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ABSTRACTS

ORAL PRESENTATIONS (O)

SCIENTIFIC SESSION (SSI): Emergency Radiology

O-1

Assessment of bowel wall enhancement for the diagnosis of intestinal ischemia in patients with small bowel obstruction value of adding unenhanced ct to contrast-enhanced:

Retrospective review

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ABSTRACT: Acute obstruction of the small bowel is a frequent reason for presentation to the emergency department. Causes of obstruction are multiple (tumorous, inflammatory, postoperative, iatrogenous, metabolic, or congenital), but the clinical presentation is usually nonspecific. Recent reports have shown the usefulness of CT in the diagnosis of mesenteric ischemia, especially in the context of acute bowel obstruction. Our objective was to determine whether adding unenhanced CT to contrast-enhanced CT improved the diagnostic performance of decreased bowel wall enhancement as a sign of ischemia in patients with mechanical SBO.

METHODS: All patients seen over a 3-year period with a CT diagnosis of small-bowel obstruction were included. Images were interpreted by experienced gastrointestinal radiologist. Attention was focused on the presence of the following signs of strangulation and ischemia: reduced enhancement of the small-bowel wall, mural thickening, mesenteric fluid, congestion of small mesenteric veins, and ascites. A diagnosis of ischemia was made if enhancement of the bowel wall was reduced or if at least two of the other signs were found.

RESULTS: A diagnosis of ischemia was made at surgery in 24 patients. CT diagnosis was correct in 23 patients (96% sensitivity). There were nine false-positive diagnoses (93% specificity). Reduced enhancement of the bowel wall had a sensitivity of 48% and specificity of 100%, mural thickening had a sensitivity of 38% and specificity of 78%, mesenteric fluid had a sensitivity of 88% and specificity of 90%, congestion of mesenteric veins had a sensitivity of 58% and specificity of 79%, and ascites had a sensitivity of 75% and specificity of 76%.

CONCLUSION: Adding unenhanced CT to contrast-enhanced CT improved the sensitivity and diagnostic confidence in the diagnosis of ischemia, a complication of mechanical SBO, on the basis of decreased bowel wall enhancement. Our results support performing routine unenhanced imaging before contrast-enhanced imaging in patients who are undergoing CT to evaluate suspected mechanical SBO.

O-2

How are appendicoliths associated with appendicitis different from incidental appendicoliths?

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BACKGROUND: Appendicoliths are frequently considered as the cause of appendicitis. However, not all appendicoliths lead to appendicitis and are commonly detected incidentally on computed tomography scans in uninflamed appendixes. The differences between appendicoliths associated with appendicitis and ones that are found incidentally have not yet been studied.

OBJECTIVE: To determine if greater number, size and a more proximal location of appendicoliths in appendix is associated with appendicitis.

MATERIAL & METHOD: A retrospective review of charts for patient with appendicoliths discovered on Computed-Tomography (CT) scan from 01/2008-12/2015 was completed. Patients were divided into two groups; those with appendicitis and appendicoliths (AA) and those with incidentally discovered appendicoliths (IA). The number, diameter and position of the appendicolith/s were ascertained and studied in relation to appendicitis at presentation.

RESULTS: In total, 422 patients were found to have appendicoliths on abdominal CT scans. Of these, 168 (40%) patients were in the AA group while 254 (60%) patients were in the IA group. The proportion of patients with appendicitis significantly increased with multiple appendicoliths: 48 (31%) with 1 appendicolith, 47 (40%) with 2 appendicoliths, 22 (55%) with 3 appendicoliths and 31 (80%) with >3 appendicoliths (p<0.001). Odds of having acute appendicitis were 2.16 times for every millimeter increase in size of largest appendicolith (p<0.001). When analyzing the location of appendicoliths, the proportion of patients with appendicitis was greater for more proximal location of the largest appendicolith; 7 (20.0%) at the distal third, 37 (34.66%) at the middle third, 49 (42%) at the proximal third and 59 (60%) at the base (p<0.001). However, 33 (75%) patients with sludge that filled the entire appendix were in the IA group. After multivariable binary logistic regression analysis, diameter of largest appendicolith, location of largest appendicolith and number of appendicoliths turned out to be independently associated with acute appendicitis. Age and gender did not confound the results.

CONCLUSION: For patients with appendicitis and appendicoliths, multiple appendicoliths, greater size and more proximal position of appendicoliths increased the odds of appendicitis. These results support the proposed concept of the obstructive phenomenon underlying the occurrence of appendicitis. This knowledge will aid in the diagnosis of equivocal cases of appendicitis.

O-3

Diagnostic accuracy of multi-slice computed tomographic angiography (CTA) in detecting intra-cerebral aneurysms taking digital subtraction angiography (DSA) as a gold standard

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INTRODUCTION: Computed tomography (CT) is the initial method of choice in evaluating patients presenting with suspicion of intra-cerebral aneurysm. Rapid evaluation of ICA by technically advanced and minimally invasive cross sectional imaging such as multi-detector computed tomography angiography (CTA) and magnetic resonance angiography (MRA) has changed diagnostic approach to ICA evaluation. This study was conducted to determine diagnostic accuracy of multi-slice CT angiography in detecting intra-cerebral aneurysms using DSA as the gold standard.

MATERIALS & METHODS: A total of 113 patients of clinical symptoms and signs suggestive of harboring an intracranial aneurysm and age 20-60 years of either gender were included in the study. Patients with h/o brain surgery and traumatic subarachnoid hemorrhage were excluded. All the patients then underwent multi slice computed tomography angiography examinations. After CTA, DSA was performed in every patient and findings were correlated.

RESULTS: Mean age was 50.82 ± 6.77 years. Out of these 113 patients, 44 (38.94%) were male and 69 (61.06%) were females with male to female ratio of 1:1.6. CTA supported the diagnosis of intra-cerebral aneurysm in 70 (61.95%) patients, out of which, 64 (True Positive) had intra-cerebral aneurysm and 06 (False Positive) had no intra-cerebral aneurysm on DSA. Among, 43 CTA negative patients, 04 were False Negative and 39 were True Negative. Overall sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of multi-slice computed tomographic angiography (CTA)

in detecting intra-cerebral aneurysms was 94.12%, 86.67%, 91.43%, 90.70% and 91.15% respectively.

CONCLUSION: This study concluded that multi-slice CT angiography is a highly sensitive and accurate non-invasive modality for detecting intra-cerebral aneurysms and has not only dramatically improved our ability of detecting intra-cerebral aneurysms but also improves patient care by proper surgical planning pre-operatively, which consequently reduces complications

O-4

Acute confusional state in pregnancy and peripartum

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O-5

Current recommendations in imaging of Major Trauma

O-6

Pelvic fractures and their radiological management

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Pelvic displaced fractures are often life threatening injuries. Although the risk of life threatening situation has declined in recent years due available services, though the absolute number of pelvic trauma has increased in motor vehicle accidents. The mortality is related to the associated vascular injuries, both arterial and venous due to shearing forces and even osseous bleeding.

Immobilization and fixation may tapenade venous haemorrhaging, though it's usually insufficient to take care of arterial ruptures, which require early detection followed by endovascular or surgical interventions.

Other injuries to urogenital system, lumbar plexus and adjacent long bones need a systematic approach to identify them for prompt intervention and overall management. The injuries related to minimal force in elderly usually do not require urgent intervention.

We would discuss the mechanics of these injuries, the relevant classifications in use to segregate them and the impact on clinical algorithms which the managing teams requires.

SCIENTIFIC SESSION (SSII): Women's Imaging

O-7

Problem solving in breast imaging using breast MR

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MRI breast is a sensitive method for detection of the breast cancers. It can be used as a screening tool particularly in high risk patients (BRCA 1 and BRCA 2 carriers).

Breast MRI is also better at monitoring the response to chemotherapy than other imaging modalities. It is successfully used as a problem solving instrument in cases of dense Mammogram with high risk of malignancy and recurrence of tumor with post surgical staging.

Its utility is also important in BIRADS-Category 0 and BIRADS-Category 3 lesions in minimizing the biopsy.

Another important role of MRI is in evaluation of breast implant regarding their integrity and presence of malignancy along with implant.

O-8

Imaging evaluation of pelvic pain syndromes in women

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I will talk over the causes of chronic pelvic pain.

I will discuss the modalities used to diagnose (chronic pelvic pain) CPP and will also elaborate the imaging findings.

I will also emphasize the benefits and limitations of the available modalities for imaging pelvic pain.

O-09

Prediction of metastatic disease in breast cancer patients: Is CT scan chest indicated in all patients with newly diagnosed breast cancer?

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OBJECTIVES: The purpose of the study was to determine the predictors of distant metastasis in patients with newly diagnosed primary breast cancer who would thus benefit from preoperative CT scan chest evaluation.

METHODOLOGY: This cross sectional analytical study was conducted in the Radiology department Aga Khan University hospital Utilizing the non-probability convenience sampling technique CT scan of all patients diagnosed with newly diagnosed breast cancer were included. Different variables pertaining to patients characteristics like age, menstrual history, family history were recorded. The histopathology data comprising of tumor type, grade, ER/PR and Her 2 neu status. The final pathological staging of the tumor was also recorded. The CT findings were categorized as consistent, not consistent or indeterminate for metastasis. The presence or absence of metastasis on CT scan was correlated with the acquired data using Spearman's rank correlation.

RESULTS: A total of 83 patients were included in the study with the mean age of 55 years and range from 28 to 91 years. Metastasis was noted in 29 % of patients. Regarding the radiological findings the factor that associated significantly with distant metastasis in the uni-variate analysis was presence of bilateral neoplastic breasts lesions. The other variables showing association were the size of the lesion (more than 2 cm), skin and chest wall invasion and axillary lymphadenopathy.

CONCLUSION: The predictors of distant metastasis as proposed by this study are bilateral breasts lesions, the size of the lesion, axillary lymphadenopathy, chest wall and skin involvement and histological type and grade.

O-10

Specific MRI findings in detecting abnormal placentation and role of intra-arterial occlusive balloons in morbidly adherent placenta

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PURPOSE: The purpose of this study was to identify specific MRI findings for the prenatal diagnosis of morbidly adherent placenta, the role of intra-arterial occlusive balloons in management and its correlation with clinical outcome.

MATERIALS AND METHODS: Total of 14 patients were referred to Radiology department of Rehman Medical Institute Peshawar to identify morbid placental invasiveness. They had already undergone prenatal ultrasound. The age of the patients ranged from 20 to 38 years. All patients were at a high risk of abnormal placentation (placenta accreta, increta and percreta) with either one or all of the following: placenta previa, previous uterine interventional procedures (e.g. cesarean sections, dilation & curettage and myomectomy, maternal age of 35 years or more and grand multiparity). 8 of these patients were operated at our institute. Findings at ultrasound and MRI were compared with the final diagnosis, which was established with clinical findings at surgery. 5 of our patients underwent temporary occlusion of internal iliac arteries under fluoroscopic guidance before the surgery. The arteries were occluded for few minutes, just after delivery of baby.

RESULTS:

1. MRI confirmed morbidly adherent placenta in 93% patients; accreta in 4, increta in 7 and percreta in 2 patients. Placenta previa was seen in 85% patients whereas rest of the 2 patients did not have low lying placenta. Out of these 2 patients, one had percreta and other had accreta. 42% Patients had anterior located, 28.5% had posterior located and 28.5% had completely low lying placenta. Ultrasound and MRI showed no significant difference in sensitivity and specificity in diagnosing abnormal placentation (97 to 100% and 99 to 100%, respectively). MRI was more sensitive than ultrasound for the detection of myometrial invasion and the type of abnormal placentation. MRI findings favouring placental invasiveness included: Placental heterogeneity, T2 low bands, loss of placental-myometrial interface, traversing vessels and direct invasion into the serosa. We found the most sensitive MR criteria for the diagnosis of invasive placentation were: abnormal placental vascularity seen as traversing vessels for percreta, serosal bulge for increta and loss of myometrial-placental interface for accreta.

2. Five of our patients were considered for per-operative intra-arterial occlusive balloons at the time of cesarean delivery to reduce hemorrhage. This reduced the hemorrhage, hospital stay and overall improved the clinical outcome.

CONCLUSION: We conclude from our results that MRI is highly accurate in predicting the radiological pattern of placental invasion, traversing vessels sign on MRI is most specific for percreta and serosal bulge is highly suggestive of increta. MRI is useful for the prediction of maternal morbidity as pre-caesarian precaution and intra arterial occluding balloons reduce maternal morbidity at the time of caesarian delivery.

O-11

Role of quantitative analysis of apparent diffusion coefficient (ADC) values as a predictor of malignancy in breast lesions

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OBJECTIVE: To determine the diagnostic accuracy of apparent diffusion coefficient (ADC) values at MR imaging with echo planar diffusion weighted imaging predicts malignancy in breast lesions, taking histopathology as gold standard.

HYPOTHESIS: Breast lesions showing ADC values $\leq 1.0 \times 10^{-3} \text{ mm}^2/\text{sec}$ are malignant and $>1.0 \times 10^{-3} \text{ mm}^2/\text{sec}$ are benign.

METHOD:

Study type: Retrospective cross-sectional study
 Study place: Diagnostic radiology department JPMC
 Timings: 1 year duration, from June 2016 to June 2017

INCLUSION CRITERIA: All patients referred to our department for Breast MRI with complaints of palpable breast lump, age range of 20 to 60 years.

EXCLUSION CRITERIA: Post-surgical and post chemo-radiation treated patients and patients with clinical suspicion of inflammation and breast

abscess were excluded from study.

STUDIED VARIABLES: ADC values of breast lesions MRI scans using routine sequences along with diffusion-weighted echo-planar imaging at b values of 1000 s/mm² were acquired. Region of interest (ROIs) was plotted and apparent diffusion coefficient (ADC) values were calculated for all detectable lesions. The sensitivity, specificity, positive predictive value and diagnostic accuracy of ADC values were determined after comparison with histological results. Post stratification chi-square test was applied. P-value ≤ 0.05 was considered as significant.

RESULTS: Total of 32 patients were included in our study. 18/32 cases were malignant with ADC values statically lower than predetermined value of $1.0 \times 10^{-3} \text{ mm}^2/\text{sec}$. Quantitative analysis of ADC values showed 91.6% specificity, 90.0% sensitivity, 94.7% positive predictive value, 84.6% negative predictive value and diagnostic accuracy of 90.6% in diagnosing malignant breast lesions.

CONCLUSION: DW-MRI is promising imaging tool for predicting malignancy in breast lesions. It substantially differentiates lesion that need additional work up and biopsy thus improves patient management.

O-12

Imaging of post operative breast: A diagnostic challenge

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LEARNING OBJECTIVES: To focus on the imaging modalities that have been used in post-treatment surveillance for patients with breast cancer. To discuss the effectiveness of each modality for detecting recurrence/complications and appropriate application of different modalities in management of patients.

BACKGROUND: Breast cancer is one of the leading causes of death in women worldwide. As the number of breast cancer survivors increases, patient management and surveillance after primary treatment has emerged worldwide. There is increased risk of second breast cancers in women who have been already treated. There is also increase risk of tumor recurrence in the ipsilateral breast or a newly developed cancer in the contralateral breast. In addition, recent studies have demonstrated that local recurrence is an independent predictor of survival, a high relative risks for developing distant metastases or breast cancer-related deaths in patients with local recurrences have been shown when compared to patients without a recurrence.

Considering these risks, a well-designed, evidence-based post-treatment surveillance protocol is needed to manage post treated patients with breast cancer. The surveillance program would be intended to detect second breast cancers at an early stage when curative intervention is possible. Mammography, ultrasonography, magnetic resonance imaging, positron emission tomography are being utilized in many institutions to increase detection of second cancers at an early stage.

OUTLINE:

Evaluation of breast after treatment.
 Post operative changes after breast conserving therapy.
 Detection of residual or recurrent disease vs scarring.
 Confirmation of lesion removal.
 Identification of post procedural complications (fluid collections, seroma).
 Imaging of breast implants and its complications.
 Follow up protocol.

CONCLUSION: Currently, mammography is the single imaging modality recommended for routine follow-up surveillance in women who have been treated for breast cancer. The role of additional imaging modalities, such as

US, MRI, and PET-CT, as post-treatment surveillance in women treated for breast cancer has not yet been established, but they are potentially useful and show high sensitivity and accuracy for detecting recurrences or distant metastases.

SCIENTIFIC SESSION (SSIII): Chest / CVS / Body Imaging O-13

Ultrasound guided transthoracic mediastinal biopsy - A safe technique for diagnosis

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OBJECTIVE: Our objective was to determine the diagnostic accuracy of ultrasound guided biopsy of mediastinal lesions as a safe technique for diagnosis. The main finding of this prospective study of US guided transthoracic biopsy of mediastinal lesions is the high diagnostic yield (97.14%), with almost no postprocedural complications.

MATERIALS AND METHODS:

We prospectively evaluated 70 patients who were referred to radiology department and were reported as mediastinal lesions on plain radiographs and CT Scan Chest followed by ultrasound guided transthoracic mediastinal biopsy. We excluded some of the patients from the study who were not giving consent for the procedure and in whom severe coagulopathy accounted for the risk of hemorrhage.

RESULTS: A total of 70 patients were included over a 12-month period with an age range of 09–70 yrs, 82.85% were male and 17.14% were female. The majority of cases were chest wall lesions (n=30, 42.85%), followed by superior and anterior mediastinal lesions (n=25, 35.71%), middle mediastinal lesions (n=10, 14.28%) and posterior mediastinal lesions (n=5, 7.14%). At the time of biopsy, a chest radiograph was available in all patients and a chest CT scan in 55 patients (78.57%). No complications were encountered, and no patient had a hemo- or pneumothorax on postprocedural chest radiographs.

CONCLUSION: Ultrasound guided transthoracic mediastinal biopsy is as safe and accurate as Computed tomography (CT) and has complication rate equivalent to CT.

O-14

Sonographic evaluation of normal liver, spleen and renal parameters in healthy adult individuals; A multicenter study

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OBJECTIVE: To determine the normal liver, spleen and renal parameters in adult patients with no comorbidities.

METHODS: This multicenter prospective cross-sectional study was conducted from 27th October 2016 to 21st March 2017. A total of 3136 study participants with more than 16 years of age of either gender underwent ultrasound examination were enrolled in the study. All individuals with morbid conditions like hypertension (HTN), diabetes mellitus (DM), fatty liver, cirrhotic liver, hydronephrosis, renal cyst, liver mass, portal hypertension, cholelithiasis, and renal mass were excluded. Ultrasound scan was performed and longitudinal and transverse sections were obtained of both kidneys in full inspiration, spleen and liver.

RESULTS: A significant positive correlation was observed in between age and spleen size of the individuals ($r = 0.053$, p -value 0.012). The correlation

of BMI and liver size was also found significantly positive ($r = 0.237$, p -value <0.001). The correlation of age and kidney size was found significantly negative in between age and right kidney ($r = -0.074$, p -value <0.001) and left kidney ($r = -0.087$, p -value <0.001). Similarly, the correlation of BMI and renal size was found significantly weak positive in between BMI and right kidney ($r = 0.206$, p -value <0.001) and BMI and left kidney ($r = 0.227$, p -value <0.001).

CONCLUSION: Significant positive correlation of renal size was established with left side, male gender and increasing BMI, while decline in renal size was noticed after the age 60 years. Strong positive correlation of splenic size with age and hepatic size with BMI was observed. Moreover splenic size was greater in males than females and vice versa for liver.

O-15

Liver-Spleen attenuation ratio in unenhanced and contrast enhanced computerized tomography in different grades of hepatic steatosis

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OBJECTIVE: To determine the mean values of liver-spleen (L/S) attenuation ratio in unenhanced and enhanced computerized tomography (CT) in different grades of hepatic steatosis.

METHOD: It was a descriptive cross sectional study carried out in the Department of Radiology, Dow Medical College / Civil Hospital (DUHS), Karachi, between February and July 2017. This study includes 334 patients aged 15 to 85 years of either gender, undergone CT scan of abdomen for any pathology were subjected to L/S attenuation ratio measurement on unenhanced and contrast enhanced scans prior to determination of grading of hepatic steatosis on ultrasound. Patients with known viral markers, hepatocellular carcinoma, storage disorders, autoimmune hepatitis and alcoholism were excluded. Mean values of L/S attenuation ratios for different grades of hepatic steatosis were then evaluated.

RESULT: The mean value of L/S ratio on unenhanced and enhanced CT were calculated to be 0.71 and 0.72 for mild steatosis, 0.61 and 0.65 for moderate steatosis and 0.02 and 0.36 for severe steatosis respectively on ultrasound. The overall mean value for hepatic steatosis was 0.49 and 0.60 on unenhanced and enhanced CT scan respectively. Complications like splenomegaly, abdominal collaterals, ascites and pleural effusion were present in higher frequency with advancing grade of hepatic steatosis.

CONCLUSION: Hepatic steatosis is very common disease that can lead to portal hypertension and cirrhosis. L/S attenuation ratio decreased on unenhanced and enhanced CT with increasing grades of hepatic steatosis on ultrasound so it is an easy and non-invasive objective measurement that could improve treatment plans for NASH.

O-16

Audit of CT KUB: An effort to minimize unnecessary radiation exposure

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BACKGROUND: Computed tomography of the kidneys, ureters and bladder (CT KUB) is performed chiefly in younger patients hence, radiation dose should be minimized as much as possible without compromising diagnostic adequacy. Radiation dose can be minimized without altering the quality of scan by reducing scan field. Currently our departmental protocol is to scan from the diaphragm to the symphysis pubis. As diaphragm is mobile structure, the scan field varies

with the inspiratory activity. Recent audit by Maguire et al. investigating radiation dose and scan field demonstrated that in 100% of the patients, T10 was the most inferior level that can image full kidneys.

OBJECTIVE: The aim of this audit is to compare our current department protocol to that suggested by Maguire et al. and RCR.

AUDIT STANDARD:

1. 100% of scans should commenced at T10
2. 75% of studies should have a DLP less than 500 mGycm² (UK national diagnostic reference level)

METHOD: We retrospectively reviewed 100 consecutive CT KUB scans (Jan-Mar 2017 Data was collected as follows:

1. Vertebral level at which kidneys fully included.
2. Vertebral level at which scan commenced.
3. Patient dose values as CTDI/DLP.

The scan start height was defined as the most superior fully imaged vertebra. The superior border of the kidneys was defined as the highest vertebra overlapped by the kidneys.

INCLUSION CRITERIA: 1. Adults over 18 years of age only 2. Diagnosed cases of renal colic on clinical judgement or radiological investigation

RESULTS: The mean age at the time of scanning was 43 years (range 18.1-84.5 years), with 36 females and 64 males. Highest level at which kidney appears was T10 while lowest was L2. Highest level at which scan was commenced was T5 while lowest was T11. Only 5% of the scans has DLP within the required limit, rest of the scans exceeded the required limit.

CONCLUSION: Currently we are not meeting the RCR standard for KUB study. Most of the scans are covering wide area above the kidneys hence increasing patient dose.

SUGGESTION: There is big room for improvement. We have proposed that KUB scans now be commenced at either T10 or diaphragm level, whichever is lowest in order to reduce patient dose without altering quality.

O-17

Clinical application of cardiac MR

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O-18

Interrogating soft tissue lesions using shear wave elastography

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Elastography is a noninvasive technique of imaging stiffness or elasticity of tissues by measuring movement or transformation of tissue in response to a small applied pressure.

I will be talking about its basic physics, types and applications.

Shear wave based Elastography makes use of transient pulses to generate shear waves in the body in various organs. I will talk about its use as a diagnostic tool in different organs mainly its role for assessment of liver fibrosis in chronic hepatitis.

O-19

Role of diffusion MR imaging in chest tumours

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O-20

Role of MRI in rectal cancer: What a radiologist needs to know

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MRI is the most accurate tool for the local staging of rectal cancer and is a powerful tool to select the appropriate treatment.

In the past decade, the increasingly widespread adoption of total mesorectal excision (TME) has resulted in a dramatic decline in the prevalence of local recurrence from 38% to less than 10%. TME is a surgical technique that entails en bloc resection of the primary tumor and the mesorectum by means of dissection along the mesorectal fascial plane or the circumferential resection margin (CRM). Even with TME, however, the presence of a tumor or malignant node within 1 mm of the CRM remains an important predisposing factor for local recurrence. Consequently, reliable preoperative imaging evaluation is vital to surgical planning.

The decision whether a patient with rectal cancer is a candidate for TME only or neoadjuvant therapy followed by TME, is made on the findings on MRI. Recent studies have shown that high-resolution MR imaging is a reliable and reproducible technique with high specificity (92%) for predicting a negative CRM, the relationship of the tumor to the CRM, and the depth of tumor invasion outside the muscularis propria.

MRI is the modality of choice for staging rectal cancer to assist surgeons in obtaining negative surgical margins. MRI facilitates the accurate assessment of MRF and the sphincter complex for surgical planning. MRI may also help in the prediction and estimation of response to treatment and in the detection of recurrent disease.

SCIENTIFIC SESSION (SSIV): Neuro Imaging

O-21

Differentiating radiation induced tumor necrosis from tumor recurrence in brain tumors: The unsolvable conundrum?

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Differentiating treatment induced necrosis from tumor recurrence is a challenge most of the times. These 2 very different outcomes after brain tumor treatment often appear similarly on routine follow-up imaging studies. Distinguishing treatment necrosis from tumor recurrence is crucial for diagnosis and treatment planning, and therefore, much effort has been put forth to develop noninvasive methods to differentiate between these two outcomes. In this presentation, we review the latest developments and key findings from research studies exploring the efficacy of structural and functional imaging modalities for differentiating treatment necrosis from tumor recurrence. We will also review treatment planning algorithm that incorporates advanced functional imaging techniques when indicated by the patient's routine follow-up images and clinical condition.

O-22**Diffusion weighted imaging of cerebral metastases - A helpful tool for predicting tumor histology and cellularity**

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OBJECTIVE: Cerebral metastases have an incidence ten times that of the primary brain tumors. On diffusion-weighted imaging (DWI), signal intensities (SI) of cerebral metastases display varied appearances based on the histology and tumor cellularity. The aim of this study was to investigate the utility of DWI and apparent diffusion coefficient values (ADC) in anticipating tumor histology.

MATERIAL & METHODS: This study was conducted at Radiology department of Jinnah Postgraduate Medical center, Karachi from January 2017 to July 2017. Formal permission was obtained from the ethical committee. Using 1.5 Tesla Achieva Nova Phillips scanner contrast enhanced MRI brain was performed along with DWI at b values of 0, 500 and 1000 mm²/sec. MRI scans 37 cerebral metastatic lesions from 37 patients were studied. Two radiologists qualitatively assessed the signal intensities on DWI in areas corresponding to the regions of enhancement on post contrast scans and calculated ADC values. We measured normalized ADC values and compared them with tumor cellularity. Data was analyzed using SPSS version 21.0.

RESULTS: The mean SI on DWI were significantly lower in well differentiated than in poorly differentiated adenocarcinomas and lesions other than adenocarcinoma. The mean ADC for cerebral metastases was 1160×10^{-6} mm²/s and the median ADC was 951×10^{-6} mm²/s. The mean nADC value was significantly higher in well differentiated than poorly differentiated adenocarcinomas and lesions other than adenocarcinoma. The nADC value showed a significant inverse relationship with the tumor cellularity. There were significant differences in ADC values of cerebral metastases and different primary cancers.

CONCLUSION: Diffusion imaging is a novel, non-invasive and reliable biomarker for predicting the histology of brain metastases. Signal intensity on diffusion imaging may anticipate tumor histology and cellularity. The enhancing areas of metastatic lesions demonstrated distinct intensities depending on the histologic types. Well differentiated adenocarcinomas appeared hypointense with signals significantly lower than poorly differentiated tumors. DWI assists in reaching proper diagnoses on the basis of ADC values which may reflect the cellularity of metastatic brain tumors.

O-23**Estimation of pituitary gland volume by magnetic resonance imaging (MRI) and its correlation with sex and age**

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OBJECTIVE: To determine measurements of pituitary gland volume in subjects with normal pituitary gland ages 10 to 70 years presenting at radiology department, Ziauddin hospital, Clifton Karachi.

METHODS: Total 290 subjects of different age groups with normal pituitary gland volume were evaluated using T1 weighted magnetic resonance imaging. Mid-sagittal and coronal planes were used to measure the height, width, and depth of the pituitary gland, while the volume was calculated using these parameters. Data was stratified into nine groups on the basis of age and sex to observe the differences.

RESULTS: We recruited 290 subjects (152 males, 138 females). Females had significantly greater pituitary width and volume compared to males. The height of the gland was minimum (0.53cm) in first decade of life, maximum (0.60cm)

in the second decade and progressively decreased till the sixth decade. The volume of the gland was least in the first decade of life (0.36 ± 0.11 cm³) and maximum in the third decade (0.49 ± 0.11 cm³).

CONCLUSION: We have provided reference values for the normal pituitary gland dimensions in a population of Karachi which will aid in assessment and diagnosis of patients with abnormalities in pituitary function.

O-24**Localization of Central Sulcus & Tumerous Lesion**

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PURPOSE: To evaluate the different commonly described signs for localizing the central sulcus and related gyri in CT & MRI.

METHODOLOGY: Our study included 1000 normal and 200 abnormal CT scans including MRI of either sex of all age groups. The CT scans used in most of the cases for the study, were obtained on a Somatom DRH Siemens as serial 4mm / 8mm thick sections oriented parallel to the skull base. The direct and indirect cortical methods were assessed to localize the central sulcus. Start localizing the central sulcus from anterior to posterior with relation to other sulci, including the anatomic relationships among (1) superior frontal sulcus and the precentral sulcus (SFS connected with precentral sulcus - SFS-CS sign); (2) the pars marginalis and the central sulcus; (PM medial and posterior to medial end of central sulcus - Pars Bracket sign); (3) pars marginalis and the postcentral sulcus; (Bifid PCS enclose/approches the lateral end of the PM-bifid post CS sign); (4) the central sulcus and interhemispheric fissure (CS reaches the interhemispheric fissure - midline sulcus sign) (IHF) - Precentralgyrus thickness compare to post central gyrus. (5), Thick precentralgyrus (cortical thickness sign) (6) & sigmoidal shape (hook/knob like) of posterior bend of central sulcus, (7), which are the DIRECT cortical sign for localizing the central sulcus.

RESULTS: No single sign was 100% effective. The relationship 1, 2, 3, 5 & 7 proved to be most reliable and quite effective signs.

CONCLUSION: Correct identification of the central sulcus and adjacent gyri is essential for localizing tumours and planning effective therapy. Each description of a "sign" assumes that the anatomy of the brain remains constant. Anatomic variability necessarily limits the accuracy and utility of each described sign. But use of all signs together provides a holistic understanding of the cortical anatomy of the central region, permitting correct identification of the misnomer fronto-parietal region anatomy in nearly all cases.

O-25**Primary cerebral lymphoma and glioblastoma multiforme: Differential characteristics on conventional magnetic resonance imaging and diffusion**

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OBJECTIVE: To differentiate between primary cerebral lymphoma (PCL) and glioblastoma multiforme (GBM) based on conventional magnetic resonance imaging (MRI) and diffusion based on significant difference in apparent diffusion coefficient (ADC) between the two.

METHOD: It is a retrospective study conducted in department of Radiology, Aga Khan university hospital, Karachi from 1st January 2014 to 31st December 2016. Images of 10 proven cases each of lymphoma and GMB were included

who underwent MRI scan and biopsy/surgery from our hospital. Postoperative cases; prior corticosteroid treatment, radiation or chemotherapy; prior brain biopsy and inconclusive histopathology result were excluded. Age, gender, location and number of tumor, enhancement pattern, susceptibility and ADC value of tumors were analyzed using SPSS 19. Regions of interest were placed on enhancing tumor areas and contralateral normal-appearing white matter (NAWM) to measure ADC values. Cutoff values of ADC and ADC ratio for distinguishing lymphomas from GBMs were determined by receiver operating characteristic curve analysis.

RESULT: ADC values of lymphoma were significantly decreased compared with NAWM. Mean ADC ($\times 10^{-3}$ mm²/s), and ADC ratios were 0.650 ± 0.155 , and 0.84 ± 0.14 for lymphoma, respectively, and 0.970 ± 0.120 , and 1.25 ± 0.13 for GBM, respectively. Cutoff values to differentiate lymphomas from GBM were 0.820 for ADC, and 1.07 for ADC ratio. Lymphomas showed homogenous enhancement with little or no susceptibility while GBM were heterogeneous in enhancement with increased frequency of susceptibility.

CONCLUSION: ADC of primary cerebral lymphoma were significantly lower than those of GBM. Hence, ADC is able to differentiate lymphomas from GBM in conjunction with conventional MR characteristics.

O-26

Glioma grading: Analysis of fiber configuration and fractional anisotropy:

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OBJECTIVE: The purpose of our study was to grade gliomas on the basis of fiber configuration and fractional anisotropy (FA values) methods used in diffusion tensor imaging (DTI).

METHODS: 15 patients with histologically proven diagnosis of gliomas were retrospectively evaluated. All patients underwent 1.5 Tesla MR scanner (AVANTO; Siemens, Germany) with a standard head coil. DTI, FA map, Diffusion weighted imaging and pre and post contrast volume sequences were acquired as part of Neuronavigation protocol. We draw region of interest (ROI) for FA value at the center of lesion and assessed fiber configuration for deviation, disruption, edematous and infiltration on tractography as recommended by international protocols.

RESULTS: FA value of high-grade gliomas was lower than those of low grade gliomas, which was significant ($P=0.005$). Fiber disruption and infiltration was more associated with high grade than low grade.

CONCLUSION: Our study proves that there is significant difference in FA value and fiber configuration between low-grade and high-grade gliomas and can be used as a useful tool for preoperative assessment.

O-27

Diffusion tensor imaging: Are we ready for the change?

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EDUCATIONAL OBJECTIVES:

- > Succinct overview of the fundamental principles and techniques of diffusion imaging, Diffusion tensor imaging (DTI), fiber tractography and Diffusion kurtosis imaging (DKI)

- > Simplified interpretation of DTI metrics
- > Discuss clinical application of DTI in neuropathology
- > Overview technical limitations and pitfalls

CONCLUSION:

- > DTI is a powerful tool to investigate microstructural white matter changes and brain connectivity
- > DTI is currently being clinically used in conjunction with functional MRI for presurgical brain mapping and is gradually becoming the standard of care
- > For indications such as demyelination, trauma, epilepsy and congenital anomalies, DTI provides useful information that is clinically helpful and often helps in diagnostic interpretation and clinical decision making
- > As the technique becomes more robust, it will be increasingly applied in clinical practice for other indications

SCIENTIFIC SESSION (SSV): Paediatric Imaging

O-28

Congenital heart disease: Edicts in imaging with MDCT

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Echocardiography is the initial diagnostic modality for a patient with suspected congenital heart disease (CHD). In some patients, however, use of this modality is encumbered by its limited ability to delineate great arteries and intra-cardiac anomalies, pulmonary veins, and coronary arteries. Diagnostic cardiac catheterization, which has a small but well-known risk, is usually performed if echocardiography fails to provide a confident evaluation of the lesion. In overcoming these limitations CT has an important role and has been used in the morphological evaluation of CHD. CT plays an important role in both pre and post-evaluation of complex congenital heart diseases. Multidisciplinary approach ensures its judicious use. Contrast and radiation needs to be strictly monitored to make it a safe tool in the management of CHD.

