AMS 2017 in Tokyo

"Radiology and Pathology :
A Pair of Wheels of MSK"

January 20 and 21, 2017

19th Asian Musculoskeletal Society Annual Meeting

President Kunihiko Fukuda
Department of Radiology
The Jikei University School of Medicine

第 28 回日本骨軟部放射線研究会
第57回　日本病理学会　日本骨軟部腫瘍研究会

合同開催

会期：2017 年 1 月 20 日(金)・21 日(土)

会場：東京慈恵会医科大学　大学 1 号館
〒105-8461　東京都港区西新橋 3-25-8

BTC
Bone & Soft Tissue Tumor Club of Japan
日本骨軟部腫瘍研究会

Welcome address

Dear colleagues,

We are delighted to have the 19th Annual Meeting and Refresher Course of the Asian Musculoskeletal Society (AMS) 2017 in Tokyo on 20 and 21 January, 2017. It will be a Joint Meeting of AMS, Japanese Society of Musculoskeletal Radiology (JSMR) and Bone & Soft Tissue Tumour Club of Japanese pathologists (BTC). On behalf of the Local Organizing Committee, I would like to express my gratitude to all who participate in this meeting.

The theme of the AMS 2017 is "Pathology and Radiology: A Pair of Wheels of MSK". The Venue is The Jikei University School of Medicine, Tokyo. During the 2-day session, joint AMS-JSMR-BTC sessions are scheduled in addition to the AMS sessions. We welcome submissions of e-poster presentation. Case report and scientific research are welcome.

We hope this meeting will be a unique opportunity to exchange ideas and knowledge among AMS and JSMSR members. All the members of Local Organizing Committee are looking forward to meeting all of you in Tokyo.

Kunihiko Fukuda, M.D.
Chair of Local Organizing Committee
Professor of Radiology
The Jikei University School of Medicine

January, 2017

Conference Information

Name of the conference:

The 19th Annual Meeting and Refresher Course of the Asian Musculoskeletal Society (AMS) 2017 joint with the 28th Japanese Society of Musculoskeletal Radiology (JSMR) and the 57th Bone & Soft Tissue Tumor Club (BTC) of Japan

Theme :

"Radiology and Pathology : A Pair of Wheels of MSK"

Date :

January 20 and 21, 2016

Venue :

The Jikei University School of Medicine, Tokyo

Committee

Faculty of AMS

President : Kunihiko Fukuda, Japan
Vice President : Cheng Xiao Guang, China
Immediate Past President: Yang Seoung Oh, South Korea
Treasurer : Lisa Wong, Hong Kong
Secretary : Sri Andreani Utomo, Indonesia
Assistant Secretary: Chou Hong, Singapore

Committee members:

Khalid Al-Ismail, Saudi Arabia
Nuttaya Pattamapaspong, Thailand
Prabhakar Reddy, India
Tamotsu Kamishima, Japan

AMS 2017 Organizing Committee

Kunihiko Fukuda, Japan
Wilfred CG Peh, Singapore
Sri Andreani Utomo, Indonesia

Local Organizing Committee

Jun Aoki, Gunma
Takatoshi Aoki, Fukuoka
Masataka Uetani, Nagasaki
Shigeru Ehara, Iwate
Tamotsu Kamishima, Sapporo
Hideharu Sugimoto, Tochigi
Hajime Fujimoto, Shizuoka
Yuko Kobashi, Tokyo

AMS 2017 Conference Secretariat

Department of Radiology, The Jikei University School of Medicine
3-25-8, Nishi-Shimbashi, Minato-ku, Tokyo 105-8461, Japan
TEL: +81-3-3433-1111(EXT. 3360)
E-mail: ams2017@jikei.ac.jp

Co-sponsored by :

FUJIFILM Medical Co., Ltd.
Bayer Yakuhin, Ltd.

Registration :

The registration desk will be located on the 3rd floor of the venue in following hours.
January 20 (Fri.) 8:00-17:30
January 21 (Sat.) 8:00-17:00

Fee :

All participants will be required to pay the fee of JPY15,000.- for participation.
(Japanese yen is only accepted.)
This amount enables you to access to all scientific sessions of 19th AMS, 28th JSMR, 57th BTC and every social programs. (Abstract book is also included)

Name badge, bill of receipt and certificate of attendance :

Name badge will be handed at the registration desk in exchange of payment. You are kindly requested to wear the badge during all congress sessions and events.
Bill of receipt and certificate of attendance is also handed at the registration desk.

Dinner for all the participants :

Dinner for all the participants will be held in "Yomeiden" (Chinese cuisine) , The Prince Park Tower Tokyo at 19:00 pm on Friday, January 20th.

Language :

The official language for AMS is English. There will be no interpretation provided.

Smoking policy :

Smoking is prohibited at any time in the meeting halls, reception party room or any other places in the building except Smoking Area. Your kind understanding is highly appreciated.

Cellular Phones :

Please be sure to turn off or set to silent-mode while attending sessions.

Presentation guidelines

Official Language :

English in AMS (Japanese in JSMR and BTC but all slides are in English)

☆ There will be no interpretations

Equipment for presentation:

The following will be prepared by the Previewing Desk staff:

☆ Windows PC

☆ TFT monitor and connecting cable (Mini D-Sub15 pin)

Attention:

☆ Speakers are required to bring their own PC.

☆ The Previewing Desk will be located at the lobby of the AMS Venue, 3rd floor, which is available from 8:00 a.m. on January 20-21.

☆ Speakers are required to check-in at the previewing desk to verify that your PC works properly at least 30 min. prior to the session starts.

☆ Please be sure to complete everything including Q&A's within the set period of session time. Session time is as follow:

- Awards Papers : 9min. (7min+2min)
- Refresher Course: 20min.

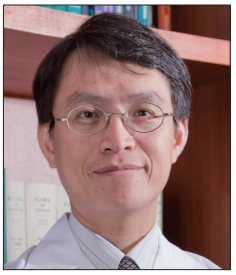
☆ Slideshow shall be clicked by each speaker. For technical assistance, please find an AV operator in the hall.

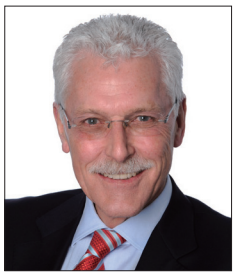
Invited Speakers


Otto Chan

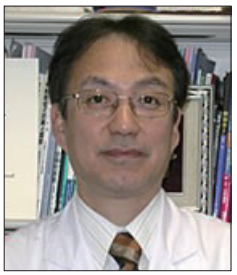

Edward F DiCarlo


Ali Guermazi


Chao-Yu Hsu


Maximilian F. Reiser


Tiffany Ting-Fang Shih


Masataka Uetani


Takehiko Yamaguchi

Lecturers and Moderators of the Refresher Course


Bambang Budyatmoko


Bruce B. Forster

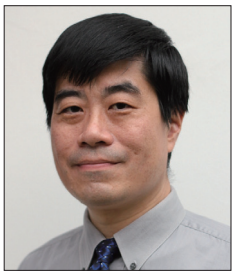

Elysanti Dwi Martadiani


Gervais Khin-Lin Wansaicheong


Giuseppe Guglielmi


Hema Choudur


Heung Sik Kang


Ian Y Y Tsou


James F Griffith

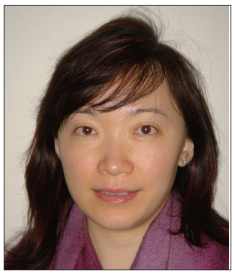

Jianling Cui


Joban Ashish Babhulkar

Kambiz Motamedi


Khalid A Al-Ismail


Kin Sun Tse

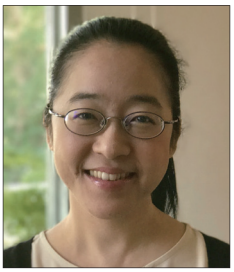

Lisa LS Wong


Mahesh Prakash


Marina Obradov


Mihra S. Taljanovic


Naga Varaprasad Vemuri


Nuttaya Pattamapaspong

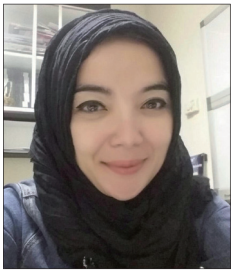
Paulus Rahardjo


Poh Lye Paul See

Rakhee Kumar Paruchuri

Rammohan Vadapalli


Richa Arora


Rosy Setiawati


Sanjeewa Heman Munasinghe


Seoung - Oh Yang

Shalini Agarwal


Sheikh Adnan


Sri Andreani Utomo

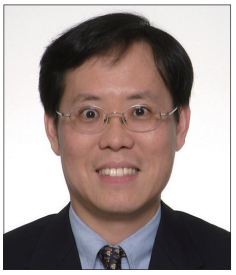

Srikanth Narayanaswamy


Steven Wong


Suphaneewan Jaovisidha


Swee Tian Quek


Thariqah Salamah


Tony W.H. Shek


Tuhin Sikdar


Wilfred CG Peh

Wing Chan


Xiaoguang Cheng

19th AMS Annual Scientific Meeting, Tokyo, Japan
20-21 January, 2017

Fri., 20 January 2017

		Main venue (3rd Floor)		Second venue (6th Floor)	
8:00 ~	8:40	Registration			
8:40 ~	8:50	Opening Remarks (AMS)	Kunihiko Fukuda (JPN)		
8:50 ~	9:40	Opening Lecture Quantitative imaging and radiomics- impact on MSK- radiology	Moderator: Kunihiko Fukuda (JPN) Maximilian Reiser (DEU)		
9:40 ~	10:30	AMS/ISS Best Scientific Paper Award 1) Hermina Sukmaningtyas 2) Jisook Yi 3) Ling Wang 4) Takenori Yonenaga 5) Yuefen Zou	Moderators: Wilfred Peh (SGP) Sri Andreani Utomo (IDN)	Judges: Kang Heung Sik (KOR), Yang Seoung Oh (KOR), Shigeru Ehara (JPN), Kunihiko Fukuda (JPN)	
10:30 ~	11:00	Presentation of Future Meetings ESSR 2017: Bari, Italy ISS 2017: New York, USA AMS 2018: Chennai, India	Moderator: Sri Andreani Utomo (IDN) Giuseppe Guglielmi (ITA) Edward F DiCarlo (USA) Natesan Chidambaranathan (IND)		
		Refresher Course 1: Bone tumors -1	Moderators: Cheng Xiao Guang (CHN) Lisa Wong (HKG)	Opening Remarks (JSMR)	Kunihiko Fukuda (JPN)
				Scientific presentations for Japanese Society of Musculoskeletal	Moderator Tetsuji Yamaguchi (JPN) Yuko Kobashi (JPN)
11:00 ~	11:20	Conventional radiography in the diagnosis of bone tumors	Shalini Agarwal (IND)		
11:20 ~	11:40	MRI of tumor like lesions of bone	Mahesh Prakash (IND)	1)Yuko Kobashi 2) Fumihito Ichinohe	
11:40 ~	12:00	Benign mimics of malignancy	Swee Tian Quek (SGP)	3)Saya Horiuchi 4) Satomi Mine	
12:00 ~	12:20	Primary bone lymphomas	Rakhee K Paruchuri (IND)	5)Akitaka Fujisaki 6) Tetsuji Yamaguchi	
12:20 ~	12:40	Imaging of chondrosarcoma	Elysanti Dwi Martadiani (IDN)	7)Risa Dobashi	
12:40 ~	13:40	Lunch Time Lecture Pathology of non-neoplastic diseases	Moderator: Takehiko Yamaguchi (JPN) Edward F DiCarlo (USA)		
		Refresher Course 2: Bone tumors -2	Moderators: Sri Andreani Utomo (IDN) Hideharu Sugimoto (JPN)	Scientific presentations for Japanese Society of Musculoskeletal Radiology Part 2 Bone and Soft Tissue Tumors	Moderator Katsuyuki Nakanishi (JPN) Tutomu Inaoka (JPN)
13:40 ~	14:00	Imaging of high grade surface osteosarcoma	Bambang Budyatmoko (IDN)	8)Nozomi Ohki 9)Masaya Kawaguchi	
14:00 ~	14:20	Clinico-radiologico-pathological correlation of cases of giant cell tumor treated by Denosumab	Shek Wai Hung (HKG)	10)kayu Takezawa 11)Tsutomu Inaoka	
14:20 ~	14:40	Spinal bone hemangioma: incidental or important imaging finding?	Sri Andreani Utomo (IDN)	12)Katsuyuki Nakanishi 13)Hanae Okuda	
14:40 ~	15:00	Imaging of chordomas of skeleton: radio-pathological feature correlations	Rammohan vadapalli (IDN)	14)Ryosuke Sakurai 15) Michiko Suzuki	
15:00 ~	15:20	Imaging of primary bone tumors of the spine	Wong Lei Sha Lisa (HKG)	16)Tadashi Tokashiki	
15:20 ~	16:00	Sweets Seminar MR spectroscopy in evaluating fat composition of femoral head and as biomarker of developing avascular necrosis	Moderator: Yang Seoung Oh (KOR) Tiffany Ting-Fang Shih (NTU)	Sweets Seminar Subchondral (insufficiency) fracture and its related disorders	Moderator: Manabu Minami (JPN) Takehiko Yamaguchi (JPN)
		Refresher Course 3: Soft tissue tumors	Moderators: Nuttaya Pattamapaspong (THA) Takatoshi Aoki (JPN)	Scientific presentations for Japanese Society of Musculoskeletal Radiology Part 3 Joint Disorders	Moderator Tamotsu Kamishima (JPN)
16:00 ~	16:20	Radiographic evaluation of soft tissue calcifications/ossifications	Sanjeewa Munasinghe (LKA)	17)Hiroaki Onozawa 18) Naoko Kawano	
16:20 ~	16:40	Imaging of muscle pathologies	Sheikh Adnan (CAN)	19)Kaoru Kitsukawa 20) Tamotsu Kamishima	
16:40 ~	17:00	The role of ultrasonography in soft tissue masses	Paulus Rahardjo (IND)		
17:00 ~	17:20	Imaging of vascular malformations	Nuttaya Pattamapaspong (THA)	Business Meeting (JSMR)	
17:20 ~	17:40	Imaging of fat-containing tumor: benign or malignant?	Suphaneewan Jaovisidha (THA)		
19:00		Dinner for all participants			

19th AMS Annual Scientific Meeting, Tokyo, Japan
20-21 January, 2017

Sat., 21 January 2017

		Main venue (3rd Floor)		Second venue (6th Floor)	
8:00 ~	8:40	Registration			
8:40 ~	9:40	Katayama Memorial Lecture Imaging in osteoarthritis: state of the art	Moderator: Kunihiko Fukuda (JPN) Ali Guermazi (USA)		
		Refresher Course 4: Miscellaneous 1	Moderators: Shigeru Ehara (JPN) Prabhakar Reddy (IND)	Refresher Course 5: Miscellaneous 2	Moderators: Jung-Ah Choi (KOR) Yuko Kobashi (JPN)
9:40 ~	10:00	Interpreting findings in bone mineral densitometry of patients with Ankylosing Spondylitis	Gervais Wansaicheong (SGP)	Imaging of avascular necrosis	Rosy Setiawati (IDN)
10:00 ~	10:20	Imaging of sclerosing bone dysplasia	Nsga Varaprasad Vemuri (IND)	MR imaging of sports injuries of the elbow	Bruce Forster (CAN)
10:20 ~	10:40	Renal osteodystrophy: musculoskeletal imaging findings	Giuseppe Guglielmi (ITA)	Imaging of spinal trauma	Richa Arora (IND)
10:40 ~	11:00	Radiology of tumor induced osteomalacia	Xiaoguang Cheng (CHN)	Imaging less common causes of spinal canal stenosis	Paul PL See (USA)
		Refresher Course 6: MSK ultrasound	Moderators: Natesan Chidambaranathan (IND) Tamotsu Kamishima (JPN)	Refresher Course 5: Miscellaneous 2	Moderators: Jung-Ah Choi (KOR) Yuko Kobashi (JPN)
11:00 ~	11:20	Ultrasonography in calcific tendinopathy	Joban Babhulkar (IND)	Pitfalls and artifact of PET/CT and PET/MRI in musculoskeletal systen	Seoung- Oh Yang (KOR)
11:20 ~	11:40	Peripheral neurosonography of the lower extremity	Sung Moon Lee (KOR)	Lean tissue imaging: present concepts and potential impacts	Wing Chan (TWN)
11:40 ~	12:00	Ultrasound of the elbow ligaments	Mihra Taljanovic (USA)		
12:00 ~	12:20	Ultrasound-guided synovial biopsy with pathological correlation	James Griffith (HKG)		
12:20 ~	12:40	Ultrasound of the wrist and hand tendons	Ian Y Y Tsou (SGP)		
		Lunch Time Lecture MSK intervention under ultrasound guidance	Moderator: Wilfred CG Peh (SGP) Otto Chan (GBR)		
				Opening Remarks (BTC)	Toru Motoi (JPN)
		Refresher Course 7: MSK interventions	Moderators: Harvey Teo (SGP) Khalid Al-Ismail (KSA)	Joint Session of JSMR and BTC Part 1	Moderators Ikuma Katou (JPN) Hajime Fujimoto (JPN)
13:40 ~	14:00	MSK ultrasound interventions	Motamedi, Kambiz (USA)	Pathology Case 1	Kazuyoshi Uchihashi (JPN)
14:00 ~	14:20	PNT-percutaneous needle tenotomy: patellar tendon, Achilles tendon and plantar fascia	Marina Obradov (NLD)	Film Reading Case 1	Michiko Suzuki (JPN)
14:20 ~	14:40	Role of PRP in MSK diseases	Khalid Al- Ismail (KSA)	Pathology Case 2	Takeshi Yamada (JPN)
14:40 ~	15:00	CT-guided biopsy for musculoskeletal tumors: experience in a tertiary referral center in Indonesia	Thariqah Salamah (IDN)	Film Reading Case 2	Asako Yamamoto (JPN)
15:00 ~	15:20	Ultrasound of peripheral nerves: normal anatomy, imaging technique, pathology and US guided nerve interventions	Hema Choudur (CAN)	Pathology Case 3	Zennya Sugiura (JPN)
15:20 ~	16:00	Sweets Seminar Correlation between microcirculation of supraspinatus tendon and shoulder external rotation strength in overhead athletes	Moderator: Kunihiko Fukuda (JPN) Chao-Yu Hsu (NTU)	Sweets Seminar Diagnostic pitfalls in MR imaging of musculoskeletal tumors	Moerator: Ryota Fujimoto (JPN) Masataka Uetani (JPN)
		Refresher Course 8: Joint disorders	Moderators: Kang Heung Sik (KOR) Chou Hong (SGP)	Joint Session of JSMR and BTC Part 2	Moderators Akihiko Yoshida (JPN) Hajime Fujimoto (JPN)
16:00 ~	16:20	Approach to hip pain in children	Sunny Tse (HKG)	Pathology Case 4	Fumitaka Ishikawa (JPN)
16:20 ~	16:40	Multimodality imaging in femoroacetabular impingement	Srikanth M Narayanaswamy (GBR)	Film Reading Case 3	Waka Nakata (JPN)
16:40 ~	17:00	The failing hip prosthesis: radiological considerations	Tuhin Sikdar (GBR)	Pathology Case 5	Eiichi Konishi (JPN)
17:00 ~	17:20	MR imaging of articular cartilage: knee	Steven Wong (SGP)	Film Reading Case 4	Takeshi Fukuda (JPN)
17:20 ~	17:40	Imaging subchondral bone lesions of the knee	Jianling Cui (CHN)	Pathology Case 6	Isumi Kinoshita (JPN)
				Closing Remarks (BTC)	Toru Motoi (JPN)
17:40 ~	17:50	Closing Remarks (AMS)	Kunihiko Fukuda (JPN)	Business Meeting (BTC)	

the 19th Annual Meeting and Refresher Course of
the Asian Musculoskeletal Society (AMS) 2017

1-1. Quantitative imaging and radiomics- impact on MSK- radiology

Maximilian F. Reiser(Germany)

Department of Clinical Radiology, Ludwig Maximilians- University

Imaging modalities provide data and these data can be used to extract substantial information about diseases beyond morphological and functional alterations. This allows achieving higher precision in characterizing disease in individual patients and in the assessment of prognosis. Eventually, quantitative imaging and radiomics are expected to improve outcome by selecting the most appropriate therapy and to detect risk factors.
Quantitative imaging stands for the translation of imaging findings in imaging biomarkers. Biomarkers have multiple applications, including: 1) Prediction: use as a tool to predict patients at risk of disease. Bone densitometry is has been established as an indicator of the risk to experience osteoporotic fractures and is an example of predictive biomarker. 2) Detection: use as a diagnostic tool for the identification of patients with disease. For example, measurement of the synovial enhancement can be used as a biomarker of inflammatory joint diseases. 3) Staging: use as a tool for classification of the extent of disease. PET-CT with measurements of specific uptake values (SUV) is increasingly used as staging biomarker of various malignant tumors. 4) Grading: use as an indicator of disease aggressiveness and prognosis. Several studies with variable results have assessed the correlation between MRI perfusion and diffusion parameters and tumor aggressiveness or prognosis, and 5) Assessment of response to treatment: use as a tool for evaluating the disease response to treatment.
MSK radiology has pioneered the development of biomarkers and greatly contributed to the implementation of imaging biomarkers and defining the requirements for their effective use which are in addition to technology stability (robustness), noninvasiveness, and broad availability, with two main prerequisites- standardization and validation. Compared with biochemical and histological biomarkers, imaging biomarkers have the advantage of remaining noninvasive and being spatially and temporally resolved.

