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MAGNETIC RESONANCE IMAGING OF ROTATOR CUFF TEARS IN SHOULDER IMPINGEMENT SYNDROME

Freygant Magdalena¹, Dziurzyńska-Białek Ewa¹,
Guz Wiesław^{1,2}, Samojedny Antoni¹, Gołofit Andrzej¹,
Kostkiewicz Agnieszka¹, Terpin Krzysztof¹,
Górecki Andrzej³

¹*Clinical Department of Radiology and Diagnostic Imaging
in Clinical Provincial Hospital No 2 by the name
of St. Jadwiga the Queen in Rzeszów, Poland*

²*Department of Electroradiology, Institute of Nursing
and Health Sciences, Faculty of Medicine, University
of Rzeszów, Poland*

³*Department of Radiology and Diagnostic Imaging
in ZOZ No 2 in Rzeszów, Poland*

Introduction. Shoulder joint is a common localization of musculoskeletal pain, caused among others by rotator cuff tears due to narrowing of subacromial space, acute trauma or chronic shoulder overload. Magnetic resonance imaging (MRI) is an excellent shoulder soft tissue imaging modality, considering possibility of multiplanar image acquisition and its non-invasive nature.

The aim of this study was to evaluate the prevalence of partial and complete rotator cuff tears in magnetic resonance images of patients with shoulder impingement syndrome and to review of the literature on the causes and classification of rotator cuff tears.

Material and methods. We retrospectively analysed results of 137 MRI shoulder examinations performed in 57 women and 72 men in the Magnetic Resonance Laboratory of the Department of Radiology and Diagnostic Imaging in Regional Hospital No. 2 by the name of St. Jadwiga the Queen, in Rzeszów in the period from June 2010 to February 2013.

Studies were performed with the Philips Achieva 1.5 T system, we performed spin-echo and gradient echo sequences with T1-weighted, T2-weighted, PD as well as fat saturation images in transverse, frontal and sagittal planes. Patients were referred from our hospital wards as well as subcarpathian province outpatient clinics.

Results. The most often reported was supraspinatus tendon partial tear, and supraspinatus tendon was the most often completely torn. The smallest group were patients with subscapularis complete tear. From 137 patients in study population 129 patients had shoulder pain, of whom 57 patients reported history of trauma. In the group of patients with shoulder pain there were 44% women and 56% men. Shoulder pain following injury was predominantly reported by men, while a larger group of patients with shoulder pain without injury comprised women.

Conclusions. In patients with shoulder impingement syndrome a very often pathology is rotator cuff injury. The most often injured or completely torn is the supraspinatus tendon solely, rather than with other tendons of the rotator cuff. We did not observed isolated complete tears of subscapularis and subscapular tendons.

PULMONARY ARTERIOVENOUS MALFORMATION – DOES ANYONE REMEMBER IT?

Grudzińska-Raczek Agnieszka¹, Guz Wiesław^{1,2},
Samojedny Antoni¹, Solińska Anna¹,
Dziurzyńska-Białek Ewa¹, Górecki Andrzej³

¹*Clinical Department of Radiology and Diagnostic Imaging
in Clinical Provincial Hospital No 2 by the name
of St. Jadwiga the Queen in Rzeszów, Poland*

²*Department of Electroradiology, Institute of Nursing
and Health Sciences, Faculty of Medicine, University
of Rzeszów, Poland*

³*Department of Radiology and Diagnostic Imaging in
ZOZ No 2 in Rzeszów, Poland*

Background. Pulmonary arteriovenous malformation (PAVM) is a junction between medium sized arteries and veins bypassing the capillary system. The junctions may have very different macro and microscopic structure, they may be multiple or single. Their important feature is shortening of blood flow route between the pulmonary artery and pulmonary veins. PAVM is a very rare pathology, occurring twice more often in females than males, it may coexist with Rendu-Osler-Weber disease and may be hereditary. Currently the diagnostic 'gold standard' for this pathology is CT-angiography and the treatment of choice is embolization or cardiothoracic surgery.

Case report. In this article we present CT images of incidentally diagnosed PAVM in a 33 year-old woman, seen as rounded opacity on chest radiograph.

Conclusions. Routine chest radiograph in two basic views (PA and lateral) demonstrated presence of rounded opacity in the posterior basal segment of the left lower lobe, however it was not sufficient to state certain diagnosis. The chest CT examination with unenhanced and enhanced scans allowed to differentiate the described lesion and to undoubtedly diagnose arteriovenous malformation. The patient remains in constant thoracic surgery follow-up.

SOLITARY FIBROUS TUMOR OF THE PLEURA – CASES ANALYSIS

Jadczak Przemysław¹, Guz Wiesław^{1,4},
Kaznowska Ewa², Ramotowski Radosław¹,
Szalacha-Tarała Ewa¹, Górecki Andrzej³,
Samojedny Antoni¹

¹*Clinical Department of Radiology in Provincial
Hospital by the name of St Jadwiga the Queen
No 2 in Rzeszów, Poland*

²*Department of Pathomorphology, Subcarpathian Chest
Disease Center, Rzeszów*

³*Computed Tomography Laboratory, Public Healthcare
Institution No 2 in Rzeszów*

⁴*Department of Electroradiology, Institute of Nursing
and Health Sciences, Faculty of Medicine, University
of Rzeszów, Poland*

Background. Isolated fibrous tumor of the pleura (SFTP — Solitary Fibrous Tumor of the Pleura/Localized

Fibrous Tumor of the Pleura) is a rare primary tumor of the pleura of mesenchymal origin. In most cases, it is a benign lesion. It is composed of spindle cells similar to fibroblasts and derives probably from mid-epithelial mesenchyme.

