

**Abstracts presented at the 37th Annual Conference
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ORAL PRESENTATIONS (O)

SCIENTIFIC SESSION (SSI): CNS and Head and Neck

Imaging

O-1

Accuracy of cranial ultrasound for the diagnosis of intracranial hemorrhage among suspected infants taking MRI as gold standard

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OBJECTIVE: The main objective of this study is to determine the diagnostic accuracy of cranial ultrasound for detection of intracranial hemorrhage taking MRI as gold standard among suspected infants.

METHODS: We prospectively recruited 100 infants of both gender with suspected intracranial hemorrhage from Dec 2020 to May 2021 at Radiology Department of Mardan Medical Complex, Mardan. Out of these 100 patients, 46 (46%) were males and 54 (54%) were females with male to female ratio of 1:1. CUS was performed by experienced pediatric sonographers using state-of-the-art equipment (Aplio 300 Toshiba Medical System). Cranial ultrasound was followed by MRI scan. All the information was recorded on a specially designed proforma based on patient profile and study variables by the researcher. Information was taken regarding history of preterm birth and birth weight. Intracranial hemorrhage was labeled.

RESULTS: All the patients were subjected to cranial ultrasonography and MRI. CUS supported the diagnosis of intracranial hemorrhage in 63 (63.0%) patients. MRI confirmed macrosomia in 62 (62.0%) cases where as 38 (38.0%) patients revealed no intracranial hemorrhage. In cranial CUS positive patients, 57 (True Positive) had intracranial hemorrhage and 06 (False Positive) had no intracranial hemorrhage on MRI. Among, 37 CUS negative patients, 05 (False Negative) had intracranial hemorrhage on MRI whereas 32 (True Negative) had no intracranial hemorrhage on MRI.

Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy of cranial ultrasound for detection of intracranial hemorrhage taking MRI as gold standard among suspected infants was 91.94%, 84.21%, 90.48%, 86.49% and 89.0% respectively.

CONCLUSION: This study concluded that cranial ultrasonography is a highly sensitive and accurate modality for detection of intracranial hemorrhage and has not only dramatically improved our ability of detecting intracranial hemorrhage but also be a simple, economical, and readily available modality. So, we recommend that cranial ultrasonography can be opted routinely in every infant for detection of intracranial hemorrhage for taking proper management decision. Moreover, it will also help the clinicians for taking proper management plans for these infants in order to reduce the perinatal morbidity and mortality.

O-2

Standardizing thyroid imaging; Reporting and data system (TIRADS) for thyroid ultrasounds.

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OBJECTIVE: To assess if thyroid ultrasounds (US) are reported in terms of TI-RADS score and to suggest measures for standardizing reporting.

MATERIAL AND METHODS: This audit was conducted in the Department of Radiology, The Aga Khan University Hospital. The data in the first cycle (C1) was collected from 1st – 31st November 2020. Reports were reviewed to determine if findings of the thyroid were reported in terms of TI-RADS score; if the correct TI-RADS category was assigned, and if FNAC was correctly performed in appropriate patients. Subsequently, following intervention was

done after C1: Teaching presentation for all performing thyroid ultrasound was conducted. 'Simplified' TIRADS scoring guidelines placed in all ultrasound rooms. Usage of online TIRADS calculator demonstrated. Second cycle (C2) was conducted post-intervention, from 1st July - 15th August 2021.

RESULTS: Total of 50 thyroid US each in Cycle1 and Cycle2 were included and evaluated. In C1, TI-RADS score was reported in 15 (30%), FNAC was appropriately performed in 11/15 (73.3%) cases and in 3/11 (27.3%) patients, FNAC was performed for an incorrect nodule. In C2, TI-RADS score was reported in 36 (72%), FNAC was appropriately performed in 16/16 (100%) cases.

CONCLUSION: Overall results elucidate the effectiveness of intervention to ensure standardization in thyroid imaging; reporting and data system (TIRADS) for thyroid ultrasounds.

O-3

SIPAP grading system in MRI reporting of pituitary adenomas

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OBJECTIVE: To determine accuracy of SIPAP grading system in MR reporting of pituitary adenomas.

METHODS: Two experienced radiologists prospectively reviewed imaging of 49 patients with biopsy-proven pituitary macroadenoma, selected via non-probability sampling at AKUH Department of Radiology from 1st July 2019 to 30th June 2020 after ERC approval. Data was analyzed using SPSS version 19. Interobserver variability was calculated using Cohen's Kappa. Comparison between grading before and after treatment was performed by χ^2 test. P values <0.05 were considered statistically significant.

RESULTS: 63.3% patients were male (median age 49.3 years) and 36.7% female (median 44 years). Overall, maximum preoperative and postoperative volume was 71.82 cm³ and 49.50 cm³ respectively, with significant difference in pre and post-operative volumes (14.1 ± 17.7 vs. 4.5 ± 10.4, p-value <0.001). Length showed most significant difference pre and post-operatively (2.4 ± 1.1 vs. 1.3 ± 1.1, p-value <0.001). Individual tumour extensions according to SIPAP for pre- and post-operative grading showed significant difference (p-value <0.001), except for anterior extension. For suprasellar extension, 67.3% patients had pre-operative grade 3 and 63.3% had post-operative grade 0. For infrasellar extension, 51.0% had pre-operative grade 2 and 71.4% had post-operative grade 0. Anterior, posterior and parasellar extensions showed increased frequency in grade 0 in the post-operative stage compared to pre-operative. High inter-observer agreement was achieved for Superior, Inferior, Anterior and Posterior extent with all Kappa statistics values above 0.7 (p-value <0.001).

CONCLUSION: We propose incorporating simple and objective SIPAP classification in routine MR reporting for ideal pituitary tumour delineation, relationship to juxtaseptal structures and tumour size.

O-4

Posterior pituitary bright spot normal dimensions on magnetic resonance imaging

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OBJECTIVE: The object of our study is to define the normal dimensions of posterior pituitary bright spot in craniocaudal and anteroposterior dimensions

on unenhanced T1WI MRI in Khyber Pakhtunkhwa population. It can be used as a standard reference in Khyber Pakhtunkhwa in future.

METHOD: A total of 78 patients from Khyber Pakhtunkhwa with normal pituitary MRI studies were selected for study. The measurements were taken along craniocaudal and anteroposterior axis on sagittal T1WI. We also presented three cases of ectopic posterior pituitary to highlight the fact that it could be a normal variant. This analytical study was done in Rehman Medical Institute Peshawar from Jan 2016 till Feb 2019.

RESULTS: All those cases were considered positive in which patient had positive posterior pituitary bright spot with normal MRI, and mean dimensions were taken in anteroposterior and craniocaudal axis on unenhanced sagittal T1WI. The measurement of posterior pituitary bright spot was ranging from 1.8 - 8.6 mm in craniocaudal dimension and 0.8-6mm in anteroposterior dimension. The standard deviation for craniocaudal dimension is 1.28 and for anteroposterior dimension is 0.9. Mean of craniocaudal dimension is 5.09 and of anteroposterior view is 2.42. As value of craniocaudal dimension increases so will anteroposterior dimension rises as confirmed by Pearson Correlation. The authors also described three cases of posterior pituitary ectopia, a normal variant.

CONCLUSION: The posterior pituitary bright spot should be measured on sagittal unenhanced T1WI and its dimensions must be within the normal range in most patient with normal MRI pituitary.

O-5

Unmasking the many faces of CNS lymphoma - A radiologist's perspective

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PURPOSE: To evaluate various radiological presentations of CNS lymphoma on CT and MRI in patients of both primary and secondary CNS involvement and present a pictorial review.

MATERIALS AND METHODS: A retrospective, cross-sectional, descriptive study was carried out by evaluating CT and MRI brain. Post contrast MRI (performed on both 1.5T and 3T MR machines) and CT Brain reported by residents and fellows and counter verified by senior radiologists were reviewed on PACS imaging system. Scans done during the time duration of January 2019 to August 2021 were studied and various central nervous system radiological manifestations of both primary and secondary lymphoma were evaluated. These included involvement of corpus callosum, subependymal lining, basal ganglia and leptomeninges. Complications, including infarction, were also evaluated.

After IRB approval, retrospective study of 13 patients with positive findings of CNS lymphoma was made by evaluating pre and post contrast images on axial, coronal and sagittal planes of both CT and MRI. Data was analysed by statistician using SPSS version 21. A pictorial review was included along with descriptive data tables and charts.