O-29

Imaging approach in pediatric brain tumors in light of latest imaging techniques

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O-30

Chest ultrasound in children: What the radiologist need to know?

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Pneumonia is one of the most common infectious disease in children. This is one of the leading cause of mortality in infants and under five children. Chest x-ray is the most common investigation ordered in diagnosis of pneumonia. The diagnosis is based on the appearance of the consolidation on chest x-ray. Ultrasound is non-ionizing and safer modality. It is routinely used in the diagnosis of pleural effusion, pneumothorax, and acute respiratory distress syndrome.

The pediatric radiologist should be familiar with the different normal and pathological ultrasound lung pattern as, A-line, B-line, the bat sign, the lung sliding, stratosphere sign, air bronchogram, fluid bronchogram and many others. So, the purpose of this review article is to give a generalized review of technique, normal and pathological condition of chest ultrasound in children.

O-31**Magnetic resonance imaging (MRI) features of the side effects of chemotherapy on brain in pediatric age group patients with neoplastic disease presented with cerebral symptoms.**

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AIM OF THE STUDY: To illustrate the MRI (magnetic resonance Imaging) features of the side effects of chemotherapy on brain in pediatric age group patients with neoplastic disease presented with cerebral symptoms.

PATIENTS AND METHODS: 41 pediatric patients aged between 1 and 14 years receiving or have received chemotherapy have undergone MR examination of the brain for evaluation of neurological symptoms related to treatment from August 2014 to June 2017. Written consent was taken from the patients.

RESULTS: This study included 41 children, 31 (75.6%) were males and 10 (24.3%) were females. Their ages at the time of the study ranged from 1 to 14 years. Multiple complications were recorded by MRI. 11 (26.8%) were presented with PRES, infectious diseases like sinusitis, otitis media or mastoiditis were seen in 13 (31.7%) patients. Leukoencephalopathy was observed in 6 (14.6%) patients, venous sinus thrombosis were identified in 5 (12.19%) cases whereas ischemic infarcts were featured in 6 (14.6%) patients. Among 41 cases most of the patients had leukemia and lymphoma, few of them had colorectal carcinoma, gonadal malignant germ cell tumor and medulloblastoma. Considering the patients of leukemia and lymphoma most PRES, venous sinus thrombosis and infarcts were commonly observed during the maintenance phase of chemotherapy whereas infections were seen during induction phase.

CONCLUSION: Chemotherapy is associated with many non-neoplastic side effects that can be evaluated by using MRI. A high gradation of suspicion is desired to recognize the radiological features of CNS complications of chemotherapy and familiarity with the imaging findings is necessary for proper diagnosis, workup and further management of neurological symptoms in pediatric patients with neoplastic disease.

O-32**Pulmonary tuberculosis in children – A radiological review**

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Despite major advances in the medical field, an overwhelming burden of tuberculosis (TB) still remains a major issue in a lot of third world countries including Pakistan which ranks fifth in total burden preceded by India, Indonesia, China and Nigeria. Infants and children are particularly susceptible to this disease and those under five are most susceptible to pulmonary TB. In 2015, there were an estimated 10.4 million new (incident) TB cases worldwide, of which 1 million (10%) were children. Children are at an increased risk of developing severe, disseminated and often lethal TB with life threatening complications including TB meningitis and miliary TB. These complications can be well avoided with early detection and management. Infants and children often do not test positive for TB on bacteriologic tests and correlation with radiographic findings is imperative in cases where there is strong history of contagious contact. Certain radiographic features assist in differentiating between primary and secondary TB as well as active or healed status of the patient which are often queries presented by the referring clinician. A radiographic classification is also present to categorize severity of spectrum of disease which further helps in patient management. This review has been done to aid the physicians in diagnosing TB in infants and children at the earliest stage and to be wary of the signs of life threatening complications.

SCIENTIFIC SESSION (SSVI): Interventional Radiology**O-33****Radiofrequency and microwave ablation of HCC- An update**

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This aims to introduce microwave ablation technology as well as more novel techniques of ablation for HCC.

O-34**Endovascular intervention in DVT: Where do we stand**

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Deep venous thrombosis is increasingly being diagnosed because of better diagnostic tools and increased awareness about the disease and its impact. Because of resultant risk of increased mortality because of risk of pulmonary embolism and morbidity because of post thrombotic syndrome, an expedited treatment is needed. The methods and role of endovascular treatment of acute DVT and chronic venous occlusion will be discussed. The changing scenarios after the result of attract trial will be highlighted.

O-35**Radiofrequency ablation of varicose veins - our initial experience:**

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Varicose veins are one of the most common problems encountered in day to day clinical practice. It has a range of clinical presentations from being asymptomatic on one end and causing severe limb edema with ulceration and bleeding on the other. Various therapies have been in practice since long including Trendelenberg procedure, stripping and SEPS (Subfascial Endoscopic Perforator Surgery). In the recent past there has been a radical shift towards minimally invasive techniques, like radiofrequency ablation (RFA) and laser ablation. The basic principle of RFA is to pass the current with the frequency >100 kHz into the dilated veins, which causes agitation of ions within the blood and induces the heat which leads to tissue destruction and shrinkage of the blood vessel. This is supplemented by injection sclerotherapy of perforators. RFA is an ambulatory procedure. In our initial experience of 28 patients and 36 limbs over the follow up of 2 months none of the patient showed recanalization of great saphenous vein with success rate of 100%. No major complication seen in our patients. Paresthesia was seen in 33%. Bruising and tenderness is seen in 12% of patients. Thrombophlebitis is seen in 6% of patients. We are doing this procedure in our centre. In our opinion endovenous radiofrequency ablation is a safe, well tolerated, effective and preferred alternative to the surgical procedures in the treatment of the varicose veins.

O-36**MCA aneurysms coiling without Assistant techniques - A single venture experience**

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OBJECTIVE: To assess the result of MCA aneurysms coiling without assistant techniques.

MATERIALS AND METHODS: This study was conducted from July 2012 to August 2016 at the Department of Neuroradiology, Punjab Institute of Neuro Sciences (PINS), Lahore General Hospital, Lahore. A total of 50 patients with cerebral aneurysms at the level of MCA were included in this study of both genders.

RESULTS: Out of 50 patients, there were 20 (40%) males and 30 (60%) female patients. Their age ranged from 22 - 65 years. The maximum numbers of patients were in their fourth and fifth decade of life. In our study successful coiling was done in all patients with minimal recurrence/recanalization of cerebral aneurysms at MCA.

CONCLUSION: In selected cases, conventional coiling in MCA aneurysms can be effective, and safe without assistant techniques.

O-37

Comparison of efficacy of transarterial chemoembolization (TACE) and radiofrequency ablation (RFA) for treating solitary hepatocellular carcinoma (HCC) in patients with hepatitis B or C.

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OBJECTIVES: To compare the efficacy of transarterial chemoembolization (TACE) and radiofrequency ablation (RFA) for treatment of solitary hepatocellular carcinoma (HCC).

INTRODUCTION: Hepatocellular carcinoma (HCC) is a common cancer and ranks second amongst all causes of cancer deaths world wide. Its incidence is increasing day by day in many countries specially in Pakistan due to high prevalence of hepatitis B and C which is known risk factor for HCC.

METHODOLOGY: This is a retrospective study conducted from January 2015 to December 2015, in which total 148 patients were enrolled with mean age of 56.7 years out of which 84 were men and 64 were women. 102 patients were HCV positive and 46 patients were HBV positive. All patients had solitary HCC (< 4cm). Out of 148 patients, 68 underwent RFA (45.9%) and 80 patients underwent TACE (54.1%). The response of treatment was assessed at 6 weeks follow up by quadruphase CT scan. Patients were followed up to 2 years for overall survival.

RESULTS: A total of 148 patients with solitary HCC were enrolled [RFA 68 (45.9%) and TACE 80 (54.1%)]. At 6 weeks of follow-up, complete response was found higher in RFA group patients which was 67.6%, as compared to patients who had TACE which was 45%. Progressive disease and partial response in TACE was 17.5% and 30% respectively (p-value 0.031) which is higher than RFA. At 1 year follow-up, out of total 148 patients, significantly higher mortality was observed in TACE (17.5%) as compared to RFA (2.9%) (p-value 0.004). Among these 132 alive patients, follow-up at 2 year showed insignificantly higher mortality in TACE (18.2%) as compared to RFA (9.1%) (p-value 0.128).

CONCLUSION: RFA is considered as first line of treatment for solitary HCC whereas TACE can be taken as alternative treatment when RFA is not possible

SCIENTIFIC SESSION (SSVII): Body Imaging

O-38

Imaging and Intervention in acute non variceal gastrointestinal hemorrhage

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Acute gastrointestinal (GI) hemorrhage is a commonly presenting medical emergency having a hospital mortality of around 10%. Presentation may vary from insidious blood loss to potentially life-threatening hemorrhage. The bleeding site determination is challenging as it involves entire gastrointestinal

tract. Upper gastrointestinal hemorrhage patients present with hematemesis or melena and the bleeding point is proximal to the ligament of Treitz, whereas gastrointestinal lower haemorrhage patients present with melena or hematochezia and bleeding point is distal to the ligament of Treitz. Bleeding ceases spontaneously in approximately 75% of cases and can recur in 25% of cases, resulting in significant morbidity and mortality.

Therapeutic options available for patients with acute GI hemorrhage include conservative medical management, endoscopic coagulation, vasopressin infusion, therapeutic transcatheter embolization, and surgery. Endoscopy is considered as a first-line diagnostic and therapeutic procedure; its sensitivity reaches 100% in upper gastrointestinal bleed but in case of lower gastrointestinal bleed only probable bleeding source can be found (60% of cases). In stable patients, radionuclide and CT imaging plays a great role. Tc-99m RBC scintigraphy is more than 90% sensitive and specific in detecting a bleeding site anywhere in gastrointestinal tract. However, its limited resolution does not allow precise gastrointestinal bleed localization. Recently, multidetector CT scan has been proven with a sensitivity of upto 90% for the detection and localization of GI bleed in cases of moderate to severe active bleed (0.3-0.5ml / minute). It has now become standard of care and initial line of investigation in such cases almost replacing scintigraphy.

Significant morbidity and mortality are associated with emergency surgery. Higher rates of complication and rebleeding were encountered in patients treated with vasopressin. Nusbaum and Baum first described mesenteric angiography for acute GI hemorrhage in 1963. In 1972, R'osch et al. successfully controlled acute gastric hemorrhage by gastroepiploic artery embolization using autologous blood clot. Due to significant technical improvements in the past 15 years selective therapeutic transcatheter embolization has become a safer procedure and now widely used for acute GI hemorrhage management. The presentation will highlight the approach to detect site of bleed and the role of embolization procedure for its treatment.

O-39

Liver MRI

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O-40

Magnetic resonance enterography (MRE): How we do it!

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OBJECTIVE: MR enterography is a novel technique for visualization of the bowel. Its main advantages are better soft tissue contrast, resolution and real time imaging which makes it a highly desirable modality for the evaluation of bowel and other abdominal viscera. The purpose of this review is to highlight how we perform this at our institution and share the results.

MATERIALS AND METHODS: The MR enterography is performed at 1.5 T MRI with a standard protocol. Patient is asked to do fasting for 6-8 hours before the procedure. The patient is asked to drink 1.5-2 L of water mixed with a hyperosmolar agent and antispasmodics are given to control bowel peristalsis. MR is performed on a 1.5T MRI scanner and multiple sequences are performed including Coronal cine images. Post contrast dynamic images are also performed so as to delineate any pathology related to bowel or the solid viscera.

RESULTS: MR enterography with dynamic contrast enhanced MR of the abdomen provided excellent quality images of the entire bowel. The high soft tissue contrast resolution of the MR imaging enable detailed evaluation of the bowel wall as well as the haustral/fold patterns. The dynamic postcontrast volume images allow detailed evaluation of the abdominal viscera especially the liver and the biliary tree. The major abdominal vessels also have great contrast resolution. The cine images are of great help to examine the bowel motility which is not possible with routine CT examination. Finally, considering the fact that no ionizing radiations are used, MR enterography provided several benefits over contrast enhanced CT and can be used efficiently for the evaluation of bowel related pathologies.

CONCLUSION: MR enterography, by combining excellent soft tissue contrast and cine images, is an excellent modality for the evaluation of bowel related pathology.

O-41

3D- MRCP for evaluation of biliary ducts in patients with post cholecystectomy symptoms: comparison of axial and coronal primary raw data sets

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PURPOSE: The purpose of our study was to compare different acquisition and reconstruction planes of 3D-MRCP for bile duct assessment in patients with persistent post cholecystectomy pain.

METHODS: 228 patients referred for MRCP were included in this retrospective study. Patients with post cholecystectomy symptoms like abdominal pain, vomiting or jaundice during period from January 2016 to 30 May 2017 were included. The ages of patients ranged from 20 to 70 years. MRCP was performed for all patients on 1.5 tesla MRI machine with breath-held multi-slice acquisition. Both 2D and 3D MRCP were done. Respiratory-triggered 3D-T2W-MRCP sequences were acquired in coronal and axial plane. Coronal and axial MIP were reconstructed based on each dataset. Two radiologists independently assessed the raw data sets and MIP images, regarding visualization of bile ducts and image quality. Results were compared. Intra- and interobserver variability were calculated (kappa-statistic).

RESULTS: In case of coronal data acquisition, visualization of hilar confluence of bile duct segments was significantly better on 3D coronal images as compared to axial ($p < 0.05$). Regarding visualization of distal CBD, 3D axial was better to coronal ($p > 0.05$). Image quality of coronal and axial MIP reconstructions did not differ significantly. Intra- and interobserver agreement regarding bile duct visualization were moderate to excellent. The encountered post laparoscopic biliary complications were complete bile duct transaction, bile duct ligation, benign strictures, cholangiocarcinoma at hilum, pancreatitis and retained biliary stones, which were located either intrahepatic or extra-hepatic, most commonly in distal CBD causing obstructive jaundice.

CONCLUSIONS: The results of our study suggest that primary dataset of 3D axial is preferable for visualization and evaluation of distal CBD whereas to evaluate rest of the intra- and extrahepatic bile duct segments, 3D coronal are preferable. Most common finding in post cholecystectomy persistent pain was retained biliary stones followed by distal CBD stricture.

O-42

Multiphasic MRI liver with gadolinium based contrast agents in hepatic veno-occlusive disorder of pediatric age group patients : A way forward

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Hepatic venous thrombosis is a well established disease process in paediatric population . Multiple factor are attributed as cause / predisposing factor for the development of Budd Chiari syndrome and lot of controversy is present regarding the nomenclature of the disease entity.

OBJECTIVE: The objective of the study is to determine the role of multiphasic MRI liver in paediatric patients with Budd Chiari syndrome or clinically suspected hepatic veno-occlusive disorder.

METHOD: A retrospective study is performed in the department of Diagnostic Radiology , Children hospital and ICH Lahore from 6-5-2016 to 4-01-2017 . 41 patients with known history of Budd chiari syndrome or clinically suspected cases of hepatic venous outflow occlusion are included in the study. Base line ultrasound was performed to document CLD and hepatic venous Doppler study followed by MRI on Ingenia Philips 1.5 T MR system in multi-echoic and

multi-phasic post contrast sequences. eThrive and mDixon techniques are used.

RESULTS : Multiphasic MRI is superior in diagnosis of hepatic venous occlusion with better diagnostic efficacy particularly in the background of CLD for detecting venous thrombosis and focal lesions. MRI is a problem solving tool in cases of unequivocal findings on ultrasound.

CONCLUSION : Considering the radiation burden with biphasic CT and operator/ machine dependency of ultrasound multiphasic MRI liver with improved tissue contrast, multi-planar capability and lack of radiation is the modality of choice in pediatric patients for hepatic vascular assessment.

O-43

Correlation of sonographic measurement of renal pelvic diameter with scintigraphic determination of relative renal function in paediatric patient with unilateral hydronephrosis

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OBJECTIVE: The aim of the study is to correlate the anteroposterior pelvic diameter with differential renal function in pediatric patients having unilateral hydronephrosis with normal or dilated renal. And to find out the effect of dilated renal pelvis on relative renal pelvis so that the need of radionuclide scan can be predicted on the basis of renal pelvis diameter and to find out the cutoff value of anteroposterior pelvic diameter above which the renal function begins to deteriorated.

MATERIAL AND METHODS: Ninety two patients with a diagnosis of unilateral hydronephrosis (left or right) who had underwent MAG-3 Scan. These study included 65 males and 27 females with mean age of 4.35 ± 4.02 years. The data were analyzed by SPSS version 22 using spearman Rho correlation test. P value < 0.01 was considered statistically significant.

RESULTS: The result shows that there is a significant negative correlation in between APPD and DRF which is significant at the level of < 0.01 . It was also found that as the APPD increase renal function begins to disturbed. The value of 20 mm for anterioposterior pelvic diameter is found to be a cut off for renal function deterioration. (< 0.05)

CONCLUSION: It is concluded that when the APPD becomes 20 mm or greater than 20 mm the renal function begins to deteriorate. The cutoff value of 20 mm is an indicator for the physician in the management of dilated renal pelvis. Therefore the assessment of renal function in unilateral hydronephrotic patients with dilated renal pelvis can be done by analyzing the value of APPD on ultrasound.

O-44

Role of MRI in early diagnosis of ankylosing spondylitis

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OBJECTIVE: To identify and describe MRI findings in ankylosing spondylitis and provide a rationale for its early diagnosis.

METHODS: This study was conducted at radiology department Khyber Teaching Hospital, Peshawar from June 2015 to June 2017. Among the patients who were referred for MRI lumbosacral spine, 25 patients between the ages of 18-40 years with persistent low back pain were included in the study. Conventional MRI including T1W, T2W, T2W FS and STIR were done for all patients. Clinical history and conventional radiographs of the lumbosacral spine were also collected.

RESULTS: Among the 25 patients included in the study, 72% (n=18) were diagnosed with ankylosing spondylitis. Diagnosis was confirmed on the basis

of active inflammatory lesions such as bone marrow edema, synovitis, enthesitis on MRI along with one clinical feature. MR imaging was able to reveal early cartilage changes and bone marrow oedema in 10 patients, which could not be found on radiographs, signifying early disease process. Oedema was slightly better seen on STIR images than the fat-saturated T2 weighted images. 7 patients also showed fatty subchondral bone marrow.

CONCLUSIONS: Identifying the characteristic MRI findings are the key to diagnosing ankylosing spondylitis earlier on in the disease process. Even though Conventional radiography aids in the diagnosis, MRI is far superior in the early detection.

O-45

Clinical applications of smart fusion ultrasound imaging

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Smart fusion technology in ultrasound imaging is an emerging new technology which merges previously acquired diagnostic images with real-time ultrasound to provide safer, faster exams with better diagnostic accuracy. It Reads 3D DICOM data sets from all major imaging modalities and shows corresponding images adjacent to the live ultrasound display. CT is the most commonly used modality for ultrasound fusion with the other options being MRI and PET-CT. Smart fusion ultrasound imaging is valuable in numerous clinical applications and expands the use of ultrasound. In general the clinical applications for Smart Fusion include three major components: Diagnostic, interventional and therapeutic. Integrating diagnostic and therapeutic procedures with Smart Fusion improves patient care and safety with more effective use of imaging.

EDUCATION SESSION (ESI): Ultrasound

E-01

Basic carotid doppler evaluation

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E-02

Basic Breast Ultrasound

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Ultrasound is invaluable imaging modality in evaluation of breast and a useful adjunct to both mammography and magnetic resonance imaging. Advances in ultrasound technology allows us to interpret with confidence solid from cystic and benign from malignant solid masses. However the breast ultrasound findings should be combined with multiple imaging modalities and clinical history along with examination finding to provide patient with breast disease the best possible multidisciplinary care. The objectives of this lecture are:

- Discuss basic ultrasound technique
- Recall the distinctive appearance of benign and malignant lesions
- Discuss the role of ultrasound in evaluation of abnormal mammography, MR and physical exam findings
- Outline use of ultrasound in breast intervention and breast cancer treatment.

E-03

US of the acute abdomen: When, Why and How?

Lorenzo E. Derchi
Department of Health Sciences (DISSAL), University of Genoa, Italy.

Acute abdominal complaints are one of the most common reasons why a patient visits the ED. In addition to defining the correct diagnosis, emergency physicians

also face the challenge of correctly managing patients in a timely fashion by deciding whether patients need to undergo surgery, require hospital admission for further workup, or can be safely discharged from the hospital. However, emergency physicians do not trust anymore on physical examination and history taking alone; they want immediate information from imaging and lab tests. US can be used as a first examination in these cases because of its availability, portability, versatility and lack of ionizing radiation. It is known that US has lower sensitivity and lower panoramicity than CT in this field, but CT is more costly and cause of high radiation burden. The question is: how to use US efficiently and, considering its lower sensitivity, in a "wise and prudent way"? There are two things that must be remembered while examining these patients with US: the radiologist must work and think as a clinician; the radiologist must be an integral part of the emergency caregiving team. The US study must be first focussed at explaining the patient's symptoms but, at the same time, must also be widened to evaluate the whole abdomen, trying to provide all data which are necessary for treatment. If patient's symptoms cannot be explained, another cause must be sought (if possible, with the same US). Integration of imaging results with lab data is also important. Then, it is necessary to talk with the referring physicians, discussing on the results of all studies, giving and taking suggestions and sharing responsibility on how to proceed: whether other tests are needed or not. There evidence in the literature that, as a single diagnostic strategy, CT is better than US to identify abdominal emergency situations. However, a more "complex" strategy, using US in all and CT only in negative or inconclusive cases or with findings that do not correlate with clinical suspicion, guarantees the highest sensitivity. With this "complex" strategy only about half of the cases need a CT study (with savings in money and radiation exposures).

EDUCATION SESSION (ESI): Neuro Radiology / Head and Neck Imaging

E-04

Primary white matter disorders: Imaging patterns

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OBJECTIVES:

- To be familiar with basic principles of myelination on MRI
- To have a systematic approach to white matter disorders along with their pathophysiology
- Various distribution patterns of white matter involvement-Deep versus subcortical
- Importance of lobar predominance in leukoencephalopathies in paediatric population
- Differentiation of demyelination/ dysmyelination in adult population
- Decoding demyelinating disorders of brain and spine
- Role of MR spectroscopy

E-05

Cranial nerve palsies: Pitfalls and diagnostic errors in magnetic resonance imaging of brain

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Latest advances have revolutionized neuroimaging but patients presenting with cranial nerve palsies are sometimes a diagnostic dilemma. Radiologist face the daily challenge of analyzing and interpreting a large number of images in a timely manner. Minimizing errors is essential for high quality diagnostics and patient care.

In cranial nerve palsies there are certain areas within the head at routine brain imaging in which the interpreting radiologist is most prone to make errors. These areas or "blind spots" include orbits, cavernous sinuses, clivus, Meckle's cave, brain stem, skull base and parapharyngeal soft tissues. Knowledge of these blind spots is crucial for correct interpretation of magnetic resonance imaging (MRI) of brain in patient presenting with cranial nerve palsies.

In this talk review of these "blind spots" and pitfalls in interpretation of MRI

brain in cranial nerve palsies will be given. A comprehensive checklist for evaluation of these blind spots will be presented to avoid errors and misinterpretations in MRI. Benefits of routine use of contrast enhanced MRI in this clinical setting will also be discussed.

E-06

Radiological review of CNS infections

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Infections of the central nervous system (CNS) pose challenge to radiologist due to the potential, morbidity and mortality. These infection mainly involving meningitis, encephalitis and brain abscesses. MRI is an important tool in the diagnosis of CNS infection, it allows for identifying various infection patterns. Recent advances in MRI (for e.g. diffusion weighted images, MR spectroscopy, and susceptibility weighted images) may further improve the specificity of the MRI findings.

This pattern approach is intended as a guide to radiologist in training and in practice of quickly narrowing their list when faced with clinical challenge.

EDUCATION SESSION (ESIII): Non interpretative skills in radiology

E-07

Ethical issues in radiology

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Many physicians inquire about the role of radiology in patient care. With the increasing role of radiology in the field of medicine, the radiologist has become an integral part of the patient's medical team. He has to advise whether a particular investigation is relevant, correctly interpret the images and timely convey the findings to the primary physician. "Informing the primary physician of a critical or unexpected result is a means to an end—the best care for the patient." With the advent of PET CT, MRI, angiographic procedures, there has been shift of responsibility on the radiologists to make decisions whether these studies are justified or not.

American College of Radiology has given its code of ethics; it is code of conduct of radiologists in a given situation. It gives them framework according to which they can determine their interactions with patients, fellow colleagues and other physician.

With the rapidly developing technologies the radiologists have to take many decisions on a day-to-day basis. Many ethical issues arise in the practice of radiology such issues include patient's confidentiality, informed consent, justification of a study. Many ethical dilemmas arise in day-to-day practice of radiology regarding these issues and more. We will discuss different ethical dilemmas that radiologists come across in this session.

E-08

Dealing with radiological discrepancies

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Discrepancies in reporting and procedure techniques are an unfortunate occurrence in any Radiology unit, but bound to happen in some form. While some discrepancies may only be a difference in opinion, others can be frank blunder, with missed findings or faulty image interpretation. This review talk will highlight different types of discrepancies we as radiologists may encounter and will analyze different ways of quantifying/ auditing discrepancies. Suggestions/guidelines will be proposed for appropriate corrective and preventive actions with review of proposals/guidelines from different radiological governing bodies around the world. The talk will also touch on medico-legal aspects with regards to radiological discrepancies.

E-09

How do radiologists diagnose: An exploration of the process and how it impacts radiology training

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DIAGNOSIS is the cornerstone of modern clinical medicine. In Radiology like Pathology and Dermatology the diagnostic process involves an additional perceptive component. The first step to radiological diagnosis is the perception of abnormality as an aberration in the background of normal. If the Perceptive pertinence generation does not satisfy the diagnosis a cognitive process is generated and a cognitive analysis is initiated.

An exploration of the role of these processes in radiological diagnosis was performed on radiologists of various experiences. All were asked to think aloud when interpreting provided radiological images followed by exploratory interview. The transcribed interviews were then analysed using constructivist grounded theory of Charmaz to let the theory emerge out of the data.

The resultant theory and inter connected process of perceptive and cognitive processes and its possible impact on training processes will be discussed.

E-10

Planning and executing multidisciplinary research in radiology

Waseem Mirza

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As an academic and professional field, radiology research is challenging specially in Pakistan where technology and infrastructure is limited. This is particularly difficult to do in terms of solving complex clinical problems, giving sustainable solutions for public health problems, attracting grants and publishing in high impact journals. In Pakistan this type of high impact radiology research is lacking and generally research productivity is redundant with low impact. Multidisciplinary research approach is one of the proven ways to achieve greater objectives in radiology besides having some challenges to do it. In this review talk I will try to highlight such issues in the context of Pakistan and how one can successfully do planning and executing multidisciplinary research in radiology. This talk will also include few case based stories at radiology department Aga Khan University, how through multidisciplinary approach we collectively achieve departmental and institutional goals.

EDUCATION SESSION (ESIV): Chest / Body Imaging

E-11

Pattern based interpretation of HRCT

Shazia Faruqi

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Presentation on pattern recognition in HRCT with anatomical correlation at the level of secondary pulmonary lobule.

E-12

Introduction to Perflurobutane contrast enhanced ultrasound

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Perflurobutane is a Kupffer cell specific agent which allows for dedicated liver imaging. This talk aims to introduce this newer ultrasound contrast agent as well as demonstrate its use in diagnostic and interventional radiology.

O-13**Ultrasound evaluation of the acute scrotum**

Lorenzo E. Derchi
Department of Health Sciences (DISSAL), University of Genoa, Italy.

This presentation will deal with the “acute scrotum” of non-traumatic origin. An acute scrotum (defined by presence of acute pain, swollen scrotum, skin reddening), is a relatively frequent clinical situation with a large variety of causes: from easily manageable to quite severe. In these patients, main diagnostic challenge is to differentiate a testicular torsion from other causes of acute symptoms, since immediate intervention is necessary to save the testis. Although it is commonly thought that if torsion is clinically suspected the patient has to go directly to surgery, clinical findings are often non-specific and imaging is quite often requested to clarify the situation. Ultrasonography (both B-mode and Doppler) is the first imaging choice due to its wide availability, safety and high diagnostic accuracy in this field. Sensitivity and specificity may reach 94% and 100%, respectively. However, interpretation of US findings needs knowledge of the pathophysiology of torsion. Considerations on how to avoid misinterpretations will be presented. Infections are the other common cause of acute scrotum. Complications may ensue if the disease is not properly treated. Examples of abscess, pyocele, and testicular necrosis following infections will be shown. Other, less common causes of acute scrotum, such as Fournier's gangrene, vasculitis, segmental testicular infarction and inflammatory changes of the scrotal wall will be presented too.

EDUCATION SESSION (ESV): Nuclear Medicine / Hybrid Imaging**E-14****PET/CT: Indications and utility in oncology**

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Positron imaging tomography (PET) with computerized tomography (CT) as PET/CT is the most powerful functional imaging having very high sensitivity and specificity depending upon the type of the radiolabelled probes used. Reasons for its popularity are the ability of PET to qualitatively study the perfusion, metabolism, and various receptors functions with absolute quantification as well. In clinical practice, 90% of the PET/CT burden is related to oncology and 5% each for brain and cardiac imaging.

18FDGbased PET/CT provides a wide spectrum of indication in clinical oncology. It may be used for the differentiation between benign and malignant tumors (although not very popular) like evaluation of solitary pulmonary nodule. 18FDG-based PET/CT is an important step in managing paradigm of various malignancies (more than 17 cancers as per National Comprehensive Cancer Network guidelines, NCCN). It has an established role in staging, restaging of non-small-cell lung cancer, lymphoma, head and neck, esophagus, colorectal and female genital cancers. Use of PET/CT in the diagnostic workup results in upstaging in about 20 - 40% cases (avoid under-treatment) and down-staging in 10% cases (avoid over-treatment, its cost and morbidity as well). 18FDG-based PET/CT has also an established role in monitoring therapy response and can stratify the patients as responder and non-responder in the early phase of treatment. Therefore, treating oncologist can always change the therapy regime as per available information by a PET/CT exam. In recent days, the 18FDG-based PET/CT has also entered into the radiation oncology suite due to promising results of radiation therapy planning using metabolic tumor volume (MTV) derived from 18FDG PET images. In theranostics, the positron emitting isotope labeled peptide and monoclonal antibodies imaging with PET/CT have been used to select cases of metastatic neuroendocrine tumors which can be treated using same probe labelled with particle emitters (Alpha emitter as Radium-223 or Lutetium-177 as beta emitter).

E-15**Why nuclear medicine?**

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Nuclear Medicine has been plagued with an “image problem” in the non-nuclear medicine community. Many highly trained professionals consider NM as an errant child of radiology; the ACR-SNM task force on nuclear medicine training went as far as recommending a few years back, to do away with pure Nuclear Medicine residency programs and integrating nuclear medicine with radiology training. Despite a hiatus of a few years where nuclear medicine turf was encroached upon by competing imaging modalities and obituaries were being prepared for the demise of this specialty; nuclear medicine has risen, phoenix-like, into a vibrant science solidly at the cutting edge of research and application.

This review is aimed at the non-nuclear medicine physicians, mixing history, current applications and future prospects into a presentation that emphasizes the tremendous contributions nuclear medicine is making to clinical management, research and new pharmaceutical development.

E-16**Radionuclide Therapy**

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The potential use of radionuclides in therapy has been recognized for over last 75 years. The first application of radionuclide therapy was in the 1940's when clinicians started treating patients with thyroid disease using radioactive iodine. Various other radionuclides have been discovered or developed for therapeutic purposes in last two decades and currently over fifty radionuclides are being used in clinical and pre-clinical research characterized by different ranges, distance of effectiveness and relative biologic efficacy.

The fundamental objectives for radionuclide therapy is to achieve appropriate treatment of the disease through delivery of a radiation dose at the desired cytotoxic level with the defined endpoints being cure, disease control or palliation. Targeted radionuclide therapy, the use of one or more radionuclides for targeted therapy at the cellular or molecular level, has been around for many years. Molecular probes function by the delivery of radionuclides to tumor tissue directed to antibodies or peptides, targeting specific malignancy related biochemical pathways enabling therapeutic effect at molecular level.

In addition to thyroid diseases, radionuclide therapy is being used for treatment of neuroendocrine tumors, low grade lymphomas, castration-resistant prostate cancer, unresectable hepatocellular carcinoma, palliation of bone pain from bony metastases, and benign diseases like chronic joint diseases and Polycythemia vera.

One of the most potential advantage of targeted radionuclide therapy is the possibility for personalized medical care, optimized for patient and disease characteristics. The question is where does it fit in our therapeutic strategy and how do clinicians best utilize it?

EDUCATION SESSION (ESVI): Emergency Radiology**E-17****Radiological Evaluation of liver injuries**

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E-18**Imaging the acute female pelvis**

Lorenzo E. Derchi

Department of Health Sciences (DISSAL), University of Genoa, Italy.

An "acute female pelvis" is defined by the presence of three main symptoms: pelvic pain, fever and bleeding (each of them alone or in association with the others). Lesions can be suspected on clinical ground according to the characteristics of pain (duration, intensity), its associations, and patient's age and history. However, imaging is usually needed to confirm the diagnosis and to classify its severity. US (better if using a transvaginal approach) is the preferred method, due availability, non-invasivity and lack of ionizing radiation. This presentation will focus on the role of this technique in the three most common causes of acute pelvis in women: adnexal torsion, pelvic inflammatory disease and ectopic pregnancy. And on how to integrate clinical findings with imaging results. Since patients symptoms are not always specific, and are even sometimes misleading, other imaging techniques too can be used in emergency to evaluate patients with acute abdominal conditions that are later demonstrated as due to gynecologic causes. Then, also cases approached with CT and MR will be discussed.

E-19**Non traumatic acute abdomen: How to approach and pick the key CT features of different etiologies**

Naveed Ahmed

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Over the past two decades, the approach towards acute abdomen of any cause has significantly changed. The advent of MDCT, volumetric and quick imaging, excellent multiplanar reconstructions, availability of a radiologist's online review, increase in expertise of the radiologists and availability of high quality equipment are the key reasons behind this. The availability of iso-osmolar contrast has further contributed to the safety of contrast procedures.

Many doctors believe in following an algorithm that when a patient comes to the emergency department with an acute abdomen he should first undergo an X-ray series, followed by an ultrasound and then a CT scan can be planned if required. They consider this a cost effective approach. This is not true in every scenario.

CT can detect many causes of acute abdomen on unenhanced study and virtually almost all the significant causes with contrast enhancement. An exception is of hepatobiliary pathologies for which ultrasound competes with CT in being a quick, cost effective and radiation free alternative.