The aim of the study was to analyze clinical symptoms, incidence, possibility of suggesting the diagnosis on the basis of imaging tests, confirmation of the diagnosis in pathological tests with regard to studies of histochemistry examination.

Material and methods. The clinical and morphological material obtained from 14 patients from the Department of Thoracic Surgery of the Subcarpathian Chest Disease Center treated between year 2004 and 2010 was analysed. In the first stage, selected cases of patients with isolated fibrous tumors of the pleura were chosen from the archives and the analysis of their medical history was carried out. Basic information about age, gender, medical history, cigarette smoking, physical examination and imaging results, endoscopic and morphological were noted. The second parallel component of the study were pathomorphological examinations of the surgical material of the patients, including assessment of morphology and immunohistochemistry.

Results. Of the 14 patients examined fibrous tumor occurred in 8 men and 6 women. The age range of patients was 37-73 years with a peak attributable to 6th decade of life. In 8 patients it was detected incidentally during examinations. In 7 patients, there were no clinical signs of respiratory disease, and if present, then the most common complaint was shortness of breath. Regarding the symptoms not connected to the respiratory system, anemia occurred most frequently. Fibrous tumor of the pleura was often associated with visceral pleura rather than the chest wall pleura. The biggest change was about 20 cm in size.

Conclusions. Fibrous tumor of the pleura is a neoplasm often detected incidentally, often asymptomatic or poorly symptomatic. Computed tomography imaging allows to suggest the diagnosis of fibrous tumor of the pleura. The basis of histopathological diagnosis are immunohistochemical studies.

MRI IN KNEE TRAUMA

Maksimović Ružica^{1, 2}

¹School of Medicine, University of Belgrade, Serbia

²Center for radiology and magnetic resonance imaging, Clinical Center of Serbia, Belgrade, Serbia

Magnetic resonance imaging (MRI) of the knee is a crucial component for evaluating symptomatic patients and is widely used for accurate depiction of internal derangement. MRI has superior soft-tissue detail with multiplanar imaging capability that provides accurate evaluation of intra- and extra-articular structures of the knee not demonstrated with other imaging modalities. The development and advancements in MRI and the introduction of high-resolution coils have provided a noninvasive, nonoperator dependent, cost effective means to diagnose knee pathology. MRI is well tolerated by patients, widely accepted by evaluating physicians, and assists in distinguishing pathologic knee conditions that may have similar clinical signs and symptoms (as meniscal tears, osteochondral lesions).

Learning objectives are:

1. To outline the main anatomic characteristics features of knee.
2. To present diagnostic value of MRI in injury of crucial ligaments, meniscal injuries and osteochondral lesions.
3. To outline pitfalls in interpretation of MRI in knee trauma.

An awareness of normal and abnormal appearances is important in evaluating patients. Identifying early traumatic injury is important for further clinical decision making.

MRI IN DIAGNOSIS OF MYOCARDITIS

Maksimović Ružica^{1, 2}

¹School of Medicine, University of Belgrade, Serbia

²Center for radiology and magnetic resonance imaging, Clinical Center of Serbia, Belgrade, Serbia

Magnetic resonance imaging (MR) has become a part of routine diagnostic work-up in patients with acute myocarditis. Viral etiology is the most common cause, among them, parvovirus B19 and adenoviruses are being most frequently identified in endomyocardial biopsies. Most patients will recover without sequelae, but a subset of patients will progress to chronic inflammatory and dilated cardiomyopathy.

MRI has been proposed as a noninvasive, reproducible method to detect inflammatory changes within the myocardium and to monitor the myocarditis activity. The main pathohistologic characteristics of acute myocarditis, interstitial edema and damage of myocardial cells caused by inflammatory infiltrate, determine MRI image characteristics. Interstitial edema is best seen on T2 weighted MRI sequence due to a prolongation of the T2 relaxation time caused by increased water content. However, this phenomena is not present at the time of early onset of symptoms. Conversely, myocardial damage may persist after the edematous phase and is best visualized on T1 weighted sequences. Administration of Gd-DTPA can be helpful in identifying the exact region and extent of myocardial damage as well as to follow up the patients. It has been shown that the degree of relative myocardial enhancement correlated well with the clinical status and left ventricular function. Conversely, the contrast enhancement is nonspecific and regional differences of the wash-in and wash-out kinetics may play a role in the timing and extent of signal enhancement.

Modern technology, such as MRI, has improved the ability to diagnose specific viral pathogens in the myocardium. This technique is emerging as an important tool for the diagnosis and follow-up of patients with myocarditis, and for guidance of endomyocardial biopsy.

ACQUIRED DEFORMITY OF FOOT. ARE HIGH HEELS A TERRIBLE EVIL?

Niemunis-Sawicka Joanna, PhD

RehasportClinic Gdansk, Poland

Nadmorskie Centrum Medyczne Gdansk, Poland

From an anatomical perspective, the foot is a complex group of bones and muscles. The foot is a marvellous structure when viewed from the perspective of biomechanical function. The foot must perform diverse functions at specific times during the gait cycle. From a practical standpoint, the foot must: 1) adapt to the ground surface and simultaneously facilitate the body's shockabsorbing mechanism and 2) function as a rigid lever to propel the body across the ground.

The normal (structurally undeformed) foot is adequately prepared to perform these functions.

Function of feet have changed during the evolution. From more than thousand years we use some kinds of shoes, so our feet have to adapt to different gait cycle.