Radiomics is an emerging field that converts imaging data into a high dimensional minable feature space using a large number of automatically extracted data-characterization algorithms. It explores the association between single or multiple morphologic and functional imaging features or between voxel- based morphometry and genetic information (candidate genes, genome- wide sequencing or gene expression profiles). Novel IT-methods are employed in order to extract substantial information from imaging data.

Radiomic analysis includes several steps: 1) preprocessing (normalization, segmentation), 2) feature extraction (shape, volume, roundness, signal intensities, texture) and 3) classification (machine learning, supervised learning). The extracted features are employed as diagnostic vectors which are correlated with clinical and pathologic data. For machine learning various algorithms are available, such as random forest, support vector machines and logistic regression. The results are evaluated by training and testing cycle.

Publications in radiomics are increasing at a high pace. Breast, prostate and lung cancer have been explored extensively whereas musculoskeletal disorders have not been widely examined yet.

It is anticipated that radiomics will further enhance the value of medical imaging by making the maximum of information available. Radiologist should partner with associated disciplines to embrace this new technology and diligently assess its clinical usefulness.

1-2. Imaging in osteoarthritis: state of the art

Ali Guermazi(USA)

Boston University School of Medicine

Osteoarthritis (OA) has major implications for healthcare worldwide, without effective pharmacological treatment available at present. The field of joint imaging, and particularly magnetic resonance (MR) imaging, has evolved significantly thanks to technical advances and the application of these to clinical research. In particular, cartilage imaging is at the forefront of these developments. In this presentation, different aspects of OA imaging and cartilage assessment, with an emphasis on recent advances, will be discussed. Multiple imaging tools are available. Radiography is still most widely used imaging modality despite known limitations, and it is used for making clinical diagnosis and for inclusion/stratification in OA epidemiological studies. Ultrasound can be used for clinical diagnosis of synovitis, although it is less frequently used than MRI due to lack of ability to image deeper structures. Today, MRI is the most important imaging tool for OA research. Associations between MRI findings and symptoms/progression of OA have increasingly become available in the literature. There are semiquantitative MRI scoring systems that are reliable and validated for use in clinical and epidemiological studies. Emerging advanced imaging techniques such as compositional MRI enable us to capture pre-morphologic, physiological status of tissue such as cartilage and meniscus.

2-1. Pathology of non-neoplastic diseases

Edward F DiCarlo(USA)

2-2. MSK intervention under US guidance

Otto Chan(United Kingdom)

The London Independent Hospital and Royal Free and Whittington Hospitals

The author will concentrate on describing in detail the treatment of the 10 commonest interventions that he performs in general MSK interventions, using a new concept of HVIGI (High volume image guided injections). This will include common conditions such as osteoarthritis (including knees and 1st MTPJ), Achilles and Patella tendinopathy, subacromial impingement, greater trochanteric bursitis, lateral epicondylitis, plantar fasciitis, chronic MCL syndrome, small tendon tendinopathy (including De Quervain's tenosynovitis and ankles), Morton's neuroma and Sinus tarsi syndrome.

2-3. MR Spectroscopy in Evaluating Fat Composition of Femoral Head and as Biomarker of Developing Avascular Necrosis

Tiffany Ting-Fang Shih(National Taiwan University)

Department of Radiology and Medical Imaging, National Taiwan University Medical College and Hospital.

Introduction

The etiology of femoral head avascular necrosis remained unclear. Most research mentioned about ischemic changes. However, the fat content and lipogenesis of epiphysis in femoral head may have some contribution of increased intraosseous pressure of femoral head. Thus, we aimed to evaluate the intraosseous fat component in vivo by using the non-invasive MR spectroscope.

Objectives

To evaluate the femoral head lipid composition by proton MR spectroscopy (MRS) and investigate its relationship with the development of avascular necrosis (AVN) in a longitudinal follow up study

Material and methods

Thirty-eight patients with unilateral femoral head AVN were prospectively enrolled. Proton MRS was conducted on their contralateral, intact side of femoral head during the initial MR examination. All patients were followed at orthopedic clinics to evaluate the possibility of newly developed AVN. The initial MRS variables included amplitude (AM), integration (I) and line width (LW) of different peaks and lipid/water ratio. Logistic regression and CART analysis were used for statistical analysis.

Results

The follow up duration of these patients ranged from 738-5578 days (2575 ± 1214 days). Five patients among them developed new AVN during the follow-up. Lipid spectrum of initial MRS variables showed significant difference among those who developed AVN (n=5) or not (n=33; $p < 0.05$). One of the cutoff point of integration of lipid peak at 2.1 ppm was significant at 347.92 (P=0.007).

Conclusion

Alteration of lipid component of bone marrow depicted by proton MRS may be a biomarker for new AVN development in a normal-looking femoral head. Proton MRS could serve as a non-invasive image tool of subclinical AVN.

2-4. Subchondral (insufficiency) fracture and its related disorders

Takehiko Yamaguchi(Japan)

Koshigaya Hospital, Dokkyo Medical University

Subchondral (insufficiency) fracture (SIF) of femoral head is one of the common fractures in elderly patients with a background of osteoporosis or obesity, like femoral neck fracture and vertebral compression fracture. SIF is recently recognized bone and joint disorders and should be distinguished from avascular osteonecrosis of the femoral head (AVN). SIF was first introduced in 1996 and then Yamamoto and Bullough had examined energetically and contributed to establish this entity. SIF tends to occur in elderly women. SIF often produces sudden onset of severe hip pain and gait disturbance with or without a history of minor trauma. The clinical course of SIF is variable: some spontaneously improve and some finally lead to collapse of femoral head. In the early stage, X-ray fails to demonstrate any abnormality except decreased bone density.
Then,
irregularity of articular surface and crescent sign gradually appear. In the advanced stage, the narrow joint space and collapsed femoral head are recognized. Imaging findings of SIF sometimes mimic those of AVN. More than 70% of patients suffering from AVN have a history of steroid intake or alcohol abuse. AVN develops bilaterally in about half of the patients. X-ray reveals subchondral crescent sign and band-like osteosclerosis at the interface between necrotic and viable bone. Bone scan shows cold in hot appearance. On MRI, T1-weighted image reveals low-signal band which is very characteristic of AVN, following diffuse bone edema pattern. Nowadays, rapidly destructive arthrosis of the hip (RDA), transient osteoporosis of the hip, and spontaneous osteonecrosis of the knee are considered to be related to SIF.

2-5. Correlation between microcirculation of supraspinatus tendon and shoulder external rotation strength in overhead athletes

Chao-Yu Hsu, M.D.(Taipei Hospital)

Department of Radiology, Taipei Hospital, Ministry of Health and Welfare, New Taipei, Taiwan;
Department of Radiology, College of Medicine, National Taiwan University, Taipei, Taiwan

It has been suggested that tendon adaptation mechanisms to loading vary the morphological compositions of the tendon according to the regional functions in ways that affect the tendon proper, including its blood vessels. The distribution of the blood vessels within the anterior supraspinatus tendon is different than that in the posterior tendon. These differences may become significant in the dominant arms of overhead athletes playing sports involving smashing, such as badminton.

The objective of this study was to measure and compare the features of regional microcirculation within the supraspinatus tendon, and to investigate the correlations between those features and shoulder external rotation strength in overhead athletes.

Seventeen badminton athletes were recruited. DCE-MRI was conducted on the tendons in each athlete’ s dominant arm, including measures for the volume transfer constant (Ktrans), reverse reflux rate constant (Kep), extravascular extracellular space volume (Ve) and blood plasma volume (Vp). Isokinetic tests were used to measure the acceleration time and the relative fatigue ratio of the shoulder external rotation of the arm.

The DCE-MRI measures for the anterior, posterior, and entirety of the tendon showed regional differences in the Ktrans and Kep values, and correlations between the Kep values for the whole supraspinatus tendon and the acceleration time ($r = -0.663$, $p= 0.005$) and between the Vp value of the whole tendon and the relative fatigue ratio ($r =- 0.605$, $p= 0.01$).

We conclude that DCE-MRI demonstrated differences between the microcirculatory features of the anterior and posterior portions of the supraspinatus tendon. In addition, microcirculation at the supraspinatus tendon and shoulder external rotation explosive strength and fatigue are correlated. Our results regarding microcirculatory profiles suggest that DCE-MRI provides a feasible means of explaining the regional features of microvascular adaptations in the tendons and for validating clinical observations of tendon tears.

2-6. Diagnostic pitfalls in MR imaging of musculoskeletal tumors

Masataka Uetani(Japan)

Department of Radiological Sciences, Nagasaki University Graduate School of Biomedical Sciences

A wide range of musculoskeletal tumors and tumor-like conditions may be encountered when patients undergo radiologic examinations. Although MR imaging is a powerful imaging method that has been used extensively in the evaluation of musculoskeletal tumors, nontumoral or tumorlike lesions may have similar imaging findings. The imaging features of certain normal, reactive, benign neoplastic, inflammatory, traumatic, or degenerative processes in the musculoskeletal system may mimic malignant tumors. Misinterpretation of the imaging findings can lead to inappropriate clinical management of the patient. We review and describe the MR imaging characteristics of nontumoral bone lesions that are located in the marrow cavity, cortical bone, or in both, and soft tissue lesions that may be misinterpreted as sarcoma.

R1-1. Conventional radiography in the diagnosis of bone tumors

Shalini Agarwal(India)

Pandit Bhagwat Dayal Sharma, PGIMS, Rohtak

The term bone tumor is a broad category, encompassing benign and malignant neoplasms and miscellaneous' tumor like' conditions. These occur predominantly in children. These are however, relatively rare and form only 0.2% of total human burden. The frequency is possibly underestimated because the benign variety is often asymptomatic. Radiographs, even today are the single most helpful imaging modality when establishing the initial differential diagnosis of primary bone tumors. These reveal the site of the lesion, borders /zone of transition, type of bone destruction, periosteal reaction, matrix of the lesion and nature and extent of soft tissue involvement. Out of these the zone of transition is the single most important criteria differentiating benign from malignant lesions. Size of the lesion can differentiate osteoid osteoma from an osteoblastoma, an enchondroma from a chondrosarcoma, and so on. Number and characteristic appearance of lesions can further help in making a diagnosis as in the case of multiple myeloma. Some lesions like non ossifying fibroma, osteochondroma, enostosis, etc, have a characteristic appearance and can be diagnosed on radiographs without further imaging. Lastly radiographs can also diagnose pathologic fractures which are seen more often in benign lesions rather than malignant. These can confuse the clinical as well as the radiological picture and are best diagnosed on radiographs. Radiographs are limited in determining the extra-osseous tumor volume and the extent of disease in the intact bone marrow. These are also limited in cases of anatomic overlap and complex bony anatomy. Also nearly 50% of the bone has to be lost for a lesion to become radiographically visible. Hence, they should be interpreted with caution It is important to remember the strengths and weaknesses of radiographs and interpret the findings in the light of clinical picture and other imaging modalities.

R1-2. MRI of tumor like lesions of bone

Mahesh Prakash(India)

PGIMER,Chandigarh

Tumor like lesions of bone are commonly encountered in clinical practice.They usually grow slowly, but can grow with rapid rate. Many of them can be diagnosed by plain films however cross sectional imaging may be required for diagnosis and management of various lesions.The MRI is useful when lesion is faintly visualized on plain radiography or when the lesion is indeterminate in nature.The MRI can also done to characterize the lesion and may be required for the surgical management of the lesion.This lecture will give glimpse of indication and usefulness of MRI in various tumor like lesions of bone.

R1-3. Benign mimics of malignancy

Swee Tian Quek(Singapore)

National University of Singapore

Focal lesions in bone and soft-tissue are common and may mimic malignancies. They may be due to normal anatomic variants, trauma or stress-related conditions, physiological response/processes, infective/inflammatory conditions as well as other non-neoplastic processes.

Some of these tumor mimickers can be left alone, while others may be associated with a significant disease process. It is important for the radiologist and clinician to be aware of these mimickers of malignancy and understand some of the characteristic features which allow discrimination between them and true neoplasms in order to avoid unnecessary additional workup.

This talk is not an exhaustive review of these conditions but illustrates through examples some of the benign mimics of malignancy and tries to show some of the similarities, and more importantly, highlights some of the differences from true neoplasms. In the process, it also underlines the theme of the conference by showing how often, in many of these conditions, the clinicians require pathology and radiology to work together as ‘a pair of wheels’ to provide them with meaningful information for the proper management of their patients.

R1-4. Primary bone lymphomas

Rakhee Kumar Paruchuri(India)

School of Medical Sciences & Research, Sharda University, Greater Noida

Primary bone lymphoma (PBL) is an uncommon malignancy that accounts for less than 5% of all primary bone tumors and are defined as extranodal lymphomas arising from the medullary cavity without evidence of distal nodal or extra nodal soft tissue involvement. Groups 1 & 2 as per the WHO classification of "Lymphoma involving bone" are traditionally accepted as PBL. NHL variety is more common than Hodgkin's lymphoma The most common sites are the femur and pelvis. Although the radiographic appearances of primary bone lymphoma are varied and nonspecific, of the various patterns described on conventional radiographs, the "lytic destructive" pattern is most common with a permeative and moth eaten pattern of bone destruction. Periosteal reaction, soft tissue masses, cortical breakthrough and pathological fractures are other findings. As the lesion can appear near normal on plain radiographs, a second modality such as bone scintigraphy or magnetic resonance (MR) imaging should be used. The marrow involvement is striking on T1W scans as hypointense with the soft tissue mass showing T2/STIR heterogenous signal intensities. Role of DWI and ADC maps is still evolving. Despite the variability, the presence of a solitary, permeative, metadiaphyseal lesion with a layered periosteal reaction on plain radiographs and a soft-tissue mass on MR images, especially in a patient older than 30 years, is highly suggestive of lymphoma. The case for a diagnosis of primary bone lymphoma is further strengthened if the soft tissue mass and marrow changes are associated with little cortical destruction. Both MRI and FDG-PET are used to evaluate the lesion pre and post treatment effectively. CT is used to stage the disease prior to start of treatment. Histopathology is essential to establish the diagnosis. PBL has a better prognosis than many other malignant bone tumors; therefore, early identification allows for appropriate treatment.

R1-5. Imaging of chondrosarcoma

Elysanti Dwi Martadiani(Indonesia)

Faculty of Medicine, Udayana University-Sanglah Hospital, Denpasar, Bali

Chondrosarcoma is a malignant tumor that produces cartilage matrix, and it becomes the commonest primary sarcoma of bone in adults. Based on its location, chondrosarcoma is divided as central and peripheral chondrosarcoma. Based on its origin, this tumor is classified as primary chondrosarcoma which is arising de novo, and secondary chondrosarcoma that develops from pre-existing tumor. Subtypes of primary chondrosarcoma include conventional, clear cell, juxtacortical, myxoid, mesenchymal, extraskeletal and dedifferentiated chondrosarcoma. This topic is describing about the imaging characteristic of each subtype of primary chondrosarcoma, and the signs of malignant transformation from benign cartilaginous tumor to secondary chondrosarcoma.

R2-1. High grade Surface Osteosarcoma

Bambang Budyatmoko(Indonesia)

Premier hospital jatinegara,jakarta

High grade surface osteosarkoma
Is the rarest of three type of surface osteosarkoma
High grade periosteal osteosarkoma(also known as high grade surface osteosarkoma) account of lesi than 1-percent
The difference between convensional osteosarcoma is the location on surface of bone
X ray finding appears as bergulat cortical destruction as well as iregular periosteal reaction
We would like to report our caseand difficulties in pathology diagnose

R2-2. Clinico-radiologico-pathological correlation of cases of giant cell tumor treated by Denosumab

Tony W.H. SHEK(Hong Kong)

University of Hong Kong, Queen Mary Hospital

Giant cell tumor of bone is one of the commonest bone tumors, particularly among Asians. GCT is characterized histologically by the presence of an evenly distributed population of multinuclear osteoclast-like giant cells in a background of mononuclear tumor cells as well as a third component of macrophages. The osteoclast-like giant cells are not the neoplastic cell population. They are in fact recruited into the lesion by chemotactic substances (RANKL) produced by the mononuclear tumor cells. These osteoclast-like giant cells possess osteolytic activity on the bone which causes the characteristic lytic radiological appearance of GCT. While GCT can be treated by surgical resection, a proportion of them are unresectable because of their anatomical location or involvement of other vital organs. There is therefore an unmet need to develop non-surgical treatment options for GCT.

Denosumab is a monoclonal antibody against RANKL (Receptor Activator of NF-kB Ligand). It has been used in the treatment of osteoporosis and metastatic bone disease. Through the blockade of the RANKL pathway, the osteolytic activity of the osteoclasts and hence bone resorption is inhibited. Recently, denosumab has been approved in the treatment of surgically unresectable giant cell tumor of bone.

At Queen Mary Hospital, we have treated 12 cases of giant cell tumor of bone with denosumab for the past three years. The denosumab was given by monthly injection, with additional doses on 2nd and 3rd weeks.

There was good symptomatic improvement in all 12 cases. Ten cases showed radiological response with calcification. Histologically there was complete absence of osteoclast-like giant cells with evidence of bone formation in all 12 cases. The bone formation in a background of tumor cells could lead the inexperienced pathologists to erroneously diagnose the case as osteosarcoma.

R2-3. SPINAL BONE HEMANGIOMA, INCIDENTAL OR IMPORTANT IMAGING FINDING

Sri Andreani Utomo(Indonesia)

Department of Radiology, Dr. Soetomo Hospital, Faculty of Medicine, Airlangga University, Surabaya

Spinal hemangioma is the most common benign vertebral vascular tumor. It is usually asymptomatic and incidentally detected due to their characteristic features on imaging for other reasons.Spinal hemangioma classified into typical hemangioma and atypical hemangioma

Atypical spinal hemangioma can rarely be aggressive with epidural involvement and cord compression, aggressive hemangioma represent less than one percent of all hemangiomas, and are more common in women than in men. If left untreated, aggressive hemangiomas can cause serious neurological effects.

