

Conclusions: Although there are widely accepted international guidelines for the diagnosis and management of some common complications of high dose chemotherapy, which are important morbidity and mortality reasons, there is no such standards for definition, severity classification and optimum therapy of hemorrhagic cystitis. DSA is quite helpful in diagnosis and management of patients who has severe hemorrhage and resistant to medical therapy instead of high mortality and morbidity related surgeries which cause permanent anatomic changes and permanent genitourinary system malfunctions.

PP125

CURRENT THERAPEUTIC METHODS IN FACIAL ARTERIOVENOUS MALFORMATIONS IN PEDIATRIC AGE: PREOPERATIVE ONYX EMBOLIZATION

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Introduction: Arteriovenous malformations (AVM) are a high flow congenital abnormality that is caused by a direct connection between artery and vein. Pathogenesis of this entity is agenesis of capillary plexus between artery and vein.

Purpose: In this paper we aimed to present digital subtraction angiography (DSA) images of preoperative ethylene vinyl alcohol copolymer (onyx) embolization in pediatric age patient to decrease chance of bleeding in operation and lower the Schobinger Classification degree.

Materials and Methods: 6-year-old girl has color changes, thickening and sore at her upper lip. MR images were evaluated and DSA was performed with the suspicion of AVM.

Results: MR images showed AVM with flow void areas in cutaneous and subcutaneous soft tissue of upper lip. Right external carotid artery (ECA) was studied selectively and superior labial branch of facial artery was seen as a feeder artery of AVM. Onyx was injected superselectively to feeder artery by the help of microcatheter. In control angiograms there was no contrast filling in AVM.

Conclusions: Onyx embolization is performed successfully in intracranial AVM treatments. Nowadays onyx embolization in pediatric age becomes more recognized and more

important treatment option of AVMs. Onyx embolization can be used not only as a curative treatment but also as a preoperative embolization such in cases of impossible or incomplete therapy and recurrent risk of AVMs.

PP126

McCUNE-ALBRIGHT SYNDROME (M.A.S)

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Introduction: M.A.S is a complex genetic disorder affecting the bones, skin and endocrine system. The syndrome is the result of a spontaneous mutation in the GNAS1 gene. The manifestations include polyostotic fibrous dysplasia, café-au-lait spots and endocrine gland hyperactivity. Diagnosis requires 2 out of 3 prementioned manifestations. Polyostotic dysplasia is often diagnosed in childhood, usually during the first decade of life.

Frequently involved bones are the femur, the tibia, the facial skeleton and the ribs. It presents with pain or a limp, bone broadening and pathologic fractures. In some cases it is asymptomatic. Severe fibrous dysplasia has a negative effect on the individual's quality of life.

Purpose: To present a case of McCune Albright syndrome and address the importance of early diagnosis.

Material and Methods: A 27-year old female patient diagnosed with the syndrome in the past came to our CT department to be reassessed. First diagnosis was based on radiological findings compatible with polyostotic dysplasia, accompanied by cafe-au-lait spots on her face, neck and left upper extremity. She had been operated on both femora after the event of pathologic fractures due to the underlying condition.

Results: A pelvis-hip scan performed 16 months ago had shown broadening of the right iliac bone and thinning of the cortex accompanied with soft tissue mass in the right iliac fossa expanding within the pelvis. In our study the above mentioned mass doubled its size in comparison to the previous CT scan.

Conclusion: M.A.S is a rare genetic condition that affects many systems. Early diagnosis of the syndrome is crucial, since it is accompanied by severe complications such as precocious puberty, malignant transformation, and elevated risk of breast cancer, pathologic fractures, bone deformity, scoliosis, and neurologic, hepatic, cardiac and intestinal disorders. Prognosis depends on the clinical manifestations of the syndrome and on the response to pharmacologic therapy.

PP127

CORRELATION OF CAROTID DISEASE FINDINGS ON COLOUR DOPPLER ULTRASOUND WITH STROKE

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Introduction Carotid disease is a major cause of stroke accounting for approximately 20% of all case of cerebral ischemia. Ultrasound including B-mode, colour Doppler technique and pulse wave Doppler represent the primary imaging modality for screening and evaluation of carotid disease.

Purpose The purpose of this study was to evaluate atherosclerotic disease of the extracranial part of carotid arteries with colour Doppler Ultrasound and to correlate these changes with brain ischemic changes identified on computed tomography (CT) and Magnetic Resonance Imaging (MRI).