EDUCATION SESSION (ESVII): Muskuloskeletal Imaging**E-20****Imaging findings and evaluation of metabolic bone disease**

Dawar Khan

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Metabolic bone disease encompasses a broad spectrum of inherited (congenital) and acquired disorders that disrupt the normal homeostasis of bone formation and resorption.

For patients affected by metabolic bone disorders, radiologic imaging plays an important role in diagnosis, monitoring treatment, and risk stratification. Radiologists should be familiar with the diseases, the imaging findings, and multimodality expertise to wisely guide the referring physicians. The purpose of this talk is to review the imaging features and characteristics of the most common types of metabolic bone disease with highlights of clinically relevant information so that audience can learn appropriate differential diagnoses and recommendations.

After completing this talk, participants will be able to:

Identify the most common metabolic bone diseases.

Describe the plain film imaging findings related to the most common metabolic bone diseases.

Discuss the most common causes of these metabolic bone diseases.

E-21**Arthritis in black and white**

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Arthritis has the distinction of being foremost crippling in the world. A number of diagnostic imaging modalities including conventional X-ray, CT, MRI, isotope scan, ultrasound and arthrography can be used in the evaluation of joint abnormalities. Evaluation of articular disease should begin with the conventional radiograph, because it is cheap, easily available and can even diagnose many arthritic disorders accurately without further imaging studies. My talk will be a review of radiological findings on plain X-ray to differentiate various types of arthritis.

E-22**Basic MR of joints**

Kashif Shazlee

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Learning Objects would include:

To understand basic MRI sequences required for joint imaging

To understand what the referring physician requires from radiologist report

How to correlate imaging findings with the clinical features

How to interpret common joint pathologies

E-23**Radiological interpretation of bone tumors**

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OBJECTIVE: Radiological evaluation of benign and malignant bone tumors on plain X-rays by systematic approach and Role of advanced imaging e.g. C.T and MRI for further assessment.

When determining benign vs. malignant bone lesions, a systematic approach is required to narrow down the differential diagnosis, taking into consideration the clinical and laboratory findings along with the imaging appearance. Comparison with prior examinations should also be made when possible. Awareness of the spectrum of non-neoplastic reactive, metabolic, inflammatory, and infectious as well as iatrogenic and developmental lesions must also be taken into account as these can mimic a primary bone tumor. Once a fully operative system is established and applied then the diagnosis becomes self-apparent or at the very least a rational plan of imaging and management develops.

Plain X-rays are the starting point for evaluation of bone tumors. To arrive to a differential diagnosis there are certain parameters which should be applied to analyze every suspected lesion of bone on plain X-rays, and are given as follows:-

- Age of the patient
- Location of lesion on the bones in transverse and vertical plane
- Involvement of axial or appendicular skeleton
- Appearance of matrix, bony / cartilaginous or mixed variety
- Pattern of bone destruction
- Zone of transition
- Periosteal reaction / cortical break
- Soft tissues involvement

Different advanced imaging modalities namely, C.T and MRI are subsequently used for more detailed information. CT is superior to MRI for the assessment of mineralized structures especially cortical integrity, matrix mineralization, and periosteal reactions while MRI can be helpful without any radiation for evaluating lesions that represent a differential diagnosis dilemma between benign and malignant lesions before a biopsy.

CONCLUSION: In general, conventional X-ray radiography is the mainstay, most cost-effective and the initial imaging modality for the evaluation of bone tumors. CT and MR images should only be interpreted with concomitant radiographic correlations which are particularly useful in areas of complex anatomy and for staging.

POSTER PRESENTATIONS (P)

P-01

Relation of ultrasound detected non-alcoholic fatty liver disease and dyslipidemia

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OBJECTIVE: Relation of Ultrasound Detected Non-Alcoholic Fatty Liver Disease and Dyslipidemia

METHOD: Study was conducted between January 2016 and November 2016, in the Department of Radiology and Medicine, Ghurki Trust Teaching Hospital, Lahore. 100 cases composed of 45 males and 55 females, which were diagnosed with Non-alcoholic fatty liver disease (NAFLD) on ultrasound examination were further studied with a complete serum lipid profile. An evaluation of lipid irregularities amongst various categories of fatty liver spotted on ultrasound was performed.

RESULT: From 100 cases, which were confirmed as NAFLD on sonography, patients with grade I disease were 51%, grade II were 33% and grade III were 16%. Mean age of the patients was 45.23. Males were 45 and females were 55 in number. Serum triglycerides, LDL and VLDL levels were raised in 50%, 33%, 32% of the cases respectively. Decreased serum HDL levels were seen in 33% of patients. On analysis, it was revealed that as the grades of NAFLD were increased, meaningful correlation was seen with increasing values of triglycerides (P value < 0.05), LDL (P value < 0.05) and VLDL (P value = 0.022) and low HDL (P value < 0.05).

CONCLUSION: Majority of cases with NAFLD in Pakistan remain undetected. Although liver biopsy remains the gold standard in diagnosing NAFLD, ultrasound examination is an easily available, simple, non-invasive modality for new detection of NAFLD in asymptomatic patients. There seems to be a significant correlation between abnormal serum lipid levels and NAFLD.

P-02

The edge of the film: Expecting the unexpected

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PURPOSE: In conventional radiography, looking at "the edge of the film" for occult or unexpected findings is a well-known practice. With the advent of cross-sectional imaging, the radiologist not only must attend to findings at the margins of the study itself, but also must review the various ancillary images provided with the study to avoid missing clinically significant findings. Using select cases from our institution, we aim to illustrate some of the occult findings and pitfalls associated with CT scout, and MRI localizer, as well as findings on studies protocolled for other reasons and at the actual margins of the study.

CONCLUSION: Much like on plain films, findings can be overlooked at the margins of cross-sectional studies, including on the upper and lowermost slices of a CT or MR and outside of the primary anatomy of interest, such as in the superficial soft tissues or visible portions of the extremities. Findings also may only be visible in one of the orthogonal planes in MRI studies not acquired as a 3D volume.

The CT scouts, MRI localizers, and other ancillary images in cross-sectional imaging may reveal findings not well-seen on the study itself. Radiologists must include these images in their search pattern to avoid missing clinically significant pathology.

P-03

Higher non-fatal cardiac events in diabetics with HbA1c >7.3 and normal stress myocardial perfusion scan

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AIM: To find out clinical outcomes in diabetics with normal stress myocardial perfusion scans (MPS) having glycosylated hemoglobin (HbA1c) >7.3 or = 7.3.

MATERIAL AND METHOD: This prospective study was conducted at nuclear cardiology department of Karachi Institute of Heart Diseases (KIHD), Karachi, Pakistan. Total 251 diabetics who had a normal stress MPS were included. On the basis of their HbA1c, these patients were categorized into Group A (HbA1c >7.3) and Group B (HbA1c ≤ 7.3). This cut-off was taken from our previously published study performed upon early cohort. These patients were followed for 05 years for fatal and non-fatal myocardial infarction (FMI and NFMI). Follow-up was not available in 29 patients, who were excluded and leaving a cohort of 222.

RESULTS: Group A included 57 while Group B had 165 diabetics with a mean age of 59 vs. 57 years and male to female ratio of 42:58% vs. 40:60% respectively (non-significant). Mean body mass index (BMI) in Group A and B was 28.318 vs. 27.532 kg/m² (non-significant). Mean HbA1c and fasting blood glucose in Group A were significantly higher than Group B (8.363 vs. 6.630 and 135 mg% vs. 120 mg% respectively). No significant difference was seen in prevalence of hypertension, dyslipidemia, family history of coronary artery disease (CAD) and smoking between two cohorts. Persantin (Dipyridamole) stress was used in 58% vs. 56% in Group A and B respectively (non-significant) while no significant difference was seen in effort tolerance (Metabolic Equivalent Task; METS) of participants of both groups during dynamic exercise. In both groups stress MPS was normal with normal left ventricular function parameters (non-significant). During 05 years follow-up, significantly higher NFMI was seen in Group A as compared to Group B [11 (19.301%) vs. 04 (2.420%), significant p value] only in last 03 years. FMI was non-significant in both groups [02 (3.510%) vs. 01 (0.606%), non-significant p value].

CONCLUSION: Higher non-fatal MIs were observed in diabetics with impaired glucose control (HbA1c >7.3) and normal MPS. Event rate was significantly higher after 2nd years of follow-up in these patients.

P-04

Iatrogenic Pulmonary Embolism on ¹⁸F¹⁸FDG PET/CT

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A 27-year-old girl, known case of lymphoma underwent ¹⁸F¹⁸FDG PET/CT for surveillance. Scan shows solitary intense ¹⁸F¹⁸FDG uptake in lower lobe of left lung without abnormality on CT. Repeat study one next day did not demonstrate that focal lung uptake and was diagnosed as iatrogenic pulmonary embolism (IPE). Reporting physicians must be cognizant of this uncommon but important condition as failure to diagnose could result in catastrophic consequences. Pathogenesis include uptake by a pre-existing inflammatory vascular thrombus or an iatrogenic microembolism formed during injection of the radiotracer. ¹⁸F¹⁸FDG administration at steady pace through IV cannula is advised to avoid IPE.

P-05**Discordant Interpretation of Serial BMD Measurements by DXA Using Vendor's and Institutional Least Significant Changes (LSC): Serious Impact on Decision Making**

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AIMS: Meaningful change in bone mineral density (BMD) should be equal or higher than institutional least significant change (LSC). But some facilities use vendor's LSC which is discouraged by ISCD. Aim of this study was to find impact of scan interpretation upon interval BMD changes using vendor's and institutional LSCs.

METHODOLOGY: This prospective study was conducted at Joint Commission International (JCI) accredited facility of Pakistan from April–June 2017 using Hologic Discovery-A scanner. As per ISCD recommendations, precision error and LSC of two technologists were measured. Serial BMD changes like deterioration or improvement interpreted based on vendor's and institutional LSCs were compared.

RESULTS: Serial BMD changes in 102 patients were included, having a mean age, male: female ratio and mean BMI of 63 years, 94%:06% and 29.274 Kg/m² respectively. Mean menopausal age was 47 years and mean duration between 2 DXA studies was 03 years. BMD changes over hip were found significant in 55% and 53% cases against vendor's and institutional LSCs respectively (non-significant discordance in 02%). BMD changes using vendor's and institutional LSCs were found significant over L1-4 (62%vs.46%; discordance: 14%) and distal forearm (77%vs.35%; discordance:41%) respectively. Interpretations based on vendor's LSCs revealed significantly over-estimated deterioration over forearm and improvement over L1-4 BMD values.

CONCLUSION: We conclude that vendor's provided LSC for interpretation of serial DXA is misleading and has significant negative impact upon patients' management. Every DXA facility must use its own LSC as per ISCD guidelines. Furthermore, ISCD must consider publishing cut-off values for LSC for distal forearm measurement.

P-06**Massive Tumor Thrombus in Left Renal Vein and Inferior Vena Cava in Renal Cell Carcinoma on ¹⁸FDG PET/CT: "Suspension Bridge Sign"**

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Tumor thrombosis is a relatively uncommon complication of renal cell carcinoma (RCC) and its diagnosis has therapeutic and prognostic implication. Computerized tomography (CT) is the primary imaging modality for staging RCC but it has low sensitivity to differentiate between tumor thrombus and bland or benign thrombus. ¹⁸FDG PET/CT has limited role in diagnosis and staging of RCC but its diagnostic accuracy is considerably high for detection of metabolically active tumor thrombus. We are presenting a case of metastatic left sided RCC with massive hypermetabolic tumor thrombus extending from left kidney to left renal vein and inferior vena cava giving an interesting "Suspension Bridge" appearance on PET/CT images.

P-07**Colliding rivers sign" in urinary bladder in ¹⁸FDG PET/CT scan**

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A 75 years old lady known case of recurrent diffuse large B-cell lymphoma (DLBCL) referred for 18-fluoro-deoxyglucose (¹⁸FDG) positron emission tomography and computed tomography (PET/CT) without contrast enhancement. Images showed widespread hypermetabolic deposits with soft tissue components at multiple skeletal sites consistent with recurrent DLBCL. Interestingly urinary bladder showed a unique presentation of hot and cold segments resembling Colliding Rivers.

P-08**Mayer-Rokitansky-Küster-Hauser syndrome - A rare congenital mullerian duct anomaly: Case series**

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CLINICAL HISTORY: We had 5 patients aged between 15 to 20 years un married females presented with primary amenorrhoea, mild pelvic pain and one patient also had complain of urinary urgency. No pervaginal discharge. Other medical history was insignificant.

ON EXAMINATION: There was no swelling or tenderness in abdomen. Secondary sexual characteristics were also normal in all patients. Review of other systems were insignificant.

IMAGING FINDINGS:

Ultrasound abdomen and pelvis showed

Patient 1: Ovaries not seen in adnexa. Uterus not visualized. Normal kidneys.

Patients 2, 3 & 4: Ovaries present in the iliac fossa with absent uterus and cervix and normal both kidneys.

Patient 5: Absent right kidney, right ovary not visualized at its normal position, uterus and cervix not visualized. A mass seen in the right side of pelvis.

On MRI:

Patient 1: Cervix and uterus not visualized. Vagina partially visualized. Displaced both ovaries along external iliac vessels showing normal follicular pattern.

Patients 2, 3 & 4: Cervix and uterus not visualized. Vagina not visualized. Ovaries in both iliac fossa showing normal follicular pattern.

Patient 5: Cervix and uterus not visualized. Vagina partially visualized. Left ovary adjacent to iliac vessels, right ovary present at an ectopic location in right iliac fossa. Right kidney appears low lying and mal rotated with anteriorly placed renal pelvis representing pelvic kidney. Bladder neck lies 2.8 cm below the superior surface of the pubic symphysis representing cystocele.

CONCLUSION: 04 patients were labeled as Mayer-Rokitansky-Küster-Hauser syndrome (MRKH) Type A. 01 patient was labeled as Mayer-Rokitansky-Küster-Hauser syndrome (MRKH) Type B.

P-09**Clinical outcomes after nondiagnostic fine needle aspiration of thyroid nodules**

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AIM OF STUDY: We aimed at evaluating the clinical outcome of thyroid nodules after nondiagnostic FNAC.

METHODOLOGY: We retrospectively reviewed 115 cases of thyroid nodules with non-diagnostic result after first aspiration from September 2014 till february 2017. Among those non diagnostic FNACs, 62 went through a second FNAC, 38 endured core needle biopsy and 15 patient underwent thyroidectomy by clinical indication. The rate of a second non-diagnostic result was significantly higher on repeat FNAC than on core needle biopsy, of the 62 repeat FNACs 34 came out positive whereas 28 were still remained non diagnostic, which ultimately underwent core needle biopsy. Out of those 115 non diagnostic FNACs 72 (62%) patients were found to have malignancy.

CONCLUSION: The malignancy risk may not reduce following repetitively non-diagnostic FNACs. However, a single CNB may be enough to exclude malignancy risk for patients with a non-diagnostic aspirate.

P-10

Cardiovocal (Ortner's) Syndrome: A rare complication of aberrant right subclavian artery

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OBJECTIVE: Cardiovocal syndrome has classically been described with enlarged left atrium secondary to mitral valve disease compressing the recurrent laryngeal nerve resulting in hoarseness and vocal cord paralysis. However, multiple other cardiovascular abnormalities have also been implicated in its aetiology. We report a rare case of recurrent laryngeal nerve palsy secondary to an aberrant right subclavian (Lusoria) artery.

CASE REPORT: A middle aged patient presented with recurrent hoarseness of voice for the last 5 years. On laryngoscopic examination, there was evidence of left vocal cord paralysis. However, no focal mass or nodule was identified involving the vocal cord. He subsequently underwent contrast enhanced CT chest for further evaluation of the cause for recurrent vocal cord paralysis. CT scan failed to reveal any mediastinal or lung mass. No significant mediastinal or hilar lymphadenopathy was identified. The major cardiac structures were normal without evidence of chamber enlargement. There was however, aberrant origin of the right subclavian artery. This vessel was seen arising as the last branch from the aortic arch just proximal to the diverticulum of Kommerell. An area of focal dilatation was also seen just at the origin of this aberrant artery. This is also the site where the left recurrent laryngeal nerve arises from the aorta and then loops underneath the arch of aorta. Considering the patient's history of recurrent laryngeal nerve palsy and imaging findings, a diagnosis of Ortner's (Cardiovocal) syndrome was made.

CONCLUSION: Aberrant subclavian artery is usually implicated in the aetiology of dysphagia (dysphagia lusoria). However, it can also cause recurrent vocal cord paralysis and should be recognized as an aetiological factor.

P-11

Caesarean scar ectopic pregnancy

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PURPOSE: Incidence of scar pregnancy is rising, 1/2,000 along with the rising caesarean section rate world wide. Implantation of a pregnancy within a caesarean section scar is the rarest type of ectopic pregnancy and carries high risk of morbidity related to uterine rupture and extensive hemorrhage. Early diagnosis helps in preserving the uterus, subsequent fertility and reducing mortality rate. Diagnosis depends on combination of ultrasound scanning and serial serum β - hCG measurement. MRI can be used to confirm the diagnosis. Management options may be medical or the surgical. Administration of Methotrexate (MTX) either systematically, locally or combined. To prevent

complications, bilateral uterine artery embolization may be combined with medical management. Surgical management includes hysteroscopic or laparoscopic visualizing of uterine cavity and aspiration of the ectopic mass, elective laparotomy and excision of gestational sac, hysterotomy and repair of uterine scar dehiscence and hysterectomy.

CONCLUSION: With increased rates of Caesarean section and use of IVF, we can expect an increased number of Caesarean scar ectopic pregnancies. Medical therapy can be effective and, because it is less invasive than surgery, should be considered prior to surgical intervention. Furthermore, when using medical treatment for a Caesarean scar ectopic pregnancy with a serum beta-hCG level above 30 000 U /L, direct injection into the gestational sac may prove more effective than systemic therapy. Because of the rarity of this entity, there is no consensus for optimal treatment.

P-12

Complex cystic lesions of breast, radiological and pathological correlation

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AIM OF STUDY: To evaluate the pathological correspondence of complex cystic lesion of breast.

METHODOLOGY: From November 2015 to June 2017, about 72 complex cystic masses were evaluated through ultrasound the lesions were classified according to their sonographic features as, type 1 (thin walled cyst with fine internal echoes or with thin internal septa), Type 2 (thick walled cyst, thick internal septa, coarse internal echoes), type 3 (cystic lesion with solid component and more than 50% cystic component), Type 4 (solid mass with more than 50% of solid component). These lesions went through fine needle aspiration or core needle biopsy for pathological confirmation.

RESULTS: In 72 complex cystic lesions, 23(31.9%) were classified as type 1, 16 (22.2%) were characterized as type 2, 21 (29.1) were found as type 3, and 12 (16.6%) were characterized as type 4. All type 1 cysts came out benign; most of the type 2 cysts were also evidenced to be benign whereas majority of the type 3 and type 4 lesions were proved as malignant.

CONCLUSION: complex cystic masses appear suspicious and sometimes biopsy is warranted for these lesions. It is important for the radiologist to be aware of the sonographic features of complex cystic masses for decision making. Ultrasound is the modality of choice for characterizing and biopsy guidance of lesions.

P-13

Parameningeal rhabdomyosarcoma. A case report

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Rhabdomyosarcoma is a malignant tumor that arises from a normal skeletal muscle cells. It is the third most common extracranial solid tumor of childhood after Wilms' tumor and neuroblastoma. Common site of primary disease include the head and neck region, genitourinary tract, and extremities. It has annual incidence of four to seven per million children 15 years of age or younger. Approximately 10 cases of orbital rhabdomyosarcoma have been reported from Karachi, Pakistan. The overall prognosis has improved greatly with the administration of multi-agent systemic chemotherapy. Approximately 80% of children may now survive when the disease is localized to the region of origin. Those arising from parameningeal sites often produce nasal, aural, or sinus obstruction with or without a mucopurulent or sanguinous discharge. Head and neck RMS arises in the orbit and parameningeal sites. Here we present a unique case of parameningeal rhabdomyosarcoma with development of meningitis as a rare incidence.

CASE PRESENTATION: A 14 years old male child presented in our department with headache and pussy discharge from right eye. On examination there was chemosis, proptosis and discharge from eye. MRI brain showed large destructive heterogeneously enhancing soft tissue mass involving paranasal sinuses and right nasal cavity and extending into the orbital cavity measuring 4.5x3.3x6.0 cm in APxTRx CC dimensions ,the mass superiorly extends to cranial cavity involving frontal lobe measuring 2.8x3.2x3.1cm with accentuated meningeal enhancement suggesting meningitis/meningeal carcinomatosis.

CONCLUSION: we report an unusual presentation of parameningeal rhabdomyosarcoma, further exploration of this manifestation to be done in future to understand this unusual presentation of complication.

P-14

Radiation protection occupational health & safety

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The injudicious use of radiation procedures & increasing demands of clinicians leaving behind the clinical / physical examination relying on diagnostics, calls for this article.

The purpose of this presentation is to revise the basic principles, factual knowledge, safety information etc. about radiation protection & awareness to practice the judicious use of radiation procedures.

P-15

Clinical applications of smart fusion ultrasound imaging

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Smart fusion technology in ultrasound imaging is an emerging new technology which merges previously acquired diagnostic images with real-time ultrasound to provide safer, faster exams with better diagnostic accuracy. It Reads 3D DICOM data sets from all major imaging modalities and shows corresponding images adjacent to the live ultrasound display. CT is the most commonly used modality for ultrasound fusion with the other options being MRI and PET-CT. Smart fusion ultrasound imaging is valuable in numerous clinical applications and expands the use of ultrasound. In general the clinical applications for Smart Fusion include three major components: Diagnostic, interventional and therapeutic. Integrating diagnostic and therapeutic procedures with Smart Fusion improves patient care and safety with more effective use of imaging.

P-16

Ultrasound elastography: Improved characterization of breast lesions

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Early diagnosis and characterization of breast cancer are of critical importance. Although many modalities have been developed, the differential diagnosis of breast masses remains challenging.

Ultrasound elastography is a noninvasive sonographic imaging technique which is used to measure stiffness of tissues and is considered as imaging palpation. Ultrasound elastography has been introduced as a complementary modality for improving characterization of lesions detected on conventional breast ultrasound

thus improving its diagnostic performance. Breast elastography can be performed using two different methods, Strain Elastography and Shear Wave Elastography. In Strain Elastography mechanical compression and de compression is used as initial compression force and it provides semiquantitative assessments of a lesion. While Initial compression force in Shear Wave Elastography is a mechanical impulse and it provides more accurate quantitative assessment of tissue elasticity. Several clinical studies show that integration of the conventional Gray-scale and Doppler ultrasonography, with Ultrasound Elastography has improved the overall diagnostic accuracy of ultrasound examination in the evaluation breast lesions leading to reduction in the number of benign breast biopsy diagnosis.

P-17

Duct ectasia in bilateral accessory axillary breasts: A case report

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Accessory breast tissue is residual breast tissue that persists due to failure of regression of mammary streaks in embryogenesis. Diagnosis of accessory breast tissue is important because it can harbor all the pathological conditions whether benign or malignant, that affect normal breast tissue. Cases of accessory breast with benign cystic changes, mastitis, abscesses, fibroadenomas and carcinomas are documented. Duct ectasia is however a rare occurrence in accessory breast and only a few cases have been reported in the literature. Mammography, Ultrasonography and MRI are the main imaging modalities used for diagnosis of clinically suspected duct ectasia followed by fine needle aspiration cytology and biopsy when required.

We are reporting a case of 38 year female, presented with simultaneous duct ectasia of bilateral accessory axillary breasts as well as unilateral normally located breast.

P-18

Internal audit: Dose area product and radiation exposure time of patients during fluoroscopic procedures in our local settings

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PURPOSE: To reduce the radiation exposure of patients during fluoroscopic procedures.

MATERIALS AND METHODS: Internal audit was conducted at Radiology Department, Shifa International Hospital, Islamabad after obtaining approval from institutional review board. Study period extends from April to August 9, 2017. Radiation exposure times and dose area product (DAP) for fluoroscopic procedures were recorded. Data was also collected regarding medical registration number of patients and date of procedure. Level of expertise of the residents and supervising radiologists were documented for procedure. Results were obtained with the maximum, minimum, the mean, the median and the standard deviation values of radiation exposure time (in seconds) and Dose area product (DAP in Gy.cm²) for normal, abnormal fluoroscopic procedures including Hysterosalpingogram (HSG), Voiding cystourethrogram (VCUG) and Barium studies. The data is in the process of compilation. The data was also compared with the international studies. The causes of increased exposures were identified.

RESULT: The radiation exposure time and DAP (mean \pm SD) for 58 HSG procedures was 1.25 \pm 1.02 seconds and 2461 \pm 4275 Gy.cm²; for 44 VCUG procedures was 2.10 \pm 1.31 seconds and 3191 \pm 2676 Gy.cm², for 35 Barium Swallow procedures was 2.05 \pm 1.39 seconds and 2478 \pm 2019 Gy.cm², for 35 Barium Meal and Follow through procedures was 5.70 \pm 3.97 seconds and

9045 ± 6783 Gy.cm², for 4 Barium Enema procedures was 2.45 ± 1.47 seconds and 1792 ± 2251 Gy.cm².

CONCLUSION: The causes of increased radiation exposure time were identified so that actions could be taken to eliminate them.

P-19

Incidental detection of bilateral adrenal myelolipoma

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INTRODUCTION: Adrenal myelolipomas are rare benign, non-secretory and usually asymptomatic tumours of the adrenal gland characterized by a variable amount of fat-containing components. These tumours account for 3–5% of all primary tumours of the adrenals and are identified as incidentalomas. Typically, they are over 4 cm in size. If they are more than 4 cm in size, they present with mass-related symptoms like pain. Larger myelolipomas are at risk of localized tissue death and bleeding, which may cause a retro-peritoneal haemorrhage.

CASE REPORT: A 45-year-old male patient presented to us with the complaint of mild bilateral flank pain and gastric burning for the past 4 months. He was on pain killers which were prescribed by his family physician. His physician advised him to undergo contrast-enhanced CT examination of the abdomen. CT abdomen reveals incidental findings of fairly well-circumscribed encapsulated masses in the left and right supra-renal regions, containing predominantly fat and few soft tissue strands which show enhancement.

CONCLUSION: Bilateral adrenal myelolipoma is a rare benign neoplasm and mostly discovered as an “incidentaloma”. They have no malignant potential. Imaging findings and histopathological features of bilateral adrenal myelolipomas will facilitate timely diagnosis and treatment of this condition. They are surgically removed and after surgical resection, these lesions do not tend to recur.

P-20

Retroperitoneal extra-adrenal paraganglioma: A rare diagnosis

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INTRODUCTION: Paragangliomas are slow growing tumours that are derived from extra-adrenal non-chromaffin paraganglion cells. They may arise throughout the body in any section, from the base of skull to the urinary bladder. In abdomen, the most common location is from diaphragm to lower pole of the kidneys, in the paraaortic region. This is the location where organ of Zuckerkandl lies. They mainly occur with age group of 40 to 50 years. No sex predilection exist with it. They are associated with increased secretion and production of catecholamines. These tumours have higher risk of recurrence and metastasis. These tumors can undergo certain transformations like cystic degeneration or necrosis or hemorrhage.

CASE REPORT: A 50 year old hypertensive female patient came to the out patient department (OPD) with the complaint of continuous mild epigastric pain, sweating and palpitation. she went through ECHO, which came out to be normal. She was referred to the radiology department for CT abdomen with contrast. CT Abdomen revealed a well defined rounded heterogeneously enhancing retro-peritoneal soft tissue density mass with areas of necrosis located just posterior to the pancreatic body and on the left side of abdominal aorta

CONCLUSION: Extra-adrenal paragangliomas tends to have increased risk of malignancy and recurrence. Hence needs long-term follow-up after surgical

resection which is the only curative option. The possibility of extra adrenal paragangliomas should always be considered when suspecting a vascular tumor. Plasma or urine metanephrine levels are first line of investigation. Imaging is required to confirm and localize the tumor.

P-21

Giant anterior communicating artery thrombosed aneurysm

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INTRODUCTION: Anterior communicating artery connects the two anterior cerebral artery in the midline, completing the circle of willis anteriorly. Anterior communicating artery aneurysm is the most common saccular cerebral aneurysm of circle of willis appearing as suprasellar mass.

The giant aneurysm can compress the parent artery which results in its stenosis and may lead to intra-aneurysmal clot formation and ultimately resulting in thrombus formation. Thrombosis of anterior communicating artery has been reported rarely. They tends to effects adults more than in children.

CASE REPORT: A 17 years old young male presented in our outpatient department with the long term complaint of headache, which had worsened with blurring of vision and single episode of seizures. Due to its chronic illness he was advised MRI brain plain for further evaluation.

CONCLUSION: In the differential diagnosis of mass lesions located in close proximity to cerebral vasculature. Keeping in View the location of the mass and symptoms of the patient, one can easily put the diagnosis with the MRI imaging sequences. In the same time it is also very authentic in the acute settings.

Unruptured giant aneurysms are on increased risk of ending into the subarachnoid hemorrhage. There are variety of management options for unruptured cerebral aneurysms like, conservative management, surgical clipping, or endovascular treatment.

P-22

Needle before knife: An alternate management plan for symptomatic pneumoperitoneum

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Pneumoperitoneum refers to presence of free intraperitoneal air. There are many causes of pneumoperitoneum including spontaneous, iatrogenic and viscus perforation. For decades laparotomy has remained the standard surgical approach for management of pneumoperitoneum in symptomatic patients. We present an alternate minimally invasive approach for managing symptomatic pneumoperitoneum by reporting an unusual case of 26 years old female patient who underwent surgery for excision of tubo-ovarian mass. Post surgery she developed intestinal obstruction. Her laparotomy was performed that revealed bowel adhesions complicating the surgery. Surgery was terminated. Later on the patient developed pneumoperitoneum secondary to bowel perforation. Her imaging findings were consistent with moderate to tension pneumoperitoneum. Patient had severe abdominal discomfort and respiratory distress. She was rendered unfit for major surgery. The pneumoperitoneum was decompressed under ultrasound guidance by needle aspiration in radiology department. Patient tolerated the procedure well and had significant relief in her symptoms. Surgical correction of cause of pneumoperitoneum is the main objective of management. However, needle aspiration of pneumoperitoneum is novel approach to relieve symptoms till other options of surgery are available to patient in cases of tension pneumoperitoneum. Our patient underwent successful laparotomy to repair the site of perforation.

P-23**Intraosseous lipoma of olecranon process and proximal ulna - Case report**

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OBJECTIVE: The objective of this study is to report a case of intraosseous lipoma at rare site with classical appearance of the lesion.

CASE REPORT: A male patient, 31 year old, with complaint of elbow pain and restricted movement at the elbow joint for the last few months, came to our department for x-ray elbow joint anteroposterior (AP) and lateral view. The x-ray showed an expansile, lobulated, radiolucent lesion with thin well-defined sclerotic border in the olecranon process and the proximal one third of shaft of ulna. Speck of calcification within the lesion gave a classical cockade sign. To further characterize this bone lesion MRI elbow joint with intravenous contrast (gadolinium) was performed, which revealed an elongated, multi-lobulated, expansile fat signal intensity mass lesion in the olecranon process and proximal one third of shaft of ulna with signal void bony septae within it. No cortical erosion, intra-articular or soft tissue extension noted. These imaging features were strongly suggestive of intraosseous lipoma, a benign lesion. On follow-up patient was managed conservatively.

CONCLUSION: Though intraosseous lipoma is a benign tumour commonly occurring in os-calcis but possibility of its occurrence at other sites like olecranon process of ulna should be considered when making differential diagnosis of pain. Its classical characteristic fat signal on MRI are diagnostic and in most cases does not need histopathological correlation.

P-24**A large pseudoaneurysm with metallic foreign body in chest; A case report**

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OBJECTIVE: The objective of this study is to report a case of large pseudoaneurysm with a metallic foreign body in chest.

CASE REPORT: A 37 years old male patient presented with the complaint of hemoptysis off and on for approximately 5 months. He had past history of penetrating trauma by a metallic rod to his chest in 2005. Since 2009 he developed pulsatile swelling with dull aching pain on left side of his chest. No management was done till yet. He was referred to our department for CT chest with contrast.

His CT scan showed a large pooling of contrast lateral to aortic arch appearing to be communicating with left common carotid artery just after its origin with surrounding non-enhancing soft tissue density area, involving anterior segment of left upper lobe. It was extending laterally into the chest wall causing pressure erosion of the adjacent rib. A linear metallic density was identified within it producing streak artifact, likely a foreign body.

There is an irregular patchy area of ground glass haze also noted in the left upper lobe representing pneumonitic changes.

CONCLUSION: In keeping with previous history of trauma, findings are suggestive of old trauma producing a large pseudoaneurysm with foreign body. The non-enhancing area appears to be thrombosed part of pseudo aneurysm. Aortic pseudoaneurysm typically occurs as a result of trauma. Though it is more commonly associated with penetrating trauma but to the best of our knowledge no alive case has reported a large pseudoaneurysm with a metallic foreign body in chest.

P-25**Incidentalomas in patients coming for follicular study**

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OBJECTIVE: To determine incidentalomas in females of child bearing age who are coming for follicular study between age of 20-40.

MATERIALS AND METHODS: We prospectively evaluated 584 patients who were referred to radiology department for follicular study by transvaginal ultrasound technique in a six month study period. We excluded patients who had already known illness.

RESULTS: In this study we evaluated incidental findings in pelvis. Out of 584 patients 73% were normal studies. The most common pelvic pathology came out to be fibroids (8%) followed by adnexal cysts (6%) out of which benign cysts (4%) and complex complicated cysts (2%), polycystic ovaries (3%), endometrial polyps (1%), and hydrosalpinx (1%).

CONCLUSION: Incidental findings of pelvis remain unnoticed and are sometimes the cause of primary and secondary subfertility. It is important to look for these findings while doing follicular study for better evaluation of subfertile patients.

P-26**Swyer-james syndrome in a patient of gastric carcinoma: A rare case report**

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OBJECTIVE: Swyer James syndrome also known as Swyer James –Macleod syndrome/Bret syndrome/Janus Syndrome is rare lung condition that manifest as unilateral hyperlucent hemithorax. This is usually secondary to post infectious bronchiolitis obliterans developed in child hood. It is also characterized by pulmonary hypo-perfusion resulting from hypoplasia or agenesis of the pulmonary arteries. Patients are usually asymptomatic but if symptomatic may present with productive cough, dyspnea on exertion, hemoptysis, decreased exercise tolerance and recurrent pulmonary infections.

CASE REPORT: A 62 years old male patient presented with history of anorexia, abdominal pain, coffee ground vomitus and weight loss for last 3 months. The patient underwent upper gastrointestinal (GI) endoscopy for evaluation of the symptoms which revealed a suspicious growth in the body of the stomach. Biopsy was obtained and histopathology revealed adenocarcinoma of the stomach. The patient was then referred to the radiology department at our institution for CT scan chest and abdomen with contrast for staging of the disease.