Plain X ray shows prominent trabecular pattern, sclerotic vertebra with vertical trabeculae, most commonly seen in the mid-back (thoracic) and lower back (lumbar).

CT scan shows a polka dot appearance in axial slices and “corduroy cloth” appearance in coronal and sagital reconstruction

MRI will show whether the tumor has expanded into the spinal column or spinal canal, or encroached on the spinal cord. MRI can also show the extent of nerve damage in the spine and can assist in planning surgical treatment.

MRI shows extraosseous components better and depicts the haemangioma components as fat and water. Thickened trabeculae appear as low signal areas in both T1 and T2 images. T1 high intensity signal due to its fat component, T2 bright/high intensity signal, usually greater than on T1, due to its high water content, depending on the balance of fat and vascular components, they may or may not be hyperintense on STIR images.

T1 with contrast, significant enhancement seen due to high vascularity

Differential diagnosis includes bone marrow fatty changes, fatty endplate degeneration, herniated disks, synovial cysts, granulomatous infections, neurogenic tumors, lymphomas, meningiomas, metastasis, pure epidural hematoma

Radiologist should be aware the various imaging features of the aggressive spinal hemangioma that can simulate many pathologies like a primary bone malignancy or metastasis

As aggressive hemangiomas often mimic other aggressive spinal lesions, additional imaging modalities such as CT, angiography, and radiography are usually needed to make a definitive diagnosis

R2-4. Imaging of chordomas of skeleton: radio-pathological feature correlations

Rammohan Vadapalli (Indonesia)

R2-5. Imaging of primary bone tumors of the spine

Lisa LS Wong(Hong Kong)

Hong Kong Imaging and Diagnostic Centre

Primary spine tumours are uncommon compared to secondary spine tumours. They can be benign or malignant. The primary bone tumours of the spine can be classified similar to tumours involving the appendicular skeleton into osseous, cartilaginous or fibrous tumours. There are some primary tumours which do not fit into these categories, including haemangioma, chordoma, giant cell tumour, aneursymal bone cyst, lymphoma and myeloma. Similar to assessment of primary tumours in the appendicular skeleton, the age of the patient and the site of tumour involvement in the spine (level of spinal involvement and vertebral body vs posterior vertebral element involvement) are important features for differential diagnosis. Some tumours have characteristic imaging appearances allowing their diagnosis e.g. haemangioma, osteoid osteoma. Biopsy would be needed for those tumours which are imaging non-specific.

Although plain radiography is usually the initial investigation that may alert one to the presence of tumour in the spine, CT scan is often needed for proper evaluation of the exact location and morphology of the spinal tumour and to look for cortical extent and matrix mineralization. Small tumours are also better seen on CT scan than plain radiographs e.g. osteoid osteoma. MRI is the modality of choice for determining the extent of tumour involvement in the spinal column and adjacent paraspinal soft tissues as well as any spinal cord or nerve root involvement. This is important for surgical planning. The use of contrast can help to determine the best site for obtaining biopsy of the tumour. However, one may overdiagnose the extent of tumour when there is extensive associated soft tissue oedema and this may lead to sampling error during biopsy. Thus, correlation with CT is important. Angiography is sometimes used to delineate vascular involvement and for pre-operative embolization.

R3-1. Radiographic evaluation of soft tissue calcifications/ossifications

Sanjeewa Heman Munasinghe RWP RSP USP(Sri Lanka)

Army Hospital, Colombo

Presence of calcifications or ossification in soft tissue gives important clues to narrow down the differential diagnosis or some times provides definitive diagnosis of soft tissue pathologies. Calcifications in the soft tissues may result from different etiologies but, they can be broadly grouped into four main categories, dystrophic calcifications, metastatic calcifications, calcinosis and miscellaneous calcifications.

Though MR imaging has become the imaging technique of choice in the evaluation of soft-tissue lesions, conventional radiography remains vital in the initial assessment of such abnormalities, given its widespread availability and low cost.

Calcifications and ossifications appear as radiodense masses in radiographs and the differentiation between calcification and ossification may not be possible in all situations. The presence of trabecular pattern in ossification differentiates it from calcification but, this is not possible in all cases. Systematic approach with detailed evaluation of the morphology and distribution of the soft-tissue calcifications and ossifications together with a thorough knowledge of the entities that may occur at the site of the noted abnormality, provides significant interpretive value in reaching a definitive diagnosis, differential diagnosis or accurately recommend the next most effective management step.

The lecture will highlight the many of the common soft-tissue calcifications and ossifications encountered in clinical practice while illustrating the subtle, but important information that can be yielded about these lesions from radiographs.

R3-2. Imaging of muscle pathologies

Sheikh Adnan(China)

R3-3. The role of ultrasonography in soft tissue masses

Paulus Rahardjo(Indonesia)

School of Medicine, Airlangga University and Dr. Soetomo Hospital Surabaya

The Role of Ultrasonography in Soft Tissue Masses

Introduction
Ultrasonography is a great diagnostic tool. The interaction with the patient and flexibility in performing the examination, often resulting in greater diagnostic effectiveness, particularly in performing guided interventions.

Spesific tumors in ultrasonography.
Lipomas frequently involve the superficial soft tissues, long axis parallel to the skin surface, and well-defined to ill-defined margins. Lipomas are typically homogeneous in echotexture and most commonly slightly hyperechoic to the adjacent subcutaneous fat.

Hemangiomas have a variable heterogeneous echogenicity with filling vascular channels in Power Doppler sonography. Hyperechoic foci with distal shadowing representing phleboliths..

Peripheral nerve sheath tumors may have a characteristic appearance of a well-defined hypoechoic fusiform mass located at the appropriate nerve distribution.. This lesion can be specifically diagnosed when the adjacent nerve is identified.

A small rounded lesion located beneath the nail suggests a glomus tumor. Cystic lesions around the joint are bursitis, ganglion cyst, or meniscal cyst.

Ultrasonography to detect maligancy soft tissue masses
History of trauma is not a reliable information to exclude malignancy. George A (2012) found that 21% patient with malignant soft tissue mass or sarcoma reported of previous trauma.
Clinical features for suspicion of soft tissue sarcoma are either or combination of these: a). Bigger than 3-5 cm, 2). Deep to the fascia, 3). Enlarging mass, 4). Painful, 5.) Recurrent after previous excision.

Miscellanous findings and ultrasound guided intervention
The non-opaque foreign bodies often be easily identified. Cellulitis and abscess formation can all be shown. Hematomas can be similar in appearance to complex abscesses, but the clinical information helps differentiate between these lesions.

Ultrasonography is useful for guiding percutaneous needle biopsy or aspiration, avoiding vessels and nerves, helps determine the viable portion of a lesion (Doppler), and post intervention scanning to evaluate for residual fluid or detection of complication

R3-4. Imaging of Vascular Malformations

Nuttaya Pattamapaspong(Thailand)

Chiang Mai University

Imaging of Vascular Malformations

Vascular malformations in soft tissue are vascular lesions comprised of dysplastic and tortuous vascular channels that relate to abnormality in angiogenesis. The clinical presentations are variable including nonspecific limb pain, limb swelling, a mass, skin discoloration, and clinical symptoms related to high flow arteriole venous shunts. The signs and symptoms of lesions may be present at birth or childhood but worsen during adulthood. The unclear nomenclature and classification are a challenge. For instance, the term hemangioma has been applied to these vascular malformations as well as other vascular tumors which differ in clinical behavior. The classification by the International Society for the Study of Vascular Anomalies (ISSVA) improves the inconsistent in terminology and is a guide for treatment planning. Based on ISSVA classification, vascular malformations are divided into three patterns: low flow, high flow, and combined vascular malformations. The low flow type can be divided by pathological features into capillary, venous, and lymphatic malformations. The high flow vascular malformations are arteriovenous malformations and arteriovenous fistulas, depending on the presence or absence of a precapillary vascular nidus. The combined vascular malformations (capillary-venous, capillary-lymphatic, and lymphatic venous) may be a manifestation of syndromes such as Klippel-Trenaunay, Parkes Weber, or Bannayan-Riley-Ruvalcaba diseases. The lesion can be treated by surgery or non-surgical treatment such as endovascular embolization, sclerosing therapy, and compression by pressure garments. The characteristic imaging features of these lesions when related to clinical presentations can lead to the correct diagnosis and help avoid unnecessary biopsy. This lecture presents the imaging and clinical patterns of these lesions which provides a guide to the diagnosis.

R3-5. Imaging of fat-containing tumor: benign or malignant?

Suphaneewan Jaovisidha(Thailand)

Ramathibodi Hospital, Mahidol University

Fat-containing tumors are the most common soft-tissue tumors encountered in clinical practice, and vast majority of them are benign. Lipomas are the most common benign fat-containing masses that demonstrate a characteristic appear¬ance at magnetic resonance (MR) imaging. Less common benign fat-containing soft-tissue masses include angiolipoma, myolipoma, chondroid lipoma, osteolipoma, lipoblastoma, spindle cell lipoma/pleomorphic lipoma, , lipo¬matosis of nerve, lipomatosis, hibernoma, and fat necrosis. Well-differentiated liposarcomas (WDLs)/atypical lipomatous tumors (ALTs) are locally aggressive soft-tissue masses that do not metas¬tasize. Biologically more aggressive liposarcomas include pleomorphic, myxoid, and dedifferentiated subtypes. At MR imaging, lipomas typically resemble subcutaneous fat but may contain a few thin septae. The presence of thick, irregular, nodular, enhancing septa and nonfatty components suggests liposarcoma rather than lipoma. However, benign lipomatous lesions and WDL/ALT frequently have overlapping MR imaging findings. Distinguishing WDL/ALT from a benign lipomatous lesion or from fat necrosis at imaging can be confusing and often requires histologic evalu¬ation. This session will present the spectrum of fat-containing masses following the World Health Organization (WHO) classification of adipocytic tumors, with an emphasis on commonly encountered lesions and overlapping MR imaging findings of certain tumors that may require histologic sampling. The role of molecular markers in proper characterization and classification of fat-containing soft-tissue masses will be briefly mentioned.

R4-1. Interpreting findings in bone mineral densitometry of patients with Ankylosing Spondylitis

Gervais Khin-Lin Wansaicheong(Singapore)

Tan Tock Seng Hospital

Objectives:

To discuss the indications, contraindications, findings, interpretation and artifacts seen when performing bone mineral densitometry analysis in patients with ankylosing spondylitis (AS).

Findings:

AS is a well known disease. The classic clinical and radiographic features have been described in the literature. However, in recent years, our understanding of the disease has broadened. Early seronegative axial spondyloarthropathy encompasses AS. The evaluation and treatment choices have also changed with the inclusion of biologics.

The reasons to perform a bone mineral densitometry in patients with AS include the increased risk of osteoporosis and increasing life span in this group of patients. These reasons are considered valid indications in the ISCD 2015 Position Statement in Adults. The availability of treatment for osteoporosis makes the appropriate diagnosis important. The criteria used are similar to other patients. A Z score is used when interpreting findings in male patients less than 50 years of age or pre-menopausal women. A T score is used in postmenopausal women or men more than 50 years of age.

It should be noted that the presence and pattern of bone disease alters the findings seen in AS. The lumbar spine is one site that is used in analysis of bone density. However, the occurrence of lumbar syndesmophytes, enthesopathy, bone anklyosis of the facet joints, ossification of the interspinous ligament and sclerosis of the vertebral bodies can increase the bone density. This can account for the sometimes conflicting reports in the literature regarding the association between AS and osteoporosis.

R4-2. Sclerosing Skeletal Dysplasias

Naga Varaprasad Vemuri(India)

Global Superspeciality Hospital, Vijayawada, Andhra Pradesh

Sclerosing Bone Dysplasias are a very interesting group of conditions showing uniform generalised increased density or sometimes localised patchy density of bones with wide range of clinical, radiological and genetic features. The conditions have been grouped under hereditary and non-hereditary conditions. Since genetic studies are not available in many of the centres in our country, the author has made a more simple classification of symptomatic and non symptomatic (Incidental) group of conditions and their diagnosis on the basis of radiological findings. Important entities grouped under Symptomatic category include osteopetrosis, Pyknodysostosis and Engelmann’ s Disease while asymptomatic group includes Osteopoikilosis, Osteopathia Striata and Mixed Sclerosing Dysplasia. Melhorestosis can have both symptomatic and asymptomatic presentation. This presentation will provide a broad idea of all these Dysplasias with a brief description of some not so common disorders.

R4-3. RENAL OSTEODISTROPHY: MUSCULOSKELETAL IMAGING FINDINGS

Giuseppe Guglielmi(Italy)

University of Foggia

Kidney disease encompasses a large number of pathologies. Making a preliminary distinguish, it is possible to discuss, about musculoskeletal (MSK) manifestation and their radiological findings, of two groups of diseases: those where MSK manifestation are related to chronic kidney disease (CKD) and those no-CKD related.
CKD includes a spectrum of different pathophysiologic processes associated with impaired kidney function, and a progressive decline in glomerular filtration rate (GFR). Due to its increasing prevalence, CKD and its complications are considered one of the major public health problem. 1 Among these complications, disorders of calcium and phosphate metabolism have a remarkable importance, and can be further classified in the group of renal osteodystrophy (aka chronic kidney disease-mineral and bone disorder, CKD-MBD). 2 Renal osteodystrophy is classically subdivided into two metabolic states: those associated with high bone turnover with increased PTH levels (including osteitis fibrosa cystica, the classic lesion of secondary hyperparathyroidism) and those associated with low bone turnover with low or normal PTH levels (adynamic bone disease and osteomalacia). 3-5
No-CKD comprises a large number of diseases, but tubular diseases of the kidney are mainly involved in MSK manifestation. In this setting, conditions listed are pathologic deposition of calcium salts in soft tissues (chondrocalcinosis) and crystal-associated arthropathies, such as calcium pyrophosphate dihydrate (CPPD) and hydroxyapatite (HA) crystal deposition. 6-8

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R4-4. Radiology of tumor induced osteomalacia

Xiaoguang Cheng(China)

R5-1. Imaging in Avascular Necrosis of the Femoral Head

Rosy Setiawati MD, PhD.(Indonesia)

Musculoskeletal Division, Department of Radiology,
Airlangga School of Medicine/Dr. Soetomo-Airlangga University Teaching Hospital, Surabaya, Indonesia

Avascular necrosis (AVN) or osteonecrosis is common and represents loss of blood supply to a region of bone. Frequently affected sites include the femoral head, humeral head, about the knee, femoral/tibial metadiaphysis, scaphoid, and lu¬nate. There are numerous causes of osteonecrosis most commonly related to trauma, corticosteroids, and idiopathic etiology of AVN is multifactorial. Radiologic findings correspond to the underlying pathology of osseous response to osteonecrotic and vascularized granulation tissue at the reactive interface. In the early stages localized subchondral edema is characteristic. Due to necrosis of the cells of bone marrow and bone fibrovascular, reactions with hyperemia can be delineated. Imaging of osteonecrosis is frequently diagnostic with a serpentine rim of sclerosis on radiographs, photopenia in early disease at bone scintigraphy, and maintained yellow marrow at MR imaging with a serpentine rim of high signal intensity (double-line sign). In later stages calcification as well as new bone formation and microfractures are typically demonstrated and visualized best with plain radiograph and CT. Recognizing the appearance of osteonecrosis, which reflects the underlying pathology, improves radiologic assessment and is important to guide optimal patient management.

R5-2. MR imaging of sports injuries of the elbow

Bruce B. Forster(Canada)

University of British Columbia

This presentation will briefly discuss the technical and procedure-related considerations in performing MRI and MR arthrograms of the elbow, and will then use a four compartment approach to illustrate the common sports injuries of this joint. Common flexor/extensor tendinopathy, radial and esp ulnar collateral ligament tears, elbow plica syndrome, and triceps and distal biceps tendon pathology and their mechanisms and the role of imaging in treatment decisions will be discussed.

R5-3. Imaging of Spinal Trauma

Richa Arora(India)

Nizams Institute of Medical Sciences, Hyderabad

Learning Objectives of my talk:
Introduce evidence-based imaging approach
1. Role of CT- Who, how and why?
2. Anatomy
3. Patterns of injury- Biomechanics
4. Upper cervical spine- craniocervical junction
5. Lower cervical spine
6. Thoracolumbar spine
7. Mimicks of vertebral fractures- Physiologic wedging, Scheurmann’ s disease, Neoplastic collapse.

R5-4. Imaging less common causes of spinal stenosis

Poh Lye Paul See(Singapore)

Khoo Teck Puat Hospital

Spinal stenosis refers to a range of conditions that decrease the total area of the spinal canal, lateral recesses, or neural foramina. It may occur in any region of the spine resulting in neurological deficits. It can occur anywhere along the spine, with lumbar and cervical stenosis being the most frequent. While lumbar spinal stenosis is more common, cervical spinal stenosis is more dangerous because it involves compression of the spinal cord whereas the lumbar spinal stenosis involves compression of the cauda equina.
Multifactorial degenerative changes involving bony overgrowth, herniated discs or thickened ligaments tend to be the most common causes. Other causes include tumours, spinal injuries and Paget's disease, among others.
In this presentation, we share some of the less common causes of spinal canal stenosis encountered in our practice.

R5-5. Pitfalls and Artifact of PET/CT and PET/MRI in Musculoskeletal System

Seoung‐Oh Yang(South Korea)

R5-6. Lean tissue imaging: present concepts and potential impacts

Wing Chan(Taipei Medical University)

R6-1. Ultrasonography in calcific tendinopathy

Joban Ashish Babhulkar(India)

Star Imaging and Research centre, Deenanath Mangeshkar Hospital , Pune

Calcific tendinopathy is a disease characterized by deposition of hydroxyapatite crystals within tendons, most commonly affecting the rotator cuff tendons and causing significant shoulder pain. It occurs in three stages : pre calcific, calcific and post calcific, out of which, the calcific resorptive stage is the most excruciatingly painful. Ultrasonography using a high resolution linear transducer (7 – 11 M Hz) is the investigation of choice for diagnosing calcific tendinopathy . Sonographically, this disease can be divided into acute calcific tendonitis and chronic calcific tendinopathy. Ultrasonography can demonstrate calcium is its slurry or amorphous state, when it may be missed on plain radiographs. It cal also demonstrate complications such as intraosseus migration or calcific bursitis. Ultrasonography is also useful in performing a USG guided barbotage in case of acute calcific tendonitis of the rotator cuff or in case of calcific bursitis. Barbotage followed by instillation of a local steroid within the subacromial bursa provides significant relief to the patients. Calcific tendinopathy is also known to affect the Achilles tendon and the patellar tendon as well. USG guided PRP injection has shown to be of value in chronic calcific tendinopathy of the Achilles tendon.

R6-2. Ultrasound of the Elbow Ligaments

Mihra S. Taljanovic MD, PhD(USA)

University of Arizona, Tucson, AZ

Objectives:

•To discuss normal anatomy of the elbow ligaments
•To learn ultrasound (US) assessment and findings of the normal elbow ligaments
•To learn US findings of the injured elbow ligaments

Abstract:
Medial and lateral collateral ligaments of the elbow are accessible to US examination.
Dynamic examination with valgus and varus stress contributes to diagnostic accuracy.

Normal ligaments have the appearance of echogenic bands. Partial-thickness tears have the appearance of hypoechoic or anechoic clefts while the full-thickness tears demonstrate hypoechogenicity/anechogenicity and discontinuity of the fibers. Repetitive microtrauma leads to ligament thickening, hypoechoegenicity and calcifications.

