

Deformation of the foot, or a part of the foot, acquired through disease or injury can cause variety of foot problems: hallux valgus, hallux rigidus, pes cavus hammer toe, club foot, flat feet, Morton's neuroma, plantar faciitis ect.

There are a lot of factors of foot problems. One condition that alters the functional demands placed on lower limb muscle-tendon units is the use of high-heeled shoes, which force the foot into a plantarflexed position. Long-term HH use has been found to shorten medial gastrocnemius muscle fascicles and increase Achilles tendon stiffness, but the consequences of these changes for locomotor muscle-tendon function are unknown.

X-ray, USG, CT, MRI are the modality very often use by orthopaedists to diagnose the cause of feet problem, so radiologists should be familiar with this problem.

**BRACHIAL PLEXUS MR: BASIC ANATOMY AND PATHOLOGY**

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Brachial plexopathy is a neurologic disease, that causes pain or functional weakness (or both) of the ipsilateral upper extremity. It may result from medical conditions and from violent stretching, penetrating wounds, or direct trauma. Given the morbidity associated with brachial plexopathy, radiologists should be familiar with plexus anatomy, able to recognize traumatic and nontraumatic plexopathies. It's indispensable to decide about proper medical procedure.

Evaluating the brachial plexus may seem not be easy because of the complexity of the anatomy

and the relative infrequency of dedicated studies, typically in the form of MRI. However, familiarity with the plexus in the context of adjacent, easily identifiable structures and with the typical appearances of plexopathies will allow a more confident evaluation. It will easier to interpret the plexus on nondedicated studies such as MRI or CT of the cervical spine, which is routinely performed in the setting of nontraumatic upper extremity weakness and trauma.

MR allowed to visualised pre- and postganglion parts of plexus and avail the natural contrast between plexus structures ant fat tissue around.

MR is study of choice in evaluating anatomy and pathology brachial plexus (trauma, Pancoast tumour, Thoracic Outlet Syndrome (TOS), schwannoma, iatrogenic disorders ect).

**SYNOVIAL CHONDROMATOSIS – DIAGNOSTIC DIFFICULTIES**

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**Background.** Synovial chondromatosis is a rare, benign disorder characterised by neoplastic proliferation of numerous chondral nodules in synovium of joints, bursae or tendon sheaths. The disease is usually diagnosed in the third, fourth and fifth decades of life, twice more often in men. In most cases it affects one joint but may appear bilaterally (in up to 10% of patients). The most common localization is the knee joint.

Computed tomography (CT) imaging is the best method in detecting calcified intraarticular bodies. Magnetic resonance imaging (MRI) may also implicate presence of synovial chondromatosis — on T2-weighted images calcifications are visible as focal areas of signal void in hiperintense fluid with hypertrophic synovium, additionally this technique may show extraarticular extent of disease, if present. Ultrasound examination is an alternative method of imaging synovial chondromatosis.

**Case reports.** In this article we present two cases of synovial chondromatosis. The first patient was a 14 year old girl, with multiple cartilaginous loose bodies in the knee joint, detected in ultrasound and MRI examinations. The next patient was a 68 year old woman with calcification in the shoulder joint demonstrated in CT and MRI examinations.

**Conclusions.** Diagnostic imaging plays an essential role in the diagnosis of synovial chondromatosis, still the final diagnosis is set in histopathology examination.

**ACUTE POSTTRAUMATIC THORACIC AORTIC CHANGES IN COMPUTED TOMOGRAPHY IMAGING**

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Acute traumatic aortic injury (ATAI) is a serious clinical condition in patients after multiple trauma. It results from motor vehicle accidents, pedestrian-automobile collisions and less frequently falls from height. Majority of patients with ATAI are young men.

In this work we present examples of posttraumatic aortic changes, which were stated in CT polytrauma (trauma CT) followed by CT angiography examinations, performed between the year 2010 and 2012 in the CT and MRI Laboratory of Clinical Radiology and Diagnostic Imaging Department in Provincial Hospital No 2 in Rzeszów. The aim of this study is to present morphological variation of posttraumatic aortic injuries and potential CT imaging pitfalls. Widened mediastinal silhouette in CT scoutview (topogram) may suggest presence of posttraumatic changes of the thoracic aorta. In the trauma CT scan hemorrhage may be suggested by a blurred border between the aorta and periaortic adipose tissue, and/or increase of mediastinal adipose tissue density. Sudden change in the outline of aortic walls, extravasation of blood/contrast medium beyond the vessel, and/or separation (tear) of the tunica intima are the probable changes in the CT scan examination after administration of contrast medium. When assessing CT

examination one should keep in mind possible changes which may mimic thoracic aortic injury, among others thymic residual tissue, "ductus bump" or mediastinal hemorrhage of different etiology. ATAI is associated with high mortality, which is directly dependent on the time from injury to implementation of treatment. The seemingly good condition of patient should not influence the range of examination or the rapidity of diagnostic imaging.