CT scan shows diffuse circumferential mural thickening involving body and antrum of stomach with surrounding fat stranding and few perigastric lymph nodes. There was no evidence of significant para-aortic lymphadenopathy or distant metastasis. However, there was incidental finding of relatively reduced size, hyperlucent left lung as compared to the right. Moderate bronchiectatic changes were also identified in the left lung, predominantly involving the posteromedial segments of the left lower lobe.

On further scrutiny, the left pulmonary artery and its branches were found to be significantly narrowed and hypoplastic as compared to their right side counterparts. There was compensatory hyperexpansion of the right lung with slight shift of mediastinum towards left side. A diagnosis of post-infective bronchiolitis (Swyer James syndrome) was made on the basis of characteristic imaging findings.

CONCLUSION: Swyer-James syndrome is a rare entity and it should be recognized, especially in patients having associated co-morbidities and those undergoing surgery as it can have important clinical implications.

P-27

Lumbar neurofibroma mimicking psoas abscess

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OBJECTIVE: The objective of this study is to report a case of neurofibroma of right lumbar nerve roots mimicking psoas abscess.

CASE REPORT: A 16 years old female patient presented to our VIR department for the pigtail insertion in right iliopsoas abscess. She had on and off history of fever, vomiting and dull aching pain in her right lumbar region radiating to right lower limb since few weeks. She got an ultrasound done outside our department which showed irregular complex area at posterior border of right psoas muscle representing organized fluid / pus collection. For this she underwent CT scan abdomen and pelvis with contrast at our department which showed bulky right psoas muscle with large fluid collection and prominent iliacus muscle suggestive of psoas abscess and planned for ultrasound guided pus drainage and pig tail insertion.

Pig tail insertion was attempted in our department but failed. So she started ATT medications, she was kept on these medications for 2 months and advised MRI lumbosacral spine with and without contrast. Her MRI revealed an enhancing mass in right paravertebral region involving iliopsoas extending into pelvis and posterior paraspinal region more in favor of neoplastic disease process. She again presented to us recently for the biopsy of this lesion, truce biopsy of this mass was performed which turned out to be neurofibroma. So her ATT was stopped and she referred to neurosurgeon for further management.

CONCLUSION: Lumbar plexiform neurofibroma being a strong mimicker of organized collection/ Psoas abscess. This type of rare cases are difficult to diagnose on single modality alone and multi-modality approach should be considered for proper diagnosis.

P-28

PET CT report audit for JPMC

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OBJECTIVE: To identify core elements for inclusion in oncologic PET reports.

METHODS: A list of desirable elements in PET reports was compiled from American College of Radiology and Society of Nuclear Medicine guidelines. 200 PET-CT reports were evaluated by 2 independent radiologists. These were the reports issued in the mid quarter of 2017. Each reviewer then scored the reports. The scores were tabulated, and interrater variability was measured.

RESULTS: Each report was assessed for 34 elements. There was strong interrater agreement for all the elements. Several important elements were not included in more than 40% of the reports: the reason for the study, a description of treatment history, a statement about comparison to other imaging, and time from radiopharmaceutical injection to imaging.

CONCLUSION: Essential elements that should be included in oncologic PET reports were missing from a significant number of reports. These deficiencies may render the reports less helpful to referring physicians, may lead to misdiagnosis. Interpreting physicians should audit their reports to ascertain that they include appropriate elements necessary for effective communication with referring physicians.

P-29

Internal hernias: A case review series on this OFT missed diagnoses

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We present a case series comprising of 4 patients who had non specific abdominal pain and bloating especially after meals. Ultrasound was unremarkable for all patients. CT abdomen was performed with intravenous contrast and revealed internal hernias of various types.

An internal herniation is the protrusion of a viscus through a normal or abnormal mesenteric or peritoneal aperture. Internal abdominal herniations can either be acquired through a trauma or surgical procedure, or constitutional and related to congenital peritoneal defects. Paraduodenal hernias are the most common type of internal abdominal hernias, accounting for over one-half of reported cases, and thus are a significant clinical entity. Other internal hernias include pericecal, transmesenteric, transomental, intersigmoid, supravescical hernias and herniation through the foramen of Winslow. Because internal abdominal herniations are rare, their diagnosis remains a challenge for both the clinician and the radiologist. Symptoms of internal abdominal herniations are nonspecific.

P-30

PET-CT reporting: Current trends and direction forward

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The radiology report is the primary mode of communication between the radiologist and the clinician. The report not only plays a key role in patient management and clinical outcomes but is also a legal document. An accurate and clear PET/CT report is thus extremely important and perhaps more challenging than generating a report for other imaging studies because of the complexity of this hybrid imaging modality and the weight of clinical decision on this.

The presentation will be on the different styles of reporting and the essential elements of a concise and complete oncologic 18F-FDG PET/ CT report.

P-31

Frequency of incidental findings on computed tomography pyelogram in pakistani population

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OBJECTIVE: To determine the incidence and frequency of incidental findings on computed tomography (CT) scanning of pyelogram in Pakistani population.

METHOD: A retrospective study evaluated 1736 patients from July 2016 to June 2017 who were referred to radiology department of Dr. Ziauddin Hospital, Karachi for complaints of lumbar pain and query of stone in urinary tract. These were reported primarily for lumbar pain and ureteric stones. Patients with incidental findings reported on CT pyelogram who refused for further workup were excluded from this study.

RESULT: A retrospective analysis of 1736 patients was done with data on the age, gender and clinical presentations. Of these 436 (25.1%) patients had incidental findings noted on formal radiology report. We divided these incidental findings systemically like pleuropulmonary findings were observed in 10.8% patients, gastrointestinal & hepatobiliary in 36.9% patients, genitourinary in 38.5% patients, musculoskeletal in 16.9% patients and others in 4.8% patients.

Out of these 436 (25.1%) patients, 52% patients with incidental findings required further workup while remaining 48% patients had benign looking incidental findings that did not require any further workup.

CONCLUSION: In conclusion we have found a high percentage of incidental findings on CT pyelogram examination. Therefore it is important for a radiologist to inform the referring physician about the incidental findings of their patients found on imaging & to provide proper workup and followup to prevent the potentially life threatening conditions.

P-32

Patterns of diffuse axonal injury in traumatic head injury patients - A CT scan based study from liaquat national hospital, Karachi

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OBJECTIVE: The aim of this study was to record the incidence of patterns of diffuse axonal injury in traumatic head injury patients, that presented to a tertiary care hospital over a period of 06 months.

METHODS: A retrospective, cross-sectional study was performed on data collected from computerized records and CT scan images of cases of traumatic head injury patients. The data was collected over a period of 06 months; from 01st July 2016 to 31st December 2016. The study center was the Department of Radiology, at Liaquat National Hospital, Karachi.

RESULTS: A total of 123 patients presented to Liaquat National Hospital, Department of Radiology with the history of traumatic head injury over a period of 06 months. Only 23 out of these 123 patients (18.6%) who were clinically suspected of having diffuse axonal injury showed its different patterns confirmed on CT scan. 18 patients (78.2%) had contusions at gray white matter interface, 07 patients (30.4%) had contusions in corpus callosum, 04 patients (17.3%) had contusions in brain stem, 14 patients (60.8%) had contusions in cerebellum, 15 patients (65.2%) had skull fractures, 05 patients (21.7%) had intraventricular bleed while only 02 patients (8.6%) had global cerebral ischemia. The rest of 100 patients showed skull fractures, intra and extra axial bleeds with parenchymal contusions.

CONCLUSION: The incidence of diffuse axonal injury is rare and is very low, but not uncommon in patients of traumatic head injury and cannot be disregarded. Timely diagnosis and management will be useful to lower morbidity and mortality.

P-33

Portal biliopathy, a rare complication in cases of CLD with portal hypertension - a CT scan based study from Liaquat national hospital, Karachi

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OBJECTIVE: The aim of this study was to record the incidence of portal biliopathy in cases of chronic liver diseases (CLD) with portal hypertension, that presented to a tertiary care hospital over a period of 2 years.

METHODS: A retrospective, cross-sectional study was performed on data collected from computerized records and CT scan images of cases of CLD. The data was collected from 30th September 2013 to 30th September 2015. The study center was the Department of Radiology, at Liaquat National Hospital, Karachi, Pakistan.

RESULTS: A total of 294 patients presented to Liaquat National Hospital, Department of Radiology with the history of chronic liver disease over a period of 2 years. The median age of presentation was 54.50 years. The sample consisted of 160 males (54.42%) and 134 females (45.57%). 264 patients were found to have portal hypertension with varices. Only 03 female patients were found to have cavernous transformation of portal vein with portal biliopathy. Portal vein thrombosis was seen in 42 patients. Regenerating nodules were seen in 36 patients and hepatomas in 98 patients.

CONCLUSION: The incidence of portal biliopathy is rare and is very low, but not uncommon in patients of chronic liver disease with portal hypertension and cannot be disregarded. Timely diagnosis and management will be useful to lower morbidity and mortality.

P-34

Frequency of anatomical variations of nose and paranasal sinuses (PNS) on routine ct scans - a CT scan based study from Liaquat national hospital, Karachi

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OBJECTIVE: To see the frequency of different variations in the anatomy of paranasal sinuses on CT scan paranasal sinuses, that presented to a tertiary care hospital over a period of one year.

METHODS: A retrospective, cross-sectional study was performed on data collected from computerized records and CT scan images in cases for any benign sinonasal pathology. The data was collected over a period of one year; from 01st August 2016 to 31st July 2017. The study center was the Department of Radiology, at Liaquat National Hospital, Karachi.

RESULTS: A total of 70 patients over a period of one year, presented to Liaquat National Hospital, Department of Radiology with suspicion of benign sinonasal pathology and with complaints of headache and nasal congestion. The median age of presentation was 35.8 years. The sample consisted of 44 males (62.85%) and 26 females (37.14%). 50 patients (71.42%) had deviated nasal septum, 25 patients (35.71%) had concha bullosa, 15 patients (21.42%) had septated maxillary sinus, 49 patients (70%) had agger nasi cells, 14 patients (20%) had haller cells, 13 patients (18.57%) had onodi cells, 2 patients (2.85%) had hypertrophied ethmoid sinuses, 15 patients (21.42%) fall under Kero's Type I classification, 50 patients (71.42%) fall under Kero's Type II classification and only 5 patients (7.14%) fall under Kero's Type III classification.

CONCLUSION: These variations have an anatomic and surgical significance therefore these variations should be reported to maximise patient benefit and to avoid serious complications from surgery thus helping in reducing morbidity of the patients with favorable outcomes.

P-35

Abdominal cocoon – A case report

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INTRODUCTION: Sclerosing encapsulating peritonitis (SEP) is a rare condition of unknown etiology. It is characterized by a thick grayish-white fibrotic membrane, partially or totally encasing the small bowel, and can extend to involve other organs like the large intestine, liver and stomach. It was first observed by Owtschinnikow in 1907 and was called peritonitis chronica fibrosa incapsulata.

CASE REPORT: We presented a case of a 34 year old male patient who presented to us in emergency department with complaints of lower abdominal

pain, nausea and vomitings. Plain radiograph of the abdomen showed mildly dilated small bowel loops in the mid-abdominal region. CT scan Abdomen was done in which a conglomerate of several small-bowel loops was seen in the center of the abdomen. A thick enhancing membrane surrounded the bowel, forming a saclike structure or a cocoon. The duodenum and a part of adjacent jejunum showed mild dilatation, beyond which the jejunal loop was seen to be extending into the cocoon. The CT findings were consistent with sclerosing encapsulating peritonitis forming an abdominal cocoon. An exploratory laparotomy was performed through a midline incision. On opening the abdomen, the small bowel loops were found to be enclosed in a sac made up of two layers.

DISCUSSION: Abdominal cocoon is categorized into three types according to the extent of the encasing membrane that covers the intestine. Encasement of part of the intestine by a fibrocollagenous membrane is called type 1 cocoon syndrome. Complete coverage of the intestine by the membrane is called type 2 abdominal cocoon syndrome. Type 3 cocoon syndrome refers to encasement of the whole intestine, as well as other intra-abdominal organs, such as appendix, cecum, ascending colon, and ovaries. The causative factor for primary form remains unknown, which might be caused by a subclinical peritonitis leading to the formation of a cocoon.

CONCLUSION: The preoperative diagnosis of abdominal cocoon is difficult and the diagnosis should always be considered whenever a patient reports episodes of abdominal pain, nausea and vomiting associated with weight loss. Combination of diagnostic modalities like sonography and CT scan can help in making preoperative diagnosis of this entity and prevent unnecessary bowel resection.

P-36

To determine diagnostic accuracy of doppler ultrasonography in detection of carotid artery stenosis in ischemic stroke

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OBJECTIVE: To determine diagnostic accuracy of doppler ultrasonography in detection of carotid artery stenosis in ischemic stroke by using CT angiography as gold standard

STUDY DESIGN: Cross-sectional study

SETTINGS: This study was conducted in department of diagnostic radiology, Bahawal Victoria Hospital Bahawalpur from July 02, 2014 to January 01, 2015.

SUBJECT AND METHOD: All patients of ischemic stroke (confirmed on CT scan brain) presenting to the Radiology department, Bahawal Victoria Hospital Bahawalpur through emergency, OPD and referral from other Hospital, for carotid doppler was included in the study. Carotid doppler was performed by researcher and severity of carotid artery stenosis was measured. CT angiography was done to see carotid artery stenosis that was used as gold standard.

RESULTS: Total 216 patients were included in the study. The mean age of patients was 51.70 years with standard deviation of 11.819 years. Out of 216 patients, 120 (55.56%) were male patients and 96 (44.44%) were female patients. Sensitivity of carotid Doppler was noted as 91.66%, specificity was 95.45%, positive predictive value was 92.77%, negative predictive value was 94.73% and diagnostic accuracy was 93.98%.

CONCLUSION: Carotid Doppler, when compared with CT angiography provides a safe and accurate method of investigation. Although its accuracy is less than that of CT angiography, carotid Doppler provides a very satisfactory screening procedure for selection of patients for angiography.

P-37

Caesarean scar ectopic pregnancy with uterine dehiscence

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INTRODUCTION: Pregnancy in a Cesarean Section scar (CSS pregnancy) is a rare complication that may have serious consequences affecting the woman's future fertility and may even affect her own life. It is believed to develop as a result of the presence of a microscopic tract in the scar allowing the blastocyst to be implanted deep in the myometrium. Early diagnosis of CSS pregnancy is essential to avoid serious complication such as severe hemorrhage which may require hysterectomy and endanger the woman's life.

CASE REPORT: We present a case of a 24 year old married female, gravida 3 para 1 with a previous history of abortion. She came to ER with complaints of heavy pervaginal bleeding since 5 days. She had a past history of dilatation and curettage in periphery hospital 5 days back and also had a cesarean scar due to hypertension in previous pregnancy. Her lab parameters showed hemoglobin of 7.7g/dl and β -HCG level of 313.8 mIU/ml. Her routine transabdominal and transvaginal ultrasound pelvis was done which showed a thick walled cystic area measuring 6.8 x 5.6 cm adjacent to left ovary with peripheral vascularity and is abutting the anterolateral wall of uterine myometrium. No fetal pole was seen within this cystic area. Findings were suggestive of ectopic pregnancy. Endometrium was dilated and fluid filled with imperceptible myometrium at the site of caesarean scar, raising the possibility of uterine dehiscence. CT scan was done which showed similar findings. Exploratory laparotomy was done which revealed a 6 x 5 cm ectopic tissue bulging from uterine scar and was to urinary bladder. Adhesiolysis was performed and uterine repair was done. The patient had an uneventful recovery from the surgery and was started on methotrexate.

DISCUSSION: Caesarean scar pregnancy is usually diagnosed during first trimester with an increased risk of haemorrhage and uterine rupture if left untreated. Sonographic image of caesarean scar pregnancy can sometimes mimic like myoma or sarcoma but a strong suspicion of caesarean scar pregnancy should be made when an extremely vascularized and exophytic mass located in isthmic region is detected in reproductive age group presenting with irregular vaginal bleeding.

Uterine dehiscence is of 2 types - complete and incomplete dehiscence. In incomplete uterine dehiscence, the myometrium is disrupted but the serosa is intact. Full thickness tears of uterine wall result in complete uterine ruptures. These ruptures mostly occur at the level of previous cesarean section scars. Compared to complete uterine rupture, uterine dehiscence has much lower maternal and neonatal morbidity.

CONCLUSION: A caesarean scar pregnancy is an uncommon but potentially devastating occurrence because of the increased risk of developing placenta previa / accreta, uterine rupture, and massive hemorrhage. The incidence is rising as cesarean deliveries become more common.

P-38

Frontal meningoencephalocele

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INTRODUCTION: Encephalocele is a neural tube defect characterized by sac-like protrusions of the brain and the membranes that cover it through openings in the skull. If the bulging portion contains only CSF & the overlying membrane, it may be called a meningocele. If brain tissue is present, it may be referred to as meningoencephalocele.

CASE SUMMARY: 05 years old girl came with c/o soft rounded painless swelling at nasion since birth. On examination reddish blue swelling noted at the nose bridge with no pussy discharge. Swelling protrudes & becomes

prominent on crying. Patient was suspected of hemangioma at periphery hospital and was referred to LNH for Ultrasound soft tissue & for further evaluation.

ULTRASOUND SHOWED: A rounded cystic area overlying nasion containing meninges, CSF & brain parenchyma with minimal vascularity seen in it roughly $m=3.1 \times 2.2$ cm. Findings represent meningoencephalocele.

MRI SHOWED: Subependymal heteropia is seen in trigone & occipital and temporal horn of both lateral ventricles. Bony defect is seen in the region of fronto-nasal suture to the right of midline. Agenesis of corpus callosum and frontal meningoencephalocele is noted.

CT SCAN SHOWED: A bony defect is seen in frontal region at base in midline at dorsum of nose $m= 3.7 \times 2.4$ cm. It shows herniation of frontal lobes and meninges through this defect. There is parallelism of bodies of lateral ventricle. The frontal horns show bat wing's configuration. Findings are due to Frontal Meningoencephalocele with agenesis of corpus callosum.

CONCLUSION: Meningoencephalocele is a type of encephalocele which occurs rarely, at a rate of one per 5,000 live births worldwide. Most cases tend to be sporadic.

Most commonly occipital encephalocele : ~ 75% of cases

Fronto-ethmoidal / Nasal encephalocele : ~ 15% of cases

Basal encephalocele: ~ 10%

It is associated with craniofacial abnormalities, hydrocephalus, microcephaly and agenesis of corpus callosum. The prognosis is variable dependent on the presence of associated anomalies and presence of microcephaly.

P-39

Prenatal diagnosis of fetal anomalies

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INTRODUCTION: Second trimester ultrasound scan has become an essential part of antenatal care. In cases where a major structural defect is identified, termination of pregnancy is offered. We embarked on this study to evaluate the role 11-14 weeks ultrasound in the detection of fetal abnormalities in the high-risk population.

MATERIALS & METHODS: This is a prospective study conducted in the Department of Radiology, at Liaquat National Hospital, Karachi, Pakistan. Karachi is the largest city of Pakistan, with an estimated population of 10-12 million belonging to different ethnicity and socio-economic background. The Liaquat National Hospital is a tertiary care teaching hospital in the private sector equipped with the latest diagnostic and therapeutic facilities and a well equipped neonatal intensive care unit. About 3000 deliveries take place every year. We performed about 650 ultrasounds on 400 high risk pregnant women in early pregnancy between 1st July 2016 – 30th June 2017. The study subjects were seen in the antenatal clinics, counselled and referred for ultrasound by their respective consultants.

RESULTS: In a one year period 650 ultrasound scans were performed on 200 high risk pregnant women in 2nd trimester. The mean maternal age was 30.98 years (range 18-42 years). Out of these 650 patients 136 patients had positive fetal anomaly scans. Further distribution of anomalies was made according to the site affected. 89 patients had Anomalies of kidneys (Hydronephrosis, Pylectasis, Renal cysts, Bilateral renal dysplasia). 15 patients had brain and spinal deformities (Arnold chiari malformation, Aqueductal stenosis, Holoprocencephaly, Choroid plexus cysts, Anencephaly, Spinal dyspharaphism, Meningocele & nuchal fold thickening). 14 patients had umbilical cord around the neck. 12 patients have liquor defects (Oligohydramnios & absent liquor). 03 patients had heart defects (Dextrocardia, Inter atrial septal defect and tetralogy of Fallot). 03 patients had bilateral pulmonary hypoplasia.

DISCUSSION: Ultrasound scan performed between 11-14 weeks of pregnancy is effective in diagnosing major fetal abnormalities in the high-risk population. It can complement the anomaly scan performed in the second trimester, as some of the abnormalities become evident later in pregnancy. Fetal anomaly scan is the most important tool to provide prenatal diagnosis of fetal anomalies. This is a detailed scan done during pregnancy. During the scan we examine each part of the fetal body, determine the position of the placenta, assess the amount of amniotic fluid, and measure fetal growth. Special attention is paid to the brain, face, spine, heart, stomach, bowel, kidneys and limbs.

P-40

Diagnostic accuracy of multislice computed tomography in detecting bony invasion of squamous cell carcinoma of oral cavity

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OBJECTIVES: To determine the diagnostic accuracy of multislice computed tomography in detecting bony invasion of squamous cell carcinoma of the oral cavity taking histopathology as gold standard.

MATERIALS AND METHODS: 70 patients of oral squamous cell carcinoma referred to the department of histopathology zia ud din hospital Karachi were enrolled in the study. Their histopathology was done. Retrospectively their multislice computed tomography results which was done for assessment of bone involvement of the maxilla & the mandible was assessed. Histopathology and CT scan results were compared. Sensitivity & Specificity were calculated by comparing the results of two modalities.

INCLUSION CRITERIA:

Patients of either gender with biopsy proven squamous cell carcinoma of oral cavity for six months.

Age criteria will be 20 to 50 years.

EXCLUSION CRITERIA:

Patients with recurrence after stopping treatment.

Patients with post radiation, post chemotherapy and post surgical status.

Patients unwilling to participate in study.

Having known allergy to contrast media.

RESULTS: Multislice CT correctly identified 9/9 of the invasions of the maxilla, while 30/32 of the mandible and 4 of 4 in both. Thus the sensitivity of the computed tomography was 95.55%. On the other hand, computed tomography correctly labeled 24 out of 25 cases without bony invasion making the specificity as 95.85%.

CONCLUSION: Multislice Computed Tomography is a very good modality in early diagnosis of cancerous involvement of oral cavity and its invasion into adjacent bone promising early detection & treatment. CT reconstructed with bone algorithm is accurate technique in detection of bony invasion.

P-41

Massive osteolysis in distal shaft of humerus; A case report on vanishing bone disease

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OBJECTIVE: To report a rare case of vanishing bone disease involving massive osteolysis of distal shaft of humerus.

CASE REPORT: A 17-year-old female presented for a MRI of left humerus at our department. 4 months back she suffered trauma to humerus and a radiograph at that time showed fracture of distal shaft of humerus with laterally displaced distal fracture fragment. Follow up radiograph showed regional osteopenia and bone resorption near fracture site and later on progressive resorption leading to non-visualization of distal humeral shaft. Skeletal scintigraphy showed focal increased radiotracer uptake over head of humerus and mild increased radiotracer uptake in distal two thirds of shaft of humerus. MRI showed cortical and medullary erosion noted at mid and distal shaft of humerus resulting in its tapering with complete resorption of a segment of distal shaft. Distal humerus showed intact articulation at elbow joint. Soft tissue thickening was seen along the resorpted segment of bone along with adjacent muscular atrophy. Findings were labeled as Gorham's disease that were confirmed on histopathology.

CONCLUSION: Gorham's disease is a rare, locally aggressive osteolytic disease. The presence of bone resorption without any obvious soft tissue, should undergo a thorough clinical examination coupled with follow up radiological, laboratory, and histopathological investigations to provide an accurate early diagnosis of this incompletely understood condition, to estimate its occurrence, and to ascertain its prognosis. The Gorham-Stout disease though rare, it is important to consider it in the differential diagnosis of osteolytic lesions of the bone.

P-42

Concomitant vesicovaginal and vesicoureteric reflux in a prepubertal girl

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OBJECTIVE: To report a rare case of vesicovaginal and vesicoureteric reflux in a prepubertal girl.

CASE REPORT: A 7-year-old female with no known co-morbidities presented urinary with urinary incontinence for two weeks, she later on developed lower abdominal pain for duration of one week. Her general physical examination was unremarkable. She was advised micturating cystourethrogram for evaluation. Urinary bladder was filled till adequate distention and showed normal outline without any intraluminal or extraluminal lesion. During injection contrast was seen to outline the left distal ureter which was consistent with grade I vesicoureteric reflux. During micturition, there was reflux of contrast seen into the vagina that was consistent with vesicovaginal reflux. The urethra was unremarkable and post void showed complete emptying of urinary bladder.

CONCLUSION: Vesicovaginal reflux is defined as the reflux of urine into the vagina that is observed during voiding. Concomitant presence of vesicovaginal reflux and vesicoureteric reflux is a rare presentation and, to the best of our knowledge, has never been reported. Appropriate knowledge of female genital tract anatomy and physiology along with good history and physical examination can achieve the diagnosis in majority of cases. Micturating cystourethrogram can also be performed in ambiguous cases. Following diagnosis appropriate treatment can be started which can prevent further complications.

P-43

Majewski (microcephalic) osteodystrophic primordial dwarfism type II (MOPD-II)

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OBJECTIVE: To report a rare case of Majewski (microcephalic) osteodystrophic primordial dwarfism type II (MOPD-II).

CASE REPORT: An 18-year-old male with no known co-morbidities presented with failure to attain proper height. He underwent X-ray skeletal survey. Features displayed on skeletal survey included microcephaly, prominent nasal cavity with pointed nose tip giving bird beak appearance and hypoplastic mandible and maxilla with low lying hard palate, slightly flared in vertical orientation both iliac blades, small and tubular shafts of upper limb and lower limb long bones with meta-epiphyseal flaring of femoral neck bilaterally and small fourth and fifth metacarpals. Imaging features were labeled secondary to primordial dwarfism (majewski[microcephalic] osteodysplastic primordial dwarfism type II. (MOPD- type II).

CONCLUSION: Microcephalic primordial dwarfism is characterized by severe pre and postnatal failure of growth together with microcephaly. MOPD II is a distinctive diagnostic entity within this group that presents with skeletal dysplasia. It is important to recognize such rare skeletal dysplasia as there is an increased risk for cerebrovascular disease and intracranial vascular malformations that could be devastating.

P-44

Cervical disc & ozonucleolysis in pakistan

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BACKGROUND AND PURPOSE: Direct injection of Oxygen-Ozone in the cervical discs has proved to be the effective alternative to surgery in patients with cervical disc herniation in many countries around the world. We report our experience with ozonucleolysis with patients effected by pain in cervical region (Brachialgia) due to disc herniation including post operative recurrence or disc prolapse.

METHODS: 4000 patients were treated with single session of Oxygen Ozone therapy from 2005-2016. All the patients had CT or MRI evidence of cervical disc prolapse with clinical signs of cervical nerve root compression. The procedure was performed under angio fluoroscopy using 22/23 G spinal needle without any form of anesthesia. All the patients received intra discal injection of Oxygen Ozone mixture at an ozone concentration 30 ug/ml. Among 4000 patients 3000 were males and 1000 were females between the age of 20-70 yrs. Therapeutic outcome was assessed 5 months after treatment by using modified MacNab method.

RESULTS: A satisfactory therapeutic outcome was obtained. 60% of the patients showed complete recovery with resolution of symptoms. 20% of the patients complained of occasional episodic neck pain and arms pain with no limitation of occupational activity. 5% of cases showed insufficient improvement. 5% of cases had no improvement and went for surgery. 10% of cases never turned up after the first visit.

CONCLUSION: Intradiscal and periganglionic injection of Ozone for herniated cervical disc has revolutionized percutaneous approach to nerve root diseases making it safer, cheaper and easier to repeat than treatments currently in use.

P-45

Odd looking pericallosal aneurysms – How we treat

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OBJECTIVE: Pericallosal artery aneurysms are uncommon. Their treatment strategies, surgical or endovascular, will present specific challenges. This study presents the experience of single neuroradiological center in the treatment of 12 consecutive patients with pericallosal artery aneurysms during 2 years period. Our aim is to assess the technical feasibility of treating ruptured pericallosal artery aneurysms with detachable coils.

METHODS: Over a period of 24 months, 12 patients with a ruptured pericallosal artery aneurysm were treated with detachable coils. A retrospective study was carried out to access the clinical and angiographic results. The 1 man and 11 women had a mean age of years (range 17-80y). Three patients presented in Hunt & Hess grade I, five patients in Hunt & Hess grade II, three in grade III and one in grade IV. Five patients had a concomitant intracerebral hematoma and two had at least one additional aneurysm.

RESULTS: In all 12 patients, the pericallosal aneurysms could be reached with a microcatheter and coils delivered. Procedure related complication occurred only in a single case, including thromboembolic event. Angiography demonstrated that the initial occlusion was complete in 11 aneurysms and near complete in one case. At follow up magnetic resonant angiography at 6 months, no residual or recurrent sac seen. At a mean follow up of 12 months, 11 patients had an excellent outcome, only one patient had seizures.

CONCLUSION: We believe it is worthwhile presenting our findings in coiling of ruptured pericallosal artery aneurysms due to rather unusual site and excellent results without complex endovascular method.

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Computed tomography guided percutaneous radiofrequency ablation in treating osteoid osteomas

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OBJECTIVE: To report our experience in computed tomography (CT) guided percutaneous radiofrequency ablation (RFA) for the treatment of osteoid osteoma (OO) and duration of pain relief, during the past 4 years at tertiary care University hospital.

MATERIAL & METHOD: A retrospective study was performed at Radiology Department, The Aga Khan University. All patients who underwent RFA for osteoid osteoma between May 2013 to December 2016 were included. All cases were performed under general anesthesia, with additional local anesthesia injection. Soloist needle was used for RFA. Primary success rate, complications, symptom-free interval and follow-up were evaluated.

RESULTS: In total, 9 patients (7 male, 2 female; age range 5-24 years, mean 14.44 yrs, median 15 yrs) suffering from OO underwent RFA during the period of 44 months. 7 lesions were located in femur and 2 in tibia. The mean nidus size was 8.92 x 6.56 mm [(6.2-11.5) x (5.6-9.1) mm]. All patients were successfully treated with resolution of symptoms including pain in 2.1 months (range: 1-3.1 months). During the follow-up period (3-40 months; mean: 16.9 months & median: 16 months) none of the patient showed relapse or persistent symptoms. No major complication occurred.

CONCLUSION: RFA is minimally invasive and safe treatment option with high efficiency and technical success for the treatment of OO. Risk of recurrence is remote with all patients achieving independent recovery.

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Clinical spectrum in radiologically diagnosed patients of pelizaeus merzbacher disease: Case series

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BACKGROUND: Pelizaeus Merzbacher disease (PMD) is a rare (1 in 400,000 live births) X-linked recessive leukodystrophy. PMD is caused by proteolipid

protein 1 (PLP1) gene mutations with resultant defect in myelination of oligodendrocytes. Radiological diagnosis depends on Magnetic Resonance Imaging (MRI) of brain; demonstrates classical features of diffuse hypomyelination.

MATERIAL & METHOD: We retrospectively recruited radiologically diagnosed 5 cases of PMD, 3 boys and 2 girls. One boy and a girl were siblings. After informed consent, parents were telephonically interviewed regarding clinical history, presentation, progression of disease and its physical manifestations. Recent or previous imaging was requested for further radiological assessment.

RESULTS: The median age was 14 months (range 9 months to 13 years). All 4 families reported consanguineous marriages. 3 families reported perinatal complications in 4 patients; including maternal hypertension (3 patients) and maternal diabetes (1 patient). All children were term births with 3 patients born by caesarean section. Horizontal nystagmus was initial presentation in all subjects, followed by hypotonia that progressed to spasticity in 3 patients and 2 out of them further developed spastic quadriplegia. Delayed arrival of motor milestones was seen in all patients followed by rapid regression in 4 patients and slow regression in 1 patient. Delay in motor functions in all patients with difficulty in maintaining balance and ataxia (5/5), ability to walk with support (2/5), tremors and shaking arms (3/5). Respiratory difficulties and stridor is seen in 3 patients. Decreased cognitive abilities were seen in all patients, chronologically followed by difficulty in understanding commands and expressive speech, further followed by dementia in (2/5 patients). Four patients were able to develop social interaction, but, all had difficulties in feeding, toilet training and sleeping.

CONCLUSION: PMD can have variable clinical presentation with few classic symptoms. But, it should be suspected in children with regression of milestones. However, further research to clarify the variations in disease course and relationship of phenotypes to genotypes is needed.

P-48

Unenhanced multi-detector low-dose vs standard dose CT in patients having urinary tract calculi.... A practical approach in optimizing patient's dose

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OBJECTIVE: This study is designed to assess the intraobserver and interobserver agreements and the diagnostic accuracy of low-dose unenhanced multidetector CT (MDCT) in patients with suspected urinary tract calculi.

MATERIALS AND METHODS: From July to December 2016, 100 adult patients; aged 32-76 yr, mean age, 50 ± 11 yr) with upper urinary tract calculus referred by emergency department physicians, Jinnah Post graduate Medical Centre Karachi were involved in the study. We took 55 patients, on which CT scan was performed from the lung bases to the superior border of the pelvis using a non-enhanced standard MDCT scanner obtained with 7-mm contiguous sections, a table speed of 5 mm/sec (pitch = 1), 120 kV, and 100 milliamperes second (mAs). 45 patients with similar complaints underwent the low-dose CT scan which followed the standard-dose CT scan and performed with the following parameters: reconstruction slice thickness, 7.0 mm; pitch, 1.00; tube potential, 120 kV; and tube charge per gantry rotation, 25 mAs. CT scans were archived and reviewed independently by three experienced radiologists using a clinical workstation and blinded to scan parameters prospectively viewed the images from the 100 examinations. In a second session, one experienced radiologist and two third-year residents using a clinical workstation retrospectively reviewed images from 40 randomly selected standard dose and 35 randomly selected low-dose examinations for the characterization of urinary tract calculi, peri-nephric fat stranding, blood vessels, indirect signs of calculi (PUJ obstruction, renal enlargement, cortical thinning), peri-ureteral stranding with

mural thickening). The diagnostic accuracy of CT for stone detection was determined by comparing the scans with the IVU images, with combination of history of clinical stone passage, surgical stone retrieval and follow-up ultrasound. Intra-observer and inter-observer agreements were calculated with the kappa statistics.

RESULTS: The sensitivity of low-dose examinations interpreted by two experienced reviewers was 97.3-98.6%; specificity, 93.5%; and accuracy, 95.3%. These findings were comparable with those for standard-dose examinations. Sensitivity, specificity, and accuracy of low-dose examinations of overweight and obese patients reached similar high values: 97-100%, 100%, and 98-100%, respectively. Interobserver agreement for urinary stone detection was excellent between the two reviewers, with kappa values of 0.93 for the low-dose and 0.95 for the standard-dose examinations.