Materials and Methods During a period of the last 5 years 133 patients were referred for carotid ultrasound due to suspected stroke (89 male patients, 34 female age mean 68 years). Brain CT was performed in all patients while 24/133 underwent brain MRI. Carotid ultrasound was performed in 532 common and internal carotid arteries bilaterally. All carotid plaques detected were evaluated for echogenicity, presence of calcification, ulceration and degree of stenosis.

Results Ischemic stroke was identified in 55 patients on brain CT (recent ischemic infarcts, haemorrhage, old ischemic changes). Colour Doppler Ultrasound identified 257 atherosclerotic plaques (48.3%) with ulceration on 15 plaques (5.9%) and occlusion on 10 cases (1.9%). Regarding stenosis, 207 plaques caused <50% stenosis (38.9%), 25 plaques caused 50-69% (4.7%) and 25 plaques caused >70% stenosis (4.7%).

Conclusion Atherosclerotic plaque composition in combination with degree of stenosis is directly correlated with occurrence of ischemic cerebral infarcts detected on CT.

PP128

A HUMAN IMMUNODEFICIENCY VIRUS- TUBERCULOSIS CO- INFECTION AND ITS CT FINDING BEFORE AND AFTER TREATMENT

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BEAH

Introduction: Human immunodeficiency virus (HIV) and Tuberculosis (TB) co-infection is emerging as a serious threat globally. The prevalence of HIV/AIDS and tuberculosis within the population is unprecedented and the convergence of these two infectious diseases is increasingly and significantly endangering human health for socioeconomic development. The clinical manifestations, laboratory presentation, and epidemiologic features of HIV/TB co- infection cases are variable and the treatment in many cases are difficult.

Purpose: Our aim is to discuss abdominal TB findings on Computer Tomography (CT) in HIV infected patients and to show the results after treatment.

Materials-Methods: A 47-year-old male heterosexual patient who had been diagnosed with HIV consulted the hospital because of continuous cough, abdominal pain and swelling. Laboratory check up and contrast enhanced CT was performed.

Findings: The CT scan revealed massive splenomegaly, portal vein dilatation, periportal edema, increased gallbladder wall thickness. Also multiple cystic- necrotic lymphadenopathies (LAP) were determined at the celiac artery level, infrarenal level, next to paraaorta, the iliac arteries and obturator artery. The greatest one was 24x16,5 mm. The laboratory tests show the coinfection HIV-TB. After the patient gets a multidrug treatment a second CT scan was performed. The results show that all findings disappeared and the patient was recovered from TB.

Conclusion: HIV and TB co-infection is emerging as a serious threat globally. The prevalence of HIV/AIDS and tuberculosis within the population is unprecedented and the convergence of these two infectious diseases is increasingly and significantly endangering human health for socioeconomic development. In many cases the HIV patient does not know that he has a co- infection as well as our patient. During the treatment the patient was not allowed to take antiretroviral drugs. After the recovery he goes on taking in his antiretroviral drugs.

PP129

A RARE COMPLICATION OF TOTAL HIP ARTHROPLASTY: EXTERNAL ILIAC ARTERY PSEUDOANEURYSM

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Introduction: External iliac artery pseudoaneurysm is a rare but extremely serious complication of total hip replacement surgery that radiologists should bear in mind. We present a case that was diagnosed with a delay and was treated promptly.

Purpose: To report a rare and potentially fatal complication of total hip arthroplasty.

Materials and methods: A 78 y.o. man who underwent a right total hip replacement surgery presented one month later with back ache. He was referred to our department for lumbar spine CT and nerve root injections. A fluid collection over the right psoas muscle was an incidental finding that was not further investigated. Twenty days later he was admitted for intense back ache and another lumbar spine CT was performed. The CT revealed an increase of the size of the collection and raised the suspicion of a vascular complication. The CT Angiography that followed revealed a pseudoaneurysm of the right external iliac artery.

Results: The pseudoaneurysm was successfully treated with a stent graft and the hematoma was surgically removed. The patient recovered uneventfully.

Conclusion: External iliac artery pseudoaneurysm is a rare but potentially fatal vascular complication of total hip arthroplasty that radiologists should keep in mind. A pelvic fluid collection after a total hip replacement surgery should raise the suspicion of pseudoaneurysm and generate proper investigation.

PP130

CT IN THE DIAGNOSIS OF STOMACH CANCER

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Introduction: Stomach cancer is considered the fourth most common oncologic disease. It is diagnosed mainly by endoscopy, but CT as a method of examination could be also helpful, both for diagnosis and staging.

Purpose: The aim of this study was to evaluate the importance of CT as a diagnostic method.