RESULTS: From a total of 13 patients, minimum age was 14 years and maximum was 83 years, mean age was 49.8 years. 31 % were female and 69 % were male. Out of these patients, 61.5% of patients had secondary CNS involvement with lymphoma, while 38.5% presented with primary CNS disease. 61.5% patients had multiple lesions, while 38.5% had solitary lesions. Maximum number of lesions (69.2%) were seen involving the cortical and deep gray matter, followed by periventricular/ sub ependymal (46.2%), infra tentorial (46.2%), corpus callosum (23.1%) and meningeal (23.1%). Associated infarcts were seen in only 7% of patients.

CONCLUSION: CNS lymphoma can present in various locations and presentations in the brain with most predilection for cortical and deep gray matter. Since lymphoma often presents with multiple lesions, a careful evaluation of CT/MRI brain is essential for timely identification of size and extent of disease process.

O-6

MRI in epilepsy

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O-7

Interobserver variation of the Alberta stroke program early CT score (ASPECTS) among radiologists in the Khyber Teaching Hospital

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OBJECTIVE: The objective of this study, therefore, is to determine the interobserver variation of ASPECTS between the trainee radiologists and expert reader in the Khyber Teaching Hospital (KTH).

METHODS: We retrospectively included thirty five (35) clinically diagnosed, acute non-hemorrhagic stroke patients who had CT head done within 12 hours of symptom onset. Each scan was analyzed for ASPECTS by eight (8) trainee radiologists (2 fellow, 4 senior and 2 junior residents) and one expert reader. We used kappa statistics to calculate the interobserver agreement between trainee radiologists and the expert reader.

RESULTS: The interobserver agreement of ASPECT between the junior residents and the expert reader was fair (kappa = 0.4), between the senior residents and the expert reader was substantial (kappa = 0.63) as well as between the fellows and the expert reader (kappa = 0.70).

CONCLUSION: We concluded that the interobserver agreement of ASPECT evaluation of acute stroke between senior residents and fellows with the expert reader of KTH was strong. This ability of the trainee radiologists can be useful to interpret CT scan in a clinically diagnosed stroke patient and thus allowing timely diagnosis and management.

O-8

Audit of appropriateness of MRI referral for IAM in patients with ear symptoms

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OBJECTIVE: Audit of the appropriateness of MRIAM referrals in patients presenting with ear problems and to evaluate the internal auditory canal (IAC), nerves and vessels inside it.

METHODOLOGY: This is to assess the local practice and appropriateness of MRIAM in Radiology department of Rehman Medical Institute, Peshawar. Cases presented to the ENT department with complaint of ear problems were included in the study (n=100), who were referred between 22-3-2021 to 22-

9-2021 to radiology. MRI was done on 1.5t GE MR. The total 100 scan were selected from PACS and clinical histories were acquired from central database HIMS. The images were viewed through PACS workstation using Synapse® (FUJI DICOME VIEWER). For each scan performed, collected data included referral, clinical information, requested examination, scan performed, recommended exam and appropriateness was assessed. Microsoft excel 2016 was used in entering and analysis of data.

RESULTS: Patients presented to the radiology for MRIAM for ear problems and whose MRI findings revealed no pathologies were 85, whereas 11 patients had vascular abnormality in middle ear and remaining 4 had otitis media.

CONCLUSION: It has been noticed that the clinical data provided does not always specify the type of tinnitus (whether pulsatile or non-pulsatile), and all cases are referred for MRI of the IAM as a screening test for vestibular schwannoma and neurovascular compression syndrome. Distinction between types of tinnitus determines the most appropriate imaging study; for pulsatile tinnitus, it is contrast-enhanced CT of the petrous bone while non-pulsatile tinnitus mostly due to systemic causes (such as hyperdynamic circulation) or non-treatable structural causes (such as vascular loops near the internal auditory canal), and very rarely due to vestibular schwannoma, which is best diagnosed.

O-9

Imaging the mastoids in the setting of intracranial dural venous sinus thrombosis : A retrospective analysis at RMI

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OBJECTIVE: To assess the association of mastoid findings on MRI with dural venous sinus thrombosis at the radiology department of RMI.

METHODOLOGY: A hospital based prospective study of hospital management and integration system (HMIS) was performed from January 2020 to October 2020. Reports were searched for diagnosis of intracranial dural venous sinus thrombosis. MRI findings were reviewed on PACS by a senior radiology resident and consultant radiologist. Axial T2 weighted images of 5 mm slice thickness were evaluated for mastoid findings. Taking study of Lubdha. M Shah et al as standard mastoid air cell involvement was graded from a scale of 0-3. 0 as no involvement; grade 1 mucosal congestion; grade 2, film of fluid; or grade 3, complete opacification. Additional input was taken from referring consultant neuroradiologists to correlate the severity of clinical findings.

RESULTS: Of 30 patients reviewed (20 females, 10 males), 15 (50%) had mastoid findings, 10 (33%) with grade 1, 3 (30%) with grade 2 and 2 with grade 3 (20%). 11 had no clinical evidence of infectious mastoiditis.

CONCLUSION: We found a significant association of 50% between dural venous sinus thrombosis and mastoid findings radiologically.

O-10

Vision Mission in finding the extra-orbital causes of orbital diseases on MRI

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PURPOSE OR LEARNING OBJECTIVE: To find the prevalence of extra-orbital causes of orbital diseases on MRI.

METHODS OR BACKGROUND: Orbital diseases can be from orbital origin or due to spread of disease from regional structures like cranial cavity, nose, paranasal sinuses, face etc. Most of the abnormalities of the orbit can result in neuro-ophthalmic findings like optic neuritis or perineuritis and patient presents with vision impairment. This prospective descriptive study was done in radiology department of Rehman Medical Institute Peshawar. MRI was performed on 1.5t MRI and dedicated MRI Orbit protocol was followed including T2 FATSAT, T1WI and post contrast T1 FATSAT sequences. Additional imaging of brain was done with FLAIR and DWI/ADC sequences.

RESULTS OR FINDINGS: Total of 133 patients referred for MRI Orbit with complaint of vision impairment were included in the study. 35 patients had normal MRI orbits. Orbital diseases seen in 98 patients were cellulitis due to fungal sinusitis (n=18), meningioma involving orbital contents (n=5), orbital apex inflammation due to inflammatory cavernous sinus thrombosis (n=4), orbital masses like retinoblastoma (n=5), melanoma (n=3), optic neuritis (n=26), optic atrophy (n=8), papilledema (n=10), pituitary adenoma (n=3) and graves disease (n=2). Few cases had masses in conjunctiva, lacrimal gland and retrobulbar fats. Two cases had cerebral infarcts. One case has endophthalmitis. Extra-orbital cause of orbital diseases was seen in 24 patients (18%).

CONCLUSION: We concluded from our results that 18% of orbital diseases on MRI were due to extra-orbital cause. Most common etiology was fungal sinusitis followed by sphenoid bone meningiomas.

Limitations: Multicenter study should be done.

Ethics committee approval: Done.

O-11

Brain peritumoral imaging

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O-12

Pediatric stroke imaging

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O-13

DSC MR Perfusion for treated diffuse infiltrative gliomas

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O-14

CTA cerebral in non-traumatic hemorrhage

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O-15**Ideal imaging sequence for staging head and neck malignancy****Aliya Sharif***Department of Radiology, Rehman Medical Institute (RMI), Peshawar, Pakistan.
E-mail: aliya.sharif@rmi.edu.pk***SCIENTIFIC SESSION (SSII): GIT & HB****O-16****MDCT Enterography; Imaging findings and its diagnostic role in small bowel diseases****Kalsoom Nawab***Department of Radiology, Khyber Teaching Hospital (KTH), Peshawar, Pakistan.
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In routine clinical practice we encounter a variety of pathologic processes involving the small bowel and mesenteric vessels. Imaging small bowel is technically difficult, because it is long and serpentine, and a large field of view is needed to display it in entirety. In addition peristaltic movements and breathing movements also make its tracing challenging. There is increased rate of missing and errors in diagnosing small bowel diseases because small bowel diseases are rare and their imaging features are less well known. Small bowel follow-through and enteroclysis are widely used for its imaging; however, these examinations provide only indirect information about the bowel wall. Doppler ultrasonography allows direct evaluation of the mesenteric vessels but it is operator dependent and overlying bowel gases obscure the image, while Enteroscopy is invasive and cannot visualize the totality of the small bowel. Recent advances such as capsule endoscopy and magnetic resonance imaging (MRI), have emerged as alternative small bowel imaging techniques that can be performed without ionizing radiation but these techniques have their own limitations. Multidetector Computed tomographic (MDCT) enterography is an emerging alternative for the assessment of disorders of the small bowel. The greatly improved spatial and temporal resolution by MDCT scanners, along with optimum luminal distention by negative oral contrast agents and with good bowel wall visualization, have made CT enterography as a frontline imaging and one stop imaging modality for investigating small bowel diseases.