CONCLUSION: Our study shows that low-dose unenhanced MDCT is an appropriate alternative for the diagnosis of urinary tract calculi, and that it provides excellent intraobserver and interobserver agreements and does not obscure alternative diagnoses. In all 45 patients, low-dose CT was 100 per cent coincidence 96.6 per cent sensitive and 93.5 per cent specific for depicting the location of the renal and ureteral calculi, renal enlargement, pyeloureteral dilatation, adjacent organs, and with an obvious lower radiation exposure for patients when compared to standard-dose CT ($P < 0.05$) even in overweight and obese patients.

Our findings show that unenhanced low-dose CT achieves a sensitivity and accuracy similar to that of standard-dose CT in assessing the localization of renal ureteral calculus and adjacent organs conditions.

P-49

Abdominal angina and intestinal gangrene-- catastrophic presentation of thrombosis of common heptosplenomesenteric trunk (HSMT) - A case report

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Here we present the case of a 35-years-old man who presented in emergency department complained of acute abdominal pain, vomiting and diarrhea. On clinical examination there was board like rigidity and tender abdomen. Initial labs were unremarkable. Abdominal computed tomography revealed infarction of the liver, spleen and right kidney due to thrombosis of the heptosplenomesenteric trunk (HSMT) with left gastric artery (LGA) deriving directly from the aorta/hypoplastic celiac trunk. Urgent exploratory laparotomy revealed ischemia of the liver, spleen infarction and gangrene of the entire bowel (from the stomach up to the first third of the transverse colon). No further surgical procedures were performed. The patient died few days after the onset of symptoms. This was very unusual case about severe gastro-intestinal infarction due to thrombosis of the heptosplenomesenteric trunk (HSMT) with left gastric artery (LGA) deriving directly from the aorta/ hypoplastic celiac trunk, a rare anatomic variation of the gastrointestinal vascularisation. In fact, in this rare situation a single artery is the only sole source of vascularisation of the supramesocolic organs and collateral flow is only possible from the inferior mesenteric, phrenic, oesophageal and retroperitoneal arteries.

INTRODUCTION: The majority of the blood supply of the gastrointestinal tract is provided by the anterior branches of the abdominal aorta: celiac trunk and superior mesenteric artery at the level of the twelfth thoracic vertebra and first lumbar vertebra respectively. Variations of the celiac and mesenteric artery are thought to occur as a result of anomaly during embryological development of the ventral splanchnic arteries.

Anomalies of vascularisation of the gastro-intestinal tract are frequent, but the presence of the heptosplenomesenteric trunk (HSMT) i.e. hepato-spleno-mesenteric trunk with two classical branches of celiac trunk and superior mesenteric artery having common origin from the abdominal aorta is very uncommon. It accounts for less than 1% of all abdominal vascular anomalies. Here we describe a very unusual reported case of severe ischemia of the gastrointestinal tract due to thrombosis of the heptosplenomesenteric trunk.

CASE REPORT: In January 2017, a 35-years-old young man arrived at the emergency department of Jinnah post graduate medical Centre with severe and diffuse abdominal pain and tenderness, more marked in the lower abdominal quadrants, with signs of peritoneal irritation. The area of hepatic dullness was present at percussion and intestinal peristalsis were diminished. Two days after the onset of symptoms, the pain became more severe, and progressed into a picture of acute abdomen and intestinal obstruction. Laboratory analyses demonstrated slightly raised amylase and severe metabolic acidosis. Subsequent labs revealed markedly raised D-dimers. No pathological signs were found at chest and abdominal X-rays. The radiological findings were subsequently confirmed by contrast enhanced CT scan abdomen which shows a rare variation, hepato-spleno-mesenteric trunk with two classical branches of celiac trunk and superior mesenteric artery having common origin from the abdominal aorta showing thrombosis at its origin causing significant (> 50%) luminal occlusion. The third classical branch of the celiac trunk (left gastric artery) was directly arising from the abdominal aorta. Apart from thrombus there were peripheral wedge shaped area involving segment VI of liver, infarcted spleen and a small right renal infarct. Exploratory laparotomy showed ischemia of the liver, spleen infarction and necrosis of the stomach, duodenum, small bowel and large intestine (from the caecum to the first third of transverse colon). No further surgical procedures were performed. The patient died the following day.

DISCUSSION: The celiac trunk and superior mesenteric artery supply the majority of the blood to the gastrointestinal tract. Usually, the celiac trunk is a short artery that arises from the anterior wall of the abdominal aorta at the level of the twelfth thoracic vertebra; it divides almost immediately into three branches: left gastric, splenic and common hepatic artery. The SMA arises from the anterior wall of the abdominal aorta at the level of the first lumbar vertebra. It runs down behind pancreatic head and third part of the duodenum. It supplies the pancreas, duodenum (from the second to the fourth part), small bowel and colon from the caecum to the right half of the transverse colon. Heptosplenomesenteric trunk (HSMT) classified as type 3 according to Mischel or Adachi classification. The incidence of HSMT has been found in various frequencies in other reports available in literature: 1.2% by Adachi (1928); 0.5% by Bergman and al.; 0.68% by Song; 0.7% by Chen and al.

Prior knowledge of this anomaly is of utmost importance during surgical, oncologic, or radiological procedure especially before pancreaticoduodenectomy or lymphadenectomy in this area to avoid iatrogenic injury. Moreover, precise knowledge of the hepatic artery variations is very important especially in living-related liver transplant donors in order to prevent vascular damage and avoid grave untoward outcome.

It is associated with aneurysm, chronic occlusive disease but the large gastrointestinal infarction caused by thrombosis of the heptosplenomesenteric trunk (HSMT), to our knowledge, is very rare and only few cases previously reported. The thrombosis of the origin of the heptosplenomesenteric trunk (HSMT) had a lethal effect on the patient outcome because it caused the full "cut off" of the splanchnic arterial supply and consequent ischemia.

P-50

The many faces of pseudoaneurysms - A comprehensive review of imaging spectrum

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The goal of this exhibit is to provide the radiologist with a framework for approaching the pseudoaneurysms which are rare clinical entities with an

estimated incidence of 0.1–2.0%. This article depicts pseudoaneurysms of various arteries caused by different conditions. Current state-of-the-art imaging modalities, such as multidetector computed tomography (CT), magnetic resonance (MR) imaging, and Doppler ultrasonography (US), allow detection of pseudoaneurysms in clinically suspicious cases and their characterization, as well as a vascular road mapping to facilitate treatment planning in confirmed cases. Conventional angiography has been superseded by these advanced modalities. Pseudoaneurysms portraits wide clinical spectrum of outcomes ranging from asymptomatic to catastrophic events. Therefore, it is considered as a surgical emergency and need to be diagnosed accurately and promptly. Many conditions causes pseudoaneurysms like trauma, iatrogenic, mycotic, inflammatory process and vasculitis. Trauma is second most common cause among all result from penetrating or blunt traumas are caused by gunshot injuries & motor vehicle accidents. Usually angiography or endovascular techniques required promptly.

CONCLUSION: Pseudoaneurysms poses high risk of rupture and thrombosis and considered as an emergency condition resulting in high morbidity and mortality, it is crucial for the reporting radiologist to accurately evaluate these entities and stratifying patients according to their risk of rupture and guide further workup and clinical management.

P-51

Case series and literature review; radiological manifestations of infected (mycotic) aneurysm

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Mycotic or infected aneurysms are localized, irreversible vascular dilatations caused by weakening and destruction of the vessel wall by an invasive organisms. Mycotic aneurysms are uncommon and account for less than 5% of intracranial aneurysms. Here we present a series of 3 cases which presented to the emergency department at Shifa International hospital with intracranial mycotic aneurysm. The first patient known case of rheumatic heart disease with infective endocarditis and embolic stroke, subsequently developed subarachnoid hemorrhage and large bilobed mycotic aneurysm of basilar tip was discovered on CT angiography. Later this progressed to trilobed morphology indicating impending rupture. Second patient with mucormycosis subsequently developed right temporal lobe bleed with intraventricular extension, highly suspicious of ruptured mycotic aneurysm and resulting in patient's demise. The third case developed hemiparesis post decompressive surgery involving upper thoracic spine after gunshot injury. MRA brain revealed aneurysmal dilatation of basilar artery proximal to superior cerebellar artery representing mycotic aneurysm. These are uncommon though an important cause of mortality and morbidity. Earlier detection of infected aneurysms is essential for timely treatment to optimize patient outcome.

P-52

Multimodality imaging of spinal dysraphism - optimal solution of unresolved enigma

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The finding of a midline spinal anomaly in a child typically prompts referral to the Paediatric Neurosurgeon for the evaluation of an spinal dysraphic state. In this article, we review the pathology and pathophysiology of spinal dysraphism and its relationship to the clinical entity of the tethered cord syndrome. Aim of this article is to review the recurrent understanding of imaging features of spinal dysraphism with particular focus on CT and MRI imaging. Computed

Tomography and Magnetic resonance imaging are helpful in elucidating the types of dysraphism and for planning corrective surgery. Early detection and complete correction can significantly reduce the neurological disability.

INTRODUCTION: Spina bifida is a common congenital anomaly encompassing a wide spectrum of neural tube defects. Spinal dysraphism is a term used for a group of disorders characterized by incomplete fusion of midline structures during the fourth week of embryogenesis. The incidence of these defects shows significant geographical variation (from 0.5 to 5 per 1,000 births). Its prevalence is greater among females and in poor people. The diagnosis should be based on the high index of clinical suspicion, a detailed neurological examination and maternal serum screening can detect up to 80% cases of spina bifida and 90% cases of anencephaly. Sonography may identify up to 90% cases of myelomeningocele. Plain X-rays reveal the skull defects, spine deformities and bony anomalies. MRI is the choice of investigation to identify the anatomical location of the conus, neural tissue abnormalities and also to assess the severity of hydrocephalus and Chiari malformation and the associated abnormalities.

CASE PRESENTATION:

Case 1: A 6-year-old girl presented to our outpatient department, with a firm, non tender swelling over the back along with tuft of hairs since birth. She also complained of low back pain off and on, apart from the obvious cosmetic disfigurement. No history of pain was elicited at the region of abnormal hair growth. Past medical history including developmental milestones was normal.

Case 2: A 40 years old female presented with gait deterioration and generalized motor weakness. On clinical examination there were increased muscle tone in bilateral lower limbs and dorsal dermal sinus in lower back. No other skin stigmata or swelling seen. She was born of a nonconsanguineous marriage and has an elder sibling who is not affected.

Case 3: A years old child with skin stigmata who has an occult dysraphic lesion of intradural lipoma. There were motor and sensory neurological deficits with sphincter dysfunction. No evidence of rectal prolapse was seen. Rest of clinical picture was unremarkable.

Case 4: A child with atypical levocervical scoliosis. Neurological examination was found to be normal; there being no sensory or motor weakness over her lower extremities, neither was any bladder or bowel incontinence reported.

DISCUSSION: Based on the physical findings, cases of spinal dysraphism can be grouped into two categories: open spina bifida and occult spinal dysraphism. Open spinal dysraphism characterized by protrusion of posterior neural tissue through a defect in the vertebra, which results in a lesion that is not covered by skin, such as meningocele and myelocele. Occult spinal dysraphism is defined as a group of dysraphic conditions present below an intact cover of dermis and epidermis. Unfortunately, occult spinal dysraphism is not always readily apparent on physical examination, but is often diagnosed retrospectively after the child presents with neurologic, urologic, and orthopaedic findings. It may be suspected in asymptomatic newborns because it is generally associated with abnormalities of the adjacent skin, such as cutaneous stigmata, hemangiomas, hair tufts, cutaneous appendices, sacrococcygeal dimples, and subcutaneous masses, particularly in the lumbosacral region. The following abnormalities can be included as forms of occult spinal dysraphism: dorsal dermal sinus, spinal cord anchored by a lipoma, lipomyelomeningocele, diastematomyelia, and thickened filum terminale.

The associated skeletal abnormalities are kyphosis, scoliosis, and deformities of the long bones and feet, hemivertebrae, defective ribs, etc. Myelomeningocele account for more than 98% of open spinal dysraphisms. When imaging is performed, the main differentiating feature between a myelomeningocele and myelocele is the position of the neural placode relative to the skin surface.

CONCLUSION: In summary, here we have presented few cases of a with spinal dysraphism associated with cutaneous stigmata. Computed tomography and MRI are the non invasive, non ionizing radiation possible to identify, characterize and confirm the types of defects and enabled adequate surgical

planning. We believe that cross sectional studies should be performed on patients who are at high risk of spinal dysraphism, such as those presenting cutaneous stigmas, congenital abnormalities, or neurological alterations, as a means of early diagnosis, thereby avoiding neuropsychomotor sequelae later on.

P-53

Effectiveness of empirical GDA embolization in patients with upper GI bleed showing no active contrast extravasation on angiography

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STUDY DESIGN: Cross-sectional study.

STUDY SETTING: Department of Radiology, Aga Khan University Hospital, Karachi.

SAMPLING TECHNIQUE: Non-probability consecutive sampling.

INCLUSION CRITERIA: All the adult patients who present at Aga Khan University hospital Karachi with complain on Upper GI bleed and are referred to radiology department for mesenteric angiogram examination and angioembolization.

EXCLUSION CRITERIA: Patients with either one or more than one of the following conditions will be excluded from the study.

1. Patients with active bleed identified via arterial branches other than GDA and therefore do not require GDA embolization
2. Patients with variceal bleed.

MATERIALS AND METHODS: 51 patients from 2000 till 2016 who presented with upper GI bleed in whom TAE was attempted were retrospectively analysed. The patients were divided into patients who received empiric embolization (group A, n = 32) and those who had no embolization performed after angiography (group B, n = 19). These groups were then followed for recurrent bleeding during their hospital stay.

RESULTS: No episode of active bleeding noted in 84% (n=27) of group A patients. However 27% (n=5) of the group A patients had one or more episodes of bleeding. In group B 47% (n=9) patients had one or more episode of bleeding on follow up. The recurrent bleeding rate, clinical success and 30-day mortality after TAE was different between the empirically embolized and non embolized groups.

CONCLUSION: A lesser rate of recurrent bleed was noted in patients with empiric TAE comparable to group in which embolization was not performed. There were no serious complications. Empiric TAE is an effective method in patients in whom bleeding site cannot determined by angiography.

P-54

High resolution ultrasonography for evolution of rotator cuff tear and role of PRP under ultrasound guidance.

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Shoulder ultrasound is consistently in use for rotator cuff assessment and is considered an accurate method for detection of rotator cuff tear as MRI. It can be used as a focused examination providing real-time rapid diagnosis and treatment in desired clinical situations. This article presents a simplified approach

to scan painful shoulder joint and image-guided intervention, and discusses common sonographically apparent shoulder pathologies (tendinitis, partial and full thickness tears).

P-55

Diagnostic accuracy of apparent diffusion co-efficient value in differentiating benign from malignant endometrial lesions

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OBJECTIVE: To determine the diagnostic accuracy of the apparent diffusion coefficient value in differentiating benign from malignant uterine endometrial cavity lesions taking histopathology as gold standard.

MATERIALS AND METHODS:

SETTINGS: The study will be conducted in Radiology Department of Allied Hospital Faisalabad.

DURATION OF STUDY: Minimum 06 months period after the approval of synopsis.

STUDY DESIGN: Cross-sectional validation study.

SAMPLE SIZE: By using WHO sample size calculator:

SAMPLE TECHNIQUE: Non-probability consecutive sampling.

DATA ANALYSIS: We performed a statistical comparison of the ADC values of malignant and benign tumors using student's t-test. A p value less than 0.5 was considered to be statistically significant. We determined a threshold of the ADC value, with which the highest accuracy was obtained for differentiating benign from malignant lesions, besides we also calculated sensitivity, specificity and accuracy will be calculated by constructing 2*2 table by taking histopathology as gold standard as follows.

CONCLUSION: DWI can demonstrate abnormal signals emitted by pathologic foci based on differences in molecular diffusion. It also permits the quantitative evaluation of the apparent diffusion coefficient (ADC) that may be useful for distinguishing between malignant and benign tissues and for monitoring therapeutic outcomes.

In view of recently reported concerns, ADC value is helpful in evaluation of benign and malignant endometrial cavity lesions. The sensitivity of ADC in differentiating benign and malignant endometrial lesions is 77.7% and specificity is 71% keeping histopathology as gold standard. The rationale of my study is to evaluate the diagnostic accuracy of ADC measurement in differentiating malignant from benign uterine endometrial cavity lesions targeted treatment plans.

P-56

Primary clear cell adenocarcinoma of vagina in pediatric patient not associated with diethylstilbestrol; A case report

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INTRODUCTION: Vaginal Clear cell adenocarcinoma (VCCA) accounts to only 5–10% of all vaginal cancers, and is most commonly in young females affected by the in utero use of diethylstilbestrol (DES). It is even very unusual in patients who do not have a history of maternal DES use at the time of pregnancy Tanaka et al. described a 17-year-old patient with VCCA who had a chromosomal abnormality (47XX+) and a bicornuate uterus.

CASE REPORT: 8 years old female patient came with history of leucorrhoea for 1 year. Her parents denied any kind of maternal DES usage. Vaginal swab demonstrate pus cells. Computerized tomography shows an elongated soft tissue mass lesion with cystic degeneration in vagina mx 3.9 x 3.2 cm causing its ballooning. Magnetic resonance imaging revealed a well circumscribed soft tissue mass lesion at center of vagina mx 4.6 x 2.5 x 3.4 cm reaching upto cervix without adjacent soft tissue infiltration. Histopathology confirmed diagnosis of clear cell carcinoma of vagina.

CONCLUSION: Non-DES-associated VACC has a poor prognosis and significantly worse outcomes than those seen in other carcinomas of vagina. We report this case due to rarity as well as uniqueness of this association, to consider causes other than DES and to further improve the biological characteristic of these rare tumors.

P-57

Prevalence of tubal obstruction on hysterosalpingogram of women with primary and secondary infertility. (A departmental audit)

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OBJECTIVE: The purpose of this study was to evaluate the patency of fallopian tube and role of uterine abnormalities in causing infertility and to observe whether there are any significant differences in the hysterosalpingogram findings with regard to prevalence of tubal blockage in women with primary and secondary infertility.

MATERIALS AND METHODS: The patency of fallopian tubes in women with primary and secondary infertility was assessed through hysterosalpingogram and retrospective study was carried out in female patients came during the period of January 2016 to June 2017 in the radiology department of Dr. Ziauddin Hospital, Karachi.

RESULTS: Out of total 261 patients, 153(58.6%) females presented with primary and 108(41.3%) with secondary infertility. Among primary 45(29.4%) cases were abnormal and uterine abnormalities in form of fibroid and Asher man's syndrome was found in 18 (11.7%) and tubal blockage was observed in 27 (17.6%) cases, among those 11.7% were bilateral and 5.8% found to be unilateral. Among 108(41.3%) secondary infertile patients abnormalities were found in 22 (20.3%) cases, 12 (11.1%) patients having tubal blockage (7.4% unilateral and 3.7% bilateral) and 10 (9.25%) had uterine abnormalities.

CONCLUSION: According to this study tubal obstruction is the main cause of infertility. Bilateral tubal obstruction and uterine abnormalities being more common in primary and unilateral in secondary infertility groups.

P-58

Ultrasound guided percutaneous biopsy of omentum: A safest technique to detect the causes of omental thickening

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OBJECTIVE: The objective of our study was to determine the diagnostic value and safety of ultrasound guided percutaneous biopsy of omental thickening.

MATERIALS AND METHODS: We prospectively analyzed 60 patients who underwent USG-guided omental biopsies in our institute from January 2016 to July 2016.

RESULTS: Total 60 patients were included in our study. There were 40(66.7%) female and 20(33.3%) male patients. There were total 36 (60%) malignant

cases, 20 (33.3%) chronic inflammation suggestive of TB while 4 (6.7%) were chronic peritoneal infection. Out of 36 malignant cases, majority 24 (66.7%) had ovarian cancer, 8 (22.2%) had endometrium cancer and 4 (11.1%) had large bowel cancer. Repeat biopsies were performed only in 4 (6.7%) cases.

CONCLUSION: Ultrasound-guided percutaneous biopsy of omentum is less expensive, safe and effective method with a high diagnostic accuracy

P-59

Complications associated with permanent internal jugular haemodialysis catheter, A retrospective study

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INTRODUCTION: End-Stage Renal Disease is a serious condition and it forms a significant number of patients in our community. Kidney transplantation is the definitive treatment, however, many patients are not good candidates for kidney transplantation. Hemodialysis is a treatment of choice for patients who are candidates for kidney transplantation and patients of end-stage renal disease with no chance of transplantation. Vascular access complications are the most important cause of high morbidity and mortality. Currently, no local data is available about complications rate of permanent hemodialysis catheters. Therefore, the aim of this retrospective study was to investigate the complication rate of permanent intra jugular hemodialysis catheterization in our population.

MATERIALS AND METHODS: This was a retrospective study conducted in Dr. Ziauddin university hospital karachi. We retrospectively analyzed 212 patients who went through internal jugular catheterization for hemodialysis at our hospital between Jan 2014 till Dec 2015. The results were primed using descriptive method for the study. Complications were categorized as early or late complications.

RESULTS: Overall complication was observed in 50 (23.6%) patients. Infection was the most commonly observed complication noted in 27 (12.7%) patients followed by failed puncture 8 (3.8%), venous thrombosis 7 (3.3%), catheter thrombosis 6 (2.8%), hematoma 4 (1.8%), whereas wrong cannulation, hemothorax and pneumothorax in 2 (0.9%) patients each.

CONCLUSION: Placement of the Permanent hemodialysis catheter in the internal jugular vein is easy, safe and complication rate are very low. So internal jugular vein is reliable and preferred route for hemodialysis catheterization.

P-60

Vascular complications in cases of acute pancreatitis - CT scan based study

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OBJECTIVE: The aim of this study was to record the incidence of vascular complications in cases of acute pancreatitis that presented to a tertiary care hospital over a period of 2 years

METHODS: A retrospective, cross-sectional study was performed on data collected from computerized records and CT scan images of cases of pancreatitis. The data was collected for a period of 2 years; from 31st October 2012 to 31st October 2014. The study centre was the Department of Radiology, at LiaquatNationalHospital, Karachi.

RESULTS: A total of 216 patients presented to Liaquat National Hospital, Department of Radiology with the query of pancreatitis over a period of 2

years. The median age of presentation was 43.25 years. The sample consisted of 97 males (46.19%) and 113 females (53.81%). A total of 24 patients were found to have thrombosis of splanchnic vasculature. The most frequently thrombosed vessel was the splenic vein (17 patients), followed by the portal vein (11 patients) and the superior mesenteric vein (4 patients).

CONCLUSION: The incidence of vascular thrombosis is low, but not uncommon in patients of severe acute pancreatitis and cannot be disregarded. Timely diagnosis and management will be useful to lower morbidity and mortality.

P-61

MDT meeting & radiologist workload

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OBJECTIVE: To quantify the increase in workload associated with multidisciplinary team meetings for radiologists in a tertiary care hospital over a period of 15 months.

METHODS: Data was collected prospectively regarding number of multidisciplinary team meetings, number of clinical cases discussed, number of individual imaging studies reviewed, and preparation time of residents, senior registrar and consultants and the delivery time of meeting.

RESULTS: Total 223 meetings were held over 15 months (April 2014 to June 2015) for 12 clinical specialty areas. There were 1120 clinical case discussions and a total of 2759 documented individual imaging studies reviewed. Resident's preparation time was 74.6 hours/month, senior registrar's preparation time was 47.93 hours/month, consultant's preparation time was 18.67 hours/month and the delivery time for meetings was 18 hours/month.

CONCLUSION: Multidisciplinary team meetings now represent a significant workload of radiology and reduced the time to other academic activities within the department.

P-62

Congenital unilateral absence of internal carotid artery

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INTRODUCTION: Congenital unilateral absence of ICA is a rare entity witnessed in about only 0.01% population. It occurs due to abnormal embryologic development, including increased cephalic folding of the embryo or pressure effects due to amniotic bands, leading to agenesis, aplasia or hypoplasia of the ICA. It is more common on the left side and involves the male gender more often. In these cases, development of collateral circulation is inevitable. We, hereby, report a case of an elderly man having left sided ICA agenesis with collaterals from basilar artery.

CASE REPORT: A 70 year old male presented with sudden onset of right sided body weakness at emergency department of a tertiary care hospital. On examination, the UMN lesion signs were positive. There was flaccid paralysis of the right upper and lower limbs along with slurring of speech. Patient came to our department for MRI brain which showed infarct in left parietal region in territory of left middle cerebral artery. Ultrasound Carotid Doppler showed

non-visualization of left ICA. For further evaluation, MRA study was conducted and it revealed complete absence of the left ICA with left MCA arising from basilar artery.

CONCLUSION: Congenital ICA absence is a rare anomaly. CT/MR Angiography plays a vital role in diagnoses and associated complications and provides information about collaterals which was essential prior to intervention/surgery.

P-63

Role of shear wave elastography in determining breast malignancy in suspicious breast lesions, taking histopathology as gold standard

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OBJECTIVE: To determine the diagnostic accuracy of shear wave Elastography in determining breast malignancy in suspicious breast lesions, taking histopathology as gold standard.

MATERIAL AND METHODS: Total 170 patients with suspected malignant breast lesions were evaluated by shear wave elastography (Aixplorer) in Civil Hospital Karachi from 10th March 2016 to 15th January 2017. Elastography parameters (E_{max}, E_{min}, E_{mean}, E_{ratio}, S/D) and biopsy specimen findings were recorded. The diagnostic accuracy of shear wave elastography was determined in terms of sensitivity, specificity, PPV, NPV, and diagnostic accuracy against the histopathology. Post stratification chi square test was applied taken p-value = 0.05 as significant.

RESULTS: The mean age was 44.03±9.31 years. Mean size of lump was 2.50 ± 2.29 cm. Mean duration of disease was 6.48 ± 3.29 months. 63.5% patients were diagnosed malignant by shear wave elastography and by histopathology it was 64.1% patients. Sensitivity, Specificity, PPV, NPV and accuracy were 88.1%, 80.3%, 88.8%, 79.03%, and 85.29% respectively.

CONCLUSION: The SWE could be used to identify breast malignancy in suspicious breast lesion, with accuracy rate of 85.29%.

P-64

Qualitative and quantitative (volumetric) hippocampal MRI assessment in temporal lobe epilepsy

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INTRODUCTION: Temporal lobe epilepsy (TLE) is the most common type of partial epilepsy. In mesial temporal lobe epilepsy (MTLE), the most seizures originate in the hippocampus with the underlying pathology being hippocampal sclerosis.

OBJECTIVE: To determine the accuracy of hippocampal quantitative (volumetric) assessment in diagnosing hippocampal atrophy in patients with temporal lobe epilepsy by comparing it with qualitative (visual) assessment on MRI.

MATERIALS AND METHODS:

Setting: Department of Radiology, Allied Hospital, Faisalabad. **Duration:** Minimum 3 months. **Study Design:** Cross sectional.

CONCLUSION: We can conclude that MRI based hippocampal volumetric assessment is a valuable tool for the detection of hippocampal atrophy in patients with refractory temporal lobe epilepsy who are candidates for surgery avoiding unnecessary supplementary tests including PET, SPECT & invasive EEG.

P-65

A typical presentations of acute appendicitis, a clinical and radiological enigma

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Acute appendicitis is the most common surgical emergency and the most common cause of acute abdomen in a tertiary care hospital. It's preoperative diagnosis is increasingly reliant on imaging. The imaging-based diagnosis of appendicitis is not always straightforward. To achieve an accurate diagnosis, radiologists must be familiar with atypical CT appearances of appendicitis.

OBJECTIVE: To familiarize radiologists with the atypical presentations of acute appendicitis for timely diagnosis and accurate management.

MATERIAL AND METHODS: Here we present six cases which presented to the emergency department at Shifa International Hospital from January 2017 to August 2017, with clinical and radiologically confounding presentations, such as bowel obstruction, inflamed inguinoscrotal hernia, tuboovarian abscess, epigastric abscess and retroperitoneal fasciitis which were later suspected as sequelae of acute appendicitis on imaging and further confirmed with operative findings in majority of cases.

CONCLUSION: Familiarizing with the atypical presentations of a common condition, is necessary for proper diagnosis and accurate management. Mortality secondary to acute appendicitis should be prevented, with utmost efforts.

P-66

Automated computer added detection of thyroid nodules by ultrasonic heterogeneity

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To establish whether computerized quantification of ultrasonic heterogeneity can be of help in the categorization of thyroid nodules. We evaluated multiple thyroid nodules in prospective setting by routine ultrasound and by AmCAD ultrasonic heterogeneity with an objective and quantitative computerized method. A total of 40 thyroid nodules were evaluated including 28 benign thyroid nodules and 12 malignant thyroid nodules. Grading of heterogeneity on conventional gray-scale ultrasound images and with AmCAD as second reader was performed. Quantification of ultrasonic heterogeneity and other features was performed by a AmCAD program implemented with methods proposed in this article. HI values and other features were markedly differed between benign and malignant nodules, diagnosed by a combination of fine-needle aspiration and surgical pathology results. The routine ultrasound of these nodules, as assessed by an experienced radiologist, could not significantly differentiate between benign and malignant thyroid nodules. However, nodules with second reading by AmCAD showing marked ultrasonic heterogeneity helped a lot in categorisation of nodules. The result in this article indicate that the AmCAD method for evaluation of the ultrasonic heterogeneity of thyroid nodules is an objective and quantitative method that can help in better diagnosis of thyroid malignancy.

P-67

A fulminant complication : necrotizing retroperitoneal fasciitis secondary to acute appendicitis

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Acute appendicitis is a common condition affecting upto 7% of people with highest incidence in second and third decades of life. Late diagnosis can predispose this potentially treatable benign condition to life threatening complications, among one of these, a rare complications is retroperitoneal fasciitis. Retroperitoneal fasciitis is potentially lethal rapidly progressive infection involving the retroperitoneal (extraperitoneal) deep soft tissues and fascial planes of the abdomen and pelvis. To date only 15 cases have been reported with retroperitoneal fasciitis secondary to acute appendicitis.

We present a case of 23 year old woman with abdominal distention, constipation, pain, undocumented fever and vomiting for past few days. On examination she had a tense abdomen with sluggish bowel sounds and was admitted on suspicion of subacute intestinal obstruction. Computed tomography scan showed an appendicolith with indistinct appendiceal walls. Large collections with mottled air lucencies in the retroperitoneal and properitoneal spaces, bilateral anterior abdominal wall and right external oblique muscle extending to umbilicus. Air was also seen dissecting bilateral rectus sheaths.

CONCLUSION : Retroperitoneal fasciitis is one of the most severe complication of the commonly seen acute appendicitis. Although its incidence is rare in literature, and even rarer is its occurrence secondary to appendicitis, however its early diagnosis and surgical treatment may reduce mortality.

P-68

Hypoxic-ischaemic encephalopathy in a post renal transplant patient

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The objective of this study is to report a case of anoxic brain injury due to cardiac arrest in post renal transplant patient.

CASE REPORT: 65 years old patient brought to our department in unconscious state from ICU for MRI brain plain examination to rule out anoxic brain injury. He developed end stage renal disease this year for which he admitted in our renal transplant unit for transplantation. His transplant was done 9 days back after that patient gone into cardiac arrest. His CPR was done and patient revived that but with no higher centre functions and low GCS. He kept on ventilator support and is further managed by steroids and supportive care. He had past history of angiography and CABG 10 years back. His MRI revealed abnormal signals in bilateral cortices of frontal, parietal and temporal lobes predominantly involving grey matter and sparing thalami and basal ganglia, appearing isointense on T1 and FLAIR images and iso to high on T2 W1 and showing restricted diffusion on DWI sequences representing cytotoxic edema. These findings are consistent with Hypoxic-ischaemic encephalopathy.

CONCLUSION: Hypoxic-ischaemic encephalopathy in adults typically occurs after near drowning, asphyxia, cardiac and respiratory arrest. These patients usually had a history of prolong resuscitation and are usually intubated. Grey matter structures are primarily effected but in our case there is relative sparing

of basal ganglia and thalami apart from the typical history of cardiac arrest. Diffusion weighted MRI is the earliest sensitive sequence to detect cytotoxic oedema of hypoxic ischemic injury.

P-69

A case report of Blake pouch cyst in brain

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OBJECTIVE: The objective of this study is to report a case of Blake pouch cyst (BPC) also known as the rudimental fourth ventricular tela choroidea, a rare cystic malformation in the posterior fossa.

CASE REPORT: A 23 years old female patient was referred to our department for MRI brain with contrast. She had a history of chronic headache. She went for Magnetic resonance (MR) imaging brain, which demonstrated an abnormal well circumscribed CSF signal intensity cystic area in the midline location in the posterior fossa, located inferior to normally formed cerebellar vermis, causing slight displacement of 4th ventricle superiorly and shows communication with the 4th ventricle resulting in mild dilatation of the 3rd and lateral ventricles representing obstructive hydrocephalous. It is also causing mass effect on medial cerebellar hemisphere and medulla oblongata. There is periventricular seepage seen secondary to obstructive hydrocephalous. These features represent posterior fossa cystic lesion likely Blake's pouch cyst. On follow up patient went for surgery.

CONCLUSION: Blake's pouch cyst (BPC) is a rare cystic malformation in the posterior fossa. It is believed to be caused by the congenital expansion of the posterior membranous area called inferior medullary velum into the cistern magna, that normally regresses during embryogenesis. However, due to the wide spectrum of the onset and age of patients, the natural history and the pathogenesis are poorly understood.

P-70

Hydatid cyst in the anterior abdominal wall: A rare case report

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OBJECTIVE: The objective of this is to report a rare case of hydated cyst in the anterior abdominal wall presented in department of surgical unit-I, Civil Hospital Karachi, Pakistan.

CASE REPORT: A 30 years old male presented with the complains of gradually increasing pain and swelling in the right iliac fossa. On examination two swellings approximately 5 x 5 cm each in the right lower quadrant near the midline were found. Ultrasound findings showed cystic lesions seen in right iliac fossa and below the umbilicus lateral to the midline no central vascularity noted on Doppler. CT scan findings showed that multiple cystic lesions noted in the pelvis. laparoscopic examination showed cystic swellings in the anterior abdominal wall having no communication with the intraabdominal organs. The surgical exploration revealed mass present in anterior abdominal wall without involvement of intra-abdominal structure.

CONCLUSION: Hydatid cyst in the anterior abdominal wall is one of rare situation. It was not picked by ultrasound and CT scan in this case. Echinococcus

titre was normal. Before operation it was considered as intra-abdominal hydrated cyst but after surgical exploration it was found in anterior abdominal wall without involvement of intra-abdominal structure. It means the hydrated cyst can occur in any part of the body.

P-71

Bifid pancreatic tail with gastric duplication cyst of pancreas in a child with total intestinal malrotation

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OBJECTIVE: Gastric duplication cyst of the pancreas is an exceeding rare developmental anomaly which is usually associated with accessory pancreatic tissue. We report a case of this rare entity in a child with total intestinal malrotation. To our knowledge, this has never been reported previously.