Materials and methods: The study includes 147 patients for a period of 5 years /2011-2015/ with histologically proven stomach cancer that were further examined by CT for staging of the disease.

Results: The tumor in the stomach was diagnosed by CT in 125 patients /85,03%/. We did not find T1 tumor, T2 we found in 21 patients, T3 in 42 and T4 in 62 patients. We could visualize both the endophytic and the exophytic lesions, the infiltration of the stomach wall, the perigastric fat tissue, nodal and parenchymal metastases. In 29 patients the tumor was found in the small curvature, in 80 patients in the antrum, in 9 at the gastroesophageal junction and in 7 patients in the stomach cardia.

Conclusion: Computed tomography is an accurate method for diagnosis and staging of stomach cancer.

PP131

ISOLATED HYDATID CYST OF THE KIDNEY: DIAGNOSIS AND TREATMENT

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Introduction and Purpose: Hydatid cyst is a benign parasitic infestation caused by larval stage of the cestode *Echinococcus granulosus*. Hydatid cysts could involve any organ most frequently the liver and the lungs. Isolated kidney involvement is extremely rare and only few cases were reported in the literature. We aimed to present ultrasonography (US) and computed tomography (CT) findings of an isolated renal hydatid cyst and its treatment.

Case: A 42-year-old woman presented with left lomber pain. US was performed and it showed a thick-walled cystic lesion in the lower pole of left kidney with a dimension of 61x50 mm. There were daughter cysts within the cyst. This cystic lesion was compressing proximal ureter and there was grade 2 dilatation of the left pelvicalyceal system. CT was obtained and confirmed renal cyst with enhanced contrast on hydatid membrane, compression to the left ureter and pelvicalyceal dilatation. Indirect hemagglutination test for hydatid cyst was positive. We treated the patient in our interventional radiology unit. Firstly, we catheterized with Chiba, then aspirated the cyst contents and irrigated. Subsequently we proved that the cysts are not connected with pelvicalyceal system and we

did sclerotherapy with alcohol. No evidence of recurrence was found and the indirect hemagglutination titer returned to normal during follow-up period.

Discussion: The reported incidence of renal echinococcosis is 2-4%. The kidney is usually involved as a part of disseminated disease thus isolated renal echinococcosis is rare and only few cases were reported in the literature. Isolated renal hydatid disease may be asymptomatic and detected incidentally. The communication with the collecting system may lead to the passage of grape like material in the urine, hydaturia that is pathognomonic for the disease. Large sized cysts may compress the urinary tract. Modified PAIR technique is a reliable method for percutaneous treatment of risky and symptomatic renal hydatid cysts.

PP132

HABENULAR COMMISURE CALCIFICATION - COMPUTED TOMOGRAPHY CHARACTERISTICS EVALUATED WITH 1MM REFORMATED RECONSTRUCTIONS

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Introduction: The third ventricle penetrates as an evagination and divides pineal stalk into inferior and superior lamina. Habenular commissure is part of superior lamina. Habenular commissure together with habenular nuclei forms habenula. Physiologically it has a role in behavior related to emotion, motivation and reward. Calcification in habenula (HC) are classified as physiological, described with curvilinear pattern a few millimeter anterior to the pineal body in 15% of adult population. Typically curvilinear estimated to 20.1%.

Purpose: To evaluate incidence and computer tomography (CT) morphology of HC seen during native head CT examination on 1mm reformed triplanar reconstructions in adult population.

Materials and methods: Study was conducted as retrospective in Radiology Centre, Clinical Centre of Vojvodina, Novi Sad. We evaluated 100 head CT examinations, done both on Somatom Definition 64, Siemens and Somatom Emotion 16, Siemens, of different adult patients, done during August 2015. Axial and if necessary sagittal and coronal images were observed on 1mm reformed reconstructions. Exclusion criteria were cranial haemorrhage, big shift end expansive masses that could intervene with evaluation. All calcifications, unilateral or bilateral, punctuate, nodular or of different morphology, were taken into account.

Results: We found high incidence of HC (86%) with bigger percentage in men (53%) than in women (47%), without statistical differences in age group.

Conclusion: HC reveal with high incidence on 1mm reformed reconstructions during CT examination of the brain.