The medial collateral ligament (MUCL) is a chief stabilizer of the elbow against valgus stress with more than 20 ° of flexion. The MUCL has three bundles: the most important and most commonly injured anterior (AB), posterior and transverse. Injuries occur with valgus stress on flexed elbows in throwing athletes with distraction forces to the medial and tension to the lateral aspect of the elbow. More than 1-2 mm asymmetry with valgus stress at ulnotrochlear joint is considered abnormal.

The lateral ligamentous complex (LCL) consists of the radial collateral ligament (RCL), lateral ulnar collateral ligament (LUCL), annular ligament, and the accessory collateral ligament. The LUCL provides posterolateral stabilization of the elbow joint. The RCL stabilizes the lateral elbow in varus stress. The most common injuries are at the humeral attachment resulting from subluxation/dislocation of the elbow or postsurgical injuries performed for release or repair of the common extensor tendon or radial head resection. Less commonly, LCL injuries result from varus stress with external rotation. The LUCL injury is associated with posterolateral rotatory instability or chronic injury of the common extensor tendon. Recent cadaveric validation study suggests that the sonographic posterolateral ulnohumeral laxity of > 4mm during the posterolateral rotatory stress testing should raise suspicion of underlying instability.

R6-3. Ultrasound-guided Synovial Biopsy with Pathological Correlation

James F Griffith (Hong Kong)

The Chinese Univeristy of Hong Kong

Background and overview: Ultrasound-guided tru-cut synovial biopsy is a safe and reliable technique with a high diagnostic yield for diagnosing synovial tumour and most joint infections. Regarding joint infection, synovial biopsy of native joints has a higher diagnostic yield than that of infected prosthetic joints. Synovial biopsy for joint infection is indicated when there is clinically suspected joint infection though little or no joint fluid visible on ultrasound.

Outline of research study: 111 ultrasound-guided synovial biopsies were reviewed and compared with the final clinicopathological diagnosis established either after synovectomy or clinical/imaging follow-up. 107 (96%) of the 111 biopsies yielded synovium histologically. Accuracy, sensitivity and specificity of synovial biopsy was 99%, 97% and 100% for synovial tumour; 100%, 100% and 100% for native joint infection, and 78%, 45% and 100% for prosthetic joint infection.

Summary: Ultrasound-guided synovial biopsy is highly accurate at diagnosing synovial tumour and at detecting infection of non-prosthetic joints. For prosthetic joints, the accuracy is moderate, though this yield potentially may be increased by submitting more (up to 12) biopsy cores for culture and sensitivity. Based on the results of our study, we encourage the more widespread use of ultrasound-guided synovial biopsy.

R6-4. Ultrasound of the wrist and hand tendons

Ian Y Y Tsou(Singapore)

Department of Radiology, Mount Elizabeth Hospital

Imaging of the wrist and hand tendons with ultrasound has always been challenging. Although the hand and fingers are amenable to ultrasound imaging, the difficulty has been with the small size and superficial position of these tendons, which places them in the extreme near-field of the ultrasound transducer.

The integrity of the wrist and hand tendons is critical for normal hand function, without which, both movements of strength and fine motor movements would not be possible. The tendons may be affected by traumatic, inflammatory or overuse pathologies.

Complete evaluation of the hand and wrist tendons is insufficient with static imaging, as functional assessment requires dynamic visualization of the tendons on movement. Ultrasound is ideally suited for real-time imaging of tendon movement.

R7-1. Musculoskeletal Ultrasound Interventions

Kambiz Motamedi, MD(USA)

University of California, Los Angeles (UCLA)

This review of ultrasound guided musculoskeletal interventions covers indications, technical considerations, patient positioning and a step-by-step guide for performing various procedures. These procedures include joint injections and aspirations, cyst aspirations and fenestration, tendon sheath injections, soft tissue biopsy, and needling versus barbotage of calcific tendinopathy.

R7-2. PNT‐percutaneous needle tenotomy: patellar tendon, Achilles tendon and plantar fascia

Marina Obradov(The Netherlands)

Sint Maartenskliniek,Nijmegen

Insertional tendinosis involves injury of the fibrocartilaginous zone that connects tendon to bone, with oedema, loosening of collagen, cell necrosis, leading to tears, neovascularisation and calcium deposition. It results from overuse in individuals with major physical activities and athletes of all levels. Proximal patellar tendinopathy affects up to 40% of athletes involved in jumping sports. In 10-25% Achilles tendinopathy and plantar fasciitis conservative treatment fails.
On US affected tendon is enlarged, hypoechoic, heterogeneous, with loss of fibrillary pattern, neovascularisation, cortical irregularities and calcifications.
Some RCT suggests that percutaneous needle tenotomy in chronic tendinopathy improves outcome.
Certain tendinopathy may be more amenable to needling based on daily use, weight bearing, physical demands and factors that vary with anatomical location.

After the injection of the anaesthetic at the tendon surface repetitive passing the 18 G needle along the long axis of the tendon, parallel to the transducer through the area of tendinosis disrupts the chronic degenerative process, causes bleeding and inflammation, locale increase of growth factors that promote healing wherefore patient have to avoid NASID medication 2 weeks for and after the procedure.
Physical therapy two weeks after PNT is advised.

R7-3. Role of PRP in MSK diseases

Khalid A Al-Ismail MD(Saudi Arabia)

King Faisal Specilaist Hospital

- PRP: is a general term for a type of plasma that contains an increased concentration of thrombocytes (in comparison with whole blood) and that is extracted from whole blood using a separation process.
- 5-9 X the concentration of the erythrocytes compared to peripheral blood.
- ACP: include thrombocytes (platelets), and several growth factors that play an important role in the healing process. Unlike other platelet-rich plasma formulations,
- ACP is distinguished by a low concentration of white blood cells such as neutrophil granulocytes that can be detrimental to the healing process when present in high concentrations.
- 2-3 X the concentration of the erythrocytes compared to peripheral blood
- This supports the natural process of healing within the body, i.e. the formation of angiogenesis and tissue healing, while inhibiting painful inflammation.

• Possible indications – acute

- Injuries to ligaments such as the cruciate ligament or ankle ligaments
- Fractures
- Injuries to muscle fibers and the meniscus
- Injuries to tendons such as the Achilles tendon or rotator cuff

• Chronic

- wound healing or cosmetic surgery
- Osteoarthritis, cartilage damage
- Plantar fasciitis
- Tendinitis such as patellar tendinitis
- Impingement syndrome
- Tendinopathy, for example of the Achilles tendon or elbow.

The pathophysiology and the therapeutic mode of action will be Discussed.

- The side effects of PRP injections are very limited as the patient is utilizing their own blood, which they should have no reaction to. Some relative rest is needed immediately following the procedure, then usually followed by a progressive stretching and strengthening program.

R7-4. CT Guided Biopsy for Musculoskeletal Tumors: Experience in A Tertiary Referral Center in Indonesia

○Thariqah Salamah(Indonesia)　Marcel Prasetyo

Department of Radiology Faculty of Medicine Universitas Indonesia / Dr. Cipto Magunkusumo General Hospital

CT guided biopsy is an excellent technique for musculoskeletal tumor biopsy guidance. CT is useful to determine optimal biopsy location, avoid important neurovascular structures, and minimizing compartmental tumoral contamination. Our institution is a tertiary level national referral hospital in Jakarta Indonesia. During 2013-2016, 29 musculoskeletal tumor patients were referred for CT guided biopsy. Most common location is pelvis (75,86%). Tissue specimen obtained from CT guided biopsy mostly could be diagnosed histopathologically, with exception of 5 patients. In our institution, CT guided biopsy is done with team-based approach by oncologic orthopaedic surgeons, musculoskeletal radiologists, and musculoskeletal pathologists. This presentation will also covered techniques used in our institution and difficulties that we faced in doing CT guided biopsy procedures.

R7-5. Ultrasound of peripheral nerves: normal anatomy, imaging technique, pathology and US guided nerve interventions

Hema Choudur, FRCPC(Canada)

McMaster University

The ultrasound technique for visualization of peripheral nerves will be briefly discussed.

The anatomy, pathology and US appearance of various peripheral nerve entities will be detailed.

Advantages and disadvantages of US Imaging of peripheral nerves will be presented and compared with MRI.

A Spectrum of US Guided Peripheral Nerve Interventions will be depicted and tips provided to incorporate these newer techniques into clinical US practice.

R8-1. Approach to hip pain in children

Kin Sun TSE(Hong Kong)

Department of Radiology and Imaging, Queen Elizabeth Hospital

Hip pain in young children can be caused by various infective (septic arthritis and/or osteomyelitis) and non-infective causes (transient synovitis, Legg-Calve-Perthes disease, traumatic, and arthropathy). Among older children and adolescents, common causes of hip pain include slipped capital femoral epiphysis, juvenile idiopathic arthritis especially enthesitis-related arthritis subtype, and traumatic causes.

Transient synovitis of hip is the most common cause of acute hip pain in young children. It is a self-limiting benign inflammatory condition affecting the hip. It is important to exclude septic arthritis and/or osteomyelitis, which carry significant morbidities and sequelae. Prior studies had shown that clinical and laboratory information could help predicting septic arthritis, including history of fever, non-weight bearing, elevated erythrocyte sedimentation rate (ESR), and elevated serum white cell count. On the other hand, ultrasound examination, both Grayscale and Power Doppler, cannot reliably distinguish between these two entities. Ultrasound examination has the roles to detect effusion and soft-tissue collection, detect subperiosteal abscess complicating osteomyelitis, and guide needle aspiration. Radiographic examination is an initial investigation tool in evaluating acute hip pain in young children, especially among infants and adolescents when transient synovitis is less common. Septic arthritis is manifested by soft tissue swelling, widening of joint space, osteopenia; and later joint space narrowing and bony erosions. Osteomyelitis changes include bone erosions, periosteal reaction and physeal plate changes. MR examination can confirm the diagnosis, delineate the extent of involvement, and look for acute and late complications of these conditions.

Referred pain from the spine, pelvis and knees is another important source for acute knee pain in children. It is important to exclude important causes, e.g. osteomyelitis, diskitis, psoas abscess, and knee pathologies, in appropriate clinical scenarios.

Therefore, systematic approach to paediatric hip pain based on clinical history, physical examination, laboratory and radiological examinations is essential.

R8-2. Multimodality imaging in femoroacetabular impingement

Srikanth Narayanaswamy(India)

Sakra World Hospital, Bangalore

Femoroacetabular impingement (FAI) is a recognised major cause of early osteoarthritis in the hip and tends to present in young and active patients. Cam impingement is secondary to a decrease in the normal waist and hence asphericity at the femoral head-neck junction. The pincer impingement results from focal or generalized over coverage of the acetabulum. These variances are thought to predispose a person to early pathologic contact between the femoral head and acetabular articular and labral surfaces during movement of the hip joint, there by resulting in early labral degeneration and osteoarthritis.
The diagnosis depends on a defined constellation of painful hip symptoms, restricted motion, and a positive result of an impingement test at clinical orthopaedic examination that occur in the presence of certain morphologic abnormalities that can be detected radiologically.

A number of radiological signs have been described both on plain film/CT and MRI to support the diagnosis of FAI. The abnormal radiologic parameters associated with Cam type of FAI include, presence of Pistol grip deformity, abnormal alpha angle (>55 °), reduced femoral head-neck offset (<8 mm) and herniation pits. The abnormal parameters associated with Pincer variety include, the lateral centre edge angle of >39 ° , negative acetabular index, positive Acetabular cross-over sign, presence of Coxa profunda/protrusion acetabuli and Prominent posterior wall sign.

In the appropriate clinical context in primary care, the presence of these findings associated with or predisposing to FAI on a radiograph can guide referral to a hip specialist for further management. The natural course of the disease is largely unknown, but early diagnosis and appropriate treatment have been found to reduce symptoms and improve function.

The diagnosis of FAI is often missed due to lack of awareness of the disease entity and its predisposing morphological parameters among reporting radiologists. Reporting radiologists should exercise special care looking for features associated with FAI when analysing radiographs of young patients with hip pain especially when there is no other abnormality to explain patient’s symptoms.

R8-3. The failing hip prosthesis: radiological considerations

Tuhin Sikdar(United Kingdom)

Princess Alexandra Hospital

Hip arthroplasty is an increasingly common orthopaedic operation since first introduction in the 1960s. Complications of this procedure include infection, dislocation, leg length inequality, neurovascular injury, venous thromboembolism, intraoperative fracture, persisting pain and implant loosening over time. Soft tissue conditions may also result or be associated with the replaced hip joint that include synovitis, tendinopathy/tears and neuropathy.

Conventional Radiography is the mainstay of imaging evaluation of hip arthroplasty and can help evaluate leg length, horizontal centre of rotation including offset, acetabular inclination and orientation, femoral stem positioning for both cementless and cemented joints including assessment of the cement mantle. Two radiographs - AP pelvic and shoot-through lateral - are commonly used in the postoperative setting.

Specialist imaging such as CT supplements plain radiography in assessing the reconstructed hip. Modification of imaging parameters helps minimize imaging artefacts. This is more so with MR imaging and both these modalities allows detailed evaluation of periprosthetic bone, implant-tissue interface, soft tissues, including the pseudocapsule and synovium, tendons, bursae, and nerves.
In addition ultrasound, radionuclide studies and arthrographic studies can provide valuable information for assessment of complications.

R8-4. MR imaging of articular cartilage: knee

Steven Wong(Singapore)

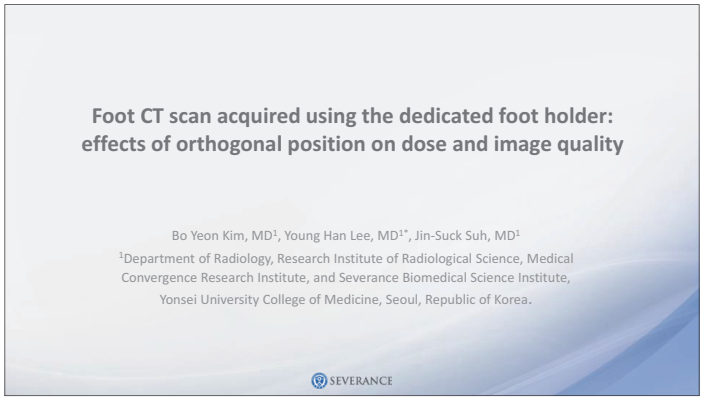
Sengkang General Hospital

MRI is the ideal imaging modality to demonstrate and evaluate the articular cartilage. A routine knee MRI protocol should include Coronal and Sagittal PD-W TSE and a T2W TSE Axial sequences. Chondral defects are clearly identified and classified. Less commonly appreciated are the subtle signal changes at the deep and surface layers of the cartilage, hinting at areas of early injury. T2RV Colour Mapping aids in identification of these areas and can also increase diagnostic confidence with the routine PD-W and T2-W images.

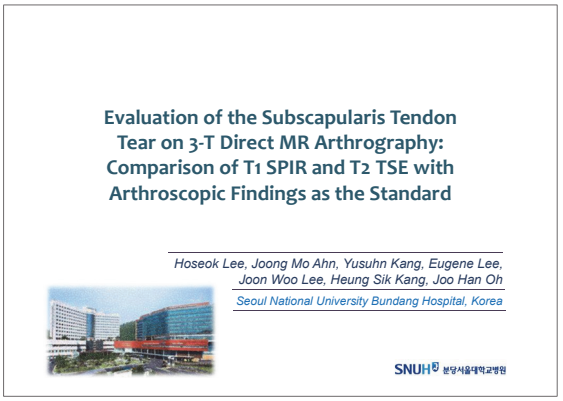
R8-5. Imaging subchondral bone lesions of the knee

Jianling Cui(China)

E-Poster



1. Bo Yeon Kim(South Korea)



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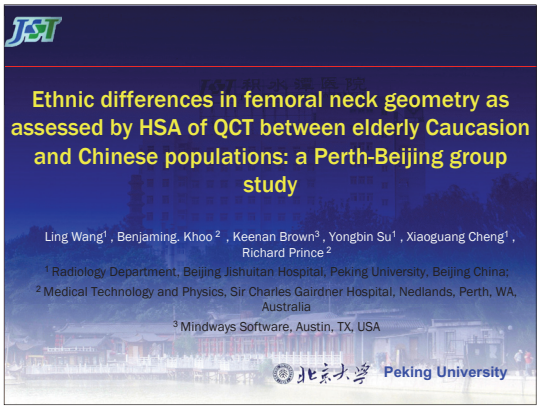
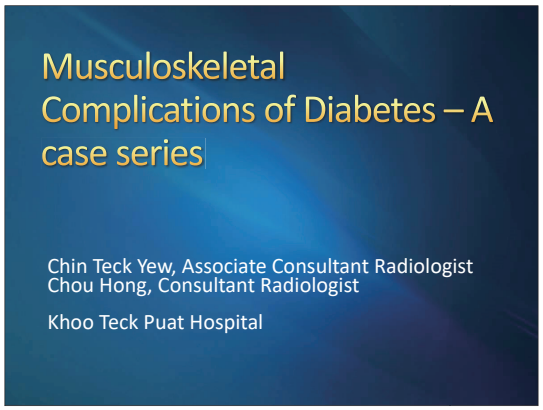


3. Ling Wang(China)

4. Sunghoon Park(South Korea)



5. Chin Teck Yew(Singapore)

第28回　日本骨軟部放射線研究会

第 28 回日本骨軟部放射線研究会　プログラム
2019 年 1 月 20 日（金）

11：00 ― 12：40　Session 1
Miscellaneous

Moderator ： Tetsuji Yamaguchi
Yuko Kobashi

1. MR finding of Deltoid ligament tear: How often the ATFL tear is complicated with the deltoid ligament tear?

Department of Radiology, Tokyo Dental College Ichikawa General Hospital
Yuko Kobashi

2. A case of osteomyelitis of the frontal bone following subdural hematoma

Department of Radiology, Shinshu University School of Medicine
Fumihito Ichinohe

3. A case of quadrilateral space syndrome

Radiology Department, St`Lukes International Hospital
Saya Horiuchi

4. A case of proliferative myositis of the thigh

Department of Radiology, Nagasaki Medical Center
Satomi Mine

5. Chronic expanding hematoma in the infrapatellar region of the knee

Department of Radiology, University of Occupational and Environmental Health
Akitaka Fujisaki

6. Atypical fractures of bilateral ulnae associated with bisphosphonate therapy

Department of Radiology, Nagasaki University Hospital
Tetsuji Yamaguchi

7. MR imaging findings of subchondral insufficiency fracture of the knee related to the prognosis

Iwate Medical University School of Medicine (Student)
Risa Dobashi

13：40 ― 15：20　Session 2
Bone and Soft Tissue Tumors

Moderator ： Katsuyuki Nakanishi
Tsutomu Inaoka

8. Two cases of soft tissue lipoma with calcification/ossification

Department of Radiology, Nagasaki University School of Medicine
Nozomi Oki

9. A case of hybrid sclerosing epithelioid fibrosarcoma/low-grade fibromyxoid sarcoma of the right shoulder

Department of Radiology, Gifu University School of Medicine
Masaya Kawaguchi

10. High-grade surface osteosarcoma of the femur: a case report

Department of Radiology, Saitama Medical University Hospital
Kayu Takezawa

11. Madelung's disease in a patient with alcoholic liver disease

Department of Radiology, Toho University Sakura Medical Center
Tsutomu Inaoka

12. Bone metastases from Head & Neck Squamous Cell Carcinoma (HNSCC). Usage of Whole Body MRI (WB-MRI).

Department of Diagnostic Radiology, Osaka Medical Center for Cancer and Cardiovascular Diseases
Katsuyuki Nakanishi

13. A case of parosteal lipoma of the rib

Department of Radiology, Faculty of Medicine, Kagawa University
Hanae Okuda

14. A case of intra-articular synovial sarcoma of the knee

Department of Diagnostic Radiology, Keio University School of Medicine
Ryosuke Sakurai

15. Intravascular lymphoma presenting fasciitis of the thigh: a case report

Department of Radiology, Iwate Medical University
Michiko Suzuki

16. A report of a case with POEMS syndrome found by pulmonary hypertension

Department of Radiology, The Jikei University School of Medicine
Tadashi Tokashiki

16 : 00 — 16 : 40 Session 3
Joint Disorders

Moderator : Tamotsu Kamishima

17. Three cases of diabetic cheiroarthropathy

Department of Radiology, Jichi Medical University
Hiroaki Onozawa

18. Tophaceous pseudogout involving rotator interval: a case report

Department of Radiology, Tokushima University Hospital
Naoko Kawano

19. Non hemophilic hemosiderotic synovitis of the knee in the elderly patients: MRI appearances

Department of Radiology, St. Marianna University School of Medicine
Kaoru Kitsukawa

20. A case of rapidly destructive osteoarthritis of the hip

Faculty of Health Sciences, Hokkaido University
Tamotsu Kamishima

1 月 20 日 （金）11 : 00－12 : 40

Session 1

Miscellaneous

Moderator : Tetsuji Yamaguchi
Yuko Kobashi

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1. 前距腓靱帯損傷に隠された三角靭帯損傷の有無の検討

○小橋 由紋子 他 東京歯科大学市川総合病院 放射線科

1. MR finding of Deltoid ligament tear: How often the ATFL tear is complicated with the deltoid ligament tear?

○Yuko Kobashi Yohei Munetomo Akira Baba Shinji Yamazoe Takuji Mogami

Department of Radiology, Tokyo Dental College Ichikawa General Hospital

[Objectives]

To know how often the deltoid ligament tear is detected in patients who only diagnosed with anterior talofibular ligament tear.