CASE REPORT: A 4 years old girl presented with history of recurrent abdominal pain, predominantly in the epigastric region for the last one and half years. There was no fever, jaundice, icterus, vomiting, haematemesis, melena, diarrhea or constipation. On physical examination, there was mild deep tenderness in the epigastric region just to the left of midline. The child underwent CT scan abdomen with contrast for further evaluation.

The CT examination revealed the pancreatic tail bifurcating into two moieties, each having its own pancreatic duct. The superior moiety was normally enhancing without ductal dilatation. However, the inferior moiety was less enhancing with ductal dilatation and mild surrounding fat stranding. In addition to this, there was a thick walled enhancing cyst at the distal end of this moiety. There was significant fat stranding around this cyst. Compared to a pseudocyst, it had a true wall with enhancing mucosa and underlying submucosal and muscularis layers. Overall appearances were consistent with bifid pancreatic tail with gastric duplication cyst. In addition to this, the child had total intestinal malrotation with all the small bowel loops placed in the right upper quadrant of the abdomen and the large bowel loops predominantly in the left lower quadrant. The DJ flexure was on the right side of the abdomen and there was reversal of the orientation of the superior mesenteric artery and vein.

CONCLUSION: Gastric duplication cysts are exceptionally rare and when present are usually associated with accessory pancreatic tissue. These, however, should be considered in the diagnosis of recurrent epigastric pain especially in the pediatric age group.

P-72

Lumbosacral transitional vertebrae (LSTV) in the patients with low back pain (LBP) through MRI

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OBJECTIVE: To determine the frequency of lumbosacral transitional vertebrae (LSTV) in the patients with low back pain (LBP) through MRI.

METHODS: This cross-sectional study was conducted at Dow Institute of Radiology, Dow University of Health Sciences from 17th May 2016 to 17th November 2016. All patients with 20-60 years of age of either gender presented for MRI lumbosacral spine with low back pain for more than 6 months duration were underwent for MRI of lumbosacral spine. T1 and T2 weighted sagittal and axial images were acquired. The images were evaluated for the presence of transitional vertebra as at least articulation of one transverse process with first sacral segment and presence of an intervertebral disc space caudal to the transitional vertebra.

RESULTS: Mean age of the patients was 41.74 ± 14.65 years. There were 127 (50.8%) males and 123 (49.2%) females. Mean weight, height and BMI of the

patients was 66.73 ± 9.69 Kg, 1.62 ± 0.12 m and 25.45 ± 3.84 Kg/m². Mean duration of low back pain was 9.58 ± 2.28 months. Mild pain severity was observed in 83 (33.1%) patients, moderate 86 (34.4%) while severe pain was observed in 81 (32.4%) patients. Lumbosacral transitional vertebrae were observed in 35 (14%) patients.

CONCLUSION: The frequency of lumbosacral transitional vertebra is found to be 14% on MRI among patients with low back pain LBP.

P-73

Accuracy of limited protocol MRI in diagnosis of lumbar disc herniation

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OBJECTIVE: To evaluate the diagnostic accuracy of limited protocol MRI in diagnosis of lumbar disc herniation keeping full protocol MRI as gold standard in patients presenting with low back pain.

METHODS: This Cross sectional study was conducted at Dow Institute of Radiology, Dow University of Health Sciences from 28th August 2016 till 28th February 2017. All patients of either gender, aged 20-60 years presenting for MRI with low back pain for duration of one or more months were included. Limited protocol MRI consisted of T2 sagittal and axial images and full protocol MRI consisted of T1 and T2 sagittal, T2 fat suppressed and T2 axial images. Both limited and full protocol MRI were evaluated for lumbar disc herniation and diagnostic accuracy, sensitivity, specificity, PPV and NPV was calculated.

RESULTS: Mean age of the patients was 42.62 ± 12.46 years. There were 50.4% males and 49.6% females. Mean weight, height and BMI of the patients was 66.71 ± 9.53 kg, 1.63 ± 0.11 m and 25.16 ± 3.89 kg/m². The sensitivity, specificity, PPV, NPV and diagnostic accuracy of limited protocol MRI for lumbar disc herniation was 97%, 93%, 98%, 90% and 96% respectively.

CONCLUSION: Limited protocol MRI has a high sensitivity, specificity and diagnostic accuracy for diagnosis of lumbar disc herniation in patients presenting with low back pain.

P-74

Baker's cyst in child with ehler danlos syndrome

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OBJECTIVE: Baker's cyst is relatively rare in the paediatric age group. When present, it is usually associated with connective tissue disorders and the child should be thoroughly investigated for these conditions. The objective of this study is to report Ehler Danlos syndrome case presented at our department.

CASE REPORT: A 4 year old female child presented with complaint of swelling at posterior aspect of right knee joint for the last 1 year. There was mild on and off pain. On examination, there was no redness or warmth. The patient then underwent X-ray knee and leg for further evaluation. On X-Ray examination, there was an abnormal soft tissue density at the posterior aspect of the right knee. No evidence of calcification or underlying bony erosion. The child then underwent ultrasound examination for further evaluation. On ultrasound right knee joint, a well-defined anechoic focus with few thin internal septa was identified in the popliteal fossa just deep to the medial head

of gastrocnemius. It was measuring $2.3 \times 1.0 \times 1.9$ cm. No evidence of a soft tissue component or vascularity on color Doppler. Overall sonographic appearances were consistent with Baker's cyst. Mild joint effusion was also noted.

We had rarely come across a child with Baker's cyst. Therefore, we decided to thoroughly investigate the child for associated conditions. On clinical examination, there was hyperlaxity of the joints of both hands and feet. On closer inspection, there was also transparent blue sclera bilaterally. Therefore, in the light of these findings a diagnosis of Ehler Danlos Syndrome was made.

CONCLUSION: Baker's cyst are a rare entity in children and its detection warrants further investigation for connective tissue disorders.

P-75

Abdominal cocoon: A rare cause of intestinal obstruction

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Sclerosing encapsulating peritonitis or abdominal cocoon is a rare cause of small bowel obstruction caused by encasement of small bowel loops with a fibrocollagenous membrane. It can be idiopathic or secondary to peritoneal dialysis, ventriculoperitoneal shunts, treatment with proctolol, tuberculosis, sarcoidosis, familial Mediterranean fever, gastrointestinal malignancy, protein S deficiency, liver transplantation, fibrogenic foreign material, and luteinised ovarian thecomas. Abdominal radiographs may show signs of small-bowel obstruction or the wall of the "cocoon" may calcify. CT scan is the examination of choice which demonstrated the typical findings of a cocoon. The other imaging findings may include signs of obstruction, fixation of intestinal loops, ascites or localised fluid collections, bowel wall thickening, peritoneal or mural calcification, and reactive adenopathy.

We present 2 cases of abdominal cocoon who presented to our department. Both of them had a history of on and off abdominal pain for a few months associated with constipation. Clinical examination showed a non tender mildly distended abdomen with a soft mass felt in the periumbilical region on palpation. X ray and ultrasound findings shows mildly dilated small bowel loops in the centre of abdomen with air fluid levels. The patients then went on to have a contrast enhanced CT scan of the abdomen which revealed dilated loops of small bowel in the centre of the abdomen encased within a thick fibrocollagenous membrane giving the appearance of a cocoon.

P-76

Left sided poland syndrome: A rare congenital deformity

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OBJECTIVE: Poland's syndrome is a rare congenital anterior chest wall deformity which is usually identified on the right side. Left sided deformity is rare and is usually associated with dextrocardia. We however, report an usual case of isolated left sided Poland's syndrome.

CASE REPORT: A 54 year old female patient with complains of off and on cough and fever was referred to our department for High Resolution Computed Tomography of chest. She had no known co-morbid and no significant past medical history.

CT scan showed subtle fine nodularity with some atelectatic changes involving bilateral lung bases. Few small granulomas noted in right lung field likely sequelae of old infection. There was, however, incidental finding of absence of the left pectoral and anterolateral chest wall muscles. The anterior parts of the left third, fourth and fifth ribs were also hypoplastic and deformed. There was also deformity of the sternum. Overall appearances are likely secondary to congenital chest wall deformity (Poland Syndrome).

CONCLUSION: Poland syndrome is a rare congenital anomaly characterized by chest wall deformity with absence of the pectoralis major muscle and underlying rib deformities. It is usually a benign congenital entity and should not be confused with other entities causing atrophy of chest wall muscles such as poliomyelitis.

P-77

Posterior ankle impingement syndrome: Steida process and OS trigonum as etiological factors

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OBJECTIVE: Posterior ankle impingement syndrome refers to a group of abnormal entities resulting in entrapment of the anatomic structure leading to pain and decreased range of motion of the ankle. It may be secondary to an elongated lateral tubercle of the talus (Steida process), which is a normal anatomical variant or it may be due to failure of fusion of the lateral tubercle of the posterior process of talus (ostrigonum).

CASE SERIES

CASE 1: We report a case of a 60 year old female who presented with persistent right ankle pain for 6 months after history of trauma. She underwent X-ray that showed an elongated bony tubercle along the posterolateral aspect of talus bone representing Steida process. There was also a well corticated bony fragment adjacent to this representing OsTrigonum. There was surrounding soft tissue swelling as well. She subsequently underwent an MRI ankle joint which again showed Steida process as well as OsTrigonum. There was significant surrounding fat stranding predominantly at the posterior aspect of the ankle. Abnormal signals were also identified in the flexor hallucis longus tendon. A small collection with enhancing walls representing abscess was also identified in the subcutaneous tissues of the posterolateral aspect of the ankle. Overall appearances are consistent with posterior ankle impingement syndrome caused by ostrigonum and Steida process.

CASE 2: We report a case 40 year old female with complain of pain and swelling in right ankle for 2 years with difficulty in walking. Her X-ray showed an elongated lateral bony projection along the posterior aspect of talus representing steida process. There was adjacent soft tissue swelling with blurring of the fat plane. Her MRI ankle joint showed an elongated bony projection along the posterior aspect of the talus representing Stieda process. There was significant enhancement along the talofibular ligament and the flexor hallucis longus tendon with slight compression over the talofibular ligament. Overall appearances are consistent with posterior ankle impingement syndrome.

CONCLUSION: Posterior ankle impingement syndrome is a rare entity and can be caused by Steida process and/or Os Trigonum. It is important to recognize this entity as the patient may require surgery for definitive treatment.

P-78

Cyber knife robotic radiosurgery for challenging AVMS--- A radiological review

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OBJECTIVE: To highlight the usefulness of Cyber Knife Robotic radiosurgery in the management of Arteriovenous malformation (AVM). To study sites of intracranial AVMs. To evaluate response by pre and post cyber imaging appearance and clinical results. To illustrate the complications of this procedure

MATERIAL AND METHODS: This study carried out at department of Cyberknife Robotic Radiosurgery at Jinnah post graduate Medical centre, Karachi, Pakistan. Data is reviewed for a period of 4 years from December 2012 till December 2016. Patients with AVMs difficult to remove surgically or previous embolization has been tried were included in the study.

RESULTS: A total of 170 patients were selected and treated with Cyber knife Robotic radiosurgery in 2-5 fractions as per indications. AVMs of different intracranial sites were treated which showed clinical and radiological successful outcome. Only 5 cases showed radiation changes which resolved on subsequent followup MRI.

CONCLUSION: Cyber knife stereotactic radiosurgery is an effective, safe & successful treatment option for AVMs. Significant volume reduction on T1 contrast enhanced MRI brain shows overall good efficacy of radiosurgery. Staged-volume Cyber Knife radiosurgery for larger AVMs is a practical treatment approach, providing long-term occlusion rates and low risk of radiation.

P-79

A retrospective single centered study evaluating complications in patients following CT guided lung biopsy

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OBJECTIVE: To evaluate complications in patients undergoing CT guided lung biopsy

METHODS: A retrospective study was conducted from 30th June, 2016 to 28th July, 2017, in a private diagnostic setup in Lahore, Pakistan to access the complication rates experienced by patients after CT guided lung biopsy. The data regarding complications in patients undergoing CT guided lung biopsy was collected from the patient's reports saved in the data base i.e. Picture Archiving and Communication System (PACS).

Adult patients of age greater than 14 years were included in the study. The patients who were biopsied under anesthesia were excluded from the study. After following the inclusion criteria, a total of 69 patients during 13 months were analyzed for complication rates in patients following the CT guided lung biopsy.

RESULTS: According to the results of the study, 84.05% patients did not experience any kind of complication after the CT guided lung biopsy. 4.34% of the chosen sample experienced pain from low to severe. Hemoptysis and pneumothorax affected 5.797% & 8.695% patients respectively. Moreover, 2.89% of the affected patients experienced both hemoptyses and pneumothoraces.

Out of 69 patients, only 1 patient was admitted to a primary care hospital while others were discharged to home in a stable condition.

CONCLUSION: The study demonstrates that CT guided lung biopsy is a safe investigation and is generally well tolerated. Pneumothorax is the major and most common complication, whereas, hemoptysis is the second most. Therefore, equipment and services should be available in a diagnostic setup to deal these most commonly encountered complications for patients undergoing CT guided lung biopsy.

P-80

Variants of posterior cerebral circulation: A case report of persistent primitive trigeminal artery with bilateral fetal posterior cerebral arteries

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Anatomic variants of posterior cerebral circulation including persistent carotid-vertebrobasilar anastomosis (CVBA) and fetal posterior cerebral arteries (FPCA) are incidentally found on cerebral angiograms. Persistent trigeminal artery (PTA) is the most cephalic out of the four persistent arteries of carotid-vertebrobasilar anastomoses and most common among them. Its reported prevalence is 0.1% - 0.6% of cerebral angiograms. FPCA is a common variant seen in 30% of individuals.

We report a patient who presented with body weakness and his MR angiogram incidentally revealed the presence of unilateral PTA and bilateral FPCA in addition to infarct in watershed zone between left ACA and MCA. This variation is classified as type II according to Saltzman classification with variation of bilateral FPCAs instead of unilateral. It is an incidental finding to see these variant arteries but may be associated with aneurysms, ischemia, trigeminal neuralgia and trigeminal cavernous fistula. According to an estimation in 25% of cases, an association of PTA is found with other vascular anomalies. Aneurysms are seen in approximately 14% of patients with a persistent trigeminal artery.

Overall, the knowledge of the embryology and anatomy of the described anatomic variations could be very important for the surgical or endovascular treatment planning for patients who need neurointerventions or have CNS-related symptoms to avoid any unexpected cerebrovascular event.

P-81

MRI appearances of colitis cystica profunda: A rare benign mimicker of colorectal malignancy

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Colitis cystica profunda (CCP) is a rare benign disease characterized by mucin-filled cysts beneath the muscularis mucosa that commonly involves rectum and sigmoid colon. It can present in a localized form or as a more diffuse process involving a variable length of the rectal mucosa or colon. The exact etiology is not fully elucidated, however solitary rectal ulcer syndrome (SRUS) and CCP are considered to be different manifestations of the same pathology due to overlapping features. Endoscopy and barium studies can reveal CCP lesions. Transrectal ultrasound is helpful in the diagnosis by imaging the layers of the rectal wall. Computerized tomography (CT) scan and magnetic resonance imaging (MRI) can show non infiltrating submucosal masses, loss of perirectal fatty tissue and thickening of levator ani muscles. However, confident diagnosis can only be made on histological features of a deep biopsy.

We report a case of 21 year old male patient who presented with bleeding per rectum, diagnosed as solitary ulcer of the rectum on superficial biopsies taken on sigmoidoscopy. MRI findings revealed multiple noninfiltrative multiloculated cystic areas in submucosal distribution of entire rectum. Since an occult malignancy could not be ruled out by superficial biopsies and patient's symptoms worsened, surgical intervention with a low anterior resection and temporary defunctioning ileostomy was performed. The lesion turned out to be CCP on histopathological analysis.

The present review emphasizes that while benign, CCP and SRUS can be confused with mucinous adenocarcinoma, carcinoid tumour, pancreatic heterotopia, inverted or pseudo-invasion of the adenomatous polyp of the anorectum. Knowledge of CCP is important to the clinician in guiding therapeutic intervention while dealing with rectal submucosal lesions.

P-82

Primary extraosseous ewing sarcoma: A rare case report with MR manifestations

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OBJECTIVE: The objective of this study is to report a case of primary extraosseous ewing's sarcoma.

CASE REPORT: A 42 year-old man had a palpable mass at the posteromedial aspect of left thigh. On physical examination, a mass about 6 cm was palpated. It was not movable and non-tender. Plain radiography of the left femur on AP and lateral views showed normal bony structure. MR imaging showed an 8 × 8 × 5 cm³ lobulated mass attached to the gracilis muscle. The heterogenous mass had intermediate signal intensity on T1 weighted images, and high signal intensity on T2 weighted images without evidence of fat suppression on STIR images. The mass was heterogeneously enhanced after contrast enhancement. There was minimal perilesional infiltration noted but it was distinctively separated from the femur. The patient underwent core needle biopsy under the impression of sarcoma. Grossly, this tumor was soft and elastic and dull grayish-pink with multiple central necrotic foci. Microscopically the neoplastic lesion arranged in ovoid nodules within dermis. These nodules are separated by fibrous septae. Individual cells contain scant amount of cytoplasm and round to ovoid nuclei. Areas of necrosis are present. Immunohistochemical stain performed showed following reactivity pattern: cytokeratin AE1/AE3 was focal positive, LCA negative, desmin negative and positive for MIC-2. Diagnosis: Left thigh swelling excision biopsy, small round blue cell tumor. After total surgical excision patients was recommended for further work up and follow up.

CONCLUSION: Although the MR appearance of EES is non-specific, MR imaging is used in defining the extent of tumor and the involvement of adjacent structures. EES should be included in the differential diagnosis of noncalcified soft tissue tumors in specific anatomic sites and age groups.

P-83

Mediastinal lymphangioliomyomatosis; A rare presentation in pregnancy; Case report

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OBJECTIVE: The objective of this study is to report a case of a young woman with massive cystic mediastinal masses seen on CT chest and raised the possible

differential diagnosis of mediastinal lymphangiomyomatosis (LAM) which later on confirmed on postoperative histopathological analysis.

CASE REPORT: A 28-year-old woman was requested to our hospital for CT chest. Her clinical complains were gradually worsening hoarseness of voice during last two months of her gestation period. No other significant past medical history was given except recent child birth two month back. Contrast enhanced-chest CT revealed multi-locular cystic mediastinal structures containing fluid attenuated material, diffusely involving whole of mediastinum, encasing main pulmonary vessels. There was also splenic involvement with multiple hypodense lesions. None of these lesions were showing post contrast enhancement. Multiple fluid attenuated (29 HU) cystic structures seen lying along lateral aortic border as well as along both para tracheal and in sub carinal region. Splenic parenchyma showed multiple hypodense lesions with diffuse infiltration. Patient underwent massive thoracic surgery it was long and sensitive operation, cystic tubular structures were excised from mediastinum and sent for histopathological analysis.

Histopathology showed cystic lesion with lining of flattened and some plump cells, surrounding cyst walls having foci of muscle tissue along with foci of inflammatory infiltrates predominately lymphocytes. Occasional lymphoid follicles were also appreciated. Scattered blood cells seen. Final conclusion includes mediastinal mass and cysts along pulmonary artery, features in favor of mediastinal lymphangiomyomatosis.

CONCLUSION: This case report highlights the mediastinal presentation of LAM (a rare multisystem disease) being aggravated during pregnancy confirming its strong association with hormones. Diagnosis requires clinical suspicion and can be best aided by chest CT. There is currently no definitive treatment. Management is supportive with bronchodilators, long term oxygen therapy and lung transplantation if necessary however rate of progression of disease, is variable. Early diagnosis and curative surgery results in disease regression.

P-84

Ultrasonographic patterns in patients presenting with acute scrotum

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OBJECTIVE: To determine the frequency of different ultrasonographic patterns in patients presenting with acute scrotum.

METHODOLOGY: This Cross-sectional study was conducted at Dow Institute of Radiology, Dow University of Health Sciences from 20th April 2016 till 20th October 2016. All male patients aged 16-45 years presenting with acute scrotum within 24 hours underwent scrotal ultrasound with color doppler imaging. Comparative axial and sagittal views of each scrotum were obtained. Images were interpreted by two radiologists in terms of echotexture, echogenicity, size of testes, hydrocele and blood flow of testes and epididymis by color doppler study.

RESULTS: Mean age of the patients was 31.82 ± 10.86 years. There were majority 89 (37.7%) of the patients with =30 years of age. Heterogenous echo texture of testes was found in 127 (53.8%), epididymal enlargement in 205 (39.4%), hydrocele 166 (70.3%), increased degree of blood flow in testes 172 (72.9%) and increased degree of blood flow in epididymis was observed in 173 (73.3%) patients.

CONCLUSION: Heterogeneous echotexture of the testes, presence of epididymal enlargement, hydrocele, increased blood flow within the testes and epididymis were frequently observed sonographic patterns in patients with acute scrotum.

P-85

LÉRI weill dyschondrosteosis

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OBJECTIVE: Léri Weill dyschondrosteosis is an autosomal (pseudautosomal) dominant genetic disorder characterized by mesomelic dwarfism with madelung deformity. The purpose of this case report is to make awareness regarding this rare disorder among the radiologist community.

CASE REPORT: An 8 years old girl underwent X-ray of the wrist and elbow for the evaluation of skeletal age. The child had a clinical history of short stature. There was no other significant complaints. The prenatal and antenatal history was unremarkable. There was no mental retardation or delayed milestones. On physical examination, the child had relatively short leg and forearms in relation to the thigh and arms, respectively. No other significant physical examination abnormalities were identified.

The X-ray of the wrist revealed presence of eight carpal bones. The ossification center for the sesamoid bone at the base of thumb has also appeared. In the elbow, all the ossification centers had appeared except that for the external epicondyle. The skeletal bone age according to the Greulich and Pyle method was estimated to be 11 years showing accelerated bone growth. In addition to this, there was evidence of bilateral mesomelic dwarfism characterized by short forearm bones. In addition, bilateral radius, were also shorter than the ulna. This was resulting in bowing of the ulna with positive ulnar variance. The distal radial epiphysis had a characteristic curved shaped with V-shaped proximal row of carpal bones invaginating between radius and ulna. Overall appearances were consistent with mesomelic dwarfism with madelung deformity (Léri weill dyschondrosteosis).

CONCLUSION: Presence of mesomelic dwarfism with bilateral madelung deformity constitutes Léri Weill dyschondrosteosis which is a rare entity but should be recognized by radiologists.

P-86

Esophageal carcinoma with acro- metastasis: A rare case report

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OBJECTIVE: The aim of this case report is to present a rare case of bony metastases originated from squamous cell carcinoma of the mid esophagus, thus, underline the need for early diagnosis and possible treatment of suspicious bony lesions among patients with esophageal malignancy.

CASE PRESENTATION: A 35years old male, presented to our oncology department with the history of dysphagia. He underwent esophagectomy. Histopathology revealed moderately differentiated squamous cell carcinoma with the size of 5.5cm x 3.5cm. Staging was also done showing stage III-C. Radiation therapy was done. He then developed pain in his right thumb with restricted movements. Xray of right hand showed lytic lesions in head and distal shaft of first metacarpal. CT scan chest also confirmed lung metastasis.

CONCLUSION: Survival in patients with esophageal cancer depends on the stage of the disease. , we emphasize the importance of the follow-up of patients who have been treated for primary esophageal malignancy. Constant awareness and concern of the physician is required. Every high-risk lesion has to be revealed and removed. Such specimens should be biopsied and histopathologically evaluated. Further knowledge is required in the field of the diagnosis and options of treatment for metastatic disease from esophageal carcinoma.

P-87**Faeces per vaginum: Prolapse of small intestine from uterine perforation at dilatation and curettage**

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INTRODUCTION: Dilatation and curettage (D&C) is one of the most frequently performed procedures for first trimester surgical abortion, also non obstetric D&C can be performed for both diagnostic and therapeutic indications. The mortality and morbidity of D&C are very low, and perforation of uterus is rare. The incidence is increased for a pregnant or recently postpartum uterus (5%), and it is less for premenopausal (0.3%) and postmenopausal women (2.6%). Here, we report uterine perforation caused by D&C resulting in pneumoperitoneum and presence of faeces per vaginum.

CASE REPORT: A 32 year old female came to the emergency department with severe lower abdominal pain and discomfort. She also complained of passage of some foul smelling material from vagina. She had a history of missed abortion at 11 weeks for which Dilatation and curettage was done 1 week back. After that she developed lower abdominal pain that aggravated with passage of time. CT scan whole abdomen was performed that demonstrated perforation of uterine fundus with herniation of a loop of ileum into the uterine cavity. Further, there was also injury to the bowel loop resulting in pneumoperitoneum. Immediate laparotomy was performed and uterus and ileum was reconstructed.

CONCLUSION: Although this complication is known but only a small percentage of women with perforation suffer intestinal prolapse. It is considered to be caused by "unsafe" D&C performed by inexperienced persons or even by non physicians but we must be aware that these adverse events can occur even during routine D&C.

P-88**Diagnostic accuracy of pelvic magnetic resonance imaging for assessment of the cervical involvement in endometrial cancer**

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OBJECTIVE: The main objective is to assess the diagnostic accuracy of pelvic MRI for assessment of the cervical involvement in endometrial cancer.

METHOD: A cross sectional analytical study was performed at the Radiology department Aga Khan university hospital (AKUH), Karachi from January 2014 to December 2015 with sample size of 56 patients using Lin Naing sample size calculator with 95% confidence interval. Biopsy proven patients who had their MRI and histopathology at AKUH were included and those patients who were treated with chemo/radiotherapy were excluded.

The extent of cervical involvement by endometrial carcinoma was seen on T2WI images, and findings were correlated after surgery taking histopathology as gold standard. Data was entered and analyzed using SPSS version 21. The sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy were calculated.

RESULTS: The mean age of patients in our study was 60.87 ± 8.80 years (range 37-84 years). The most common complaint was post-menopausal bleeding (66.1%). The most common histological subtype was endometrioid adenocarcinoma (89.3%). The sensitivity, specificity, diagnostic accuracy, positive and negative predictive values of MRI in the detection of cervical invasion were 92.85%, 88.09%, 89.28%, 72.22% and 97.36% respectively.

CONCLUSION: MRI is the most sensitive and specific imaging modality for detection of cervical invasion in endometrial carcinoma.

P-89**Diagnostic accuracy of CT scan in pre-operative staging workup of renal cell carcinoma**

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AIMS & OBJECTIVES: CT scan is most frequently used in diagnostic accuracy in staging renal cell carcinoma by taking histopathological finding as gold standard.

MATERIALS & METHODS: This was a cross sectional descriptive study conducted at department of Radiology, Karachi Institute of Radiotherapy and Nuclear Medicine from 2016 to 2017. A total of 206 patients with biopsy proven renal cell carcinoma were included in the study. A detail history was taken from the patient. CT scan of selected patients was performed. After CT scan, patients were sent to surgery and their surgical specimen was sent for histopathology. Patients having stage 1 and 1V were excluded from the study.

RESULTS: The sensitivity, specificity, positive predicted value, negative predictive value and accuracy of CT scan for renal parenchyma involvement were 74.2%, 75%, 79.3%, 69.2% and 75%, for peri-nephric fat were 77.5%, 75.9%, 81.6%, 71%, and 77% for detecting stage 3A were 76.9%, 73.7%, 80%, 70%, 76%, and for 3B, 80%, 82.4%, 77.8%, and 81% respectively. Mean age of these patients was 53 ± 14 Years.

CONCLUSION: CT is an excellent imaging technique for the evaluation of solid renal masses and the preoperative staging of renal cell carcinoma.

P-90**Cranial nerve palsies: Pitfalls and diagnostic errors in magnetic resonance imaging of brain**

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Latest advances have revolutionized neuroimaging but patients presenting with cranial nerve palsies are sometimes a diagnostic dilemma. Radiologist face the daily challenge of analyzing and interpreting a large number of images in a timely manner. Minimizing errors is essential for high quality diagnostics and patient care.

In cranial nerve palsies there are certain areas within the head at routine brain imaging in which the interpreting radiologists most prone to make errors. These areas or "blind spots" include orbits, cavernous sinuses, clivus, meckle's cave, brain stem, skull base and parapharyngeal soft tissues. Knowledge of these blind spots is crucial for correct interpretation of magnetic resonance imaging (MRI) of brain in patient presenting with cranial nerve palsies.

In this study review of these "blind spots" and pitfalls in interpretation of MRI brain in cranial nerve palsies is given. A comprehensive checklist for evaluation of these blind spots is presented to avoid errors and misinterpretations in MRI. Benefits of routine use of contrast enhanced MRI in this clinical setting is discussed.

P-91**Spontaneous pneumocephalus associated with non traumatic cerebrospinal fluid leak**

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INTRODUCTION: Pneumocephalus (PNC) is defined as pathological collection of extra-axial air within the cranial cavity. Chiari was the first to describe PNC in 1884. The main cause of PNC is head injury accounts for 74% of all cases followed by intracranial neoplasms, infections, surgery and diagnostic or

neurosurgical interventions. Spontaneous, non-traumatic pneumocephalus is very uncommon, and most cases result from nose blowing, sneezing, and the Valsalva maneuver and by environmental pressures. We report a rare case of spontaneous pneumocephalus associated with CSF leak secondary to a bony defect in cribriform plate of ethmoid without history of trauma.

CASE REPORT: 40-year-old female without any significant past medical history presented to the emergency room complaining of severe headache and watery discharge from the left nostril. The patient had no previous history of trauma. Physical examination was significant for tenderness in left frontal and nasal region with clear discharge from right nostril. Computed Tomography (CT) scan of the brain showed extensive amount of extra-axial air within the cranium indicative of pneumocephalus. CT scan of facial bones showed bony defect within cribriform plate of ethmoid to the left of midline with abnormal CSF collection. The patient was started on intravenous antibiotics for meningitis prophylaxis and subsequently underwent trans-sphenoidal repair of cerebrospinal fluid leak. CSF rhinorrhea stopped completely after the surgery with near complete resolution of pneumocephalus before discharge.

CONCLUSION: Few cases of non traumatic CSF leak and pneumocephalus has been described in the literature as in this case. Early identification of pneumocephalus and surgical intervention can help decrease the morbidity and avoid possible complications.

P-92

Unusual case of caesarean scar ectopic pregnancy; An uncommon entity a case report

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INTRODUCTION: Ectopic pregnancy occurs when a blastocyst abnormally implants outside the endometrium of the uterus. The incidence of ectopic pregnancy has increased from 0.37% of pregnancies in 1948 to approximately 2% of pregnancies in 1992. Caesarean scar pregnancies are also rare and estimated to occur in less than 1% of all pregnancies.

CASE REPORT: 30 years old patient parity 3 + 3 status post Dilatation and Curettage came with heavy vaginal bleeding. Her last menstrual period dated 2nd April-17 and serum beta HCG levels were 122. She has previous 3 caesarean sections. Ultrasound shows enlarge bulky uterus with thickened endometrium and a heterogeneous area in anterior uterine wall mx 4.9x3.0cm with multiple cystic areas and moving internal echoes. Magnetic resonance imaging (MRI) demonstrate abnormal signal intensity lesion along anterior uterine wall extending into endometrial canal mx 6.1cm in AP dimension showing areas of flow void on T2W and hyper intensity on T1W image. Histopathology revealed chorionic villi and blood products findings confirmed scar ectopic pregnancy.

CONCLUSION: To the best of our knowledge, the availability of literature regarding scar ectopic is rare. With increased rates of Caesarean section, increased number of scar ectopic pregnancies expected. Diagnosis in these patients is important for management purpose which depends on clinical presentation.

P-93

Awareness of ionizing radiation doses among doctors and medical technologists of various medical colleges

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OBJECTIVE: To determine the knowledge of ionizing radiation doses from common radiological imaging among doctors and medical technologists of various medical colleges.

METHODS: A survey regarding awareness of ionization radiation was collected was conducted among 4th, 5th and 6th year (house job) medical students of Dow Medical College (DMC), Dow International Medical College (DIMC), Hamdard University and Shaheed Mohtarma Benazir Bhutto Medical College. Data was also collected from bachelor students of Dow Institute of Radiology.

RESULTS: A total of 377 students were enrolled in the study out of which majority 144 (38.2%) were 5th year medical students followed by 6th year 101 (26.8%), 79 (21%) 4th year while 53 (14.1%) students were radiology technologist. Most of the students (n=150, 39.8%) were from Dow Medical College (DMC) followed by Dow International Medical College (DIMC) 120 (31.8%), Dow Institute of Radiology 53 (14.1%), Hamdard University 34 (9%) and Shaheed Mohtarma Benazir Bhutto Medical College 20 (5.3%).

Age group of majority of the patients (n=295, 78.2%) was 20-24 years, followed by 25-29 years 57 (15.1%), 30-34 years 22 (5.8%) while only 3 (0.8%) were presented with 35 years of age or more. Female preponderance was found to be higher 279 (74%) than that of males 98 (26%).

Doctor's knowledge was found significantly higher regarding radiation exposed by person from natural background (p-value <0.001), Head CT radiation dose (p-value 0.002), bone scan radiation dose (p-value 0.003), barium metal radiation dose p-value 0.028), PET scan radiation dose (p-value 0.009) and mammography (p-value 0.02) as compared to medical technologists. Awareness regarding radiation dose of Spine MRI and abdominal ultrasound was found correct in all doctors and medical technologists.

CONCLUSION: There is a dire need of increasing awareness among medical technologists regarding ionization radiation.

P-94

Wernicke's encephalopathy in a patient with enterocutaneous fistula (A rare case report)

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INTRODUCTION: Wernicke's encephalopathy (WE) is an acute neurological syndrome, primarily caused by acute thiamine deficiency. Early diagnosis and emergent thiamine replacement can prevent significant morbidity and even mortality. Though chronic alcoholism is the most common cause worldwide, other important risk factors are also present, so the diagnosis should also be considered in non alcoholic patients with relevant neurological symptoms. The prevalence of WE in general population has been estimated varies from 0.4 to 2.8. It seems to be much higher in alcoholics than in non alcoholics. These studies have revealed that diagnosis of WE is often made only postmortem and less than 20% of the patients obtained a right diagnosis during life. Here we present a case of WE in a patient with enterocutaneous fistula due to bowel surgery.

CASE REPORT: A 55 year old female presented with iatrogenic intestinal perforation due to laproscopic cholecystectomy, undergone laparotomy. 2 months after surgery she presented with high output enterocutaneous fistula and was kept NPO followed by total parenteral nutrition as a part of conservative management. 1 month later she presented with sudden onset of seizures and altered consciousness level. MRI brain was performed which revealed the features of WE and thiamine replacement was started. Gradually the symptoms improved but patient expired due to septic shock.

CONCLUSION: The wide spectrum of clinical presentation and low prevalence of WE are attributable to the delayed diagnosis of this condition. So the disease should be suspected in post surgical patients who have unexpected mental status changes and correlation with adjuvant MR features is fundamental for improving the prognosis.