In this review lecture the technique of CT Enterography, its utility for evaluating small bowel diseases and its various manifestations will be discussed.

O-17**Development of cancer in gall bladder polyps detected on ultrasound in high risk population****Muhammad Sami Alam***Department of Radiology, Aga Khan University Hospital (AKUH), Karachi, Pakistan.
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PURPOSE: To determine the occurrence of cancer in follow up of incidentally detected (GB) polyps identified sonographically and to propose management, surveillance guidelines in high risk population for gall bladder cancer. **Materials and Methods:** Radiological data of all "gall bladder polyps" detected on abdominal ultrasounds done between January 2001 and February 2015 were taken at a tertiary care institution. All ultrasound results of included examinations were evaluated to see changes in the size of GB polyps. The medical record files were reviewed to obtain pathologic and clinical follow-up.

RESULTS: One hundred and fifty five patients (mean age, 52.6 years; range, 18–92 years) with GB polyps were included out of which 72 were men (46%) and 83 women (54%). US follow-up was performed in 149 patients with minimum follow-up duration of 2 years. Polyp size remained the same in 65 (42 %) polyps, decreased in 25 (16 %), increased in 12 (7 %), and resolved

in 53 (34%). Of the one patient who had an increase in polyp size on follow-up was further investigated by MRI which revealed a gall bladder mass. Subsequent histopathology confirmed the diagnosis. This was the solitary case of malignant transformation out of the total of 1226 patients initially screened for polyps. The polyps ranged in size from 2-19 mm, the mean being 4.0mm. None of the polyps ranging in size from 1-5 mm turned out to be neoplastic. A single polyp in the 6 mm or greater size was found to be neoplastic.

CONCLUSION: The risk of malignancy of the gall bladder resulting from sonographically detected incidental polyps is very low. GB polyps that are incidentally detected on ultrasound measuring 6 mm or less, may require no additional follow-up. Further studies are required for polyps greater than 7 mm as the available data is inconclusive.

O-18**Importance of non-alcoholic fatty steatosis in predicting severity of acute pancreatitis****Laiba Masood, Madiha Saeed Wahla, Asma Malik, Mariam Masood, Salma Gul, Suraya Bano Zafar***Department of Radiology, Shifa International Hospital, Islamabad, Pakistan.
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OBJECTIVE: To investigate the association between fatty liver and the severity of acute pancreatitis.

DESIGN: Cross-sectional study.

PLACE AND DURATION OF STUDY: Radiology Department, Shifa International Hospital Islamabad between January 2018 to December 2020.

METHODOLOGY: Abdominal CT images of 129 patients with acute pancreatitis diagnosed by clinical symptoms, raised serum amylase / lipase levels >1000 and CT findings were retrospectively reviewed by a radiologist, mean CT value of hepatic and splenic attenuation was measured in Hounsfield units (HU), and fatty liver (FL) was defined as liver spleen index of < 1. Modified CT severity index was calculated and scored as mild (0-2), moderate (4-6) and severe (8-10).

RESULTS: Among 129 patients, 74 (57.4%) were males and 55(42.6%) were females ranging between age 9 to 84 years. Fatty liver was seen in 91 patients (70%) with 38 (29.5%) having non fatty liver. 56(43%) cases presented with moderately severe acute pancreatitis as graded by Modified CT severity index for acute pancreatitis out of which 40(43.9%) had fatty liver with significant p-value = 0.031. A higher frequency of post pancreatic complications was seen in FL group particularly walled off/ liquefactive necrosis and pancreatic collections. Extra-pancreatic complications were also more commonly seen in FL group, having p-value = 0.004.

CONCLUSION: In short FL can be confidently diagnosed using MDCT can be used as prognostic indicator for increased severity of acute pancreatitis when present may help physician in predicting the course of disease and its outcome.

O-19**Inter observer reliability (IOR) between radiologists for reporting peritoneal carcinomatosis****Mahnoor Hafeez***Dow Institute of Radiology, Dow University of Health Sciences (DUHS), Karachi, Pakistan.
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OBJECTIVE: CT Scanning creates a road map and surgical GPS for peritoneal carcinomatosis (PC). The aim of our study is to determine if there is Inter

observer reliability (IOR) between radiologists for reporting peritoneal carcinomatosis and CT-PCI Index estimation.

MATERIALS AND METHODS: After IRB approval, all 'PC' abdominal CT reports at HMIS PACS during 6 months interval were extracted, 1st reader was instructor, senior instructor or assistant professor of our institute with <1, >2 and > 4 years of post-fellowship experience. 2nd reader was senior radiologist who retrospectively analyzed scans and reports. The data was analyzed on IBM SPSS software version 21.0 and R software version 4.0.3. IOR was assessed for all the peritoneum sites using AC1Gwetz statistic. CT PCI index was calculated according to number of peritoneal sites based upon Sugarbaker's CT PCI score and intra-class correlation was computed between radiologists.

RESULTS: Out of 236 subjects, most common primary cancer was found to be ovarian-145 (61.4%) and mean age of the patients was 53.6 ± 13.6 years. Omentum, morrison's pouch, serosal, mesentery, para-colic gutter, cul-de-sac, adnexa, umbilical sites didn't showed good agreement. For subphrenic space, intrahepatic fissure, porta-hepatis, splenic hilum, and lesser sac, senior Instructor and assistant professor have a good agreement with second reader as observed agreement > 70%. There was an excellent intra-class correlation for measuring PCI score between radiologists, irrespective of grade of faculty (ICC>0.90).

CONCLUSION: We concluded that there is low reliability for majority of PC lexicon at CT, despite of faculty experience with high inter observer reliability for CT-PCI index.

O-20

Optimizing MR enterography for inflammatory bowel disease – our initial experience in Shifa International Hospital

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PURPOSE: This study is aimed to describe the typical radiological findings in patients with Crohn's Disease to aid in the diagnosis of inflammatory bowel disease (IBD) in daily practice.

MATERIAL AND METHOD: After IRB approval, a retrospective study was performed at a single institution. 30 patients with Crohn's disease with magnetic resonance enterography were included in the study. Data was reviewed from the electronic system.

RESULTS: 9 patients (30%) were female and 21 patients (70%) were male, who underwent magnetic resonance enterography showing characteristic Crohn's disease characteristics. Among these patients, post-contrast enhancement was reported in 64% patients, whereas, 60% patients had mural wall thickening. Another common feature seen among these patients was lymphadenopathy. This was seen in 20% of the study population. Other features of lesser percentages include mural thickening (7%), 6.6% had ulceration and 5% showed DWI restricted diffusion. None of these patients had extra-intestinal manifestation or any complications at the time of presentation. 60% of the patients underwent biopsy, whereas 3 (10%) patients had ASCA positive associated Crohn's. Remaining 7 patients neither had biopsy nor blood test to confirm the diagnosis. Among the biopsy proven cases, our study revealed 61% diagnostic accuracy for Crohn's disease.

This study was limited by its small sample size, its retrospective nature, and loss to follow-up in some patients.

CONCLUSION: Magnetic resonance enterography was found to be an effective, non-invasive imaging modality for the accurate diagnosis of Crohn's disease.

O-21

Accuracy of MDCT in detecting gall bladder perforation

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OBJECTIVE: The aim of this study was to assess the role of multi-slice computed tomography (MSCT) in the assessment of Gall bladder perforation if ultrasound findings are equivocal.

METHOD: It is a prospective study conducted in the radiology department of NWGH from May 2019 to May 2020. In this study 22 patients had gall bladder perforation on MDCT, out of which 13 were females (59%) and 9 were males (40%). Their mean age was 45 years (age range 35 to 60 years) Main complaints were acute abdomen or acute cholecystitis. All patients underwent laparotomy and had more or less same results.