PP133

MAMMOGRAPHIC DIAGNOSIS OF WOMEN WITH BREAST CANCER AGED 65 AND ABOVE

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Introduction: Breast cancer incidence in women increases with age, while survival rates decrease. Diagnoses of the elder patient with breast cancer are complicated by inadequate representation of this group. Breast cancer is a disease in which abnormal cells in the breast tissue multiply and form a tumor. Breast tissue consists mainly of fat, glandular tissue, milk ducts and connective tissue. In the majority of invasive breast cancers, the tumor begins in the lining of the milk ducts. If undetected, this rogue cells may also spread to other parts of the breast, the lymph nodes under the arm and to other parts of the body. Prevention of breast cancer in older women has primarily focused on chemo prevention strategies. Traditional breast cancer risk factors including early menarche, family history of breast cancer, late age at birth of first child. Late menopause and a history of benign breast disease are factors that have been defined in the general population but that cannot be altered in the elderly patient.

Purpose: To show the role of mammography in Diagnosis of Women with Breast Cancer Aged 65 and above.

Materials and Methods: In the period 01/01/2005 untill 31/12/2015 are made 1500 mammographyes on patients aged between 21 and 89.

Results: At 21% (315) of the patients are found normal findings, at 46,4% (696) are found fybrocistic dysplazy, at 6.2% (91) are found cysts and fybriadenomas, at 4.1% (62) are found inflamations, at 3.6% (54) are found breast cancer and at 18.8% (282) are found other diseases. In 7 patients older than 65 years was diagnosed with breast cancer

Conclusion: The survival of women with breast cancer aged 65 and above was affected negatively by the age at diagnosis, clinical stage, ant the presence of comorbidity. Early diagnosis also is very important for elderly women.

PP134

INCIDENCE OF CHOROID PLEXUS CALCIFICATION ON COMPUTED TOMOGRAPHY ASSESED WITH 1MM THICK REFORMATED IMAGES

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Introduction: Choroid plexus (CP) with functional unit composed of capillary enveloped by a layer of diferentiated ependymal epithelium play active role in the function of the central nervous systeme.

Purpose: To evaluate incidence of CP calcification (CPC) seen during native head computed tomography (CT) examination on 1mm reformatted triplanar reconstructions in adult population.

Materials and methods: Study was conducted as retrospective in Radiology Centre, Clinical Centre of Vojvodina, Novi Sad. We evaluated 998 head examinations, done both on

Somatom Definition 64, Siemens and Somatom Emotion 16, Siemens, of different adult patients, done during july and august 2015.

Results: High incidence of CPC was observed, with over 80%. CPC were more frequent in males (45.8%) than in females (39.02%) and more frequent in older people.

Conclusion: CPC are frequent incidental finding reveal with high incidence on 1mm reformed reconstructions during CT examination of the brain.

PP135

THE ROLE OF CONTRAST ENHANCED MAGNETIC RESONANCE IMAGING IN DIAGNOSIS OF INTRACRANIAL HYPOTENSION

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Introduction: Intracranial hypotension-ICH, also known as craniospinal hypotension is defined as CSF pressure <7 cm of H₂O in patients with clinical presentation compatible with ICH. It most commonly results from CSF leaks somewhere along the neuraxis which could be spontaneous, iatrogenic or traumatic. ICH is not a well-recognized entity and is commonly misdiagnosed, which can lead to serious consequences.

Purpose: The consequences of ICH are especially well depicted on contrast enhanced MRI studies therefore, imaging is crucial in both confirming the diagnosis and identifying the location of the leak if required and rule out other unexpected pathology

Material and methods: Retrospective analysis of MRI findings in 5 patients diagnosed with ICH was done. Pre and post contrast MRI was performed with 1,5T MRI-device. A linear Gd-based contrast (0.2 mmol/kg) or non-ionic macrocyclic Gd-based contrast (0.1 mmol/kg) was administrated.

Results: All scanned patients presented with persistent or increasing headache mainly postural in nature, nausea and neck pain. Some patients presented with vomiting, increased scalp sensitivity, pulsatile tinnitus, diplopia and vertigo. The most common abnormalities demonstrated on MRI studies diffuse thickening of the pachymeninges with Gd-enhancement and subdural fluid collections were seen in all 5 patients, engorgement of venous sinuses in 3 patients and enlargement of the pituitary gland and downward displacement of the brain in 1 patient. Pachymeningeal thickening and enhancement could be only seen on post contrast MRI scan therefore, it's essential to give contrast in all patients where ICH is suspected.

Conclusion: Misdiagnosis of ICH causes significant delay in the initiation of effective treatments exposing patients to risks associated with the treatments of disorders that mimic ICH. The consequences of ICH are well depicted on imaging especially on pre and post contrast MRI studies. Increased awareness of ICH as a cause of headaches is very important to decrease the high rate of misdiagnosis and inappropriate treatments.