P-95**Mondor's disease of breast: A rare entity (case series)**

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Mondor's disease is an unusual and little-known pathology of the breast, characterized by superficial thrombophlebitis. It was first described by Faage in 1869 and further in detail by Henry Mondor in 1939. Most of the patients do not fall under case studies of the scientific literature, given the reported incidence rate between 0.5% and 0.8%. This condition is usually a benign, self-limiting process and requires only symptomatic treatment. The exact cause of Mondor's disease is still unclear, and its etiopathogenesis has been controversial. Approximately 50 - 60% of the cases are idiopathic, and 40 - 50% has suspected causes. It is associated with breast cancer in 2.4% to 12% of cases.

A diagnosis of Mondor's disease can be made satisfactorily on the basis of clinical history and findings. Mammography can aid in the diagnosis of this entity. However, Breast sonography with doppler is a convenient, reproducible, inexpensive and comfortable method of obtaining real-time images.

Here in this case series we present two cases of mondor's disease diagnosed in different age groups with different etiological factors and features. Our series is small as it is a rare entity but breast imagers should have an awareness of this condition and it's imaging findings to avoid potential misdiagnosis.

P-96**Isolated erosive osteoarthritis of the first carpometacarpal joints**

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OBJECTIVE: Erosive osteoarthritis is a variant of osteoarthritis having additional erosive/inflammatory component that occurs in a minority of patients. It primarily affects the proximal and distal interphalangeal joints with a classic Gull's wing appearance. However, isolated erosive osteoarthritis of the first carpometacarpal joint is relatively unusual.

CASE REPORT:

CASE-1: A 45 year old diabetic woman presented with the complaints of numbness in both hands for 3-4 months. There was also pain in the left thumb especially while gripping objects. There was no history of fever, trauma, swelling or redness. Patient subsequently underwent X-ray of both hands for further evaluation.

Plain X-ray showed significant erosive arthritic changes at the first carpometacarpal joints of both the hands. There was associated loss of joint space and sclerosis. Multiple lucent foci were also identified in the subchondral region of the affected joints representing geodes. Rest of the joints appeared unremarkable. There was no periosteal reaction, osteophyte formation. Soft tissues were unremarkable. Overall appearances were consistent with erosive osteoarthritis of both hands.

CASE-2: A 45 year old woman presented with complains of pain and tenderness especially while gripping object in left thumb for 5-6 years. There was no history of fever, trauma, swelling or redness. She was also complaining of pain in both knees and right foot for 5-6 years. She also had past history of thalassemia minor. Patient subsequently underwent X-ray of both hands for further evaluation.

Plain X-ray showed erosive changes with some lytic areas at the 1st and 2nd carpometacarpal joints of the left hand. There was associated loss of joint space and sclerosis at the joint margins. Rest of the visualized bones and joints appear unremarkable. There was no periosteal reaction. Overall appearances were consistent with erosive osteoarthritis of left hand.

CONCLUSION: Erosive arthritic changes of the first carpometacarpal joints are a relatively unusual entity and should be differentiated from other causes of erosive arthritides.

P-97**Postpartum aortic dissection and pulmonary embolism in a patient with marfan's syndrome: A rare and difficult clinical scenario**

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INTRODUCTION: Aortic dissection has an estimated incidence of 2.9 per 100,000 person years in general population. In pregnancy, acute type A aortic dissection has an overall incidence of 0.4 cases per 100,000 person years. In 14-50 % of the cases it is associated with Marfan's syndrome. It is a complex clinical scenario, difficult to diagnose and difficult to treat, considering the survival of both mother and fetus. Here we present a case of Stanford type A aortic dissection along with pulmonary embolism diagnosed in postpartum period in a young patient with Marfan's syndrome.

CASE REPORT: A 33 year old woman known case of Marfan's Syndrome was shifted to the emergency department with acute onset of severe chest pain and shortness of breath. The patient was hemodynamically unstable and was in her early postpartum period with a history of Caesarian section 20 days back. Patient was shifted to the ultrasound department for Doppler examination of both lower limbs and was found to have deep venous thrombosis bilaterally. Suspecting Pulmonary embolism, patient was immediately shifted for CT Pulmonary angiography that revealed extensive bilateral pulmonary embolism with multiple patches of pulmonary infarcts, consolidation and bilateral pleural effusion. Additionally, CT Scan revealed Stanford Type A Aortic dissection. Unfortunately, as soon as the patient was shifted to intensive care unit, she collapsed and expired.

CONCLUSION: Pregnant women associated with aortic dissection are a special group of patients and a team with multidisciplinary expertise would be important to ensure the best clinical decisions for its treatment.

P-98**Adult presentation of hirschsprung's disease (HD)/congenital megacolon; A case report**

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Hirschsprung's disease is characterized by absence of both myenteric (Auerbach) and submucosal (Meissner) plexuses in the affected segment of bowel. Anus is invariably involved with variable proximal extent of colonic involvement. Most common presentation is failure to pass meconium in first 24 - 48 hours of birth, with most of the cases diagnosed in infancy or early childhood. In minority of the patients, it goes undetected and presents in adulthood as chronic constipation. The primary pathogenic defect in adult HD is the same as in infant or childhood HD. Here, we present a case of 17 year old boy presented with history of constipation and failure to thrive since early childhood, increased flatulence, lower abdominal pain and anemia. CT revealed significant distention of colon with air and fecal matter starting from caecum to rectosigmoid junction. Abrupt transition of caliber seen at rectosigmoid junction with collapsed rectum. Based on imaging findings a radiological diagnosis of Hirschsprung's disease was made and urgent specialist referral advised to avoid complications. Patient underwent elective exploratory laparotomy and diagnosis confirmed at intraoperative frozen section biopsy that revealed aganglionosis of collapsed segment. He underwent proctocolectomy and ileoanal pouch anastomosis.

Patient tolerated procedure well and no immediate postsurgical complications were observed. Considering the fact that it's a rare and less well recognized cause of chronic constipation; it can easily be missed and hence should always be kept in mind in cases of refractory constipation. To conclude; early diagnosis and management cannot only cause exhilarating effects on a person's health but can have a major impact on an individual as a whole.

P-99

Dynamic glucose enhanced magnetic resonance imaging

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OBJECTIVE: D-glucose has potential as a biodegradable contrast agent that can be detected using the chemical exchange saturation transfer (CEST) technique (glucoCEST) or relaxation-based (T1rho or T2) approaches. Here we provide a demonstration of the feasibility of DGE-MRI in four normal volunteers and in three patients with glioma.

METHOD: Informed consent was obtained prior to the study from all participants. For this study, limited to age group 18 - 75 years, all participants were required to fast for at least 8 hours and have a baseline fasting glucose level within the normal range. Furthermore, exclusion criteria for recruitment: persons with a) diabetes mellitus; b) sickle cell disease; c) blood iron; d) Hypertension requiring medication; e) Multiple myeloma; f) Solid organ transplant; h) History of severe hepatic disease/liver transplant/pending liver transplant. For healthy volunteers, additional exclusion criteria were seizure disorder and taking prescription medicine.

RESULTS: Dynamic glucose-enhanced (DGE) image data from four normal volunteers and three glioma patients showed strong signal enhancement in blood vessels, while the enhancement varied spatially over the tumor. Areas of enhancement differed spatially between DGE and conventional Gd-enhanced imaging, suggesting complementary image information content for these two types of agents. In addition, different tumor areas enhanced with D-glucose at different times post-infusion, suggesting a sensitivity to perfusion-related properties such as substrate delivery and blood-brain barrier (BBB) permeability.

CONCLUSION: Using DGE-MRI, findings provide preliminary support for potential use of D-glucose as an MRI contrast agent and the use of DGE for studying glucose uptake properties of tumors and the brain.

P-100

Cam type of femoroacetabular impingement; A rare case report

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OBJECTIVE: Femoroacetabular impingement (FAI) is a rare disorder caused by abnormal shape of the acetabulum and/or the femoral head causing dynamic impairment of transmission of force along the hip joint. This results in chronic hip pain and early osteoarthritic changes. Two types have been described; Pincer and Cam. We report a rare case report of Cam type of Femoroacetabular Impingement.

CASE REPORT: A 35 years old male presented with history of pain in the bilateral hip joints for last 3 years and has progressively increased. There was no history of fever, swelling and redness. There were no complaints of arthralgia elsewhere in the body. There was no significant past history of medical comorbidities, surgery or trauma. On examination, there was aggravation of pain with limited mobility on internal rotation and flexion of both the hips. The

patient subsequently underwent X-ray, CT and MRI examination for further evaluation.

The Plain X-ray of the Pelvis and the CT scan showed irregular contour of the femoral head and neck junction with a bony bump at the lateral aspect. This was giving a typical pistol grip deformity of the proximal femur, more marked on the right side. Few lucent foci were also identified in subcortical location at this site representing geodes. Tiny osteophytes were also identified. The patient then underwent MRI examination to evaluate associated soft tissue injuries. In addition to the abnormalities classic pistol grip deformity, there were few abnormal T2 hyperintense signals at lateral acetabular labrum representing tear. Overall appearances were consistent with bilateral Cam type of femoroacetabular impingement with development of early osteoarthritic changes.

CONCLUSION: Femoroacetabular impingement is rare morphological disorder that can result in early degenerative changes. Prompt diagnosis and management can lead to significantly better outcomes.

P-101

Giant mesenteric lipoma - Unusual cause of abdominal pain

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We report a rare case of giant mesenteric lipoma presenting with abdominal pain and distension. A 14-yr-old girl underwent laparoscopic resection for a giant mesenteric lipoma causing displacement of the bowel loops towards left side without evidence of bowel obstruction. It is associated with large defect in right anteriolateral abdominal wall reaching upto subcutaneous tissues. It is also displacing the liver superiorly and right kidney inferiorly. On histopathology it shows homogenous mature adipose tissue without cellular atypia and proved to be mesenteric lipoma. It should be excised or debulk as soon as possible because it can lead to intestinal obstruction.

P-102

Mammographic criteria for determining the diagnostic accuracy of microcalcifications in the detection of malignant breast lesions

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OBJECTIVE: To study the diagnostic accuracy of microcalcifications in the detection of malignant breast lesions in mammography, using histopathology as a gold standard in women undergoing mammography.

Primary breast carcinoma is one of the commonest causes of cancer deaths among females. Breast cancer is a progressive disease, but progression can be arrested by early detection and treatment at a sufficiently early phase. Microcalcifications on mammography can detect the breast carcinoma in its earlier stages, resulting in good prognosis and improved patient's survival.

MATERIALS AND METHODS: A prospective study was conducted from November 2010 to October 2011 in the Department of Radiology, Aga Khan University Hospital, Karachi. 144 consecutive female patients referred for mammography, having suspicious microcalcifications on mammogram followed by biopsy and histopathology, were included in the study. Patients who were not operated in Aga Khan University or were lost to follow-up were excluded from the study. Sensitivity, specificity, negative predictive value, positive predictive value and accuracy of microcalcifications against the gold standard were calculated.

RESULT: Microcalcifications are highly sensitive and accurate tool for breast cancer detection having sensitivity of 88%, specificity of 62.8%, positive predictive value of 55.7%, and negative predictive value of 90.8% with diagnostic accuracy of 71.5%.

CONCLUSION: We conclude that microcalcifications morphological descriptors and categories in BI-RADS lexicon could help predict the risk of malignancy for suspicious microcalcifications. However multicentric study with larger population is necessary to further assess the specificity and positive predictive value of morphology and distribution descriptors simultaneously to increase the usefulness of BI-RADS systems.

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Triangulated brain: bilateral sinking skin flap syndrome

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OBJECTIVE: We report a case of a patient developing bilateral sinking skin flap syndrome (paradoxical brain herniation) after craniectomy. To date, only unilateral sinking skin flap syndrome have been reported. To our knowledge, no case report has been reported of bilateral sinking skin flap syndrome.

CASE REPORT: A middle aged patient encountered multiple haemorrhagic contusion and bilateral subdural haematoma as a result of motor vehicle accident. The initial CT scan also showed diffuse brain oedema with effacement of the basal cisterns. He subsequent underwent emergent neurosurgery with bilateral frontoparietal craniectomy to relieve elevating intracranial pressure. However, few days after the surgery, the patient started to have headache, blurring of vision and suddenly dropped GCS. (Glasgow Coma scale). CT scan was performed which showed developed bilateral paradoxical herniation of the brain known as sinking skin flap syndrome. This gave a triangulated appearance to the brain. There were no interventions performed or history of trauma or fall during this period. The patient underwent emergent cranioplasty and after a course of few days in the intensive care unit, was discharged with a stable condition. To our knowledge, this is the first case report of bilateral sinking skin flap syndrome.

CONCLUSION: Sinking skin flap syndrome is a potentially fatal complication that can occur after large craniectomy. Its recognition and immediate communication to the primary care physician is of utmost importance.

P-104

Combining MR spectroscopy & MRI diagnosing focal brain lesions in children

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INTRODUCTION: We attempted to find the sensitivity and specificity of various pediatric brain masses in the Pakistani population while keeping histopathology or clinical diagnosis as the gold standard.

METHODS: This was a retrospective study that was conducted from January 2007 to January 2016. We reviewed the records of 204 patients that presented to the radiology department of Aga Khan University Hospital. Out of the 204, 135 pediatric patients in the 0 - 18 age group with focal brain lesions who underwent magnetic resonance spectroscopy (MRS) and a biopsy or clinical diagnosis were included. If histopathology was available, it was taken as the gold standard test; otherwise, clinical diagnosis was considered the gold standard.

RESULTS: We had a total of 135 patients, of which 71 (52.6%) were male and 64 (47.4%) were female. The mean age represented was 7.2 ± 4.5 years with a range of 1-18 years. We found radiology (magnetic resonance imaging (MRI) and MRS) to have 91.7% sensitivity and 94.3% specificity for tumors.

For leukodystrophy, there was a 64.3% sensitivity and a 97.3% specificity. On the other hand, infection and mitochondrial disorders had sensitivities of 35.7% and 21.7%, respectively, and specificities of 98.9% and 97.1%, respectively. The category labeled "others" had a sensitivity of 27.4% and a specificity of 86.0%.

CONCLUSION: A combination of MRI and MRS was highly sensitive and specific for tumors. For infections, leukodystrophy, mitochondrial disorders, and the category of "others," it was highly specific but poorly sensitive.

P-105

Sensitivity of shearwave elastography in differentiating benign & malignant solid breast lesions

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OBJECTIVE: To determine the Sensitivity of Shear wave Elastography to differentiate Benign & Malignant solid breast mass lesions in correlation with Histopathology

STUDY DESIGN: Cross sectional, Descriptive Study

MATERIAL & METHODS: This study comprises of 105 consecutive patients with palpable solid breast mass lesions, were subjected to Ultrasound shear wave elastography followed by Trucut biopsy for Histopathology. Two images of each lesion over the central and pericentral, stiff area were taken. Minimum, mean & maximum values were calculated. Statistical analyses were carried out by using SPSS 20. ROC curve was developed. Sensitivity, specificity, PPV, NPV and cutoff values for benign and malignant lesion were calculated in relation to histopathology results.

RESULTS: A total of 105 patients with solid breast lump were evaluated in this study. On histopathology out of 47 benign lesions 21 (44.6%) were found malignant while all 58 clinically and radiologically diagnosed cases were malignant on histopathology. Mean age of the patients with benign histopathology was 43.9 ± 9.7 years while the mean age of patients with malignant histopathology was 43.7 ± 9.2 years. The cut off mean elasticity value was 75 kpa, any lesion with value above 75 will be malignant while below will be benign. The area under ROC curve were 0.966 for mean 0.848 for minimum, & 0.975 for the maximum elasticity with Sensitivity of 95% for mean, 110.5% for maximum and 52% for minimum. Specificity of 87.2%, 86.17 %, 80.9% with a PPV of 89.15%, 75%, 89.83% and NPV of 89.13%, 87.87%, 95% for mean, minimum and maximum elastic values respectively.

CONCLUSION: SWE gives rise to additional valuable quantitative data to gray scale ultrasound examination on solid breast lesions. It may serve as a complementary method for diagnosis of breast lesions. Although long-term clinical studies are required to accurately select lesions requiring biopsy.

P-106

Hut lung disease in pakistani rural female population secondary to domestic pollution - comparison and correlation of HRCT with bronchoscopic findings

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OBJECTIVE: To Compare and correlate the HRCT and bronchoscopic findings in Hut Lung disease also known as domestically acquired particulate lung disease (DAPLD).

MATERIAL AND METHOD: This observational descriptive study was carried out at the Department of Radiology, Jinnah Postgraduate Medical Centre and National Medical Center, Karachi. Data was collected from Dec 2016 to January 2017. Patients referred from chest medicine OPD with complaints of cough and dyspnea were included in the study. According to the inclusion criteria all patients with history of long term biomass exposure and bronchoscopic findings of anthracosis were included in this study. According to the exclusion criteria patient with history of industrial or mining exposure or pulmonary tuberculosis were excluded. HRCT Chest of all patients was performed on 64 slice CT Toshiba Asteionand findings were analyzed on Synapse.

RESULTS: Thirty-three patients were selected, SPSS version 20.0 was used for data analysis. Bronchoscopy was performed in all patients with bronchoalveolar lavage which was sent for AFB, C/S, fungal culture and cytology. Bronchoscopy showed inflamed and distorted bronchi with typical anthracotic plaques. HRCT of all the patients was reviewed. Common findings included small intrapulmonary nodules with sparing of the subpleural parenchyma, bilateral patchy ground glass haze, inter and intralobular septal thickening and fibrotic changes leading to para septal emphysema and also fibrotic masses giving appearances of progressive massive fibrosis. All these patients also showed increased density within the mediastinal and hilar lymph nodes. Pleural thickening with non-infective pleural effusion were also noted in few cases. On the basis of the bronchoscopic and radiological findings and typical history of long term biomass exposure, patients were diagnosed with Hut Lung Disease.

CONCLUSION: Removal of the patient from the offending environment is the best treatment strategy to prevent the progression of Hut Lung Disease and development of end stage pulmonary fibrosis. Therefore, early recognition of HRCT findings in patients with long-term biomass exposure is an important diagnostic tool.

P-107

Once in a life time case a rare syndrome with unusual finding: Goldenhar syndrome

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INTRODUCTION:

Goldenhar syndrome also known as oculo-auriculo-vertebral spectrum (OAVS). It is a complex congenital anomaly characterized by abnormalities of the ears, eyes and spine.

The condition consist of multiple features which include facial clefts, unilateral microphthalmia, ear anomalies, pre-auricular skin tags, hemifacial microsmia, ocular problems, skull asymmetry and vertebral segmentation anomalies.

This condition is often associated with congenital cardiac and congenital genitourinary anomalies.

CASE REPORT: 18 months old baby presented with left sided facial microsmia, pre-auricular skin tag, left ear anomaly, left microphthalmia and left eyelid coloboma. She was suffering from recurrent respiratory tract infections, reluctant to feed and dyspnea.

IMAGING FINDINGS: On X-ray chest frontal projection, there was completely radiopaque left hemi thorax with ipsilateral mediastinal shift suggesting complete left lung collapse / agenesis. There was also enlarged cardiac shadow. Bony thoracic cage showed no gross abnormality. CT scan of lungs with contrast revealed non-visualization of left lung with small left main bronchus and left pulmonary artery. There was cardiomegaly with enlarged right atrium. Correlation with echocardiography was advised.

CONCLUSION: Complete workup was done and patient was diagnosed as a rare case of Goldenhar syndrome with associated ipsilateral complete lung agenesis, which is a rare presentation of this disease.

On echocardiography there was, ASD, VSD with left to right shunt. Severe pulmonary stenosis and D-TGA.

P-108

Modified MR (3D volume) protocols for MRI brain: Our experience

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OBJECTIVE: Traditional MR sequences have been dependent on axial and Sagittal T1 and T2, weighted sectional images with and without contrast. Recent guidelines, however, suggest that 3D volume imaging can be used instead of these sectional images. In this abstract, we share our experience with the use of 3D volume images for imaging of the various brain pathologies.

MATERIALS AND METHODS: The modified MRI brain protocol was implemented on a 1.5 Tesla MRI scanner (GE Health Care) and included a pre-contrast T1W 3D volume sequence (BRAVO). This was followed by the conventional axial T2, coronal FLAIR, Diffusion and ADC (apparent diffusion coefficient) maps. Susceptibility weighted imaging (SWI) was added to the routine sequence. Postcontrast images included a T1W 3D volume sequences (BRAVO) along with a coronal FLAIR.

RESULTS: The routine MRI sequence with contrast took 18 minutes to complete. The modified protocol of brain imaging with additional sequences took 27 minutes to complete. This includes an additional 3 minutes for SWI and 4 minutes for postcontrast FLAIR imaging. Therefore, the net additional time required for 3D volume imaging instead of sectional imaging was 2 minutes.

The benefits of 3D volume imaging included no gaps between slices, better contrast resolution as compared to the conventional sequences and multiplanar reconstructions. This overall increased the diagnostic confidence of the interpreting radiologists. In addition to these benefits, 3D volume imaging has many applications in quantitative imaging and research applications which can be explored further.

CONCLUSION: 3D volume images, inspite of taking a couple of additional minutes, offers several benefits over the conventional MR protocol. The radiology community, therefore, should consider its implementation as the standard MR protocol for brain imaging.

P-109

Intra hepatic portovenous shunt with portal vein aneurysm

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INTRODUCTION: Congenital portosystemic shunts (CPSS) are rare. They are classified into extrahepatic and intrahepatic shunts. Intrahepatic CPSS less frequently show association with focal nodular hyperplasia (FNH), regenerative nodules, and encephalopathy unlike extrahepatic CPSS. Origin of intra hepatic portovenous shunt is uncertain, it can be spontaneous or congenital. Congenital form can lead to hepatic encephalopathy from hyperammonemia, heart failure and fatty degeneration.

CASE PRESENTATION: A young girl of 8 year present in our outdoor patient department with complain of right upper quadrant pain since last 7-8

months and shortness of breath on mild exertion, and jaundice since 2 months in our outdoor patient department.

CONCLUSION: Intravenous portovenous shunts are rare hepatic vascular anomalies that least manifest liver disease and symptoms. Intra hepatic portovenous shunt evaluated first by Gray scale Ultrasound and completed by colour and power doppler ultrasound signifying the intra hepatic vasculature and evaluating hemodynamic effects of shunt on circulation and second by multiphase CT scan to assess the shunt.

P-110

Diagnostic accuracy of MR mammography in diagnosing malignant breast lesion

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OBJECTIVES: To find out the diagnostic accuracy of MR mammography in diagnosing malignant breast lesions taking histopathology as gold standard.

METHOD: Place and Duration of study: Department of Radiology in collaboration with Department of Pathology, Sir Ganga Ram Hospital. 1 year of interval from April 2015 to April 2016.

PATIENT SELECTION AND METHODS: 150 female patients with either suspicious mammographic findings or palpable lesions suspicious for malignancy referred from surgical OPD of Sir Ganga Ram Hospital were assessed. Dynamic contrast enhanced MRI was done on 1.5 Tesla MRI machine and the images were evaluated on morphological and kinetic basis. MR findings were then compared with pre operative FNAC and biopsy findings.

RESULTS: The mean age of the patients was 52.5±13.4 years with maximum patients age group 46-55 years. Out of 150, 78.6% patients were found to have malignant lesions MRM while 77% patients were proved to have malignant lesions on histopathology. There was 93.9% sensitivity, 73.5% specificity, 89.3% diagnostic accuracy, 92.3% PPV and 78.1 NPV of MR mammography in diagnosing malignant breast lesions taking gold standard.

CONCLUSION: Breast MRI has high sensitivity, specificity and diagnostic accuracy in diagnosis of malignant breast lesions and must be used as primary imaging tool thus obviating the needs for biopsies.

P-111

Comparison of ultrasonographic and technetium-99m dimercaptosuccinic acid (DMSA) scintigraphic findings of renal cortical scarring in pediatric patients and classification into anatomical and renal scars."

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OBJECTIVE: The purpose of this study is to determine the renal scarring on Ultrasound and Tc99m-DMSA scintigraphy to classify them into anatomical and physiological scars and to determine the reduction of radiation exposure in pediatric patients

SETTINGS: This study is prospective and was carried out in departments of Nuclear Medicine and Radiology at SIUT hospital.

MATERIALS AND METHOD: From August to November 2016, 60 consecutive patients with suspected renal scar underwent Tc99m-DMSA scintigraphy and US was analyzed. 49 patients were diagnosed with renal scars: 29 male and 20 females. Patients below one month and above 16 years of age and/or Patients with urological surgical history are excluded from this study. Result: Scars are detected earlier on physiological modality such as DMSA

scan than an anatomical modality like Ultrasound. There is more probability of a renal scar to be diagnosed on Tc99m-DMSA scan than renal ultrasound.

CONCLUSION: In conclusion to this study, renal cortical scintigraphy (DMSA scan) is a highly sensitive and specific method to detect early physiological as well as anatomical renal cortical scar. The renal scar found only in DMSA scan, can be classified as physiological scar and that which is found on both modalities, i.e. DMSA and Ultrasound, can be classified as anatomical scar. Ultrasound can be used for evaluation and follow up. DMSA scintigraphy examination would be indicated for patients with alterations in ultrasound examination or when there is a higher possibility of detecting new renal scars.

P-112

Uterine artery pseudoaneurysm

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Uterine artery pseudoaneurysm is one of the rare cause of delayed post-partum hemorrhage commonly occurs after caesarian section. It can cause serious life-threatening hemorrhage due to rupture. Here we present a case report of a 25 years old young female visited our emergency department 22 days after cesarean section due to abnormal uterine bleeding, which was diagnosed as uterine artery pseudoaneurysm by color Doppler ultrasonography and computed tomography angiogram. Selective transcatheter arterial embolization was performed to resolve the lesion without complications. The gold standard test for diagnosis is angiography as well as it is therapeutic for transcatheter uterine artery embolization purpose. Uterine artery pseudoaneurysm should be diagnosed for proper treatment before rupture to preserve fertility and to prevent unnecessary hysterectomies.

P-113

Metastatic workup in breast cancer & role of PET-CT

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Imaging plays a crucial role for breast cancer screening, for classifying and sampling non-palpable breast abnormalities, as well as for defining the extent of breast tumors, both locally and at distant sites. Evaluating response to therapy constitutes an additional important role of imaging. Approximately 4% of patients with a diagnosis of breast cancer will have distant metastases at the time of presentation. About 10% of patients with metastatic disease will have lesions at multiple sites. National Comprehensive Cancer Network guidelines state that workup for metastases should be considered in asymptomatic patients with stage IIIA or higher disease and in symptomatic patients. High-risk patients are screened for occult metastases with base-line investigations like chest x-ray, ultrasound liver and bone scintigraphy. FDG-PET is helpful if lesion is up to or more than 10 mm in diameter on CT scan. FDG PET has lower sensitivity for the detection of small lesions, it is not recommended as a primary staging modality. Because of its high PPV for identification of tumours, whole-body FDG PET may be useful in uncommon problem-solving cases for which magnetic resonance imaging (MRI) is not available. The greatest utility for FDG PET imaging is for whole-body staging, including the detection of distant metastasis. It is superior to conventional imaging modalities such as chest films, bone scanning, and abdominal ultrasound due to its ability to detect metastasis at different sites and organs during a single examination. In this presentation, role of PET CT along with limitations will be discussed so that it should be done in correct patients for staging of breast cancers.

P-114**Diagnostic accuracy of sonographic features in the morbidly adherent placenta with histopathological correlation**

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Morbidly adherent placenta (MAP) is an abnormal adherence of the placenta to the uterine wall owing to an absent or faulty decidua basalis. Massive obstetric haemorrhage is reported as the principal clinical problem that is potentially life threatening associated with high morbidity and mortality of upto 10% of patients, which makes this condition to be the third most common indication for emergency obstetrical hysterectomy next to uterine rupture and atony in Pakistan.

With the growing rate of Caesarean deliveries, there is increased frequency of having morbidly adherent placenta, particularly placenta accreta. It is about 8.7 fold increase in previous caesarean patient. Previously thought to be very rare, the incidence of placenta accreta has increased ten-folds in the past 50 years and now occurs with frequency of one per 2,500 to one per 110 deliveries. Antenatal diagnosis is of paramount importance as it helps in appropriate preoperative planning, thereby decreasing potentially fatal complications. Various sonographic features have been reported and a combination of these features may sharpen the accuracy of the diagnosis. These include placental lacunae, myometrium of less than 1 mm and presence of low resistance vascularity. The diagnostic value of magnetic resonance imaging for placenta accreta remains controversial. We aim to determine the diagnostic accuracy of sonographic features in the morbidly adherent placenta taking histopathological correlation as gold standard.

MATERIAL AND METHOD: It's a retrospective study of 50 patients who underwent ultrasound pelvis for the confirmation of morbidly adherent placenta during the time interval between January 2013 and July 2016. Most of the ultrasounds were performed during the third trimester. In almost all patients the placenta was anterior low lying and the patients had previous history of Cesarean section delivery. Placenta was evaluated on Grey scale for 3 criteria including thinning of myometrium, loss of interface between placenta and myometrium and presence of lacunae. On Doppler imaging, presence of low resistance vascularity was considered as invasion of placenta into deeper myometrium. Ultrasound findings were reviewed against the final diagnosis made on histopathology.

CONCLUSION: Assessment of morbidly adherent placenta is possible on antenatal ultrasound examination by using combination of different criteria and the introduction of obstetric ultrasound with color Doppler in modern obstetrics helped in the early detection and management of adherent placenta. The need to conduct this study was that the MAP is a life threatening problem and is associated with significant morbidity and mortality. Diagnostic accuracy of ultrasound may be useful which may help us in understanding the role of this modality for early diagnosis and thereafter timely management of patients

P-115**Diagnostic ultrasound in children with blunt abdominal trauma**

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OBJECTIVE: The aim of this study was to evaluate the diagnostic value of Ultrasound (US) in patients with blunt abdominal trauma.

METHOD: Patients who had US for blunt abdominal trauma were prospectively evaluated from 1 March 2016 to 31 April 2017. A total of 57 patients were included in this study. US results in each patient were classified as true positive (TP), false positive (FP), false negative (FN) or true negative (TN) by comparing with findings at either diagnostic peritoneal lavage or surgery. Sensitivity, specificity, positive and negative predictive values (NPV) and diagnostic accuracy of US in detecting free fluid and in detecting the visceral parenchymal injury were calculated using two by two tables.

RESULTS: By scanning to detect free fluid, TPs were 46, FPs three, FNs two and TNs six. Sensitivity, specificity, positive and NPV and the diagnostic accuracy were 96%, 67%, 94%, 75% and 91% respectively. By scanning to detect the parenchymal injury, TPs were 24, FPs 15, FNs 10 and TNs 8. Sensitivity, specificity, positive and NPV and diagnostic accuracy were 71%, 35%, 62%, 44% and 56% respectively.

CONCLUSION: US has a high diagnostic value in the screening of patients with blunt abdominal trauma. Scanning for the presence of free fluid yields better results than scanning for the visceral parenchymal injury.

P-116**Role of F-18-FDG PET-CT scan in hodgkin's and non-hodgkin's lymphoma; comparison between deaville criteria and ASUVmax**

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OBJECTIVE: To assess the reproducibility of interpretation rule; Deaville criteria and ASUVmax, using F-18-FDG PET-CT in lymphoma.

METHODS: A retrospective study includes 10 patients diagnosed with lymphoma; of them 06 patients underwent baseline, 08 patients underwent mid-therapy and 06 patients underwent post-therapy PET-CT. Patients were divided in three groups; group A contain 4 patients who underwent baseline and mid-therapy PET-CT; group B contain 4 patients who underwent mid-therapy and post-therapy PET-CT and group C contain 2 patients who underwent baseline and post-therapy PET-CT. PET-CT scans were carried out on Philips PET-CT machine with same parameters, all scans were visually and quantitatively interpreted according to Deaville criteria and ASUVmax.

RESULTS: In group A; 4 patients shows decrease in ASUVmax with evidence of new FDG avid lesion due to this DS become V from IV which is positive on PET-CT. In group B, 4 patients showed decrease in ASUVmax to normal, DS of 2 patients become II from IV, another 2 patients shows DS I from IV, all patients in this group were negative on PET-CT. In group C; one patient showed increase in ASUVmax with new FDG avid lesion, it's DS become V from IV, reported positive on PET-CT and another patient showed decrease in ASUVmax to normal and DS from IV to I, which is negative on PET-CT. According to ASUVmax only, eight patients should be reported as negative because of the decrease in ASUVmax, we applied Deaville criteria on the same patients which concluded four patients as negative and four patients as positive.

CONCLUSION: Although the ASUVmax is valid for assessing the prognostic value of PET-CT in lymphoma but interpretation with Deaville criteria leads to better interpretation results.

P-117**Diagnostic accuracy of CT scan in diagnosing peritoneal metastasis due to ovarian cancers**

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AIMS & OBJECTIVES: Ovarian cancer is the second most common gynaecologic malignancy and is the fifth leading cause of cancer death in

women. Nearly 75% of women with ovarian cancer present with advanced stage disease, which is associated with a poor prognosis. For evaluating the extent of the disease, and especially the detection of peritoneal deposits, CT has traditionally been considered unsatisfactory. Variable sensitivities of CT scans have been reported for the detection of peritoneal deposits; however, most of these studies were performed with older generation CT scanners. We therefore conducted this prospective study to evaluate peritoneal deposits pre-operatively in ovarian cancer using MDCT.

MATERIALS & METHODS: This is a Descriptive Cross sectional study including 142 patients from 1st Jan 2016 to 30th Dec 2016 conducted at diagnostic radiology department of KIRAN hospital. All female patients between age 18 to 60 years are included. Metastasis from other primary were excluded from the study. CT scan was performed on TOSHIBA AQLION 16 CT scanner with 120 KV and 150 MA.

RESULTS: Mean \pm SD of Age was 44.56 ± 7.42 years with C.I (43.32 - 45.79). Mean \pm SD of the duration of disease was 8.48 ± 3.75 months with C.I (7.85-9.10). Diagnostic accuracy of CT was 94.44%, sensitivity 83.33%, specificity 97.35%, positive predictive value 96.15% and negative predictive value was 88.89% by taking Histopathology as gold standard. Mean \pm SD of Age was 44.56 ± 7.42 years with C.I (43.32-45.79).

CONCLUSION: It is concluded from this study that although Histopathology is the gold standard in diagnosing peritoneal metastases. CT is non-invasive, rapidly diagnosing peritoneal metastases that is reasonably good and relatively comparable with the Histopathology in diagnosis of peritoneal metastases due to ovarian cancer. However CT findings are better in determining the extent of the disease and its complications.