RESULT: This study was conducted between May 2019 to May 2020. The radiological findings were evaluated such as GB distention, stones, GB wall thickening, enhancement, and GB wall defect, pericholecystic free fluid or collection. All CT findings were compared with the surgical results. Our results revealed that the focal mural defect or interrupted wall enhancement is the most specific sign.

CONCLUSION: MDCT helps in early diagnosis of gall bladder perforation if ultrasound findings are equivocal.

O-22

Incidental findings in CT abdomen and pelvis performed for liver volumetric analysis in healthy liver donors; our experience at SIH

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OBJECTIVE: To highlight the frequency of incidental findings in healthy liver donors observed on CT abdomen and pelvis, performed for liver volumetric analysis prior to liver donation.

MATERIALS AND METHODS: This is a descriptive, retrospective, cross sectional study performed on CT abdomen and pelvis conducted for liver volumetric analysis in healthy liver donors. This imaging study is a multiphase scan, with images taken before injecting contrast, in arterial phase (30 seconds after injecting contrast), venous phase (60-65 seconds after injecting contrast) and delayed phase (5 minutes after injecting contrast). The slice thickness is kept at 2 mm for this scan.

Scans from 2015 till early 2021 were reviewed on PACS. All study participants were healthy patients, with no known co-morbidities, who had undergone their pre-transplant blood work up, before being referred for a multiphase CT scan. After approval of the study by IRB, a total of 977 participants were included in the study after application of inclusion and exclusion criteria. Patient's demographic and clinical data was reviewed using the RIS system available at SIH radiology department. Cases were reviewed by residents, senior radiologists as well as the primary investigator with images viewed in axial, sagittal and coronal planes to look for incidental findings in healthy liver donors. Data was analysed using SPSS version 21 and statistics were displayed in frequency and percentage tables and charts.

RESULTS: Out of a total of 977 patients, 67% were male and 33% were female. Bone islands were the most frequently found incidental finding in our sample population. 80 patients out of the 977 were found to have bone islands (8.2%), with a preponderance for the male population. Liver calcification was found in 4.7% of the population, more in the males. 4.4% of the patients were found to have atelectatic changes in the lungs. A total of 7.7% percent of the population had renal stones with 3.4 % in the left kidney and 3.3% in the right kidney. Enlarged lymph nodes were found in 3.4% of the total sample size.

3% of the study population was found to have liver hemangiomas and right and left renal cysts. 2.6% had fat infiltration in the liver, 2.5% had arterial blushes in the liver and fluid in pelvis and 2.3% were found to have pulmonary/pleural nodules. Gallstones and degenerative changes were found in 1.7% of the sample size. 1.3% of the population was found to have splenules, Schmorl nodules and other benign bone lesions. 11.5% of the female population had ovarian cysts, 3% had fibroids in the uterus and 2.5% had fluid in the cul de sac. Most of the incidental findings either had a preponderance for the male population, most likely on account of the greater sample size in comparison to the females, or had an equal distribution among both genders. Gallstones was the only incidental finding which had a preponderance for the female population.

CONCLUSION: This study helps to establish the importance of incidental findings in otherwise healthy liver donors. It is important to know if a potential donor suffers from an illness that the patient is unaware of, that might interfere with liver donation or that could hinder the patient's post procedure recovery.

O-23

Validation of MRI estimation of hepatic fat fraction considering liver attenuation index evaluation on CT as gold standard

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OBJECTIVE: To validate the MRI estimation of hepatic fat fraction, considering liver attenuation index evaluation on CT as gold standard.

MATERIALS AND METHODS: After calculation of sample size by WHO sample size calculator, we performed MR fat fraction sequence as a part of mandatory MRCP in 70 potential liver donors who underwent CT abdomen. liver attenuation index (LAI) and MR fat fraction were assessed independently by two radiologists who were blinded to findings on each modality. LAI was calculated as: LAI = Mean liver attenuation - mean splenic attenuation. MRI fat fraction values from seven regions were averaged and taken as mean liver fat percentage. The statistical analysis was performed on SPSS version 20 and Pearson's Correlation was applied.

RESULTS: Out of 70 donors there were 50 males and 20 females (M: F= 5:2). Minimum age was 21 and maximum age was 50 (mean age: 35). A minimum fat content of 2% and maximum of 32% was observed on MRI, whereas minimum LAI was -33 and maximum was 17. There was good correlation between the MRI fat estimation and LAI values (0.907, $p < 0.001$).

CONCLUSION: MRI estimation of liver fat correlated well with CT LAI fat estimation. MRI is safer than CT as it does not involve ionizing radiation, is quicker to perform, and hence can be recommended as future method of choice. However, further validation of MRI fat fraction against histopathological fat fraction is needed.

O-24

A paradigm shift while staging rectal carcinoma – association of extramural vascular invasion with metastasis in rectal carcinoma

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OBJECTIVE: To determine the association of extramural vascular invasion in rectal carcinoma with evidence of metastatic disease.

MATERIALS & METHODS: A cross-sectional, retrospective study of patients presented with rectal carcinoma, undergoing staging post contrast CT scan chest, abdomen and pelvis as well as contrast enhanced MRI pelvis. Biopsy proven cases were included and a total of 36 cases were finally selected for the purpose of this study. Data was collected and statistical analysis was performed using SPSS version 21. Correlation, frequency and percentages were used to analyze descriptive data. Univariate associations of clinico-radiologic factors such as age, sex and MRI findings including EMVI with the status of synchronous distant metastasis were assessed using simple correlation cross-tables. Data is presented using graphs, frequency percentages and bar charts for comparison and correlation.

RESULTS: Out of a total of 36 patients, direct relation and positive correlation was found between EMVI positive cases and metastatic disease. A total of 72% cases of rectal carcinoma had positive EMVI and 27.8% patients had negative EMVI. Amongst the patients with positive EMVI, 70% showed spread to liver, 66% showed lung metastasis, 50% had bone metastasis, 76% showed nodal metastasis, 1 case with EMVI showed splenic, brain, peritoneal, ovarian and omental metastasis.

CONCLUSION: Our study re-affirmed and confirmed the positive correlation of EMVI with metastatic disease in patients with rectal carcinoma. It also reconfirmed that nodal metastasis is most prevalent with EMVI in carcinoma rectum, however amongst systemic metastasis, hepatic and pulmonary metastatic disease is most prevalent. Our study showed that positive EMVI is an independent risk factor for synchronous distant metastasis. Preoperative identification of distant metastasis is important because patients with synchronous metastasis should undergo different treatment, such as neo-adjuvant chemotherapy.

O-25

Correlation between preoperative computed tomography and postoperative pathological measurements of tumor length in cases of carcinoma esophagus

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OBJECTIVE: To compare the result of preoperative computed tomography (CT) and postoperative pathological measurements of tumor length in cases of carcinoma esophagus.

MATERIAL AND METHODS: Computed tomography thorax and upper abdomen with oral and intravenous contrast was done of biopsy proven 100 cases of carcinoma esophagus. The patients were then referred to Cardiothoracic Surgery Unit, PGMI, Lady Reading Hospital for esophagectomy. Tumor lengths measured on preoperative computed tomography and on the post-operative resection specimens were recorded.

RESULTS: Out of 100 patients, 65 were male and 35 were female. Age ranged from 18 to 82 years with a mean age of 59.9 years. Middle and lower third tumors were present in 50 cases each. On CT scan the esophageal tumor length ranged from 1 cm to 13 cm with a mean length of 4.96 cm, whereas pathological measurements of esophageal tumor length ranged from 1 cm to 12 cm with a mean length of 4.72 cm. There was a significant linear correlation between CT and pathology measurements of esophageal tumor lengths.

CONCLUSION: CT assessments generally overestimate macroscopic esophageal tumor length and should not be the only modality used for management decisions.