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PP136

PINEAL GLAND DIAMETERS IN RELATION TO CALCIFICATION ASSESSED WITH HOUNSFIELD UNITS ON COMPUTED TOMOGRAPHY

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Introduction: The human pineal gland is a small neuroendocrine organ and one of the most frequent sites of incidentally discovered calcifications during computed tomography (CT) examination of the brain. Calcification in pineal gland is negatively correlated with melatonin serum levels and it is also noticed its association with some diseases.

Purpose: Purpose of our study was to elucidate if there is a correlation between density of pineal calcification expressed in Hounsfield Units (HU) and each diameter of the gland.

Materials and Methods: We examined retrospectively 40 completely calcified gland measuring their each diameter and HU obtained in CT examination.

Results: Significant positive correlation between each diameter and average values of HU was obtained. Larger diameter is accompanied by higher average value of calcification measured in HU.

Conclusion: The degree of pineal gland calcification is positively correlated to its diameters measured on CT.

PP137

MOLAR PREGNANCY: AN INTERESTING CASE REPORT

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Introduction: A molar pregnancy, also known as gestational trophoblastic disease (GTD) is a noncancerous tumor that develops in the uterus. A molar pregnancy can have serious complications including a rare form of cancer and requires early treatment.

Purpose: The presentation of sonographic findings and computed tomography findings in a patient with molar pregnancy.



Patient-Method: a 27 year old patient from Philippines at the 23th week of pregnancy was admitted to the Emergency department of our hospital with vaginal bleeding, low blood pressure and tachycardia. As part of the investigation, ultrasound examination, abdominal CT scan and measurement of human chorionic gonadotropin (hCG) were conducted.

Results: At the ultrasound examination the classical “bunch of grapes” appearance in the uterine cavity was noted (typical of trophoblastic disease) without embryo sac. The CT scan demonstrated an enlarged uterus with central areas of low attenuation and also a highly enhanced area in the myometrium. Blood test revealed increased hCG levels (higher than expected).

Conclusion: The Ultrasound and CT examination can be very accurate and significant for the diagnosis and grading of trophoblastic disease that has a 2% risk of developing into choriocarcinoma.

PP138

COLOR DUPLEX ULTRASOUND IN DIAGNOSIS AND FOLLOW-UP OF GIANT CELL ARTERITIS (GCA)

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Introduction: (GCA) is a primary systemic vasculitis in older adults, whose diagnose is based on the American College of Rheumatology criteria and the gold standard is the temporal artery biopsy (TAB).

Purpose: The objective of this study is to assess the usefulness of color duplex ultrasound (CDUS) for the diagnose and follow-up of GCA patients.

Materials and Methods: Our department performed CDUS in 72 patients, who were sent by the pathological and rheumatology clinic with the suspicion of GCA. We used a high-frequency linear transducer at 12MHz, Doppler frequencies of 4MHz and pulse repetition frequency to 2.5 KHz. The examination included the temporal arteries and the axillary arteries. The aim of the examination was to look for the “Halo” sign, stenosis or occlusion of the examined arteries in patients with the suspicion of GCA and in patients who were diagnosed with GCA and have started treatment.

Results: From the 72 examined patients, 54 were diagnosed with GCA. In 38 of them “Halo” sign was present. Unilateral “Halo” sign showed high specificity for the diagnosis of GCA, and almost 100% specificity when it was bilateral. Also, the combination of “Halo” sign, stenosis and occlusion showed high sensitivity for the diagnosis of GCA. Finally, in the follow-up of patients diagnosed with GCA there was a decrease of “Halo” sign after starting treatment with corticosteroids and reappearance of it in patients suffering a flare.

Conclusion: Although CDUS cannot replace TAB for the diagnose of GCA, it can provide critical information to physicians who are not specialized in GCA or help physicians to start treatment immediately in cases of patients that haven't the ability to have a TAB as soon as it is required. Also, CDUS can provide information for other arteries than the TA, as the axillary arteries. Finally, CDUS is a reliable method for the follow-up of patients diagnosed with GCA monitoring their clinical course.

PP139

EXTERNAL PUDENTAL ARTERY EMBOLISM AFTER TRAUMATIC RUPTURE

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Introduction: A well known complication of pelvic fractures is hemorrhage. Most often it is attributed to exposed fractures, soft tissue injury and venous bleeding. Less commonly the cause is arterial. The arteries that are usually implicated are branches of the internal iliac arteries.

Purpose: To present a case of hemorrhage due to an external pudental artery rupture after fracture of the pubic bone.