[Materials and methods]

This study was approved by our institutional review board, and informed consent was obtained from all patients. The study population comprised 57 patients. All of the 57 patients had a history of ankle sprain, and had an acute or chronic anterior talofibular ligament (ATFL) tear. All of the 57 patients still had a medial ankle pain on the physical examination.

Twenty-two of the 57 patients also diagnosed with a deltoid ligament tear and ATFL tear at the same time. We categorized these patients into Deltoid group. Thirty-five of the 57 patients only had an acute or chronic ATFL tear. We categorized these patients into ATFL group. We excluded patients with malleolar fracture. All of 57 patients underwent conservative therapy. During assessment of the MRI findings, we analyzed all deltoid ligament components in each the Deltoid group and ATFL group using our preferred imaging planes.

[Results]

In ATFL group (n=35), six of the 35 patients (7%) had the deltoid ligament tear. All of the 6 patents had anterior tibiotalaer ligament (ATTL) tear. None of posterior tibiotaler (PTTL) ligament tear nor tibiocalcaneal ligament tear was detected. In Deltoid group (n=22), all of the 22 patients had ATTL tear. 12 of the 22 patients had both ATTL and PTTL tear.

[Conclusion]

Most of patients with ATFL tear don't include deltoid ligament tear. However ATTL tear occurs when an external rotation force is added to the foot.

[Keywords]

Deltoid ligament, Anterior talofical ligament

2. 硬膜下血腫を合併した前頭骨骨髄炎の 1 例

○一戸　記人[1)] 他　1）信州大学医学部画像医学教室

2. A case of osteomyelitis of the frontal bone following subdural hematoma.

○Fumihito Ichinohe[1)] Yoshinori Tsukahara[1)] Tomoki Kaneko[1)] Masumi Kadoya[1)] Satoshi Kitamura[2)] Takafumi Kiuchi[2)] Kohei Kanaya[2)] Midori Sato[3)] Toshiaki Otsuki[3)]

1) Department of Radiology, Shinshu University School of Medicine
2) Department of Neurosurgery, Shinshu University School of Medicine
3) Department of Pathology, Shinshu University School of Medicine

We report a case of osteomyelitis of the frontal bone following subdural hematoma. A 64-year-old man complained of a chronic headache for five months. He had been treated with infliximab for Crohn’s disease. The neurological findings were normal. Hematological examination also showed no significant findings except for the elevation of CRP, ESR, and ALP, respectively. Computed tomography (CT) showed an osteolytic lesion of the left-sided frontal bone with adjacent large subdural hematoma. The osteolytic lesion appeared a honeycomb or moth-eaten pattern. The involved inner and outer table partially remained and periosteal reaction was not delineated. On magnetic resonance (MR) imaging, the bony lesion was hypointense on T1-weighted image (T1-WI), heterogeneously hyperintense on T2-WI, and hyperintense on contrast-enhanced T1-WI, respectively. The meninge adjacent to the bony lesion was thick and markedly enhanced, and meningitis was suspected. Subdural hematoma was hypointense on T1-WI and definitely hyperintense on T2-WI. The rim of hematoma appeared hypointense on T2*-WI, and the hemosiderin deposition was suspected after chronic hemorrhage. The lesion had expanded for a few months and was suspected of a neoplasm such as hemangioma. Surgical resection was performed. Histopathological examination showed the bone destruction and regeneration with abscess and granulation, and tumor cells were not detected in the specimen. The final diagnosis was osteomyelitis of the frontal bone associated with meningitis. According to the review in some literatures, osteomyelitis of the calvarium is extremely rare and few cases with subdural hematoma have been reported.

[Keywords]
osteomyelitis, calvarium, subdural hematoma

3. Quadrilateral space syndrome の一例

○堀内　沙矢[1)] 他　1）聖路加国際病院　放射線科

3. A case of quadrilateral space syndrome.

○Saya Horiuchi [1)]　Taiki Nozaki [1)]　Masaki Matsusako [1)]　Yasuyo Teramura [1)]　Atsushi Tasaki [2)]
Starkey Jay [1)]　Eishi Kuroda [2)]　Yasuyuki Kurihara [1)]

1) Radiology Department, St`Lukes International Hospital
2) Orthopedic Department, St`Lukes International Hospital

The patient was 27-year-old man, a professional rugby player. He presented with discomfort of the right shoulder since his last match held about one month ago. The range of motion in right shoulder joint was not restricted. On manual muscle testing, right shoulder abduction was grade 4. MRI of the right shoulder showed diffuse high signal intensity of the deltoid and the teres minor muscle without muscle atrophy on FS-PDWI. Signal change due to muscle denervation from axillary nerve injury was suspected. Electromyography needle exam showed denervation potentials of the right deltoid and no abnormality of the infraspinatus muscle, suggesting of axillary nerve injury from quadrilateral space syndrome.

Quadrilateral space syndrome is a rare clinical entity, resulting from axillary nerve injury. Reports regarding the MRI findings in the acute phase of quadrilateral space syndrome are few. We report a case with literature review.

[Keywords]
Quadrilateral space syndrome, Shoulder MRI, Rotator Cuff Denervation Syndromes

4. 大腿部の増殖性筋炎の 1 例

○峯　聡美[1)] 他　1）独立行政法人国立病院機構長崎医療センター放射線科

4. A case of proliferative myositis of the thigh

○Satomi Mine [1)]　Kazunori Mitarai [1)]　Kenji Makino [1)]　Atsushi Miyazaki [1)]　Toshifumi Fujimoto [1)]
Masataka Uetani [2)]　Hirokazu Kurohama [3)]　Masahiro Ito [3)]　Kenji Kumagai [4)]

1) Department of Radiology, Nagasaki Medical Center
2) Department of Radiology, Nagasaki University Hospital
3) Department of Pathology, Nagasaki Medical Center
4) Department of Orthopedic surgery, Nagasaki Medical Center

Proliferative myositis is a rare inflammatory disease, which can mimic malignant tumors. We present a case of proliferative myositis involving the sartorius muscle of the left thigh.

A 62-year-old woman presented with a painful swelling in the anterior aspect of her left thigh without a history of trauma. Physical examination revealed an elastic hard mass in the proximal anterior aspect of the thigh.

CT revealed swelling of the left sartorius muscle that is mildly hypoattenuating relative to other skeletal muscles with increased attenuation of adjacent fat. No calcification or ossification is identified in the lesion.

MR imaging revealed a fusiform swelling of the left sartorius muscle. The lesion had high signal intensity on T2-weighted MR images and STIR, and was isointense compared with the signal intensity of skeletal muscle on T1-weighted MR images. Contrast-enhanced T1-weighted images revealed inhomogeneous enhancement of the lesion. MR images also demonstrated continuous muscle fibers without disruption in the lesion.

The pathological diagnosis of a fine needle biopsy specimen was myxofibrosarcoma. Surgical resection of the left sartorius muscle was subsequently performed and the final pathological diagnosis was proliferative myositis.

Although the MRI findings are non-specific, we highlight the importance of considering proliferative myositis in the differential diagnosis of a soft tissue mass, which ultimately might prevent an overly aggressive resection.

[Keywords]

Proliferative myositis, pseudomalignant tumor

5. 膝蓋下部に発生した Chronic expanding hematoma

○藤崎　瑛隆[1)] 他　1）産業医科大学放射線科学教室

5. Chronic expanding hematoma in the infrapatellar region of the knee

○Akitaka Fujisaki [1)] Takatoshi Aoki [1)] Michiko Kobayashi [1)] Masami Fujii [1)] Yoshiko Hayashida [1)] Yukunori Korogi [1)] Masanori Hisaoka [2)]

1) Department of Radiology, University of Occupational and Environmental Health
2) Department of Pathology and Oncology, University of Occupational and Environmental Health

Chronic expanding hematoma is an entity that was defined by Reid et al. in 1980, and is characterized by its persistence and increasing size for more than a month after the initial hemorrhage. This entity may be misdiagnosed as a malignant tumor due to its large size and slow progressive enlargement. We present a case of chronic expanding hematoma occurring in the infrapatellar region of the knee without any history of trauma and surgery.

An 86-year-old female patient noticed a painless mass that had been gradually enlarging in the left knee for the previous 10 years. A radiograph of the left knee showed a soft tissue mass without calcification in the infrapatellar region. The mass revealed heterogeneous high intensity on T1-weighted images. On T2-weighted images, the intensity of the mass varied with areas lower than muscle and higher than fat. The peripheral rim of low intensity was observed on both T1-weighted and T2-weighted images. T2*-weighted image enhanced the low signal within the mass due to the presence of hemosiderin. These MRI findings were considered to be characteristic of chronic expanding hematoma. The mass, measured 8×6×3cm in diameter, was excised, and the histologic diagnosis was hematoma without malignancy.

[Keywords]

Chronic expanding hematoma, infrapatellar region, soft tissue mass

6. ビスフォスフォネート製剤投与中に発生した両側尺骨非定型骨折の一例

○山口　哲治[1)] 他　1）長崎大学病院放射線科

6. Atypical fractures of bilateral ulnae associated with bisphosphonate therapy

○Tetsuji Yamaguchi [1)]　Masataka Uetani [2)]　Yasuhiro Kawahara [3)]　Yuzo Honda [4)]　Aki Nishi [4)]
Hiroaki Konishi [4)]　Akihito Tokuda [5)]

1) Department of Radiology, Nagasaki University Hospital
2) Department of Radiological Sciences, Graduate School of Biomedical Sciences, Nagasaki University
3) Department of Radiology, Nagasaki Rosai Hospital
4) Department of Orthopedics, Nagasaki Rosai Hospital
5) Senryu Tokuda Hospital

We report a case of atypical fractures of the bilateral ulnae associated with bisphosphonate use. The patient (73-year-old female) had been taking bisphosphonates for 4 years for treatment of osteoporosis.

She complained of a pain on the left forearm, which began after lifting a light object (kettle) seven days ago. She had no recent history of trauma. She usually used a pushcart at walking since 3 years. Radiographs showed a transverse fracture of the left proximal ulna. The fracture was treated by osteosynthesis.

After 6 months, she suffered from a pain on the right forearm, which began after minor trauma one day before. Radiographs showed an incomplete transverse fracture with adjacent cortical thickening of the right proximal ulna, which suggested an incomplete fracture of right proximal ulna.

She was managed in a long-arm cast. However, follow-up radiographs 8 days later demonstrated a complete transverse fracture. CT and MRI after 2 months showed a transverse fracture line with callus formation. The fracture was also treated by osteosynthesis.

Atypical fractures, which mostly occur as the subtrochanteric and diaphyseal femoral fractures, have been known to be common complication in patients with long-term use of bisphosphonates. The proximal ulna should be considered as a potential site of involvement of atypical fractures in bisphosphonate users.

[Keywords]
atypical fracture, ulna, bisphosphonate

7. 膝軟骨下脆弱性骨折の MRI 所見における予後因子

土橋 りさ[1] 他　1）岩手医科大学医学部（学生）

7. MR imaging findings of subchondral insufficiency fracture of the knee related to the prognosis

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2) Department of Radiology, Iwata Medical University

At 2013 meeting, we reported the natural course of subchondral insufficiency fracture of the knee. To assess the overall prognosis in the current cases, we again retrospectively reviewed cases seen in the current 5 years, diagnosed and followed by MR imaging. Total of 13 cases (24-83 year old, M:F=3:10) were divided into two groups depending on the prognosis. The first group consisted of 8 cases in which the subchondral cortex and marrow changes disappeared with no deformity. The second group consisted of 5 cases in which subchondral bone collapse developed, resulted in arthroplasty. In the second group, subchondral cyst formation was evident in the subchondral boned marrow on MR imaging. Medial meniscus injury was associated in 6 cases in the 1st group, and 5 cases in the 2nd group, and medial collateral ligament injury was seen in 1 case in the 1st group and 4 cases in the 2nd group. Patients' age was not a significant factor if the24-year-old patient, the yongest, was excluded.

In conclusion, development of subchondral cyst and association of medial collateral ligament injury on MR imaging are associated with subchondral bone collapse in subchondral insufficiency fracture of the knee.

[Keywords]
subchondral insufficiency fracture, osteonecrosis

8. 石灰化 / 骨化を伴う脂肪腫の 2 例

○大木 望[1)] 他　1）長崎大学病院 放射線科

8. Two cases of soft tissue lipoma with calcification/ossification

○Nozomi Oki [1)] Hirofumi Koike [1)] Tetsuji Yamaguchi [1)] Masataka Uetani [1)] Masato Tomita [2)] Noriaki Miyata [2)] Makoto Osaki [2)] Naoe Kinoshita [3)] Junya Fukuoka [3)]

1) Nagasaki University School of Medicine, Department of Radiology
2) Nagasaki University School of Medicine, Department of Orthopaedic Surgery
3) Nagasaki University School of Medicine, Department of Pathology

Lipomas are the most common benign soft tissue tumors. Some lipomas contain other mesenchymal elements, which make the radiological distinction from other benign and malignant soft tissue tumors difficult.
We present two rare cases of lipoma with bone or cartilage formation.
Case 1: A 70’s man with right palmer mass. Radiographs showed a calcified a soft tissue mass adjacent to the 2nd metacarpal bone. The mass demonstrated heterogeneous low and high signal intensity(SI) on T1 and T2 weighted images(WI). The mass appeared to contain some adipose tissue with calcification or ossification. The excisional biopsy revealed a pathological diagnosis of ossifying lipoma.
Case 2: A 70’s woman with right palmer mass increasing in one year. Radiographs showed a calcified soft tissue mass between the 3rd and 4th metacarpal bones. The mass demonstrated heterogeneous low and high SI in T1 and T2WI. Enhancement after Gd-DTPA administration was not seen except for the distal part. The mass appeared to contain some adipose tissue, calcification, and cartilaginous element. The excisional biopsy revealed a pathological diagnosis of chondrolipoma.

[Keywords]
lipoma, calcification, ossification

9. 融合型硬化性類上皮線維肉腫 / 低悪性度線維粘液性肉腫の 1 例

○川口　真矢[1)] 他　1）岐阜大学附属病院放射線科

9. A case of hybrid sclerosing epithelioid fibrosarcoma/ low-grade fibromyxoid sarcoma of the right shoulder

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1) Gifu University School of Medicine, Department of Radiology
2) Gifu University School of Medicine, Department of Pathology

Sclerosing epithelioid fibrosarcoma (SEF) is a rare variant of low-grade fibrosarcoma, originally described in 1995 by Meis-Kindblom JM et al. SEF is a rare soft-tissue tumor exhibiting considerable morphologic overlap with low-grade fibromyxoid sarcoma (LGFMS). SEF usually occurs in young and middle ages, commonly arises in the deep skeletal muscle in the lower extremity, limb girdle, upper extremity, head and neck region. We presented a 32-year-old woman with an indolent mass in the right shoulder for two years. She received a follow-up examination through her primary care doctor, but the mass did not increase during the follow-up period. However, because many pulmonary nodules were pointed out by annual chest X-ray examination two month ago, she was referred to our hospital. Subsequently performed CT images revealed a soft-tissue mass in the right shoulder and many lung metastases. The mass showed isointensity on T1-weighted images, hypo- to hyperintensity on T2-weighted images, and heterogeneous enhancement. Strong diffusion restriction was not observed (ADC value: 1.6×10-3mm2/sec). The resection of the right shoulder tumor and pulmonary nodule was performed. Histopathologically, the tumor was composed of hypercelluar components with fibrosis and hypocellular components with myxoid matrix. Immnohistochemistrical analyses showed positive for Vimentin, MUC-4, and EMA and negative for CD34, S100 protein, desmin, and SMA. Based on fluorescence in situ hybridization (FISH) and fusion gene detection, the final diagnosis was hybrid SEF/LGFMS.

[Keywords]
Sclerosing epithelioid fibrosarcoma, low grade fibromyxoid sarcoma

10. High-grade surface osteosarcoma の一例

○竹澤 佳由[1)] 他　1）埼玉医科大学病院 放射線科

10. High-grade surface osteosarcoma of the femur: a case report

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Jungo Imanishi[3)] Tomoaki Torigoe[4)] Yasuo Yazawa[4)] Takashi Fujino[5)]

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A high-grade surface osteosarcoma is rare and the least common subtype of juxtacortical osteosarcomas (parosteal, periosteal, and high-grade surface osteosarcoma). The imaging characteristics frequently overlap among those subtypes and make an accurate diagnosis challenging. We report a case of the juxtacortical tumor in the femur which aggressive clinicopathological features led to the diagnosis of high-grade surface osteosarcoma.

A 53-year-old male presented with a three-month duration of a painful mass in the dorsal right thigh. The radiograph and CT showed ill-defined cortical erosion and spiculated periosteal reaction along the middle diaphysis of the right femur with fluffy and striated mineralization in a juxtacortical soft-tissue mass. MRI demonstrated a broad-based lobulated bulky mass arose on the surface of the bone and encased the bone circumferentially. The extraosseous mass formed multilocular fluid-fluid levels with some amount of mineralization and showed peripheral enhancement. Faint intramedullary enhancement was also observed. Bone scintigraphy revealed intense uptake in the cortex and extraossesous mineralization. There was no evidence of metastasis.

A wide resection of the tumor and limb salvage procedure was performed. Pathological features of the tumor were compatible with osteosarcoma with high mitotic activity. The tumor produced osteoid and cartilaginous matrix, and the former was observed more dominantly. We made a diagnosis of high-grade surface osteosarcoma, with compositional findings from clinical, radiographic, and pathological features.

[Keywords]
High-grade surface osteosarcoma

11. アルコール性肝障害患者に生じた Madelung 病の１例

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11. Madelung’s disease in a patient with alcoholic liver disease

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Tomoya Nakatsuka [1)] Rumiko Ishikawa[1)] Haruka Masuda [1)] Hitoshi Terada [1)]
Tamako Irie [2)] Yasuhiro Watanabe [2)] Nobuyuki Hiruta [3)]

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3) Division of Surgical Pathology, Toho University Sakura Medical Center

[Objectives]

Madelung’s disease (benign symmetric lipomatosis) is a rare lipid metabolism disorder. We report a case of Madelung’s disease due to alcoholism with a brief review of the literature.