O-26**Cholangiocarcinoma: Imaging and assessment of resectability****Salman Rafique***Department of Diagnostic Radiology, Pakistan Kidney and Liver Institute and Research Centre (PKLI&RC), Lahore, Pakistan.**E-mail: msalmanrafique@gmail.com***O-27****Pre-operative assessment of liver transplant donors – An experience of Pakistan and China****Saira Zafar***Department of Radiology, Combined Military Hospitals (CMH), Abbottabad, Pakistan.**E-mail: saerah_sky07@yahoo.com*

Pre-operative assessment of liver donors is an integral part of any transplant program. CT hepatic volumetry determines whether the graft is adequate for the recipient; an ideal transplant liver volume is calculated through graft-to-recipient body weight (GRWR) ratio which should be greater than 0.8%. Reconstruction programs designed for liver resection are utilised for volumetric assessment as well as for planning the resection planes keeping in view the lobar and vascular anatomy. CT angiography for hepatic arteries and venous assessment of portal and hepatic veins is another step in the pre-transplant assessment. Variations in hepatic artery and vein, and portal venous anatomy form a crucial part of pre-operative planning as these can alter the course of surgery. Close collaboration between transplant surgeons and radiologists is hence required before selection of the donor. MRCP is performed for biliary anatomy mapping as an important consideration for variant details which greatly influences the selection of donors, with further confirmation through per-operative cholangiogram. An experience of pre-operative donor transplant imaging in Armed Forces Institute of Radiology and Imaging (AFIRI) in association with Army Liver Transplant Unit (ALTU) Rawalpindi, and Beijing Friendship Hospital (BFH), Beijing China will be shared with the audience.

O-28**CT appearances of primary and secondary mesenteric pathologies****Zeeshan Ghias Khan, Laiba Masood, Sadia Babar, Hira Rana, Rashed Nazir, Saman Nosheen***Department of Radiology, Shifa International Hospital, Islamabad, Pakistan.**E-mail: shanighias@gmail.com*

Mesentery or otherwise known as peritoneal reflections in combination with peritoneal cavity form an important site of various pathologies in the abdomen. Mesenteric tumors, although rare, could be solid and/or cystic in composition and may express malignant or benign characteristics. Plain radiography and ultrasound are of minimal use in detection and management of peritoneal and mesenteric pathologies. Even though surgical biopsy or imaging guided biopsy with histopathology forms the diagnosis, CT features along with the clinical history may be useful in differentiating these tumors from infection, inflammatory or other vascular processes affecting the mesentery. The pictorial review aims to illustrate the imaging appearances of benign and malignant mesenteric lesions on CT and potential pitfalls. We hope this will facilitate a clearer understanding of the CT appearances of these pathologies, to argument the ability of the radiologist to formulate rational differential diagnosis in conjunction with clinicians and understand pathways of disease spread.

O-29**Audit of indications for abdominal x-rays in emergency, outpatient and inpatient department.****Samina Khan, Salman Rafique, Tahir Malik, Ahmed Zia***Department of Radiology, Pakistan Kidney and Liver Institute and Research Centre, Lahore, Pakistan.**E-mail: drsamina263@gmail.com*

OBJECTIVE: To ensure adherence of abdominal x-rays to the RCR (Royal College Radiologist) guidelines regarding indications.

METHODS: We collected data regarding 144 consecutive abdominal x-rays from July 1 to July 31, 2021 to assess if the abdominal x-rays were indicated according to RCR guidelines. The information included patients' name, MR numbers, age, gender, and clinical indication.

RESULTS: Out of 144 x-rays, 17 had no indication mentioned, 34 were known cases of urolithiasis without proper indication, 79 were known cases of urolithiasis with indication mentioned, 11 were to rule out intestinal obstruction, 2 had history of abdominal pain, and 1 had palpable abdominal mass. Thus, 54 (37.5 %) were not ordered according to RCR guidelines.

CONCLUSION: About one-third of the requested abdominal x-rays were not indicated, according to RCR guidelines. Abdominal x-rays are indiscriminately advised in patients presenting with abdominal pain and most of the time the results are negative or non-specific. This results in a delay in use of appropriate imaging modality, and therefore a delay in patient management.

RECOMMENDATIONS: In due time we intend to provide this feedback to our referring consultants so as to minimize number of inappropriate x-rays, decrease burden on the radiology department/equipment and decrease patient radiation exposure.

O-30**Diagnostic accuracy of severe acute pancreatitis by MDCTSI keeping APACHE II scoring as gold standard****Rida e Zainab***Department of Radiology, Liaquat National Hospital (LNH), Karachi, Pakistan.**E-mail: xainabkhalid@hotmail.com***O-31****Significance of delayed phase in characterization of liver lesions on contrast enhanced computed tomography scan****Khadeeja Anwar***Department of Radiology, Rehman Medical Institute (RMI), Peshawar, Pakistan.**E-mail: khadeeja.anwar@rmi.edu.pk*

OBJECTIVE: To identify the significance of delayed phase in characterization of liver lesions on contrast enhanced computed tomography scan.

METHODOLOGY: This study was conducted at Rehman Medical Institute Peshawar from 1st January 2020 to 30th June 2021. Data was collected from Health Management & Information System after obtaining ethical approval. 100 patients with hepatic lesions were selected randomly irrespective of age or gender restriction. Data was put into tables. All the scans were performed on Toshiba 128 slice CT scanner. Liver was scanned in arterial venous and delayed phases. All the findings in distinct phases were noted. Data was put into MS office tables and results were obtained.

RESULTS: A total of 100 scans were analyzed including both benign and malignant conditions. Out of 100 cases 3 came out to be abscesses, 13 cysts,

13 hemangiomas, 58 hepatomas, 4 cholangiocarcinoma, and 9 were metastasis. Our main concern was Delayed phase of the triphasic CT scan, so we put emphasis on that. 5 types of findings were being noted in the delayed phase of triphasic scan. Either there was complete washout, no washout, delayed enhancement, no enhancement or washout and progressive filling of the lesion by the contrast material. Regarding benign lesions no washout was seen in delayed phase in the abscess wall. There was progressive filling in hemangioma and no enhancement or washout was seen in cyst. This happened in all the cases included in our study without any exception. In all 58 cases of hepatocellular carcinoma there was complete washout of the contrast irrespective of the size, location, gender, or age of the patient. No washout was seen in metastatic liver conditions and delayed enhancement was noted in all cases of cholangiocarcinoma.

CONCLUSION: Delayed phase is important in characterizing lesions that might be impossible or at least difficult to be diagnosed on dual phase CT without delayed phase. In short, triphasic CT with delayed phase is much significant and useful than dual phase CT without delayed phase.

SCIENTIFIC SESSION (SSIII): Research and Article Writing

O-32

Selecting study topic, type and variables

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O-33

Designing appropriate methodology

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O-34

Manuscript writing

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O-35

Statistical analysis

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SCIENTIFIC SESSION (SSIV): Medical Imaging & Artificial Intelligence

O-36

Prediction and assessment of response to transarterial chemoembolization for HCC using DWI

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OBJECTIVE: To assess the role of apparent diffusion coefficient (ADC) measured with diffusion-weighted imaging (DWI) in predicting and assessing

response of hepatocellular carcinoma (HCC) to transarterial chemoembolization (TACE).

METHODS: One hundred and four patients with cirrhosis and untreated HCC who underwent TACE and MRI within 6-8 weeks before and after TACE were assessed. MRI included DWI. Two observers measured ADC of target HCC lesions and liver parenchyma on pre-TACE MRI and post-TACE MRIs which were conducted after 24 hours and after 6-8 weeks of performing TACE and also measured degree of tumor necrosis on post-contrast images on post-TACE CT Liver triphasic. Pre- TACE tumor ADC and changes in tumor ADC (?ADC) after 24 hours of TACE as well as after 6-8 weeks of TACE were compared and correlated with contrast enhancement in CT Liver triphasic done 6-8 weeks after TACE.

RESULTS: One hundred and four (104) HCCs were evaluated (mean size 4.41cm, range 1.9-9.4cm). HCCs with poor and incomplete response to TACE (<50% necrosis on post-TACE CT) had significantly lower pre-treatment ADC and lower post TACE ADC compared to HCCs with good/complete response (=50% necrosis): ADC pre-TACE 1.18 ± 0.41 vs. $1.76 \pm 0.51 \times 10^{-3}$ mm²/s ($p=0.042$); post-TACE ADC 1.26 ± 0.36 vs. $2.10 \pm 0.32 \times 10^{-3}$ mm²/s ($p=0.0008$) [24 hours post TACE] and post-TACE ADC 1.25 ± 0.32 vs. $2.07 \pm 0.32 \times 10^{-3}$ mm²/s ($p=0.0008$) [6 weeks post TACE].