Materials and methods: A 76 y.o. woman was admitted to an Orthopedic Department of our Hospital after falling on the ground and suffering a right pubic ramus fracture. Twenty hours later she complained about pelvic pain and a CT was performed. A pelvic hematoma and active arterial bleeding were ascertained. Her blood tests revealed a 14 units drop of the hematocrit (from 38% to 24%). Being in a stable hemodynamic status she was transferred to the angio suite and a digital subtraction angiography was performed. It revealed active extravasation deriving from a branch of the left external pudental artery which had a common origin with the left inferior epigastric artery. During her stay in the angio suite there was further drop of the hematocrit and blood transfusion was ordered.

Results: The ruptured branch was super selectively catheterized with a microcatheter and it was successfully embolized with microspheres (400 μ m). The bleeding stopped.

Conclusion: Although arterial hemorrhage due to pelvic fractures is most commonly attributed to rupture of internal iliac arterial branches; the external iliac arterial branches could also be the cause. In both cases the less invasive treatment is transcatheter arterial embolization and it has successfully replaced surgical treatment.

PP140

PAGET DISEASE-RADIOLOGICAL PRESENTATIONS

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Introduction: Paget Disease, a chronic non metabolic disease of the bones .What causes Paget Disease is unknown but it is generally considered that it is caused by a delayed subclinical viral infection affecting the osteoclasts on subjects presenting a certain genetical predisposition of developing the disease.

Pathology and Physiology: The aggressive and focal bone absorption creates significant cavities to the bones thus driving the osteoblasts into an excessive hyperactivity forming an unorganized bone structure.

The newly formed bones seem rough, unorganized, irregular and less resistant to the reception of forces while on the same time they get easily disfigured and breakable.

The focal bone lesions noticed upon the diagnosis are usually the only ones to appear and the same ones that evolve as long as the disease advances.

Purpose: Our goal is to present both the frequent and rare localizations of Paget Disease. Usually the disease is located on the pelvis, the femoral bone, the skull, the tibia and the spinal cord. Less frequent lesions are found on the scapula, the ribs, the bones of the foot and the hand.

Materials and Methods: We studied the bone radiographs of the radiology department of Evangelismos at a depth of 20 years.

Paget Disease evolves in three steps: The osteolytical phase, the mixed one, and the sclerotic. Radiologically the cortex seems thicker, the bone wider and the increase or decrease of the bone density evolves accordingly to phase of the disease. One can also notice the subarticular surfaces' participation (due to fibrous dysplasia) and malformations or pathological fractures on the bones

Conclusion: In order to identify the presence of Paget disease simple x-rays are of primary importance and in certain cases those radiological findings can set the diagnosis. For an accurate diagnosis, a bone PET scan and ALP can be used while in case of complications CT scan and MRI are of critical importance.

PP141

IMAGING FEATURES OF VERTEBRAL FRACTURES IN ANKYLOSING SPONDYLITIS. THE ROLE OF MRI

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Introduction: Ankylosing spondylitis (AS) is a chronic inflammatory disease of unknown cause that primarily affects the sacroiliac joints and vertebral column consisting of inflammation that promotes new bone formation. Although the latest is central to the pathogenesis of AS, this disease is also associated with osteoporosis that promotes weakening of the spinal column and finally increased risk of vertebral fractures.

Purpose: The primary purpose of this exhibit is to review the radiological features of vertebral fractures in AS and determine the value of different imaging modalities.

Methods and Materials: 17 cases (14 male and 3 female, age 17-75, mean age 57,6) of spinal fractures in patients with AS were identified in MR imaging. All patients were previously examined with radiographs and CT scan. We reviewed their clinical history and previous radiological imaging.

Results: 6 of the patients had fractures in the cervical spine and 11 in the thoracolumbar region. The 3-columns of the spine were involved in 9. Sagittal reformatted CT images were superior compared to axial images in demonstrating the fractures. The sensitivity and specificity of MR imaging were superior to CT and radiographs in detecting and classifying the traumatic injuries of the spine in AS patients. Direct signs of trauma to the disks, ligamentous structures and spinal cord were evident only on MR imaging.

Conclusion: Patients with AS presenting even with a minor trauma should be evaluated for acute spinal fractures. MR imaging shows fractures in AS patients (unstable in a transverse orientation or transdiscal) that may not be detectable in other imaging modalities. MR

imaging is valuable in the evaluation of AS patients with spinal trauma for the possibility of 3-column and soft tissue-spinal cord involvement.