[Materials and methods]

A 65-year-old male presenting with rapid-growing palpable mass lesions in the submandibular area. [PH] Alcoholic liver disease, hypertension, hyperuremia. [clinical presentation] Multiple, symmetric, painless mass lesions in the submandibular area, posterior neck, and bilateral arms. Laboratory data showed liver dysfunction due to alcoholism.

[Results]

CT showed multiple, fatty mass lesions involving the submandibular area, posterior neck, and bilateral arms. Hepatomegaly with fatty liver was seen. Neck MRI showed diffuse fatty proliferation in the submandibular area and posterior neck.

[Conclusion]

From these clinico-radiologic findings, the diagnosis of Madelung’ s disease (benign symmetric lipomatosis) was made.

[Keywords]

Madelung's disease, Alcoholism, CT

12. 頭頚部扁平上皮癌骨転移の全身 MRI 所見

○中西　克之[1)] 他　1）大阪府立成人病センター放射線診断科

12. Bone metastases from Head & Neck Squamous Cell Carcinoma (HNSCC). Usage of Whole Body MRI (WB-MRI)

○Katsuyuki Nakanishi [1)] Akio Tsukabe [1)] Hiromitsu Sumikawa [1)] Mio Sakai [1)] Nobuhito Araki [2)]

1) Department of Diagnostic Radiology, Osaka Medical Center for Cancer and Cardiovascular Diseases
2) Department of Orthopaedic Surgery, Osaka Medical Center for Cancer and Cardiovascular Diseases

[Objectives]

To assess cases of bone metastases from HNSCC retrospectively, using WB-MRI including diffusion weighted images (DWI).

[Materials and methods]

13 cases of HNSCC were reviewed (2, nasopharynx; 2, oropharynx; 2, hypopharynx; 4, tongue; 2, larynx; 1, nasal cavity). In all cases, CT findings regarding the degree of osteoblastic change, MR findings (especially the signal characteristics of DWI) and the degree of the FDG accumulation were analyzed.

[Results]

In five of these 13 cases, bone metastases were independently the new-onset metastases. In the other four, bone metastases and other metastases were together the new-onset metastases and in the remaining four, bone metastases were secondary onset.

In four of our 13 cases, osteoblastic patterns were recognized in CT and in all four, lesions were shown as high intensity on DWI. Additionally, ADC values were less than 1.2mm2/sec. In the other four cases, neither osteoblastic nor lytic patterns were shown. Hence, they were classified as intratrabecular patterns. Also in these four cases, these lesions were shown as high intensity on DWI and ADC values were less than 1.2mm2/sec. In one of these four cases, osteolytic change appeared in the process of disease progression. In the other five cases, osteolytic patterns were recognized.

[Conclusion]

Bone metastases from HNSCC are rare but need to be detected. It is often found with lung or liver metastases, but it can appear alone. WB-MRI is useful as a screening and staging tool.

[Keywords]

Bone metastases, whole body MRI, Head & Neck SCC

13. 肋骨に発生した傍骨性脂肪腫の1例

○奥田　花江　他　　香川大学　医学部　放射線医学講座

13. A case of parosteal lipoma of the rib

○Hanae Okuda　Yuko Ono　Yuko Fukuda　Yoshihiro Nishiyama

Department of Radiology, Faculty of Medicine, Kagawa University

A 30s man presented with a 2-years history of a slowly enlarging painless chest wall mass near his right fourth rib. Chest X-ray showed extrapleural mass in right upper lung field. CT scan showed a well-defined fatty mass with peripheral ossification in close proximity to the right posterior fourth or third rib, measuring 35 x 25 mm. On MRI, it showed high SI on T1WI and T2WI, iso-high SI on STIR. Bone scintigraphy showed mildly increased activity around the lesion. Subsequently, He underwent en bloc resection of the mass with the right third and fourth ribs. Microscopically, the lesion was circumscribed by a ossifying capsule and mainly constituted by mature adipose tissue. Adipocytes were benign without evidence of atypia or pleomorphism. Mitosis or necrosis were not appreciated. The final diagnosis was consistent with parosteal lipoma of the rib. We report a case of parosteal lipoma of the rib with some literature review.

[Keywords]
lipoma

14. 膝関節内関節肉腫の一例

○櫻井　亮佑 他　　慶應義塾大学放射線診断科

14. A case of intra-articular synovial sarcoma of the knee

○Ryosuke Sakurai　Sota Oguro　Shunsuke Matsumoto　Hiroaki Sugiura　Shigeo Okuda　Akihiro Tanimoto　Masahiro Jinzaki

Department of Diagnostic Radiology, Keio University School of Medicine

A 56-year-old man presented with a two-year history of right knee pain under extension. Physical examination showed a loss in extension of 20 ° . An anterior cruciate ligament (ACL) tear and a 3cm multiloculated mass in front of ACL was suspected on pre-operative magnetic resonance imaging of the knee. The mass was homogenous, and without contrast enhancement, its signal intensity was isotense on T1-weighted images and hyperintense on T2-weighted images, compared to those of the surrounding muscle. Preoperative diagnosis was ACL tear and intra-articular ganglion cyst of the knee. ACL reconstruction and excision of the mass was performed under arthroscopy. The lesion was solid mass, and was excised in several divisions. Postoperative diagnosis was biphasic type of synovial sarcoma. Immunohistochemical stains showed positive for bcl-2, epithelial membrane antigen and CD99. Split-signal FISH for SS18 was also positive. Adjuvant chemoradiotherapy was added after excision of the tumor based on pathological diagnosis. Radiological evaluation of two months, nine months and one year after surgery showed no evidence of recurrence nor metastasis. Intra-articular synovial sarcoma is extremely rare, and there are only few case reports focused on radiological features. We report this case with some literature review.

[Keywords]
intra-articular tumor, synovial sarcoma

15. MRI で筋膜炎様所見を呈した intracascular lymphoma の一例

○鈴木　美知子[1)] 他　1）岩手医科大学　放射線医学講座

15. Intravascular lymphoma presenting fasciitis of the thigh: a case report

○Michiko Suzuki [1)]　Shigeru Ehara [1)]　Yuzo Suzuki [2)]　Takashi Satoh [3)]

1) Department of Radiology, Iwate Medical University
2) Department of Hematology, Iwate Medical University
3) Department of pathology, Iwate Medical University

A 65-year-old man presented with painful swelling of the thigh with thick skin. The patient’s symptoms initially improved by steroid, but he came back with general malaise and bilateral pedal edema. CT scan of the abdomen & pelvis failed to demonstrate any abnormalities, but MR imaging of the thigh revealed extensive edema along the fascia of the thigh and gluteal regions mimicking fasciitis. Biopsy of the bone marrow and skin and subcutaneous region of the thigh revealed intravascular lymphoma. The immunohistochemistry revealed intravascular large B-cell lymphoma in both specimens.

Intravascular malignant lymphoma is uncommon, and CNS involvement is common in most reports. We report a case of intravascular lymphoma presenting as fasciitis-like thigh change on MR imaging, which was reported only once in the previous literature.

[Keywords]

Intravascular lymphoma, fasciitis of the thigh

16. 肺高血圧症を契機に診断されたPOEMS症候群の一例

○渡嘉敷　唯司　他　　東京慈恵会医科大学 放射線医学講座

16. A report of a case with POEMS syndrome found by pulmonary hypertension

○Tadashi Tokashiki　Toru Sakuma　Kunihiko Fukuda

Department of Radiology, The Jikei University School of Medicine.

A 45-year-old woman was admitted to our hospital because of dyspnea on exercise, peripheral edema, and body weight gain of 10kg. The physical examination shows palpable cervical lymph nodes and tenderness and distention of abdomen. Transthoracic echocardiography showed pulmonary hypertension with right heart enlargement. Contrast enhanced CT of the chest and abdomen was performed to investigate the cause of the pulmonary hypertension. CT revealed neck, axillar, and para-aortic lymph adenopathy, pleural effusions, and ascites. In addition, bone window CT showed multiple sclerotic nodules in the skeletal system. POEMS syndrome was suspected from the imaging findings.

Bone marrow biopsy revealed no monoclonal proliferation of the plasma cell, however, the ulnar nerve conduction velocity was reduced on nerve conduction study, which is one of the mandatory major criteria of POEMS syndrome. Multiple minor criteria such as elevation of the serum vascular endothelial growth factor (VEGF), hepatosplenomegaly, hypothyroidism, skin pigmentation, peripheral edema, papilledema, clubbed finger was positive. Therefore, this case was diagnosed as POEMS syndrome. A rare case of POEMS syndrome admitted with pulmonary hypertension will be presented.

[Keywords]
POEMS syndrome

17. diabetic cheiroarthropathy の 3 例

○小野澤 裕昌 他　自治医科大学附属病院 放射線科

17. Three cases of diabetic cheiroarthropathy

○Hiroaki Onozawa　Hideharu Sugimoto　Ryoma Kobayashi　Atsushi Ugajin　Atsuko Sakamoto　Yuko Otake

Department of Radiology, Jichi Medical University

Diabetic cheiroarthropathy is a complication of long-term diabetes mellitus. Since its clinical features resemble rheumatoid arthritis (RA) or other arthropathy, it can be an important differential diagnosis in arthritis of hands. Here we report three cases of diabetic cheiroarthropathy and review of literatures. The patients are two females and a male in their 60s-80s, each of them had a thick past medical history of diabetes mellitus treated with insulin for decades. The chief complaints were swelling, impairment or painful stiffness of their hands and fingers. The physical examination showed swollen joints and soft tissues of their hands. Rheumatoid factors and anti-CCP antibodies were negative. One patient had a skin biopsy of that the result came out mucinous deposition. Radiography of the hands did not show marginal erosion or osteopenia that suggests RA. On MRI, the findings that suggest RA (e.g. synovitis, bone marrow edema etc.) were not detected; effusion surrounding flexor and extensor tendons that suggesting tendonitis were shown. Both radiography and MRI showed extension disorder of DIP and PIP joints, which is compatible with diabetic cheiroarthropathy.

[Keywords]
diabetes cheiroarthropathy LJMS

18. 腱板疎部に生じた結節性偽痛風の1例

○河野　奈緒子[1)] 他　1）徳島大学病院放射線科

18. Tophaceous pseudogout involving rotator interval: a case report

○Naoko Kawano [1)]　Shoichiro Takao [2)]　Junji Ueno [2)]　Masafumi Harada [1)]　Ryo Miyagi [3)]
Toshihiko Nishisho [3)]　Akiko Yoneda [4)]　Yoshimi Bando [4)]

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2) Department of Diagnostic Radiology, Graduate School of Health Sciences, Tokushima University, Tokushima, Japan
3) Department of Orthopedics, Institute of Biomedical Sciences, Tokushima University Graduate School, Tokushima, Japan
4) Division of Pathology, Tokushima University Hospital, Tokushima, Japan

We present a case of tophaceous pseudogout involving a rare location, rotator interval. A 57-year-old woman had right shoulder pain for 6 years. Despite conservative treatment, her shoulder pain got worse. Physical examination showed no tenderness, local warmth or local redness. Plain radiography revealed calcified mass in the right shoulder. Computed tomography revealed calcified mass as large as 18 x 12 x 27 mm in the right shoulder joint with adjacent bony erosion of the scapula. On magnetic resonance imaging, the mass was located in the rotator interval with iso-signal intensity on T1-weighted images and relatively higher signal intensity on T2-weighted images compared with skeletal muscles. After administration of gadolinium contrast medium, the adjacent soft tissue showed contrast enhancement, however the mass did not. En-block resection was performed and the mass was diagnosed histologically as calcium pyrophosphate dehydrate (CPPD) crystal deposition. Since tophaceous pseudogout commonly involves knee, foot, finger and temporomandibular joints, rotator interval seemed to be a rare location. We describe the imaging findings of this case focused on the computed tomography and magnetic resonance imaging.

[Keywords]
tophaceous pseudogout, rotator interval

19. 高齢者に発症した膝関節非血友病性 hemosiderotic synovitis の MRI 所見

○橘川　薫[1)] 他　1）聖マリアンナ医科大学放射線医学講座

19. Non hemophilic hemosiderotic synovitis of the knee in the elderly patients: MRI appearances

○Kaoru Kitsukawa [1)]　Satoshi Kishiro [2)]　Kenji Uehara [2)]　Yasuo Nakajima [1)]　Masayuki Takagi [3)]

1) Department of Radiology, St. Marianna University School of Medicine
2) Department of Orthopedic Surgery, St. Marianna University School of Medicine
3) Department of Pathology, St. Marianna University School of Medicine

Hemosiderotic synovitis is a result of recurrent hemarthrosis that occurs as a consequence of conditions including trauma, synovial hemangioma, bleeding disorders (hemophilia), and arthritis. This condition is sometimes confused with pigmented villonodular synovitis. Using MRI, we demonstrate diffuse hemosiderin deposition in the knees of three elderly patients. Eighty-eight and 65-year-old females, and an 84-year-old male patient complained of swelling and pain in the knee joints. Only one side was involved in each patient. Two patients had a history of trauma but one patient had no trauma history. No patients had a bleeding disorder but one patient was taking an anti-coagulant. MRI of the knee showed extensive very low-signal intensity areas within the joint on gradient-echo images indicating hemosiderin deposition. All patients had meniscal injuries; lateral meniscal tears were more significant than medial meniscal tears. Arthroscopic findings showed hypertrophy of brown synovium but no definitive bleeding point was found. Histopathological examination of resected synovium revealed synovial thickening and granules of hemosiderin within the synovial cells compatible with hemosiderotic synovitis.

[Keywords]
hemosiderin, knee, MRI

20. 急速破壊型股関節症の 1 例

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20. A case of rapidly destructive osteoarthritis of the hip

○Tamotsu Kamishima [1)]　Daisuke Takahashi [2)]　Tomohiro Onodera [2)]　Teppei Imamoto [3)]
Hiromi Okada [3)]　Tomoko Mitsuhashi [3)]　Norimasa Iwasaki [2)]

1) Faculty of Health Sciences, Hokkaido University, Sapporo, Hokkaido, Japan
2) Department of Orthopaedic Surgery, Hokkaido University Graduate School of Medicine, Sapporo, Hokkaido, Japan
3) Department of Surgical Pathology, Hokkaido University Hospital, Sapporo, Hokkaido, Japan

A 72-year-old female patient was referred to the orthopedic service of our university hospital 8 weeks after onset of moderate left groin pain. She had been seen in an outside orthopedic clinic 2 years earlier and diagnosed with osteoarthritis of bilateral hips. A radiograph of the left hip taken at symptom onset showed severe degenerative disease, with slight flattening and irregularity of the femoral head. She had been scheduled for total hip arthroplasty of the left hip 4 weeks after onset of moderate left groin pain, however it was canceled because of progressive anemia and elevated CRP level of 5.0 mg/L. Follow-up radiograph showed complete femoral head disintegration possibly representative of septic arthritis or rapidly destructive osteoarthritis of the hip (RDOA). MRI and CT demonstrated hypoplastic acetabulum and fragmentation of the femoral head of the left hip. She underwent total hip arthroplasty at our university hospital. Intraoperative findings revealed no pus, but abundant synovial tissue. Pathologically, there was severe deformation and flattening of the femoral head with necrotic bone fragments. Surrounding synovium contained increased vascular proliferation. Hence diagnosis of RDOA was made clinically, radiologically and pathologically. RDOA is a rare and poorly understood disease of the hip. This case represents an example of the rapidly destructive potential of this unusual entity.

[Keywords]
osteoarthritis, septic arthritis, rapidly destructive osteoarthritis of the hip

合同開催

第28回　日本骨軟部放射線研究会
第57回　日本骨軟部腫瘍研究会

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第28回
日本骨軟部放射線研究会

第19回
アジア骨軟部学会

2017年1月21日（土）
東京慈恵会医科大学 大学1号館

当番世話人

がん・感染症センター都立駒込病院　病理科
元井　亨　(BTC)

東京慈恵会医科大学　放射線医学講座
福田　国彦　（JSMR・AMS）

第 57 回日本骨軟部腫瘍研究会（BTC）

共催　第 28 回骨軟部腫瘍研究会（JSMR）・2017 年アジア骨軟部学会（AMS）

1. 開催日時　2017 年 1 月 21 日（土）

受付開始　午前 9 時 30 分～
標本検鏡　午前 9 時 30 分～午後 1 時 40 分
症例検討　午後 1 時 40 分～午後 3 時 00 分
講演　午後 3 時 20 分～午後 4 時 00 分
症例検討　午後 4 時 10 分～午後 5 時 30 分
懇親会　午後 6:00～

2. 開催場所　**東京慈恵会医科大学　大学 1 号館**

住所　105-8461 東京都港区西新橋 3 丁目 25 番 8 号
6 階　講堂前　（参加受付）
6 階　講堂　（講演，症例検討）
6 階　実習室　（標本検鏡）
懇親会　ARBOL 東京都港区虎ノ門 1-23-3 虎ノ門ヒルズ 森タワー 2F

3. 参加費　**1,000 円、BTC 年会費半期分 500 円（BTC のみの参加の場合）**

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第 57 回日本骨軟部腫瘍研究会プログラム

9:30	受付開始		6 階 講堂前
9:30 – 13:40	標本検鏡		6 階 実習室
13:40 – 13:45	開会の挨拶		6 階 講堂
13:45 – 14:00	症例検討 座長 加藤生真 （横浜市立大学病理） 藤本肇 （沼津市立病院放射線科）	BTC 症例①　右前腕軟部腫瘍 内橋和芳 （産業医大病理）	
14:00 – 14:15		JSMR 症例① 出題・解説：鈴木美知子 （岩手医大放射線科）	
14:15 – 14:30		BTC 症例② 溶骨性骨破壊を呈する右骨盤臼蓋部骨腫瘍 山田健志 （愛知県がんセンター整形外科）	
14:30 – 14:45		JSMR 症例② 出題・解説：山本麻子先生 （帝京大学放射線科）	
14:45 – 15:00		BTC 症例③ 上腕骨に生じた、骨肉腫成分を伴う軟骨肉腫の一例 杉浦善弥 （癌研究会癌研究所病理）	
15:00 – 15:20	休憩		
15:20 – 16:00	Sweets Seminar	Diagnostic pitfalls in MR imaging of musculoskeletal Tumors 講演　上谷雅孝 （長崎大学放射線診断治療学教授） 座長　藤本良太 （京都市立病院放射線診断科部長）	6 階 講堂
16:00 – 16:10	休憩		
16:10 – 16:25	症例検討 座長 吉田朗彦 （国立がん研究センター中央病院病理） 藤本肇 （沼津市立病院放射線科）	BTC 症例④ 興味深い経過をたどった脂肪肉腫の 1 例 石川文隆 （埼玉県立がんセンター病理）	6 階 講堂
16:25 – 16:40		JSMR 症例③ 出題・解説：中田和佳 （自治医大とちぎ子ども医療センター）	
16:40 – 16:55		BTC 症例⑤　左頸部軟部腫瘤 小西英一 （京都府立医大病理）	
16:55 – 17:10		JSMR 症例④ 出題・解説：福田健志 （慈恵医大放射線科）	
17:10 – 17:25		BTC 症例⑥　左耳下部腫瘍 木下伊寿美 （九州大学病理）	
17:25 – 17:30	閉会の挨拶		
17:30 – 17:40	総会、事務連絡（BTC）、次回開催の案内		

懇親会　18：00ー　虎ノ門ヒルズ　中 2 階　ARBOL（アルボール）（会費 6,000 円）

Joint Meeting
The 57th Meeting of Bone and Soft Tissue Tumor Club of Japan (BTC)
The 28th Meeting of Japanese Society of Musculoskeletal Radiology (JSMR)
Annual Meeting 2017 of Asian Musculoskeletal Society (AMS)