CONCLUSION: This data suggests that pre-TACE tumor ADC can be used to predict HCC response to TACE and increase in ADC values of the target lesion is a reliable factor to predict tumor necrosis and success of TACE measured even 24 hours POST TACE and can replace contrast studies.

O-37

Radiation doses during fluoroscopy procedures

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OBJECTIVE: To ensure minimum possible radiation doses to patients undergoing fluoroscopy procedures.

METHODS: All fluoro-based equipment were evaluated for the availability of the radiation dose measuring facility. Multiple strategies were developed in accordance with the equipment capabilities. For those units which have the radiation detector, the doses were recorded. For machines which do not have the radiation measuring facility, mA and fluoroscopy times were being recorded. Key-Performance-Indicators (KPI) were developed to ensure the compliance. Pakistan Nuclear Regulatory Authority's defined dose reference levels and other international benchmarks were used for validating the safe exposures. The study was extended outside Radiology and Fluoro-based procedures in Operating rooms and Lithotripsy were also included

RESULTS: Radiation exposure data and radiographic technique parameters were recorded which were later used to develop the KPIs. It was found that the radiation exposures are within the safe limits and the chance of occurrence of a sentinel event is unlikely.

CONCLUSION: Following the standardized protocols to perform the procedures as per international guidelines, proper equipment calibration and maintenance, well planned Quality Assurance & Quality Control Programs, adequate radiologists, residents and radiographers training and proper patient education are the elements which ensure the lowest possible radiation exposure to patients and consequently to the workers engaged in the procedures.

O-38**Radiation awareness amongst radiation workers in diagnostic radiology department of a public sector hospital in Khyber Pakhtunkhwa, Pakistan**

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OBJECTIVE: To determine the level of improvement amongst radiation workers regarding knowledge of ionizing radiations and principles of radiation protection both for staff and patients while performing routine diagnostic procedures after attending a dedicated refresher course on radiation awareness and protection.

MATERIAL & METHODS: Forty six (38 male and 08 female) radiation workers participated in this refresher course and have filled the pre- and post-session performance on basics of ionizing radiations, cellular interaction /radiobiology, biological effects of ionizing radiation, radiation protection principles and strategies to minimize patient dose which lasts for one month.

RESULTS: Mean scores of all radiation workers in pre-session assessment was 39.35% which improved to 61.95% after attending the dedicated course designed with a mean difference of 22.6%. The female radiation workers awareness level improvement was higher (pre: 36.25%, post: 59.38%) than male workers (pre: 40.0%, post: 62.5%). The workers having intermediate and higher qualification did better (pre: 38.42%, post: 61.45%) than the ones who have only metric (pre: 43.75%, post: 64.38%) and workers having relevant diploma in radiology scored better (pre: 42.86%, post: 65.48%) than the workers who have not done relevant diploma (pre: 37.0%, post: 59.0%).

CONCLUSION: The awareness amongst radiation workers can be improved by consistently conducting sessions on radiation protection and updating them time to time about the new developments and researches in their field to boost their skills and it can be achieved with the coordination & cooperation of hospital & regulatory bodies and through concurrent efforts and planning.

O-39**Artificial intelligence and mammography**

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O-40**Radiological assessment of domestic violence in Covid 19 lockdown, in depth study on Pakistan population**

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O-41**Quality management system in diagnostic radiology: Exploring new horizons**

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BACKGROUND: Radiology department is the back bone of any health care center, particularly cancer hospital, proper functioning of which is crucial for

diagnosis and management of patients. Quality assurance of diagnostic Radiology is an organized effort by the technical staff to ensure that images produced by the facility are of sufficiently high quality so that in addition to providing adequate diagnostic information least possible exposure is given to patient at lowest cost. Quality management system ensures intermittent technical testing of medical equipment and evaluation of image quality to ensure conformity to the regulations. Small differences in dose levels can have large impacts on long term performance of equipments. Quality management system is the window through which the working of any department can be seen and analyzed. It gives an insight into the services provided to the patients. **Materials and Methods:** Comprehensive quality assurance even begins before the procurement of equipments. We at AECH-NORI are doing quality control since long as per ISO standards. New sophisticated equipment is also being installed related to the diagnosis and management of cancer patient's particularly digital mammography, digital radiography and CT scanner. These equipments can be used for screening as well as diagnostic purpose. Screening mammogram for early detection of breast cancer has a well documented role in reducing morbidity and mortality related to advanced stage breast cancer as well as low dose screening chest CT in high risk population in detecting early stage lung cancer.

RESULTS: This paper illustrates how a quality assurance program may help to limit the wastage of resources. IAEA promotes the quality approach and audits in departments using ionizing radiation for diagnostic or therapeutic purpose. We at NORI hospital are currently under the scrutiny of QUAADRIL program of IAEA, the policies of which are implemented in the department and expert missions taken. Previously we were using ISO documentation in department, the policies of which are thoroughly followed.

CONCLUSION: The quality assurance audits in diagnostic radiology make the working of department more effective, efficient, services more accessible and acceptable/patient-centered with safe and equitable environment.

O-42**Knowledge of radiology residents of government hospital of Peshawar regarding biological hazards caused by X rays**

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O-43**Radiation dose in TAE for HCC**

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PURPOSE: To assess dose during the procedure of transarterial embolization (TAE) in patients of hepatocellular carcinoma (HCC).

MATERIALS AND METHODS: We have Artis zee imaging system from Siemens installed in interventional radiology suite for performance of interventional radiology procedures. A cross-sectional retrospective study was performed at Rehman Medical Institute, Radiology Department, Peshawar from February 2015 to September 2019. Total number of 314 procedures of TAE were done during this time period. The fluoroscopy time, number of exposures and total dose for each procedure was recorded and maintained in a register along with patient's details including age, gender, weight and BMI. The doses are maintained to obtain a data of doses of all patients. Those patients in which doses are relatively high were assessed retrospectively to take steps in future to maintain low radiation doses of patients for TAE.

CONCLUSION: The average fluoroscopy time is 18.2 minutes with average total exposures of 9 and total dose of 12393 mGym³. This data will help in taking steps for reduction of doses in patients undergoing TAE procedure.

O-44**Use of artificial intelligence in medical imaging; Present and future****Bilqees Yawar Faiz***Department of Radiology, Shifa International Hospital, Islamabad, Pakistan.
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This is a review of literature for rapidly increasing use of AI in radiology. This will include review of work already done in breast imaging and COVID assessment. Future prospects of AI in lung cancer detection, brain tumor with assessment of treatment response will be addressed. Other areas including its use in coronary CT and peripheral angiograms will be shared. What are different machine learning algorithms used in advanced CT and MRI technologies will also be discussed. A discussion on role of AI for acute and critical result assessment during night shifts.

CONCLUSION: AI can be used as an assistant tool for radiologists.

O-45**Role of imaging technologists in CT vascular imaging, post processing and 3D reformation in living renal donors****Nighat Sultan***Department of Radiology, Sindh Institute of Urology and Transplantation (SIUT), Karachi, Pakistan.
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OBJECTIVE: The purpose of this study is to evaluate the importance of imaging technologist and their efficacy in CTA imaging, post processing and 3D reformation in renal donors.

MATERIAL AND METHOD:

- Analysis of CTA imaging protocol for potential renal donors
- Analysis of 3D reformatted images
- Retrospective study

INCLUSION CRITERIA:

- Potential renal donors

BACKGROUND: Imaging plays a crucial role in pre-transplant evaluation to enhance the probability of a successful outcome. Its aim is to define kidney and vascular anatomy and to assess potential pathologies.

The prevalence of end-stage renal disease (ESRD) is increasing throughout the world, posing a significant challenge for health care systems worldwide. Renal transplantation is considered the treatment of choice for ESRD, and successful kidney transplantation can be expected to significantly increase a patient's quality of life. The lack of cadaveric organ availability has led to transplantation from living donors.

Harvesting kidneys, especially from less ideal donors, requires especially careful preoperative assessment to minimize the donor's risk of complications. Imaging plays a fundamental role in the non-invasive evaluation of the kidneys and vasculature.

Imaging findings that indicate particular anomalies and pathologies that may affect living renal donor selection will be discussed.

CONCLUSION: Transplantation remains the best option for patients with end-stage renal disease. Detailed pre-transplant assessment of the donor's kidney is extremely important for both the donor and recipient. Although there are several imaging modalities available, currently CTA remains the preferred and gold standard imaging modality despite theoretical risks of radiation and nephrotoxicity. Imaging with proper CTA renal donor protocol, post-processing and 3D reformatting are crucial elements in renal donor evaluation and measurements. So imaging technologist must have a very deep knowledge and potency about efficient 3D reformation and post processing. They have very crucial role in CT vascular imaging and they must be trained accordingly.