P-118

Umbilical vein thrombosis: A rare possible paraneoplastic phenomenon of RCC

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INTRODUCTION: Renal cell carcinoma is a unique and challenging tumor because of the frequent occurrence of paraneoplastic syndromes. Paraneoplastic manifestations are present in up to 20% of patients with renal cell carcinoma (RCC). Around 25% of RCC patients will develop a paraneoplastic syndrome, major ones include hypercalcaemia (20%), hypertension (20%), Polycythaemia: from erythropoietin secretion (~5%), Stauffer syndrome: hepatic dysfunction not related to metastases, feminization and limbic encephalitis. Clinical syndromes termed paraneoplastic are very important to recognize as they may be the first presenting sign of the tumor. Most paraneoplastic syndromes associated with RCC remit after resection of the primary RCC or treatment of metastatic sites.

CASE PRESENTATION: We describe a case of a 56 Year old female who presented with abdominal pain for 2 weeks not relieved by medications. Baseline CT showed an avidly enhancing soft tissue mass along the upper pole of left kidney. No tumor thrombus was seen. Mass was biopsied and diagnosed as Renal cell carcinoma on histopathology. Patient's abdominal pain did not settle and re-evaluation scan was performed after two weeks which demonstrated interval development of a hypodense lobulated area tracking along the falciform ligament which was suggestive of recanalization and thrombosis of umbilical vein.

CONCLUSION: Recanalization of umbilical vein had been reported in literature chiefly in patient with portal hypertension however its association with RCC in an otherwise normal liver had not been reported. Our case report will be the first in literature to document recanalization and thrombosis of umbilical vein as paraneoplastic phenomenon in RCC patient.

P-119

CT textural analysis (CTTA): A technical exposition of the data beyond the images

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OBJECTIVE: Computed Tomography Textural analysis (CTTA) is a method of extracting information from the images beyond that what can be perceived by the human eyes. It depends on the mathematical algorithms for the analysis of raw imaging data, predominantly the image matrix. This review talk is to give a brief overview of the terminologies and methods used in CTTA.

MATERIALS AND METHODS: A number of methods are used for the CTTA. But the most commonly employed methods include histogram analysis, indices from sphericity, matrix and wavelet analysis. Although still in its infancy, a lot of research is going on especially in the field of oncology where it is employed to study the genetic and molecular signatures of various tumours and to predict the response to therapy.

RESULTS: The histogram analysis reveals parameters such as Skewness, Kurtosis, Entropy and energy. The various methods employed for matrix analysis include Grey level Co-occurrence Matrices (GLCM), Neighbourhood grey level different matrix (NGLDM), the run length matrices (RLM and zone length matrices (ZLM), etc. These in turn generate a number of various parameters according to the specific set of matrix and the technique used.

CONCLUSION: CTTA provides a method to analyze the radiological data that cannot be perceived by the naked eyes. This in turn may provide crucial information regarding the underlying tissue characteristics and may also help predict the response to various therapies.

P-120

Solid benign lesions with atypical features on breast ultrasound and their histopathological correlation

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OBJECTIVE: The objective of the present study is to underline the atypical aspect that come across most frequently in benign breast masses, underlining also the important sonological features that should differentiate between them and malignant breast lesions.

MATERIALS AND METHODS: Thirty five breast masses were studied by sonography having atypical features during a period of 6 months. The patients were referred to radiology department, Ziauddin hospital, Karachi. Sonographic features were then correlated with their histopathological results. We excluded patients whose ultrasounds were normal and who were lost to follow up, from the study.

RESULTS: After patients who were excluded, the study population was 28 patients with 35 masses, all of them were palpable (19 of them were partially mobile; 54.28%, 16 were freely mobile; 45.71%). The age range was 28-45 years. Out of those 35 masses 21 were found to be malignant on histopathological correlation; 60% and 14 were benign; 40%.

CONCLUSION: Circumscribed solid breast masses present, frequently a typical ultrasound appearance, with no hitches in establishing the correct diagnosis. Sometimes, these lesions may have a complex appearance and on ultrasound an atypical image, which may lead to difficulties in discriminating them from other benign or malignant breast lesions. This is why, in any case of circumscribed lesion found on ultrasound, all characteristics should be carefully analysed, in order to avoid unnecessary interventional procedures and, to avoid the misdiagnosis with important therapeutical consequences.

P-121**The role of imaging techniques in diagnosis of breast lesions**

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Breast lumps are the most widely recognized problem in females worldwide. Advances and ongoing developments in imaging technologies have enhanced the sensitivity of breast lesion detection and diagnosis, yet each modality is most beneficial when utilized with respect to individual traits such as age, risk, and breast density. Characterization of breast lesions is highly crucial since the management of benign and malignant tumor varies. Cyst, fibroadenoma, and fibrocystic diseases fall under the category of benign breast lesions while malignant lesions are majorly breast cancers.

Mammography is considered the initial, baseline and "gold standard" in the evaluation of the breast lesions from an imaging perspective. Mammography is in essence the only widely used imaging modality for breast cancer screening. Ultrasound examination and magnetic resonance imaging are being offered as diagnostic techniques and as adjuncts to the pre and postoperative workup. Tissue elasticity imaging technology is expected to be a new modality for breast diagnosis, based on hardness as a tissue characteristic that is affected by tissue disease such as cancer.

Regardless of all of these advances, it is still the case that no single imaging modality is capable of identifying and characterizing all breast abnormalities and a combined methodology approach will continue to be a necessity. In this overview we assess the role of various imaging methods used for the diagnosis of breast lumps/ lesions in light of an evaluation of current patterns.

P-122**Evaluation of lymphoma tumors with open infrastructure and commercial radiomics tools**

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BACKGROUND / PURPOSE: To assess the different software platforms for radiomics application and oncological analysis of lymphoma patients.

MATERIAL & METHODS: There are many commercial and free radiomics platforms available nowadays. These software packages are of two types; standalone or consolidated. Dicom data of five patients with lymphoma were processed through following platforms; CERR (radiomics toolbox), Metavol, Matlab (mvallieres/radiomics), CGITA, PMOD and Carimas. The volume segmentation and heterogeneity analysis for tumor volume were performed by above software packages for all the patients. The methodology and robustness of each package were also graded.

RESULTS: For instant segmentation of tumor volume; PMOD, Metavol and Carimas are found to be widely respectively. A variety of image features were calculated with CERR (radiomics toolbox) and Matlab (mvallieres/radiomics) but its cumbersome to operate without standalone GUI, while CGITA offer handy tools and GUI for similar functions. The detail analysis and grading will be presented in separate paper.

CONCLUSION: Each platform offers a unique set of tools and methodology to perform operations under radiomics umbrella. CGITA found to be easy to use and robust in our practice.

P-123**Pseudoarthrosis in a patient with Sudeck's atrophy (Complex regional pain syndrome- CRPS)**

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OBJECTIVE: Sudeck atrophy (Complex regional pain syndrome CRPS) is a condition which can affect the extremities in a wide clinical spectrum. However, occurrence of pseudoarthrosis in a patient with Sudeck's atrophy has not been previously reported.

CASE REPORT: A 82 years old female with history of right side paralysis presented with history of pain in right arm and foot for last 2 months. On examination, there was wasting of the muscles consistent with disuse atrophy. There was however, no swelling, redness, fever or other complaints. There was no history of trauma or fall. The patient subsequently underwent X-ray for further evaluation.

The Plain X-ray of the right hand and wrist showed severe osteopenia particularly in the peri-articular region with significant soft tissue and muscle atrophy. There was deformed healed fractures (pseudoarthrosis) of the right distal radius and ulna. Overall appearances were consistent with pseudoarthrosis secondary to Sudeck atrophy.

CONCLUSION: Sudeck atrophy (Complex regional pain syndrome CRPS) is a rare condition which can result after cerebrovascular accident and can result in pseudoarthrosis.

P-124**Internal audit: Qualitative analysis of anterior cruciate ligament tears reporting on MRI in a tertiary care hospital**

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OBJECTIVE: The purpose of our study is to evaluate the reporting of anterior cruciate ligament tears on MRI Knee examinations in the radiology department of Shifa international hospital.

MATERIAL AND METHODS: 212 MRI Knee were reviewed in the department of Radiology Shifa international Hospital from a period of 2011 - 2017, which had been reported as partial/complete tear, sprain or mucoid degeneration of anterior cruciate ligament. Analysis of the reporting adequacy regarding the description of tear, concomitant meniscal injuries and other associated trauma related changes in the knee joint was also done. The review was done by a consultant radiologist with more than 10 years of experience in musculoskeletal MRI reporting. Reporting was evaluated on the basis of overcall, undercall, missed and wrong interpretation.

RESULTS : A total of 212 patients reported with partial or complete tear of anterior cruciate ligament were reviewed, out of which 152 (72 %) had ACL tears while 60 (28%) did not. A further quality analysis of anterior cruciate ligament reporting showed 80% adequately reported tears, while 15 % tears were over reported, 3% being under reported while only 2 % being wrong reported. Out of total number of cases 95 patients had associated medial meniscal injury, 19 with lateral meniscal injury and 38 patients with both medial and lateral meniscal injuries. While 59 patients had no associated meniscal injury. Qualitative analysis of meniscal injuries showed 81% cases being adequately reported, while 11% meniscal tears were wrong reported, 3% being over reported and 2% being under reported. Out of the total number of patients with anterior cruciate ligament tears 23% were from the femoral attachment site. 10 patients had associated injuries of the Hoffa's fat pad.

CONCLUSION: 20% anterior cruciate ligament tears were not adequately reported in the total of 212 MRI knee joint, most of them being overreported. Concomitant meniscal tears had a discrepancy of 16% most of them being wrongly interpreted.

P-125**Role of dynamic magnetic resonance mammography in characterizing breast lesions on the basis of contrast enhancement**

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There is a recently reported significant rise in the percentage of breast malignancies even in the absence of notable well known predisposing factors with higher disease prevalence in younger population. Radiological Imaging has a vital role to play not only in early diagnosis and lesion detection but also in the differentiation of benign looking lesions from suspicious looking lesions needing histopathological correlation, thus drawing a safe line between follow up imaging and further lesion evaluation.

It has been long, since sonomammography and conventional mammogram were used as the chief imaging modalities in evaluation of breast tissue related lesions. Although, both proved to be greatly beneficial in lesion detection and characterisation still a large number of lesions with equivocal imaging appearances remained misdiagnosed. This raised the need for a breast tissue sensitive imaging such as MR mamograms having high tissue contrast yield thus facilitating in better lesion delineation and characterisation. MR mammogram done with optimal protocol is highly sensitive not only in detection of non palpable lesions that remained undetected on ultrasonography and conventional mammography but also helps in better assessment of lesion morphology. Moreover the dynamic MR breast helps in the quantification of contrast uptake patterns and washout thus helping in correlating with degree of lesion neoangiogenesis. In classifying breast lesions, the assessment of margin and qualitative enhancement intensity (at 2 minutes or less after contrast material injection) are the most important features currently available for breast mass characterization. The next most important feature is the qualitative assessment of the enhancement kinetics curve. The specificity of breast MR imaging is improved when both morphologic and kinetic features are considered in the image interpretation; therefore, the breast MR imaging technique should be optimized to achieve high spatial and temporal resolution.

P-126**Bronchial artery-pulmonary artery fistula: Case report of a rare cause of pulmonary hypertension**

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PURPOSE: To characterize the MDCT findings of bronchial-pulmonary artery fistula.

METHODOLOGY: 20 year-old male with shortness of breath and echocardiographic findings of pulmonary hypertension was investigated using 128-slice Multidetector Computed tomography (MDCT) scanner in the Radiology department. Images of entire chest and upper abdomen were taken in pulmonary artery phase. 0.5mm reconstructed images in soft tissue window were viewed on Toshiba's vitrea workstation in axial, coronal and sagittal planes.

CASE REPORT: Bronchial-pulmonary arterial fistula is a very rare vascular malformation complicated with racemose hemangioma. We report a case of a 20-year-old male with Bronchial-pulmonary arterial fistula and primary racemose hemangioma. CTPA showed bronchial artery to pulmonary artery fistula of the right upper lobe near hilar level. Bronchial arteries showed convolution and dilation, were connected with pulmonary artery, suggesting the presence of primary racemose hemangioma. There was resultant retrograde filling of descending aorta confirming right to left shunt.

CLINICAL RELEVANCE: 128 slice MDCT with its high resolution and multiplanar imaging plays an instrumental role in diagnosing pulmonary vascular anomalies. Establishment of non-invasive treatment strategy for bronchial-pulmonary artery fistula is urgently required.

P-127**Metastatic aneurysms: Case report of rare presentation of choriocarcinoma with ruptured pancreaticoduodenal aneurysm causing obstructive jaundice**

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CASE REPORT: 20 year-old female presented with jaundice to radiology department of Rehman Medical institute Peshawar. Her ERCP was attempted at another center, which failed and complicated with intrabiliary hemorrhage. Her following CT scan performed on 128 slice Toshiba machine at our center showed a large ruptured aneurysm in pancreaticoduodenal region causing obstruction of ampulla. In addition, there were multiple aneurysms in liver and lungs. Large AV malformation was seen in uterus. She had a 6 month old healthy daughter with uneventful pregnancy. On detailed probing of past history, it was revealed that she had an abortion 2 years back. Her recent beta HCG levels were markedly raised (>2000) confirming metastatic choriocarcinoma. This is very rare for choriocarcinoma to present after a succeeding normal pregnancy. The large pancreaticoduodenal aneurysm and aneurysms in lungs and liver were all metastatic. She was treated with embolization for large ruptured aneurysm and was referred to oncology after a detailed MDT meeting.

P-128**Molybdenum-99 breakthrough assay of radioculide generator: Clinical findings at LNH, Karachi**Fayzan Ahmed,¹ Javid Iqbal,^{1,2} Kiran Akhtar,¹ Syed Ghayour Abbass,¹ Naseem Ahmed,¹ Ayub Mansoor¹¹ *Department of Radiology, Liaquat National Hospital, Karachi, Pakistan.*² *Department of Radiology, Karachi Institute of Radiotherapy and Nuclear Medicine (KIRAN), Karachi, Pakistan.**Email: fayzan.ahmed@lnh.edu.pk*

INTRODUCTION: The most commonly used radioactive isotope is Technetium-99 is principle component in nuclear medicine department used in diagnostic procedures. It is obtained as the decay product of Molybdenum-99 and has half life of 66 hours and its energy is not suitable for diagnosis. Study presented here is about the assay for moly-breakthrough test performed as routine clinical practice before each elution. The generators received in our facility are GE healthcare drytec generator (UK).

METHODS AND MATERIALS: To verify the Mo-99 contamination standard moly-assay canister and dose calibrator the CRC-15R (CAPINTEC Inc, USA) were used. From January 07, 2015 to February 02, 2016 total 336 elutions were performed.

RESULT: Through the course of time most of the generators eluted have shown very low value of moly-breakthrough test (0.0039 $\mu\text{Ci} / \text{mCi}$) which is very less as compared to limit proposed in protocols (0.150 $\mu\text{Ci} / \text{mCi}$). A fractional analysis gives that the mean value is 67 % away from the proposed limit, also as per analysis the mean deviation is $0.0039 \pm 0.47\% \mu\text{Ci} / \text{mCi}$. The value skewness of data suggests that it highly positively skewed, suggesting that moly-breakthrough values are integrally not approaching the defined limit and less deviation among the results. The study reflects good manufacturing and quality control of the GE healthcare drytec generator which provides safe and good medical practices.

P-129**Knowledge regarding management of severe contrast induced reactions among health care providers in Radiology department at a tertiary care hospital in Pakistan**

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OBJECTIVES: To access the knowledge among radiologists, residents and radiographers about intravascular contrast induced reactions, their possible outcomes and management, in a tertiary care hospital in Pakistan.

MATERIALS AND METHODS: Following verbal consent, a multiple choice questions based questionnaire was circulated as a pretest among the radiologists, residents and radiographers regarding iodinated contrast induced reactions, their management, drugs used in management and their optimal doses. Pretest was followed by teaching session held on the same topic. Post-test was conducted among the same population one month later. Data was entered in SPSS v 20. The results of the pre and post test were compared by using paired sample T-test.

RESULTS: A total of 95 questionnaires were distributed among the target population. 65 responded which makes a response rate of 68%. Among the respondents 31 were male (47.6%) and 34 were female (52.3%). Paired sample T-test was applied to observe the significance of difference in pre and posttest scores. Significant difference in the pre and posttest scores was observed among the respondents with a p-value of < 0.05.

CONCLUSION: Significant difference in pre and post intervention knowledge regarding the iodinated contrast reactions was found in study population. The authors recommend regular CME programs on the subject to keep the healthcare providers abreast with the contrast related adverse reactions and their management for appropriate patient care.

P-130**Role of prone SPECT myocardial perfusion imaging in patients with equivocal or abnormal supine myocardial perfusion SPECT**

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BACKGROUND: Supine-prone Myocardial Perfusion Scintigraphy (MPS) has been shown to reduce attenuation artifact in comparison to supine-only MPS with varying risk for coronary artery disease.

OBJECTIVES: The aim of this study is to determine the role of prone imaging in the reduction of unnecessary rest perfusion studies and coronary angiographies performed.

MATERIAL & METHODS: This prospective study was performed on 93 patients, divided into 2 major groups having patients with known coronary artery disease (group-I: either with RCA lesion or with IWMI) and without known coronary artery disease (group-II). The duration of this study was 06 months including 03 months for clinical follow up. Coronary angiography was used as the "gold standard" for evaluating coronary artery disease.

RESULTS: Results were compared with clinical data, Echo and coronary angiographic findings. Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of prone stress MPS in group I was calculated as 91.7%, 80%, 95.6%, 66.7% & 89.6% while in group II these values were 85.7%, 81.3%, 80%, 86.6% and 83.3% respectively. The overall sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of prone stress was 89.4%, 80.9%, 89.4%, 80.9% & 86.4% that is statistically significant (p=0.005) using chi-Square test.

CONCLUSION: It is concluded that the addition of prone MPS with supine MPS overcomes soft tissue attenuation artifact hence decreases the false positive rates and preventing unnecessary further investigations and improves diagnostic accuracy.

P-131**Imaging the post operative patient; Modern imaging of the gastrointestinal tract**

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LEARNING OBJECTIVES: To discuss common surgical procedures performed in gastrointestinal tract.

To appreciate normal and pathologic appearances of post operative patient on fluoroscopic and cross sectional imaging.

To understand the normal homeostatic packing and other surgical devices on radiological investigations.

BACKGROUND: Gastrointestinal tract surgeries comprise are performed for a variety of both benign and malignant pathologies. In the late postoperative period it becomes challenging to recognise normal from abnormal appearances and post operative complications. Computed tomography (CT) is the workhorse for diagnosing late postoperative complications, and accurate imaging assessment of patients is necessary for adequate treatment planning.

OUTLINE:

Imaging Technique
 Long term post operative complications.
 Procedure related, Adhesions and bands and Herniation (external and internal)
 Anastomotic strictures.
 Disease related recurrence.
 Bowel obstruction, (Close loop) and Ischemia.

CONCLUSION: Imaging of post operative abdomen is very challenging. Knowledge of surgical resection and reconstruction is of paramount importance for every radiologist in order to avoid interpretation errors. Discussion with surgeon and correlation with clinical findings is absolutely vital, so that potentially life-threatening situations can be promptly diagnosed and timely therapy can be planned.

P-132**Uterine scar dehiscence after cesarean section - A pictorial review**

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INTRODUCTION: Cesarean section uterine scar dehiscence is a rare but important complication of LSCS; one of the commonest performed operations. The presentation of the patient can be subtle with abnormalities in menstruation or with features of dyspareunia and secondary infertility. Sometimes the dehiscence can present with features of peritonitis (generalized/localized) and even sepsis. In any circumstance a high index of suspicion should be present to identify this condition with modalities like transvaginal ultrasonography or MRI scan.

MRI has been shown to be the most definitive modality to evaluate uterine incision healing after cesarean deliveries. It has the advantage of superior contrast resolution, enabling detailed visualization of tissue planes. The size of the defect can be better estimated by using MRI.

CASES: We present two cases from our current practice to show variable radiological presentations of uterine dehiscence after C section.

First case presented with pus coming out per vagina after a week following C section. MRI pelvis with contrast showed transmural disruption of left lateral wall of lower uterine segment which communicates anteriorly with a thick walled collection containing specks of air. Second case presented with complains of lower abdominal pain after C section. MRI pelvis with contrast showed defect in anterolateral wall of uterus communicating anterolaterally with a walled off hematoma

P-133

Recurrent tracheal chondrosarcoma: case report of a rare entity presented as cold thyroid nodule

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INTRODUCTION: Tracheal tumours account for less than 1% of all the malignancies. Squamous cell carcinoma (SCC) accounts for 80% of all the primary tumors of the trachea followed by adenoid cystic carcinoma (ACC) accounting for 16.3%. Tracheal chondrosarcoma is one of the extremely rare conditions accounting for less than 20 cases described in the literature so far. Our report describes a rare case of recurrent tracheal chondrosarcoma presenting as a nodule mass within the thyroid gland.

CASE PRESENTATION: A 50 year old female presented with progressively increased swelling on left side of the neck. Baseline ultrasound demonstrated a heterogeneous 3 cm nodule in the left thyroid lobe. Thyroid scan was performed which showed cold nodule involving superior pole of left thyroid lobe. MRI showed a T1 low, T2 and STIR high lobulated mass in the left thyroid lobe. No restriction was seen on DWI sequence. Hence left lobectomy was performed, right thyroid lobe and isthmus were left intact. FNA smears and cellblock of the left thyroid bed nodule showed abundant myxoid material, scattered groups of atypical cells showing pleomorphism, overlapping, vesicular to hyperchromatic, spindle to oval shaped nucleus suggesting chondromatous neoplasm. High blood sugar levels were also noted which is known Para neoplastic phenomenon of chondrosarcoma. Oral hypoglycemic agents were started. Two years later, MRI showed a similar appearing soft tissue mass in post-surgical bed, Completion thyroidectomy was planned. Intraoperative findings were normal looking right thyroid lobe and isthmus with a left thyroid bed nodule which was closely adherent to the trachea. No dissecting plain was found between the tumor and the trachea. Nodule was shaved off from trachea. Histopathological confirmed recurrent chondromatous neoplasm. Tumor was found within 1 mm of nearest resection margin thereby rendering less chance of recurrence. Patient was kept on radiological and clinical surveillance. Follow up MRI 6 months after the surgery redemonstrates a T1 low, T2 and STIR high lobulated lesion in left thyroid bed abutting the strap muscles suggesting recurrent tracheal chondrosarcoma. Tracheal resection of the involved segment was performed with end-to-end anastomosis.

CONCLUSION: Our case report describes the imaging and histopathological features of tracheal chondrosarcoma and emphasizes on close follow-up in these patients owing to its recurrent potential after resection. Complete surgical resection with negative margins is the treatment of choice for tracheal chondrosarcoma.

P-134

MDCT diagnosis of intestinal obstruction: Added value of curved multiplanar reformats in detecting zone of transition

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OBJECTIVE: To determine the added diagnostic value of curved multiplanar reformat (MPR) of multidetector CT (MDCT) scan in localizing zone of transition in patients of intestinal obstruction.

MATERIAL & METHODS: A total of 60 patient were evaluated in a prospective cross sectional study from June 2012 to November 2013 at a tertiary care hospital. All the patients underwent multidetector CT scan with oral and I/V contrast before surgical exploration. Curved multiplanar reformats were acquired in each patient besides routine axial images. The CT scan findings were compared with the surgical findings in determining accuracy of curve MPR in detecting zone of transition between distended and collapsed bowel loops. The added curved MPR images showed high accuracy in the diagnosis of intestinal obstruction with unremarkable advantage over conventional axial images. Data analysis was done on SPSS version 20. Accuracy of curved MPR was analyzed by two readers blindly in detecting zone of transition in patients of intestinal obstruction. Cohen's kappa statistics was obtained to show the measure of agreement between the two readers. McNemar test was also applied to determine the homogeneity.

RESULTS: Out of 60 patients curved MPR showed accuracy of 66.7% in correlation with surgical findings. The most common presenting symptom was pain in 46.7% and abdominal distention in 25% patients. The most common cause of obstruction was adhesions 28%. It correctly identified ischemia in 23.3% and perforation in 13.3% patients. The kappa value of 0.6 indicates moderate association and substantial measure of agreement between the two readers. McNemar's test showed that there was a homogeneity in number of valid cases.

CONCLUSION: Curved MPR is an accurate and important technique in the evaluation of intestinal obstruction and use of MPR facilitates the interpretation of imaging findings.

P-135

Commonest location of challenging T.B. bug in spine

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OBJECTIVES: TB is still a health hazard and challenge faced by south east Asian countries. Advanced imaging tools and their availability should help in detecting the pathology at an earlier level. This study was conducted in order to analyze different levels and extent of involvement of spine by TB depending on duration of symptoms taking MRI as imaging tool and histopathology as gold standard.

MATERIALS AND METHODS: After ethical review committee approval this cross sectional study was conducted at Radiology Department of JPMC Karachi for a period of 06 months i.e. from July 2016 to December 2016. During this period, total of 2995 spines were done, out of these 52 were radiologically diagnosed as T.B; confirmed on histopathology. The scans were performed on Philips 1.5 T MR Archieva Nova scanner and Hitachi 0.3 T (open scanner) using spine coil. Patients with back pain for at least three months with MR features including involvement of endplates and vertebral bodies, with paraspinal collections were included. Already treated cases of T.B. spine, post

surgical, post traumatic, metastatic and degenerative spines were excluded from study. The cases without histopathology were also not included. A senior radiologist with at least five years experience read the scans.

RESULTS: It was found that TB was more commonly seen in 25-35 years of age group, commoner in female gender and involvement of single contiguous level was more common in patients having pain for three months duration. In case of prolonged duration of symptoms the level of involvement was multiple. The cases were separated on the basis of duration of symptoms and multiplicity of involvement. Frequencies were calculated.

CONCLUSION: The advent of MR has made early recognition of TB possible with lesser degree of involvement. The clinicians can take maximum advantage of this state of the art modality at their earliest in cases of prolonged backache especially in a younger age group. This can result in detection with least involvement and complete recovery.

P-136

Estimation of pituitary gland volume by magnetic resonance imaging and its correlation with sex and age

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OBJECTIVE: To determine measurements of pituitary gland volume in subjects with normal pituitary gland ages 10 to 70 years presenting at Radiology Department, Ziauddin Hospital, Clifton Karachi.

METHODS: Total 290 subjects of different age groups with normal pituitary gland volume were evaluated using T1 weighted Magnetic Resonance Imaging. Mid-sagittal and coronal planes were used to measure the height, width, and depth of the pituitary gland, while the volume was calculated using these parameters. Data was stratified into nine groups on the basis of age and sex to observe the differences.

RESULTS: We recruited 290 subjects (152 males, 138 females). Females had significantly greater pituitary width and volume compared to males. The height of the gland was minimum (0.53cm) in first decade of life, maximum (0.60cm) in the second decade and progressively decreased till the sixth decade. The volume of the gland was least in the first decade of life ($0.36 \pm 0.11\text{cm}^3$) and maximum in the third decade ($0.49 \pm 0.11\text{cm}^3$).

CONCLUSION: We have provided reference values for the normal pituitary gland dimensions in a population of Karachi which will aid in assessment and diagnosis of patients with abnormalities in pituitary function.

P-137

Coronary artery bypass grafts (CABG) assessment with electrocardiography (ECG)-gated multidetector computed tomography (MDCT)

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PURPOSE: The purpose of our study was to discuss the basic techniques of imaging CABGs with MDCT and to evaluate the accuracy in enabling the detection of stenosis in both bypass grafts and coronary arteries in symptomatic post CABG patients.

METHODS: ECG-gated contrast enhanced MDCT angiography was performed at Radiology department of Rehman Medical Institute Peshawar in 80 patients after bypass surgery. Five patients were excluded from the study due to arrhythmias or fast heart rates despite beta-blockade. All CT examinations were performed with retrospective ECG gating at a mean heart rate of 67 ± 5 beats/min. All scans were reconstructed at three different time intervals i.e End systolic, Mid diastolic (both were automatically reconstructed by the machine) and at 75% of the R-R interval (manually done) with 0.5-mm-thick images reconstructed every 0.3 mm. A total of 86 coronary artery bypass grafts (internal mammary artery, sapheno-venous grafts) were examined by both CTA and by invasive conventional coronary angiography. The bypass graft patency and the presence of stenosis as well as the proximal and distal anastomoses were evaluated by two experienced readers. Conventional angiography was regarded as the standard of reference. Descriptive parameters were calculated, and the results for arterial grafts, venous grafts, and coronary arteries were compared.

RESULTS: All bypass grafts and distal bypass anastomoses could be visualized by CTA; 21 bypass graft occlusions and 1 significant stenosis were detected by CTA and confirmed by conventional angiography. Five false positive and one false negative finding resulted in a sensitivity of 96%, a specificity of 95%, a positive predictive value of 81%, and a negative predictive value of 99%.

CONCLUSION: MDCT allows noninvasive angiographic evaluation of both coronary arteries and bypass grafts in patients who have undergone bypass surgery. Dysfunctional bypass grafts can be detected with high diagnostic accuracy.

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Effective & lively radiology presentations

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Lectures and teaching sessions can be boring, ineffective and time consuming with no benefit to the attendees. Effective and lively radiology sessions can attract attention, be effective in teaching and learning and be of interest and value to the audiences in classrooms, conferences and courses.

This study discusses methods and strategies for effective sessions which command attention and maintain interest of the participants in the radiology teaching sessions.

P-139

Diagnostic accuracy of ultrasound for evaluation of malignant breast lesion in keeping core-needle biopsy (CNB) as gold standard, experienced at KIRAN

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INTRODUCTION: Breast cancer is the most common malignancy affecting the women all over the world. Ultrasound is non-invasive inexpensive diagnostic tool which plays an important role in breast lesion evaluation. Ultrasound guided core needle biopsy is reliable alternative to surgical biopsy for histological diagnosis. The main objectives of CNB are, achieving maximum degree of accuracy and second, offering maximum information about tumour (type, grade, invasion, hormonal receptors etc).

OBJECTIVE: Diagnostic Accuracy of Ultrasound for evaluation of malignant Breast lesion in keeping core-needle biopsy (CNB) as gold standard experience at KIRAN.

MATERIAL & METHOD: This is the retrospective cross sectional Study which is conducted in Department of Diagnostic Radiology at KIRAN. We reviewed 25 Patients Presented with palpable Breast lump between 1st January 2017 to 31st May 2017. Inclusion Criteria: All Female Patient's with clinically palpable breast lesion age between 20-55 years. Exclusion criteria: Relapses & metastasis of Breast neoplasm and other Malignancies.

RESULTS: The incidence of malignancy in our 25 patients was found to be 64 % (16/25) and rest are suppose as benign lesions. Among the malignant lesion the most common was intraductal carcinoma (IDC) 82% followed by infiltrating lobular Carcinoma (ILC) 11.4% and only 4.4% were rare tumors. Conclusion: Ultrasound guided CNB is a safe, accurate and sensitive technique that is adopted on OPD basis and currently considered very close to that of surgical biopsy.

P-140

Dual energy CT in practice: Basic principles and clinical applications

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Technical advances such as faster scan time, thin slices, multi-planner reformatting and 3-D rendering have revolutionized the scope of CT scan. An exciting development that offers great promise to further increase the modality's potential is dual energy CT (DECT). Also known as spectral imaging.

In X-Ray computed tomography (CT), material having different element compositions can be presented by identical pixel values on a CT image (i-e CT number) depending on the mass density of the material. Thus, the differentiation and classification of different tissue types and contrast agent can be extremely challenging. In dual energy CT scan, an additional attenuation measurement is obtained with a second X-Ray spectrum (i-e a second energy), allowing the differentiation of multiple materials.

Clinical applications of dual energy CT scan includes characterization of focal lesions liver, renal masses, composition of renal stones, detection of sub segmental pulmonary emboli. Detection and characterization of vascular plaques, automatic plaque removal & assessment of true vascular lumen etc.

P-141

Experience and analysis of initial 250 cases of PET/CT scan at JPMC, Karachi

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OBJECTIVE: To share initial experience of PET/CT scans among the radiology colleagues in the conference.

METHOD: PET/CT has been recently installed at JPMC, Karachi and started functioning in February, 2017. It is a dose on demand PET scanner with integrated 16 slice CT scanner. Purpose built on site cyclotron is available for

efficient dose production. All the initial 250 PET/CT cases to date performed at the facility for various indications have been included and analyzed. RCR 2016, EANM procedure guidelines for tumour and PET PROS guidelines were followed performing the PET/CT scans. Patient preparation took 30 minutes with uptake period of 60 minutes and approximate scan time of 20 minutes. Slice thickness of CT scanner was kept 2.5 mm. All patient underwent whole body protocol.

RESULT: Total number of PET/CT scans being evaluated were 250 till the end of July, 2017. 3 diagnostic CT's and 5 CT-guided biopsy procedures were also carried out. During the period various technical problems were encountered halting the operation of machine. 56% of patients were male and 44% of patients were female. Age range was 9 years to 67 years. 5 patients were refused of PET/CT due to discomfort, anxiety and irritability. There were 15 cases with problem with needle insertion. There were additional 3 studies being followed up at our own scanner. Out of 250 PET/CT scans being performed, 207 were of oncology, 23 of surgery, 15 of neurology/psychiatry, 5 of nuclear referrals. About 80% of patient's referral was from Oncology. There was uneven distribution across specialties. There were 95 cases of lymphoma, 10 of malignant melanoma, 35 of breast carcinoma, 25 of lung carcinoma, 14 of colorectal, 5 of genitourinary and 39 of head and neck cancer. Other were of miscellaneous indications (thyroid, testicular and others). 92 cases were referred for staging/ restaging / follow up. 54 cases were for response evaluation. We diagnosed recurrence in 28 patients. Primary diagnosis was given in 6 patients. There was no case for therapy planning.

CONCLUSION: PET/CT was mainly used for staging and evaluation of treatment response. Most patients were referred by oncologists. Most common pathology was lymphoma.

P-142

Multimodality imaging staging for non small cell lung cancer

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Lung cancer is the most common type of carcinoma and leading cause of cancer death worldwide. Even new therapeutic options like stereotactic ablative radiotherapy (SABR) and targeted chemotherapy overall 5 years survival rate of patients with lung cancer is 15%. Carcinoma of lung is classified into non-small cell lung cancer (NSCLC) representing 70-80% of cases and small cell lung cancer (SCLC) which has neuroendocrine properties with poor outcome. Staging of NSCLC is based on the TNM classification system while SCLC was usually classified into limited and extensive disease, though the use of TNM staging system for SCLC is recommended. Tumor, node, metastasis (TNM) staging is a consistent, reproducible description of cancers according to the extent of anatomic involvement. This system is based on defining the characteristics of the primary tumor (T), regional lymph node involvement (N), and the presence of distant metastases (M). Imaging studies are used to determine the pre-operative staging of lung cancer. Accurate radiological staging is essential to determine tumor resectability as well as to avoid futile surgeries and to assess patient's outcome. Moreover, radiological examinations are used for the evaluation of tumor response to treatment. To play important role in the multidisciplinary management of lung cancer patients it is necessary that the radiologist must understand the principle of staging. Despite the importance of accuracy in lung cancer staging, however, correct staging remains a challenging task for many radiologists.