PP142**RADIATION RISK ESTIMATION IN ATRIAL SEPTAL DEFECT OCCLUSION**

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Introduction: Cardiac Atrial septal defect occlusion (ASD) is one of the most common paediatric interventional procedures. There are limited data in the literature as far as radiation risk is concerned for this treatment.

Purpose: Children are especially vulnerable to the oncogenic effects of radiation. This study aims to estimate the risk associated with the irradiation of paediatric patients during atrial septal occlusion (ASD) procedures.

Materials and Methods: 161 patients who underwent ASD divided into three groups according to their age: 1) 5-10 y, 2) 10-15 y, 3) 15-18 y. A modern digital flat panel system was used in all procedures. Various clinical data (weight, body mass index (BMI), etc) were recorded. The dosimetric quantity air kerma – area product (Pka) was also recorded for each procedure and the effective doses were calculated using appropriate conversion factors for each age group.

Results: Median effective doses (mSv) for the three age groups were: 1) 5.8 (min: 2.0, max: 27.0), 2) 5.6 (min: 1.8, max: 25.8), 3) 4.6 (min: 2.4, max: 10). No significant correlation of radiation dose with weight and BMI was found.

Conclusion: The results show that age has a greater influence on radiation risk than the somatometric factors. Because of the great variation of radiation dose and the radiosensitivity of paediatric patients, optimisation of radiation protection measures and establishment of diagnostic reference levels are highly encouraged.

PP143**THE ROLE AND FINDINGS OF CONVENTIONAL ENTEROCLYSIS IN FIRST STAGE OF CROHN DISEASE**

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Introduction: The conventional enteroclysis remains a key in the diagnostic approach of small bowel diseases, with an estimated sensitivity of 94-98% and speciality 89-94%.

Purpose: This e-poster's aim is to present the role and findings of conventional enteroclysis in the first stages of Crohn disease.

Materials and Methods: The study is performed by passing a specially designed 13 French enteroclysis catheter through the nose and into the distal duodenum or proximal jejunum. A guidewire is used for directional control of the catheter during manipulation under

fluoroscopy. The study may be performed by double contrast using 700 mL of barium (35% w/v barium sulfate) followed by 1000 mL of water to advance the barium and distend the bowel.

In the early stages can be detected a uniform and symmetrical thickening of folds and confluent or scattered aphthous ulcers with healthy mucosa interference between failures. Over the course of the disease can be found the ulcer-like "thorn rose" which develop in linear → herpetiformis → asteroid → longitudinal and transverse ulcers "paving-like" and slit, when ulceration concerns around the wall, where inflammatory pores are formed resulting in the formation fistulas and abscesses. Characteristic of the disease is the discontinuity and asymmetry.

Result: At the initial stage of disease the conventional enteroclysis prevails from the other radiographic methods on account of the high sensitivity and speciality.

Conclusion: The choice of the most appropriate imaging technique is done according to the clinical question, cost, experience radiologist and availability of methods.

PP144

A RARE CASE OF PSEUDOANEURYSM CAUSED BY CHRONIC OSTEOMYELITIS

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Introduction: We present a rare case of a large brachial artery pseudoaneurysm which was associated to chronic osteomyelitis of the humeral bone.

Purpose: Pseudoaneurysms of non traumatic aetiology are very rare in the peripheral arteries and much less common in upper extremities than in the lower extremities.

Brachial artery pseudoaneurysms cause thromboembolic complications leading to severe disabilities, including upper extremity and finger loss, thus making their early diagnosis and surgical therapy very important.

Materials and Methods: A young man presented with a left upper arm swelling that had developed within a week, without reporting any previous injury or pathology related to the axillary region. Clinical evaluation confirmed a pulsating mass which was painful and associated with paraesthesia. Preoperatively, Doppler ultrasonography demonstrated a 14cm diameter pseudoaneurysm and confirmed by both a CT & MRA, which also marked an exophytic mass of the humerus next to the pseudoaneurysm, considered to be an osteochondroma.

Results: Aneurysmal resection and saphenous vein graft interpositioning was performed and tissue from the adjacent bone was sent for histopathologic evaluation. The result was chronic osteomyelitis. Postoperative follow-up examinations were performed (Doppler ultrasonography) showing a normal pattern of hand and finger circulation. The literature surrounding brachial pseudoaneurysms identifies them as predominantly an iatrogenic complication. Here we have illustrated a rare case of pseudoaneurysm as a direct result of the chronic osteomyelitis, a much more uncommon occurrence.