O-46**Impact of COVID-19 pandemic upon radiological services in a tertiary care hospital - A clinical audit****Rohama Saeed, Laiba Masood, Suraya Bano, Sadaf Ghani, Madiha Saeed Wahla***Department of Radiology, Shifa International Hospital, Islamabad, Pakistan.
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OBJECTIVE: This audit study aimed to evaluate the impact of COVID-19 on the radiological services in a tertiary care hospital in terms of workload and case mix.

DESIGN: Audit study

PLACE AND DURATION OF STUDY: Shifa International Hospital Islamabad between March 2019 to December 2020

METHODOLOGY: We retrospectively reviewed and compared the overall workload of the radiological department, using the Radiology information system (RIS), emphasizing the number of CTs and Chest radiographs performed during the COVID pandemic. Two study periods were selected, the first period starting when the first confirmed case presented to our hospital and the second control period in the same months in 2019. The imaging parameters included the total number of CTs, MRIs, Ultrasounds, Radiographs, CTs performed from the emergency room (ER), OPD, IPD, and the number of total CT chest performed for COVID and other emergency indications (CTPA and trauma), etc. All parameters were compared and calculated by taking average each month in both study periods.

RESULTS: An overall decrease was observed in the number of all primary imaging modalities during the pandemic, with ultrasound showing a maximum reduction in numbers (36.5%) followed by radiographs (29.6%) and MRIs (13.8%) compared to 2019. However, total CTs showed a minimal decrease of 1.6% with a significant leap in HRCTs performed reaching up to 80.5%.

CONCLUSION: COVID-19 and resultant movement restrictions, although they did lead to a reduction in overall radiology work volume, were compensated by an increase in the number of studies performed through emergency and for management of COVID infection.

O-47**Cross sectional analysis of radiological features of hepatoma in tertiary care hospital****Iram Fatima, Marya Hameed, Sumera Shehbaz, Shaista Shaukat, Tariq Mahmood***Department of Radiology, Jinnah Post Graduate Medical College (JPMC), Karachi, Pakistan.**E-mail: irammalik_2010@yahoo.com*

OBJECTIVE: The aim was to study the radiological features of hepatoma using the LI-RADS system for classification as there is limited data from our country in this regard.

METHODS: A cross-sectional prospective study performed after individual informed consent from the patients and approval from the hospital's ethical review board. Purposive sampling technique was used. Descriptive analysis was performed using SPSS version 24.

RESULTS: Total number of patients analysed were 208. Some salient features are shown in table 1. The mean age was 56.7, median of 58 with a range of 16-86. Males accounted for 148/208 (71.2%). Abdominal pain was the most common presenting symptom in about 87 (41.8%). 115 (55.3%) patients had a history of cirrhosis. 81/208 (38.9%) had enlarged liver, 65/208 (31.3%) had normal liver size and 62 (29.8%) had shrunken liver on imaging. Liver irregular margins and nodularity were noted in 194/208 patients. Caudate lobe hypertrophy was present in 53/208 (25%). 133/208 (63.9%) had a history of hepatitis C, 28/208 (13.5%) hepatitis B, and 33/208 (15.9%) were labelled as having cryptogenic cirrhosis. Hepatic steatosis was present in 6/208 (2.9%). 17/208

(8.2%) had a history of TACE with post TACE recurrence seen in 8 (3.8%). 17/208 (8.2%) found to have pulmonary metastasis at the time of imaging, while adrenal and bony metastasis were seen in 6 (2.9%). Metastatic lymphadenopathy was found in 33/208 patients, and pulmonary metastasis in 17/208 (8.2%). Other rare sites were adrenal glands and bones, 6/208(2.9%) each.

CONCLUSION: Majority of the patients were middle aged male with a high disease burden underscoring the importance of timely radiological screening programs.

Tumour characteristics

Variable (n=208) percentage

1. Multicentric Hepatoma 88 42.3
2. Single lesion 120 57.7
3. Right lobe involvement 123 59.1
4. Left lobe involvement 23 11.1
5. Bi-lobar involvement 62 29.8
6. APHE 201 96.6
7. Non-peripheral wash out 201 96.6
8. Enhancing capsule 17 8.2
9. Dilated portal vein 152 73.1
10. Tumour PVT 71 34%
11. Portal vein cavernoma 15 7.2%
12. Nodule in nodule appearance 1 0.5
13. Tumor hemorrhage 3 1.4%
14. LI-RADS 5 97 46.6%
15. LI-RADS 4 15 7.2%
16. LRTIV 80 38.5%

Abbreviations:

LI-RAD: liver imaging reporting and data system.

APHE: Arterial phase enhancement.

TACE: Transarterial chemoembolization.

LR-TIV: Tumour in vein.

PVT: portal vein thrombosis.

O-48

Beyond the grayscale: Advances in imaging informatics

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Imaging informatics or radiology informatics is a subspecialty of biomedical imaging that aims to improve the accuracy, efficiency, usability and reliability of medical imaging services within the healthcare enterprise. Fundamentally, it is devoted to the study of how information about and contained within medical images is retrieved, analyzed, enhanced, and exchanged throughout the medical enterprise. As radiology is an inherently data-intensive and technology-driven specialty, most of data did not go through the processing and remain futile specifically in this part of the world. The development of latest techniques has enabled researchers to make use of this data into more useful form which is helpful in the advancement of new biomedical applications, also enabling radiologists to diagnose medical conditions with ease and efficiency. The amalgamation of computer science and information technology methods such as artificial intelligence, machine learning and convolutional neural networking has revolutionized computer-aided diagnosis that is flourished today and still in the development. In this research, an overview is presented about latest technological development to make use of medical imaging data into more useful research and development usage in advance diagnosis and detail analysis of various diagnostic areas. While the recent advances in imaging informatics are providing vast horizon for thinking beyond radiology, where the opportunities to research, explore and develop advance methods for more automated diagnosis can be accomplished such as finite element analysis modeling in femoral and vertebral fracture risks assessment, bone age calculation using artificial intelligence, brain tumor detection with machine learning and

deep convolutional neural networks in imaging classification etc. Moreover, medical imaging data analysis using various computer algorithms, segmentation methods and medical imaging processing techniques provides new horizon to radiological professionals to engage in the research and development. Certainly, curious researchers in medical imaging and radiology can progress their career in the field of medical imaging informatics to explore and expand radiology beyond the grayscale.

SCIENTIFIC SESSION (SSV): Interactive Session

O-49

MSK

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O-50

CVS & Peads

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SCIENTIFIC SESSION (SSV): MSK

O-51

To assess quality of reporting of primary bone tumors involving the long bones in pediatric patients on magnetic resonance imaging with the purpose of adding clinical value to the radiological report

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OBJECTIVES: 1) To evaluate if the structure of reporting of primary bone tumors in our department is according to standards being recommended by the radiological societies. 2) To identify gaps in structured reporting that can add more clinical value to the final report.

METHODS: This retrospective audit study was carried out in June 2021 using the departmental PACS search engine for selecting the study cohort. Total of 30 cases of primary bone tumors involving the long bones were found out during period, 1st Jan 2020 to 31st March 2021. The MRI examinations and their reports were studied in detail and questions were answered according to our questionnaire.

RESULTS: Total of thirty MRI examinations were reviewed (22 male and 8 female). Contrast was administered in all these cases. T1, T2 and STIR sequences were acquired in all the cases. Total intraosseous extent of the tumor was quantified in 25/30 cases. "Whether there is involvement of the growth plate" was mentioned in 16/30 cases. Skip metastasis was mentioned in 22/30 cases. Whether adjacent joint is involved or not was mentioned in 21/30 cases. Relationship to the neurovascular bundle was mentioned in 24/30 cases. "Whether the lesion looks benign or malignant" was mentioned in 6/30 cases (Diagnosis was known in rest of the cases).

CONCLUSIONS: The overall conclusion is that reporting of primary bone tumors in our study lacks the important clinical information in some cases that are important to the operating surgeon. Somebody rightly said calling that "clinical thickness of the report".