Jan 21, 2017
The Jikei University School of Medicine, Tokyo, Japan

Lists of BTC Cases

Case 1

Soft Tissue Tumor of the Right Forearm

Kazuyoshi Uchihashi[1)], Toshitaka Aoki[2)], Yuichi Matsuki[3)], Atsuji Matsuyama[1)], Eisuke Shiba[1)], Masanori Hisaoka[1)]

[1)]Department of Pathology & Oncology, School of Medicine, University of Occupational and Environmental Health

[2)]Department of Radiology, School of Medicine, University of Occupational and [3)]Environmental Health[)]Department of Radiology, Kitakyushu General Hospital

Case 2

17-year-old female, Osteolytic Bone Tumor in the Right Acetabulum of the Pelvis

Kenji Yamada

Department of Orthopedic Surgery, Aichi Cancer Center Aichi Hospital

Case 3

A Case of Chondrosarcoma Containing Osteosarcoma Component Arising from the Humerus

Sugiura Y[1)], Kanda H[1)],, Y. Takazawa Y[1)],. Ishikawa Y[1)], Machinami R[2)], Ueno T[3)], Hayakawa K[4)], Tanizawa T[4)], Mastumoto S[4)]

[1)]Department of Pathology, Cancer Institute

[2)]Department of Pathology, Kawakita General Hospital

[3)]Department of Diagnostic Imaging, Cancer Institute Hospital

[4)]Department of Orthopedic Surgery, Cancer Institute Hospital

Case 4

A Case of Liposarcoma Presented an Interesting Clinical Course

Ayataka Ishikawa[1)], Kazunori Nishida[1)], Masafumi Kurosumi[1)], Hirotaka Koyanagi[2)], Takashi Shimoji[2)], Jun Manabe[2)], Hiroaki Kanda[3]

[1)]Department of Pathology, [2)]Department of Orthopedic surgery[2)], Saitama Cancer Center,

[3)]Department of Pathology, the Cancer Institute of the Japanese Foundation for Cancer Research

Case 5

Soft Tissue Mass of the Left Neck

Eiichi Konishi[1)], Sanae Yamazaki[1)], Mitsuo Kishimoto[1)], Yusei Katsuyama[2)], Toshiharu Shirai[2)], Ryu Terauchi[2)], Masatsugu Tsuchida[2)], Naoki Mizojiri[2)], Hirotaka Mori[2)], Toshikazu Kubo[2)]

[1)]Department of Surgical Pathology, [2]Department of Orthopaedics

Kyoto Prefectural University of Medicine

Case 6

Left Parotid Tumor

Izumi Kinoshita, Yuichi Yamada, Junkichi Takemoto, Kenichi Kohashi, Yoshinao Oda

Department of Anatomic Pathology, Graduate School of Medical Sciences, Kyushu University

症例１
右前腕軟部腫瘍

内橋和芳[1]、青木隆敏[2]、松木裕一[3]、松山 篤二[1]　柴 瑛介[1]　久岡 正典[1]
1）産業医科大学医学部　第１病理学、2）産業医科大学医学部　放射線科学、3）北九州総合病院　放射線科

【症　例】62 歳、男性
【主　訴】左前腕腫瘤
【既往歴・家族歴】特記事項なし

【現病歴】約 10 年前、右前腕尺側に腫瘤を認めた。ここ数年で徐々に増大してきたため近医を受診し、切除術を受けた。病変は 5.0×2.5 cm 大であり、下床との癒着を認めたが、被覆している皮膚との癒着はなかった。

【画像所見】
MRI にて、腫瘤は T1 強調像で筋肉と等信号、T2 強調像で脂肪と同程度の高信号を示し、腫瘤辺縁には被膜様の低信号がみられた。造影では腫瘤内部に強い増強効果を認めた。

【配布標本及び病理所見】
配布標本は腫瘍の最大割面である。
病理所見：毛細血管に富む線維粘液腫状の間質を背景に、異型に乏しい短紡錘形ないし星芒状の腫瘍細胞が特定の配列を示さずに増殖している。軽度のリンパ球浸潤と散在性に肥満細胞がみられる。
免疫染色：EMA (+, focally), αSMA (−), desmin (−), CD34 (−), MUC4 (−), claudin-1 (+), Glut-1 (−), MiTF (−)

【臨床経過】
手術では、浅筋膜を切開し、固有筋膜腱鞘に沿って一部は筋体に包まれた境界明瞭な腫瘤を一塊として摘出した。明らかな神経組織との連続性は認めなかった。

【問題点】
画像診断、病理組織診断

症例２

17 歳女性　溶骨性骨破壊を呈する右骨盤臼蓋部骨腫瘍

山田健志
愛知県がんセンター愛知病院　整形外科

【症　例】　17 歳、女性
【主　訴】　右股関節痛

【現病歴】
　当院初診 1 年前から部活ハンドボール後に軽い右股関節痛を自覚、徐々に症状が顕在化し 9 カ月前頃からは友人に跛行を指摘され、ハンドボール競技は難しくなってきた
　6 カ月ほど前からはダッシュ走が困難となるのを自覚
　当院初診 3 カ月前に近位整形外科で股関節単純レントゲン写真を撮影したが明らかな病変を指摘されず（後方視的には右臼蓋部に溶骨変化あり）
　総合病院を受診し、CT、MRI などの画像精査で右骨盤臼蓋部の溶骨性骨腫瘍病変を指摘された

【画像所見】
単純レントゲン写真：右臼蓋部に溶骨性骨破壊病変。腸骨内板の骨皮質は菲薄化しており軽度の Scalloping が認められる。臼蓋外縁には病的骨折を疑わせる皮質骨破綻あり。臼蓋側の軟骨下骨は消失しているが、股関節関節列隙の狭小化や関節変形は認められない。
CT：右臼蓋部から背側坐骨方向へ優位な進展を呈する骨内溶骨性骨破壊病変。病変周囲の骨皮質は侵食され菲薄化しているが、主に臼蓋後方では Scalloping 様の膨隆性変形が見られる。一部に骨皮質途絶があり、臼蓋縁のやや頭側で病的骨折と思われる皮質骨破綻が見られる。臼蓋側の軟骨下骨はほぼ消失している。
MRI：病変は T1 強調で筋肉とほぼ同輝度、T2 強調では辺縁を中心にやや高輝度で低輝度との混在、ガドリニウム造影では中心部の造影性は弱く辺縁優位に造影される。明らかな骨外への進展、浸潤は見られない。
骨シンチ：骨巨細胞腫に見られるような Cold-in-Hot 様の集積を呈する。
【配布標本及び病理所見】（必要に応じて肉眼所見、免疫染色結果を含めてください）
配布標本は掻爬手術での腫瘍掻爬切除標本
（腫瘍塊の硬度や肉眼所見は下記臨床経過内に記載）
1-1.2.3、1-4.5.6
　臼蓋頭側の腸骨体外側骨皮質に開けた、腫瘍掻爬用の骨窓部標本
　腸骨体外側骨皮質が内部の腫瘍と連続して採取されている

2-1.2、2-3.4、3

腫瘍内掻爬病変

掻爬切除された腫瘍全体を標本化している

組織所見：腫瘍は線維性結合織を伴って疎に増生する、単紡錘形細胞を主体とする線維性腫瘍である。分化傾向の不明瞭な比較的小型の単紡錘形細胞が増生しており、嚢胞性変化、島状の軟骨器質、多核細胞は見られない。

骨内線維性腫瘍であるが、Benign-fibrous histiocytoma、Non-ossifying fibroma などとは組織像が異なる。線維性腫瘍 Desmoid tumor とは組織像を異にする。

【臨床経過】

組織診断確定のため、イメージガイド下に側方アプローチで臼蓋の約 35mm 頭側に小骨孔を穿ち、パンチで組織採取を行った。生検標本の組織診断では、良性線維性腫瘍で確定診断は困難との返答であった。

自覚症状としての右股関節痛は日常生活に大きな支障を来すほどではなかったが、放置すれば病変が拡大して病的骨折、さらに股関節の中心性脱臼に至る可能性が懸念されたため、腫瘍掻爬術を行った。

大転子を骨切りし、股関節側方アプローチに準じて腸骨体部外側を展開、30x30mm ほどの矩形骨窓を開けて可及的に腫瘍を掻爬した。腫瘍は消しゴムよりやや軟であり、通常の腫瘍病変と比較すると弾力があり硬い部類に入るものであった。周辺の骨髄骨梁との癒着は比較的軽く、腫瘍本体を把持すると一塊の形態を保ったまま摘出できるような性質であった。股関節臼蓋面の軟骨下骨はほぼ消失しており、股関節から見ると軟骨が浮動するような状態であった。

同側後方腸骨から採取した自家骨と、βTCP を混じて、切除部への骨移植を行った。

術後は 2 か月完全免荷、その後荷重を開始。現在術後半年を過ぎており杖 1 本使用してはいるがほぼ全荷重しており、右股関節の疼痛の訴えは無い。

定期画像検査で腫瘍再発は見られていないが、17 歳という年齢の割には骨移植部の骨再生が不十分なのではないかという懸念を持ちながら経過観察を行っている。

【問題点】

画像および組織診断

単純レントゲン写真や CT では、骨巨細胞腫、動脈瘤溶骨嚢腫などを鑑別診断の上位と考えたが、MRI の画像所見は大きく異なる。

生検で骨内良性線維性腫瘍であるとの結果を踏まえて、Benign fibrous histiocytoma や Desmoplastic fibroma などを臨床側からの鑑別診断として挙げたが、組織所見とは乖離があるとのことであった。

若年患者で広範囲に股関節荷重部を侵す骨腫瘍病変であり、今後の経過観察や、もし必要であるなら追加治療の必要性を検討するために、画像所見、組織所見、双方からの検討をお願いしたい。

症例３

上腕骨に生じた、骨肉腫成分を伴う軟骨肉腫の一例

がん研究会がん研究所病理部　杉浦善弥、神田浩明、高澤豊、石川雄一
河北総合病院　町並陸生
がん研有明病院放射線診断科　植野映子
がん研有明病院整形外科　早川景子、谷澤泰介、松本誠一

【症　例】70 歳、女性
【主　訴】左上腕近位部痛
【既往歴】【家族歴】特記事項なし
【現病歴】201X 年 Y 月 上記主訴にて近医受診
Y+1 月 24 日　当院整形外科紹介受診
画像上脱分化型軟骨肉腫が疑われた。骨外腫瘤あり。
一方、生検では非常に高分化な軟骨性腫瘍成分を伴う G3 の骨肉腫と診断された。
Y+2 月 15 日　広範切除術＋近位人工上腕骨置換術を施行された
【画像所見】
Xp：内軟骨骨化の目立つ病変が上腕骨骨頭の関節面から骨幹まで広がる。病変近位部では皮質破壊があり骨外腫瘤を伴う。遠位部(骨幹部)では皮質破壊が目立たない。
CT:：骨端から骨幹にかけて、隔壁状の硬化(内軟骨骨化とみられる)を伴う溶骨性病変が存在。病変近位部内側の骨皮質は虫食い状に破壊され、淡い硬化(類骨とみられる)を伴う骨外病変を形成。一方、病変遠位部では骨皮質の破壊は目立たない。
MRI：左上腕骨関節軟骨から 100mm 遠位まで T1 低信号、T2 高信号な病変が広がり、近位部前方-内側-背側に骨外病変を形成。 骨幹部病変は辺縁のみ造影される。骨外病変には早期濃染および造影効果遷延が認められる。

【配布標本及び病理所見】
肉眼像：分葉状の軟骨性成分が主体だが、主に骨外腫瘤を中心に赤褐色で硬い部分が島状に混じる。腫瘍内には黄白色調の壊死巣が散在する。腫瘍は骨幹端に主座を置き、頭尾側に進展し骨端関節軟骨直下から骨幹に広がる。骨幹端では骨皮質を破壊して滑膜を含む周囲軟部組織に浸潤している。
組織像：Grade1 一部は Grade2 に相当する高分化な軟骨肉腫と、骨及び類骨形成の著明な骨が細胞型の骨肉腫成分が境界明瞭に接している。
遺伝子解析：骨肉腫成分と軟骨肉腫成分の関係を確かめる目的で、両成分の FFPE 材料から DNA をそれぞれ採取しサブクローニングを行い *IDH1, IDH2* の点突然変異を検索し

た。これらの変異は軟骨性腫瘍の driver mutation で本来骨肉腫には検出されない。よってもし本例で軟骨肉腫成分のみならず骨肉腫成分にも検出されれば、軟骨肉腫が脱分化して骨肉腫成分が出現したことが強く示唆される。今回ターゲットとしたのは, *IDH1* の R132, および *IDH2* の R140, R172。
しかし、結果はいずれも点突然変異は検出されず野生型であった。
【臨床経過】
Y+2 月 31 日の胸部 CT で右肺に微小な転移巣を指摘された。
術後化学療法（Y+3 月 15,16 日 ADM 30mg/m^2x2 を 1 コース, Y+4 月 21,22 日 CBDCA 200mg/m^2 x 2 を 1 コース, Y+5 月 24-28 日 IE(I: 1.8g/ m^2 x 5, E: 50mg/ m^2 x 5) を 1 コース）を施行されるも奏功せず、肺転移は増悪し Y+7 月 12 日の CT では右胸水、胸膜播種が出現、呼吸苦を訴えるようになった。
Y+7 月 19 日からは緩和 RT を施行されたが奏功せず。
Y+8 月 18 日に呼吸苦増悪し入院されると緩和ケアへ移行された。呼吸不全が増悪の一途を辿り Y+9 月 14 日永眠された。

【問題点】
1. 手術材料での最終病理診断は脱分化型軟骨肉腫としましたが、軟骨芽細胞型の骨肉腫等それ以外の診断の可能性はありますか？
2. 画像診断学的には、脱分化型軟骨肉腫の典型例なのでしょうか？
3. 今回 *IDH1, IDH2* の既知の点突然変異は検出されず、分子生物学的に軟骨肉腫成分と骨肉腫成分の clonality について論じられませんでした。これ以上の遺伝子解析の手段がありますでしょうか？

症例４

興味深い経過をたどった脂肪肉腫の１例

石川 文隆[1], 西田 一典[1], 黒住 昌史[1], 小柳 広高[2], 下地 尚[2], 眞鍋 淳[2], 神田 浩明[3]
埼玉県立がんセンター, [1]病理診断科, [2]整形外科
[3]がん研究会がん研究所病理部

【症　例】　45 歳、男性

【主　訴】　左下腿腫瘤

【現病歴】
2012 年頃から左下腿後面の腫瘤に気づく。徐々に増大し、2015 年 3 月、前医にて MRI で軟部腫瘍を指摘され、2015 年 8 月当院紹介受診となる。

【画像所見】
造影 MRI：膝窩から下腿後面、表層筋膜下に局在する軟部腫瘍。サイズは 31×11×10 cm 大。信号強度は T1 high, T2 high で造影効果は乏しく、内部に T1, T2 low のわずかに造影される線維様組織の混在を認める。また、腫瘍内遠位に T1 low, T2 high で造影効果を有する 2.7×2.1×1.9 cm 大の結節様領域を認める。

【配布標本及び病理所見】（必要に応じて肉眼所見、免疫染色結果を含めてください）
2015 年 8 月の針生検標本では高分化型脂肪肉腫の像で、広範な変性、線維化、壊死がみられたが、明らかな脱分化成分は認められなかった。IHC 結果：MDM2（一部に+), CDK4 (+).
2016 年 10 月の手術材料では 260×105×85 mm 大の黄色、脂肪性の軟らかい腫瘍の一部に 70×45×40 mm 大の白色、境界明瞭で硬い部分を認めた。組織学的には、脂肪性の部分は高分化型脂肪肉腫の像を示し、一部に壊死がみられ、石灰沈着が散見された。白色の部分には MFH/UPS 様の像を示す紡錘形細胞肉腫を認めた。
紡錘形細胞肉腫の IHC 結果：MDM2 (一部に+), CDK4 (一部に弱陽性～陽性), p16 (+), SMA (-), CD34 (一部に+), AE1/AE3 (-), EMA (-), S-100 (-), vimentin (+), desmin (一部に+?).
以上の所見から脱分化型脂肪肉腫と考えられた。

【臨床経過】
2015 年 8 月当院初診。高分化型脂肪肉腫または脱分化型脂肪肉腫が疑われ、同日腫瘍内遠位の信号強度の異なる結節様領域を狙って針生検施行。高分化型脂肪肉腫の診断。

2015 年 9 月手術予定であったが本人都合で一旦キャンセル。その後来院されず。
2016 年 9 月左下腿腫瘤がさらに増大し左下腿痛が出現したため再診。
2016 年 10 月腫瘍広範切除施行。

【問題点】
初診時は画像、病理所見とも明らかな脱分化成分は確認できませんでしたが、手術時には長径 70 ㎜の MFH/UPS 様の像を示す紡錘形細胞肉腫からなる脱分化成分を認めました。約 1 年の経過で脱分化成分が出現し増大したと考えてもよいでしょうか。

症例５

左頸部軟部腫瘤

1) 京都府立医科大学　病院病理部: 小西英一、山﨑早苗、岸本光夫
2) 同　整形外科: 勝山祐誠、白井寿治、寺内竜、土田真嗣、溝尻直毅、森裕貴、久保俊一

【Case】 39 year old male
【Chief complaint】 Left neck mass
【Present illness】 He has felt left neck mass since July, 2016. He went to the outside clinic and had a needle biopsy. The biopsy finding was suspected as atypical lipomatous tumor. He was referred to our hospital in September. After an additional needle biopsy, lumpectomy was performed.
【Radiological findings】
Chest X-ray: Soft tissue mass at the left neck No calcification
CT: Focally enhanced within the mass
MR: T1WI: iso to high
T2WI: high to very high, no edematous change around the mass
T1FS: low
T1FS Gd: enhanced
PET-CT: mild FDG uptake (SUV 1.84)
【Pathological findings】
1st needle biopsy specimen: atypical lipomatous tumor (P16-845)
MDM2(+), CDK4(+)
2nd needle biopsy specimen: lipomatous tissue with atypia
MDM2(rarely +), CDK4(+)
Resected specimen: H16-8085
Well circumscribed, lobulated yellowish mass (6.0x5.5x3.5 cm)
MDM2(rarely +), CDK4(+-), MIB1:<1%
【Follow-up】
No recurrence 4 months after the operation
【Matter of debate】
Radiological and pathological diagnosis

(This case was presented at the 145th Annual Meeting of Kansai Musculoskeletal Oncology Group, Japan.)