Conclusion: In conclusion, pseudoaneurysm formed by an exophytic mass caused by chronic osteomyelitis distal to the axillary artery is rare. However since these

pseudoaneurysms predispose to thromboembolisms of the extremity which in turn can lead to gangrene and amputation, any sudden swelling and pulsating mass in the region should be immediately thoroughly evaluated so as to avoid delaying a surgical therapy which is so important.

PP145

INTRAOSEOUS LIPOMA: CASE REPORT

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Introduction: Intraosseous lipoma is very rare benign bone lesions, not more than 0.1-2.5% of all bone tumors. The most frequently they are an incidental finding. It can be presented in an extremely wide age range (5 to 85 years) although the peak age at discovery is usually in the 4-5th decades of life, with a slight male predilection.

Purpose: Although intraosseous lipomas can be found anywhere, the lower limb accounts for the majority of cases, and predominantly in calcaneus (in 32%). The aim of this paper is to present findings in one case of intraosseous lipoma diagnosed at our Facility, and to review the literature concerning this rare pathology.

Materials and Methods: A 48-year-old male patient with a pain in right foot. He was examined by his General Practitioner, and he made an indication for an X-ray.

Results: 48-year-old male with a cystic lesion in the front part of the right calcaneus found on x-ray of the feet. CT images provided for evaluation revealed adipose tissue within the lesion, with a central area of soft tissue including dystrophic calcifications.

Conclusion: Intraosseous lipomas are rare, but they are considered the most frequent calcaneal bone lesion. Use of X-ray in diagnostics bone lesions is indisputable. Obtained informations and available literature, correlating with other diagnostic modalities (CT and MRI) facilitate making right diagnosis and better understanding of the specific pathology.

PP146

NEUROGLIAL CYST – CASE REPORT

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Introduction: Cystic lesions are a common finding on MRI and CT brain imaging, representing a broad spectrum of pathologies.

Purpose: Differentiation and diagnosis of these cysts can be difficult on the basis of imaging alone. This case represents findings typical of a neuroglial cyst.

Materials and Methods: A 71 year old man was presented with sudden general weakness and transient disturbances of speech. CT imaging performed on admission revealed an



incidental finding of a well circumscribed, hypodense abnormality within the right temporal lobe, which on contrast-enhanced CT showed no increase density. A follow-up pre and post contrast-enhanced MRI confirmed the lesion. It was hypointense on T1W sequences and hyperintense on T2W, similar to that of CSF. There was no communication with the ventricular system, and no contrast enhancement was present. There was no evidence of surrounding oedema, or mass effect.

Results: Neuroglial cysts (also known as gliependymal cysts) are rare, benign epithelial-lined cystic lesions. They represent less than 1% of intracranial cysts. They can occur anywhere in the neuraxis, however the frontal lobe is the most typical location. They can be intra- or extra-parenchymal with the former being more common. These lesions are congenital, arising from sequestration of embryonic neural tube elements within the developing white matter. As shown, they are typically benign, appearing with smooth, rounded contours. There is no surrounding signal intensity abnormality and they contain clear fluid resulting in characteristics similar to that of CSF on imaging.

Conclusion: These cysts are most commonly incidental findings, but can be followed by symptoms such as headache, more often in adulthood than childhood. The differential diagnosis for similar cystic abnormalities includes infectious cysts, cystic tumours, arachnoid cysts, enlarged perivascular spaces (PVS), and porencephalic cysts.



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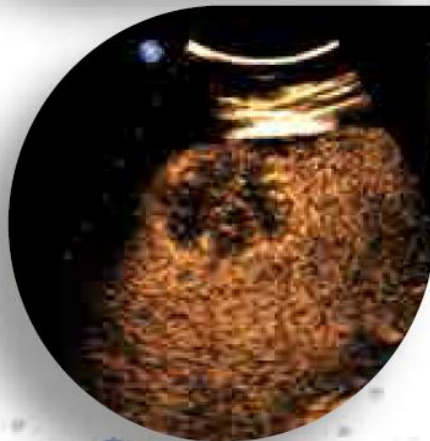
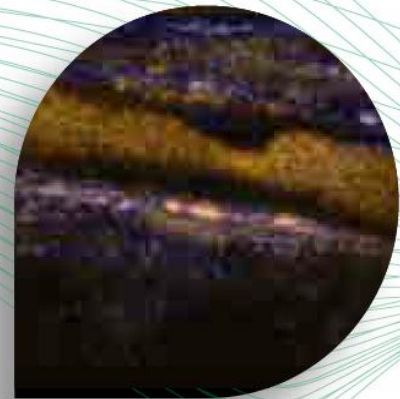


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