

Role of ultrasound in assessment of abnormalities in knee trauma in comparison to MRI

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Aim of the Work: to assess the role of high resolution ultrasonography (US) in the evaluation and assessment of different abnormalities resulting from knee trauma compared to Magnetic resonance imaging MRI

Aim and Patients and Methods: 51 patients presenting with knee pain after variable degrees of knee trauma and referred to radiology department will be examined by US and MRI. Results are compared and data analysed.

Results: US had significant results in medial collateral ligament (MCL), menisci, quadriceps and patellar tendons, joint effusion and parameniscal cysts. Poor US results were obtained in cruciate, lateral collateral ligament (LCL) and bone injuries.

Conclusion: Ultrasound can be used in the initial assessment of patients after knee trauma. It has comparable results to MRI in tendons, periarticular ligaments, joint effusion and menisci assessment with still some limitations noted in the cruciate ligaments and bone injuries assessment.

Assessment of Uterine Cervical Cancer by Means of MR Spectroscopy

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Background: Proton magnetic resonance spectroscopy has been shown to have clinical value in managing cancers of the brain, breast, cervix and prostate, it is useful for diagnosing and monitoring treatment of cervical cancer by analyzing the metabolite composition of cervical tumors, providing details of tumors metabolism that might assist tumor grading and leading to a better understanding of the biochemical pathways found within the lesion, serving as a noninvasive biomarker of metabolism in tumors. ¹H-MRS has achieved great strides as a molecular imaging technique since its introduction, and its scope in many clinical scenarios and research settings is rising.

Objective: In this study, MRS was performed in all cases using single voxel spectroscopy (SVS) and patient spectra were interpreted qualitatively by inspection of the peaks of lipid and choline.

Aim and Patients and Methods: This study was carried out during the period between December 2017 and September 2018. Twenty three patients with cancer cervix diagnosed clinically and/or pathologically proved cancer were recruited from (Oncological department) in Ain Shams University Hospitals.

Results: Our study revealed high lipid level in 65% of cervical cancer patients which has 100% sensitivity and 74% specificity in detecting cervical cancer, choline level which considered most consistent difference between majority of normal tissue and tumors shows high level in measured 69.2% of the patients.

Conclusion: Abnormal metabolism is a key tumor hallmark. Proton magnetic resonance spectroscopy (¹H-MRS) allows

measurement of metabolite concentration that can be utilized to characterize tumor metabolic changes. ¹H-MRS measurements of specific metabolites have been implemented in the clinic. This study interpret at the role of ¹H-MRS for cancer evaluation, evaluates its strengths and limitations, and correlates metabolite peaks at ¹H-MRS with diagnostic and prognostic parameters of cervical cancer.

Key words: Single voxel spectroscopy, Magnetic resonance imaging, Spectroscopy

Role of Transvaginal Ultrasound in Detection of Endometrial Changes in Breast Cancer Patients under Hormonal Therapy

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Background: Hormonal therapy is widely utilized as adjuvant therapy in women diagnosed with breast cancer, in those patients, Despite its positive risk/benefit ratio, It may cause secondary effects on the endometrium, Including endometrial atrophy, Endometrial polyp, Endometrial hyperplasia, and up to Endometrial carcinoma.

Aim of the Work: We aim to determine the role of TVUS in detection of endometrial changes.

Aim and Patients and Methods: Cross sectional Prospective study. We analyzed the data from previous scans and current scan and correlate it with the results of histopathology. All US examinations were performed by our senior radiologists at radiology department of Helwan university hospital. Study period from March 2018 to November 2018.

Results: The study group comprised 50 patients with breast cancer who were treated with tamoxifen for a period ranging from 3months to 5 years, by TVUS endometrial thickness measurement was ranging from (3 to 30 mm) the mean is 10.22 mm and standard deviation \pm 5.76mm, all patients were examined by TVUS, gynecological examination and they were candidate for endometrial biopsy either by D&C or hysteroscopic resection. Their histopathology results were: normal endometrium with no changes (52%), endometrial hyperplasia (14%), endometrial polyp (14%), adenomyosis (10%), endometrial atrophy (6%) and endometrial carcinoma (4) %.

Conclusion: We evaluated the correlation between tamoxifen therapy and endometrial benign and malignant conditions and correlate the findings seen in TVUS by the histopathological results .We concluded that TVUS is a necessary screening tool for detection of endometrial abnormalities in breast cancer patients under hormonal therapy.

Key words: Transvaginal ultrasound, Endometrial changes, Breast cancer, Hormonal therapy

Role of Ultrasound Guided Injection of Platelet Rich Plasma (PRP) in Rotator Cuff Tendinopathy

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Background: Rotator cuff tendinopathy is a leading cause of shoulder pain and a significant source of disability. It is a common disorder, with its prevalence increasing substantially with age and affecting more than 50% of the general population by the age of 60 years

Objectives: Based on these facts, our study efforts sought assessment of the role of ultrasound guided platelet rich plasma injection (PRP) in cases of rotator cuff tendinopathy.