症例６
左耳下部腫瘍

木下伊寿美、山田裕一、武本淳吉、孝橋賢一、小田義直
九州大学形態機能病理学

【症　例】9 歳、女児

【主　訴】左耳下部腫脹

【現病歴】
2 歳時に左耳下部の腫瘤に気づき、腫瘍摘出術を施行された（標本 1)。5 歳時にも同部位が腫大し、腫瘍摘出術を施行された（標本 2)。その後放置しており、9 歳時に再度同部位が腫大した。MRI では左耳下部から副咽頭間隙・舌下部に広がる径 6.5cm の腫瘍を認め、腫瘍摘出術を施行された（標本 3)。

【画像所見】
MRI（9 歳時）：左耳下部から副咽頭間隙・舌下部に広がる最大径 6.5cm の腫瘍を認める。T1WI で低信号、T2WI で不均一な高信号を呈し、Gd により不均一に増強される。信号パターンは以前同部位に見られた病変と同様で、咽頭・舌根部が圧排されている。

【臨床経過】
術後、肺の多発転移を指摘された。多剤併用化学療法、放射線治療を行なったが治療抵抗性で原発巣増大・骨転移・肺転移増悪をきたし、3 回目の腫瘍摘出術後 8 ヶ月目に腫瘍死された。

【問題点】
標本 1、標本 2、標本 3 の組織診断
標本 3 と標本 1・標本 2 との関連性

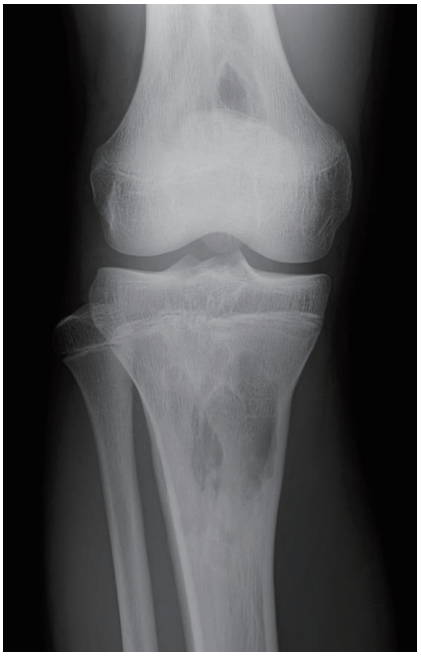
Film reading
case 1

Michiko Suzuki

Case: 14-year-old boy

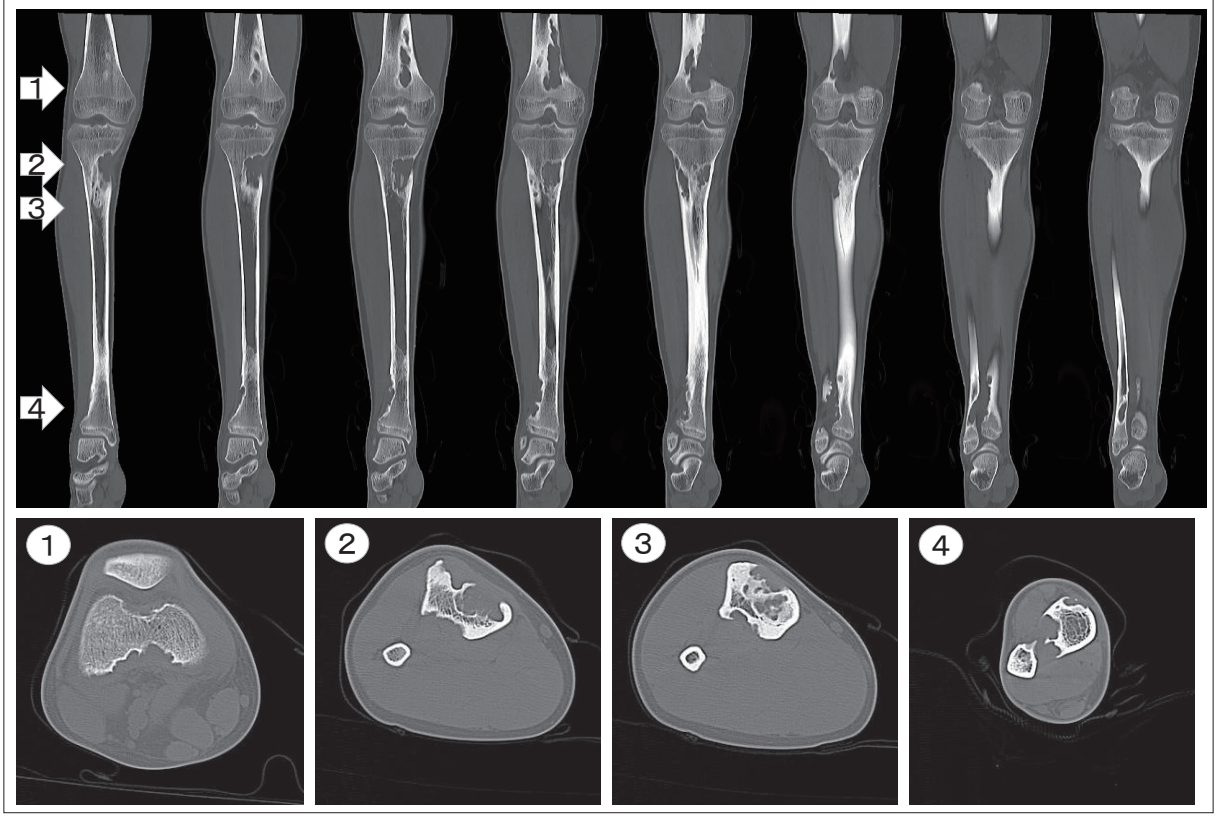
- The patient underwent curettage of right distal tibial lesion at the age of 9
- Recurrent pain in the right knee
- Leg length discrepancy (spinomalleolar distance): R 91cm, L 94cm

Radiography 1

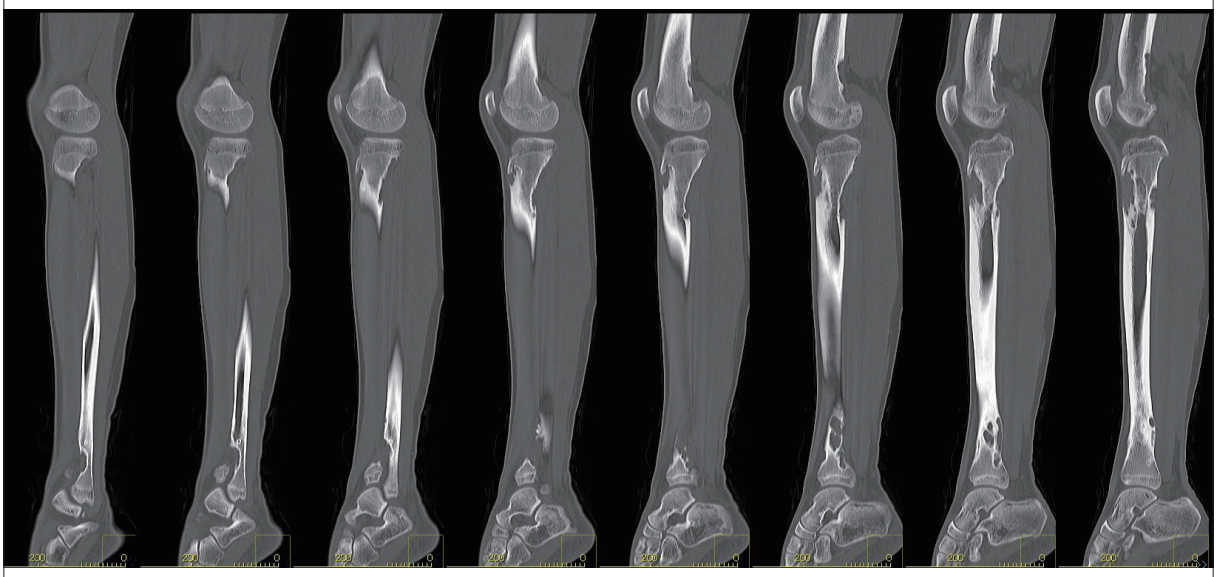


Radiography 2

CT 1



CT 2



MRI

T1

STIR

Diagnosis please

Film reading
case 2

Asako Yamamoto

A 67-year-old man with a posterior neck hump.

Gradual increase in size over 8-year period.

He has now difficulty in looking upward.

Redness (-) Pain (-) Tenderness (-)

Soft mass palpable without fixation to deep tissue

What is his condition?

160cm 57Kg BMI 22.3

Laboratory data

RBC	447	$10^4/\mu l$
Hb	14.1	g/dl
Ht	41.4	%
Plt	33.9	$10^4/\mu l$
WBC	50	$10^2/\mu l$

(Lym 32% Mono 6% Eos 6% Baso 0% Neut 56%)

TP	7.3	g/dl	T-Chol	210	mg/dl
Alb	4.1	g/dl	TG	190	mg/dl
T-bil	0.66	mg/dl	BUN	14.1	mg/dl
AST	35	IU/l	Cr	1.05	mg/dl
ALT	27	IU/l	Na	139	mEq/l
LDH	157	IU/l	K	4.4	mEq/l
ALP	319	IU/l	Cl	103	mEq/l
γ-GTP	81	IU/l	BS	114	mg/dl
CK	119	IU/l	CRP	0.01	mg/dl

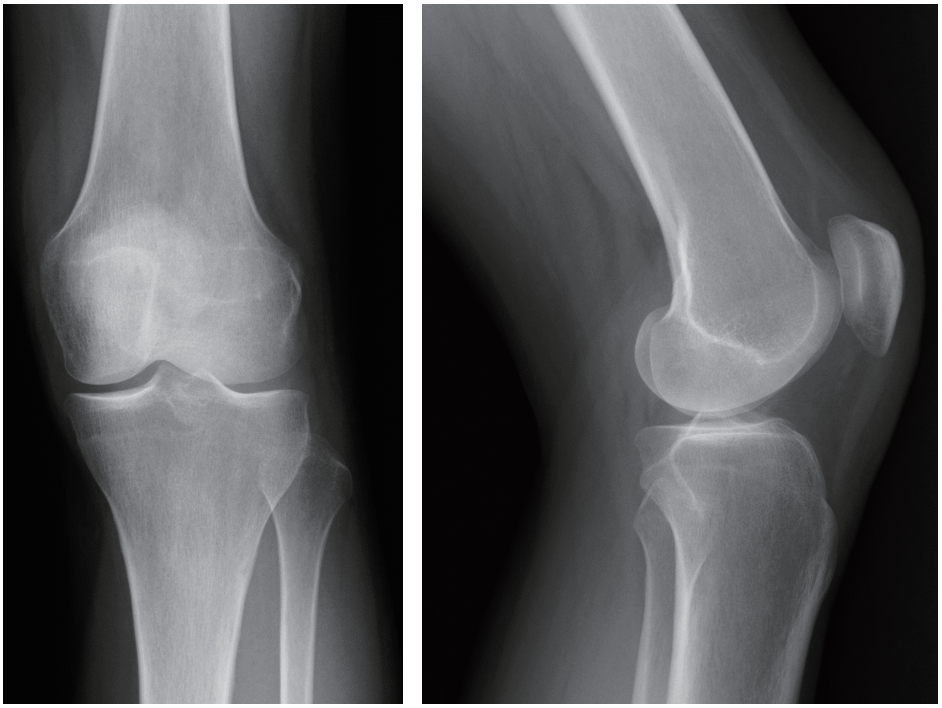
Diagnosis please

Film reading
case 3

Waka Nakata

- A 36-year-old woman had a 9-year history of rheumatoid arthritis. She complained of 3-year history of recurrent pain in lateral side of her knee while walking. She noted clicking and locking with flexion and extension of the knee. On physical examination a firm lump was palpable on the lateral side of the patella.

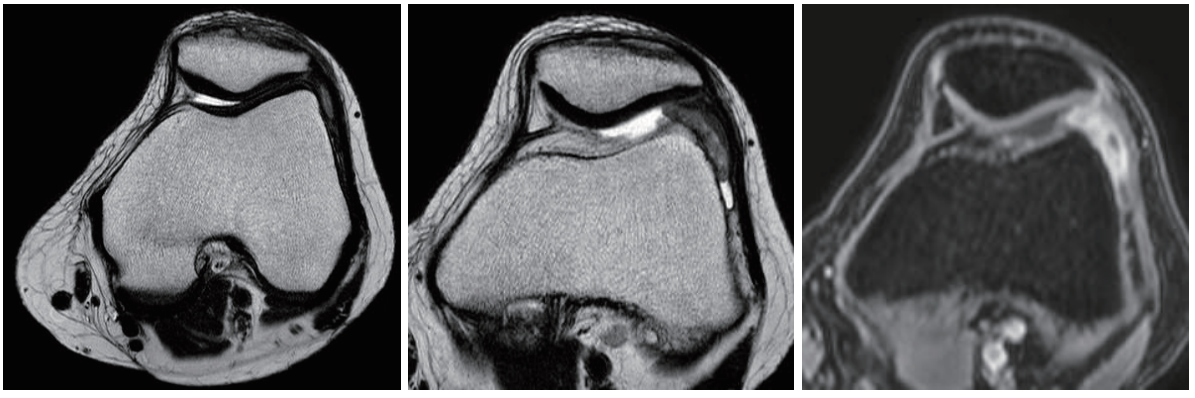
radiograph



MRI

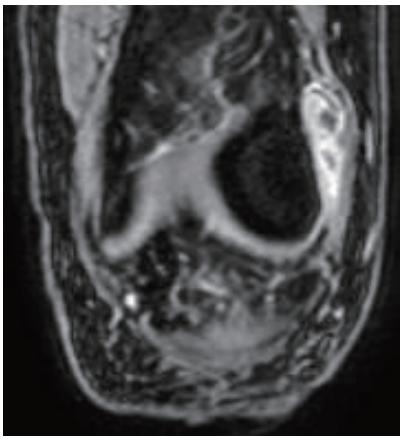
T2WI axial

FS Gd axial

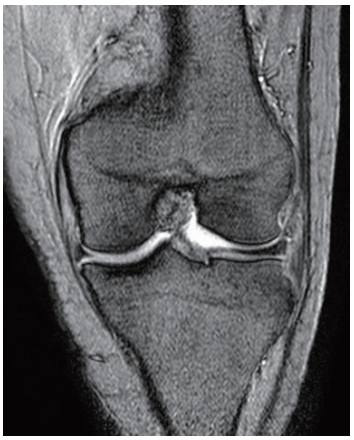


PD coronal

FS Gd coronal



T2*WI coronal



Diagnosis please

Film reading
case 4

Takeshi Fukuda

39-year-old female

CC: stiffness and pain of right hand

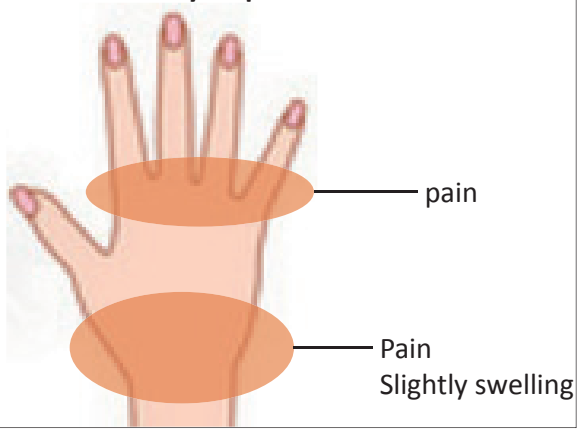
History of present illness:

She presented with 3 months history of morning stiffness and pain on right hand. The symptom has got worsened these days.

Past medical history: DM

Family history: nothing

Physical exam: BT 36.9℃

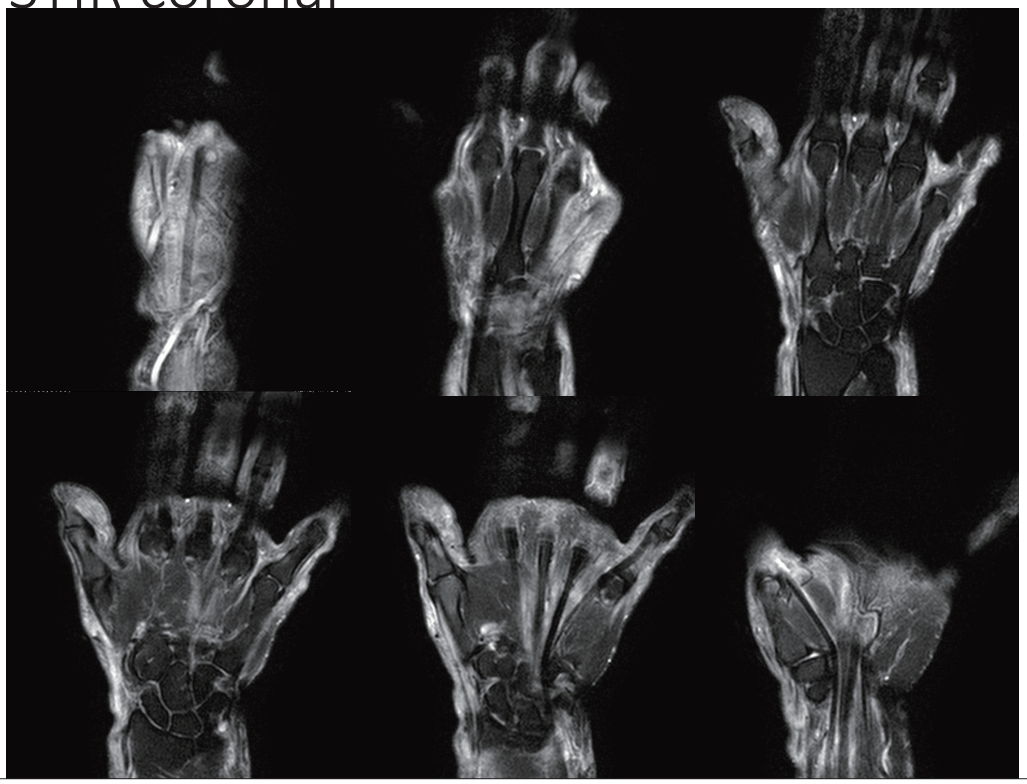


Laboratory finding

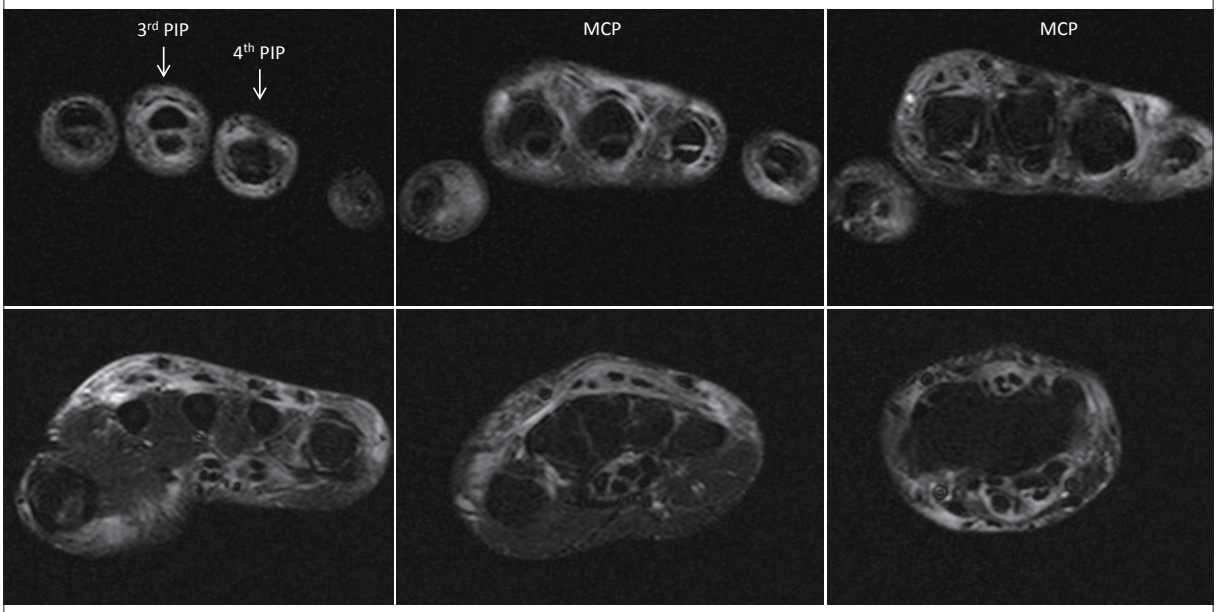
WBC	14300	μl
Hb	15.4	g/dl
Plt	263	10^3/μl
CRP	0.53	mg/dl
Cr	0.64	mg/dl
HbA1C	7.0	%
RF	3.0>	IU/ml
ANA	negative	

Radiograph

Non contrast enhanced MRI
STIR coronal



Non contrast enhanced MRI
STIR transverse



Diagnosis please