#### ETIOLOGY, CLINICAL MANIFESTATION AND RADIOLOGICAL FINDINGS IN CEREBRAL VENOUS AND SINUS THROMBOSIS

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**Introduction.** Cerebral venous sinus thrombosis (CVST) is a rare disease with a variety of symptoms, diagnosed primarily in imaging studies, which allows early introduction of proper, causal treatment. The aim of this study is to analyze the epidemiological and clinical data and the results of imaging studies performed in patients diagnosed with this disease.

**Material and method.** The analysed material consisted of a group of 16 patients (11 women and 5 men) who were examined with CT and MRI at the Department of Radiology and Diagnostic Imaging of the Regional Hospital No. 2 by the name of St. Jadwiga the Queen, in Rzeszów in the period from October 2000 to October 2012, and who were diagnosed with CVST. At least one of the following imaging examination was performed in these patients: head CT scan with or without intravenous contrast administration, CT angiography of the head, head MRI with intravenous contrast agent, MR venography.

**Results.** CVST occurred most often in women in two age groups: 20-29 and 40-49 years old. The most common risk factor were inflammatory lesions of the head and neck, and slightly less frequent in the women group oral contraceptives and puerperium. In six (i.e. 37.5%) patients co-existence of at least 2 risk factors was observed. Thrombotic lesions more often localized in large, paired sinuses. In the majority of patients, i.e. in 13 patients (81.25%), blood clots were observed in multiple locations. The greater number of risk factors was associated with a more extensive range of DVT. In eight patients changes in the sinuses and cerebral veins were associated with various changes in the brain tissue. The level of D-dimers in CVST may be normal. The diagnosis was usually made on the basis of CT angiography examination, and in the second place on the basis of MR venography.

**Conclusions.** CVST is most common in young women. The most common risk factor is inflammation and puerperium is the condition especially predisposing to parenchymal changes in the brain. Large sinuses are the most common locations for thrombosis. The shorter the

duration of clinical symptoms and the more severe their presentation, the more extensive concurrent brain parenchyma changes. The correct level of D-dimers does not exclude the presence of CVST. CT angiography and MR venography are the most sensitive methods for detecting CVST, while MRI with contrast is the most sensitive method to detect parenchymal changes in the brain.

#### ASSESSMENT OF CORRESPONDENCE OF ULTRASONOGRAPHIC AND ENDOSCOPIC FINDINGS IN SELECTED PATHOLOGIES OF UPPER AND LOWER GASTROINTESTINAL TRACT

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**Background.** Transabdominal ultrasound is usually the primary diagnostic procedure for the evaluation of abdominal cavity, most often parenchymal organs. The development of ultrasound imaging techniques now allows initial assessment of gastrointestinal tract. Although endoscopy and histological assessment are the final diagnostic tools in recognizing gastrointestinal tract pathologies, the sonography may be a useful element of diagnosing and monitoring patients.

The purpose of the study was to demonstrate that ultrasound is helpful in recognizing the selected pathologies of gastrointestinal tract, furthermore to compare the localization of pathological findings in ultrasound and endoscopy as well as to assess concurrent extra – intestinal changes.

**Material and methods.** We retrospectively analyzed 110 transabdominal ultrasound exams of 106 patients with symptoms suggesting gastrointestinal tract abnormality. Patients were hospitalized in Provincial Hospital No 2 in Rzeszów, in the period from July 2009 to March 2010. All the patients underwent in addition endoscopy examinations – gastroscopy was performed in 85 patients and colonoscopy in 100 patients. Exam data (upper and lower gastrointestinal tract separately) was analyzed and compared. For the assessment of ultrasound accuracy in recognizing and localizing inflammatory and malignant changes sensitivity, specificity, positive and negative predictive value were calculated.

**Results.** The most frequent finding within gastrointestinal tract was thickening of the gastrointestinal tract wall – greater for malignant changes. Morphology of the wall changes and extra-intestinal findings allowed for initial differential diagnosis.

Sensitivity of ultrasonography in detecting inflammatory changes of the upper gastrointestinal tract was much lower than in the lower gastrointestinal tract (14% vs 98%), sensitivity in detecting malignancies of the upper and lower gastrointestinal tract were comparable (89% and 94%). The comparison of pathology localization in ultrasound and endoscopic examinations showed that US was the most accurate in detecting changes of sigmoid colon whereas abnormalities localized in the rectum, the duodenum and the stomach were diagnosed much more infrequently.