Patients and Methods: Type of Study is single arm interventional study was conducted in Ain shams university hospitals in the period between October 2018 and March 2019, 15 patients were included in the study ranging from 25 to 60 years old, were referred to the Radiology department at Ain Shams University Hospitals. Study Setting: all US examinations were performed by the same senior musculoskeletal radiologist with a large experience in the musculoskeletal US at the radiology department of Ain Shams University hospitals. Study Period: 6 months for data collection.

Results: Our study showed remarkably noticeable change on comparing the pre-injection and post-injection SPADI Scoring system at 4,8,12 and 24 weeks. There is highly statistically significant pain and disability score and percentage improvement, yet on the other hand the radiological improvement shows no statistically significant difference found between baseline tendon thickness and its follow up at 4, 8 and 12 weeks while only there was statistically significant decrease in tendon thickness found at 24 weeks with p-value = 0.043.

Conclusion: The ultrasound-guided PRP injection for supraspinatus tendinopathy cases is a safe, cheap, and easily prepared outpatient procedure which showed competitive, promising, and well-proved results when compared to other modalities outcomes such as conventional surgeries, arthroscopic procedures, and physiotherapy. It deserves our attention to its value and efficacy for the sake of the patient as a minimally invasive procedure providing better quality of life.

Key words: Ultrasound guided injection, Platelet rich plasma, Rotator cuff tendinopathy

The pattern of hysterosalpingographic findings in Egyptian females being investigated for infertility

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Background: Infertility is a complex disorder with significant medical, psychological and economic problems.

Objective: To determine the structural and pathological pattern of the fallopian tubes and uterus on hysterosalpingography (HSG) examination in cases of female infertility.

Methods: A retrospective study, conducted at ain Shams University hospitals on female patients complaining of infertility, the patients were investigated using hysterosalpingogram in the period between June 2017 till end of May 2018.

Results: A total of 484 patients were evaluated with the age ranging from 17 to 48 years old, whether the mean was 30.29

years (SD \pm 6.43). Of these, 185 cases were complaining of primary infertility and 299 cases were secondary infertility constituting (38.2 %) and (61.8%) respectively. (50.6 %) of the cases had abnormalities on the HSG& Normal pattern was found in the rest (49.4%) cases, tubal factor as a cause of infertility was the most salient feature among the abnormal HSG patterns. Unilateral proximal tubal block was the most common tubal abnormality, whether mullerian anomalies was the most common uterine abnormality encountered.

Conclusion: Hysterosalpingogram is still widely used because it is cheap, readily available, non invasive, easy to interpret and has the ability to demonstrate dynamic free contrast spillage. It is usually the first line of imaging evaluation of the fallopian tubes in infertility, especially in developing countries such as ours. This study reveals that there was a high incidence of tubal disease in the women presenting with infertility, this was commonly as a result of infection and inflammatory process.

Key words: Infertility, Hysterosalpingogram

MR diffusion imaging in mediastinal masses the differentiation between benign and malignant lesions

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Purpose: Diffusion-weighted imaging is a fundamental tool integrated in MR protocols useful in differentiating benign from malignant mediastinal masses, assessing mediastinal lymphadenopathy and investigating central bronchogenic carcinoma. This method is an excellent alternative to CT or PET/CT in the investigation of mediastinal masses. Current applications of diffusion MRI in malignancies include monitoring the treatment response and detecting recurrent cancer.

Aim of the Work: This study aims to assess the value of using MRI diffusion in differentiating benign and malignant mediastinal masses, differentiating central masses from post obstructive collapse and differentiating lymphoma versus sarcoidosis.

Patients and Methods: This study included 30 patients; 16 males and 14 females in the period from June 2013 to July 2014. The mean age was 49.3 ± 16.85 (range: 22–82 years). Cases were referred for MRI assessment and were approved by the ethical committee in our department. The complaints varied between dyspnea, chest pain, cough, hemoptysis, fatigue and loss of weight. A superconducting 1.5 T MRI machine with a four-channel body phased-array coil was used for the examination. Biopsy and histopathological assessment was done after that.

Results: MRI examination with diffusion imaging was able to differentiate between benign and malignant mediastinal and hilar lesion confirmed by the biopsy and histopathology.

Conclusion: MRI with diffusion weighted images can detect and stage lung cancer, differentiate benign from malignant mediastinal masses and differentiate lymphoma from sarcoidosis in mediastinal/hilar lymphadenopathy.

Key words: Diffusion-weighted (DW) MRI, Mediastinal masses, Benign and malignant lesions