O-52**Role of diffusion weighted imaging (DWI) in differentiating osteoporotic from neoplastic vertebral collapse**Zubair Janan, **Sumaira Noreen***Department of Radiology, Mardan Medical Complex, Mardan, Pakistan.**E-mail: sumairajvd@yahoo.com*

OBJECTIVE: The aim of this study is to determine the role of Diffusion Weighted Imaging (DWI) in differentiation between these causes of vertebral collapse.

METHODS: We prospectively recruited 32 patients of both gender diagnosed with vertebral body collapse of age 20-75 years from Aug 2020 to July 2021 at Radiology Department of Mardan Medical Complex, Mardan. The MRI sequences obtained were sagittal T1WI, T2WI, STIR and axial T1WI, T2WI & DWI on a 1.5 T MR machine. The signal intensity of the affected vertebrae inspected on DWI.

RESULTS: Out of 32 patients, 10 collapses were because of osteoporosis while the remaining 22 were due to malignant etiology. On DWIs, malignant lesions revealed high signal intensity. The hyperintense signal on DWI for malignancy has 91% sensitivity and 88% specificity respectively.

CONCLUSION: This study concluded that DWI is the non-invasive modality of choice with high diagnostic accuracy in differentiating between the osteoporotic and neoplastic vertebral collapse.

O-53**Meniscal tears on MRI knee**

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Asad Shah

*Sheikh Khalifa Medical City, Abu Dhabi, UAE.**E-mail: shaherabbani@gmail.com***O-55****Trauma imaging**

Najam ud Din

*Aznostics, Lahore, Pakistan.**E-mail: najam200@hotmail.com***O-56****Incidental findings of pars interarticularis fractures and lumbosacral transitional vertebra in patients undergoing computed tomography (CT) of kidneys, ureters and urinary bladder (KUB)**

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OBJECTIVE: This study aims to determine the incidence of pars interarticularis fractures and lumbosacral transitional vertebrae in patients undergoing CT KUB.

MATERIAL AND METHODS: A total of 345 patients undergoing CT KUB from January to June 2021 were included. Data regarding age, gender, CT findings related to KUB and other incidental findings were recorded. All patients undergoing CT KUB plain were included except those with missing picture archive and computing system (PACS) data.

RESULTS: Out of 345 patients, 73.6 % (n=254) were females and 26.4 % (n=91) were males. Mean age was 45.7 years. Out of the 345 patients, 28 (8.1%) had pars interarticularis fractures. Among these 28 patients, 8.3% were females and 7.7% were males with a female to male ratio of 21:7.

Lumbosacral transitional vertebra was observed in 37/345 (10.7%). Among these 37 patients, 11.4 % were females and 8.8% were males with a female to male ratio of 29:8.

Four out of 37 patients with transitional vertebrae had concurrent pars interarticularis fractures (10.8 %).

CONCLUSION: Transitional vertebrae and pars interarticularis fractures in patients undergoing CT KUB can mimic symptoms of genitourinary tract. These must be included in the report, as they can have important implications in patient's management.

O-57**Thermal ablation in osteoid osteoma**Aman Nawaz Khan, Zeeshan Khan, **Ali Asghar Sahib**, Ummara Siddique

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PURPOSE: The purpose of this study was to evaluate efficacy and safety of computed tomography (CT) guided microwave ablation of osteoid osteoma.

MATERIALS AND METHODS: This retrospective study included four consecutive patients with computed tomographic (CT) diagnosis of osteoid osteoma treated by CT guided microwave ablation from 2018 to 2021. Under general anesthesia and CT guidance microwave ablation of osteoid osteoma was done. Data i.e. age, gender of patients, severity of preprocedural pain, site and nidus size, procedure time and post procedural pain resolution were assessed. Pain resolution was clinically assessed by using visual analog score (VAS) on day 1, 15 days and 1 month and any need for re ablation. Safety was assessed based on complication rate i.e. hematoma, burns or infection.

RESULTS: All procedures were technically successful and the success rate was up to 100% (6/6). One case was a previously failed Radiofrequency ablation of osteoid osteoma which was followed by microwave ablation and that was successful. Minor complications were observed.

CONCLUSION: We concluded from our study that microwave ablation was technically successful in all patient and the success rate was up to 100%. Microwave ablation is a very simple, successful, minimally invasive and curative treatment for osteoid osteoma without any major complications.

O-58**Incidence of meniscal tears associated with osteoarthritis on MRI Knee joint: MMI Hospital Karachi**Uzma Azmat,¹ Abdul Qayoom Rakhshani,² Naseem Munshi³*1 Department of Radiology, Memon Medical Institute Hospital, Karachi, Pakistan.**2 Department of Radiology, Dow University of Health Sciences, Karachi, Pakistan.**3 Department of Orthopedic Surgery, Dr. Ziauddin Hospital, Karachi, Pakistan.**E-mail: qayoom.peace@gmail.com*

OBJECTIVE: To assess the yield of incidence of meniscal tears and associated with osteoarthritis on MRI knee joint non-contrast enhanced.

MATERIALS AND METHODS: A cross sectional study was conducted at department of Radiology MRI Section MMI hospital Karachi from January 2019 to February 2020. All patients came for MRI examination; we assess MRI knee joints non-contrast enhanced for association of meniscal tears with osteoarthritis on knee joints. The data was analyzed for demographic characteristics, referring clinician and site, grade and type of tears with final diagnosis.

RESULTS: Of 165 MRI knee joints non-contrast enhanced performed in the last one year, 92 met the inclusion criteria. Mean age of the patients were 74 ± 33 years and majority were females 52% (n=48). Highest number of MRI knee joints ordered by orthopedic consultant 59% (n=64). Almost 55% of patients have meniscal tear in knee joint with osteoarthritis. Highest number of tears shows in posterior of knee joint 73% (n=68). Almost 90% (n=82) involved tibio-femoral compartment in medial meniscus and in MKJ grade II was 47% common in osteoarthritis patients.

CONCLUSION: There is statistically significant difference of yield across specialties. MRI knee examination is a major imaging modality for suspected meniscal tears should be ordered in consultation with the orthopedic surgeon.

O-59

Audit of appropriateness of MRI shoulder

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BACKGROUND: MRI is the preferred method to evaluate internal derangement of the shoulder. Routine MRI examination of the shoulder typically includes images acquired in the axial, oblique axial and oblique sagittal planes. It is important to angle the oblique coronal axis such that the rotator cuff tendons can be visualized in continuity. This is best by aligning the localizer parallel to the supraspinatus central tendon. Adequate coverage is also necessary to ensure complete assessment of shoulder pathology. The American College of Radiology (ACR)¹ and European Society of Musculoskeletal Radiology (ESSR)² have published separate guidelines on the image planes and coverage of shoulder MRI.

METHODS: The audit was conducted in radiology department RMI on 1.5T GE MR machine. In this audit we assessed Protocol for MRI shoulder done in past 6 months (May-Oct 2021). Each MRI shoulder was retrieved from PACS and viewed on workstation.

In each MRI study we assessed the following:

1. Coverage

- Axial: From above acromioclavicular joint to below axillary pouch
- Oblique coronal: From coracoid process and include entire humeral head
- Oblique sagittal: From lateral deltoid to scapular body

2. Imaging planes

- Oblique coronal: parallel to supraspinatus tendon
- Oblique sagittal: perpendicular to the supraspinatus tendon

TARGET: According to RCR all the studies should have proper coverage and imaging planes as per protocol.

RESULTS: In our study all three planes were covered. In 95% of our MRI scans the coverage was adequate. The imaging plane was 95% adequate on coronal and 79% on sagittal.

CONCLUSION: In our audit the RCR target is not achieved. We have suggested the following changes.

1. Present findings at departmental meeting
2. Provide education to MR radiographers on anatomy of rotator cuff and localization of central tendon of supraspinatus on axial planes
3. Handouts/poster displaying details of technique and adequate image

parameters of MRI shoulder examination, highlighting importance of placing localizer orthogonal to central tendon of supraspinatus

Reaudit: Audit cycle will be repeated after implementation of changes.

O-60

Training of radiographers in identifying critical radiological findings: Making the seconds count

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OBJECTIVE: To assess the effectiveness of training of radiographers in identifying critical radiological findings by means of CME programs.

METHOD AND MATERIALS: This is a two phased Quasi-experimental study conducted at Radiology Department, Aga Khan University Hospital. First phase comprised pre- and post-training testing (using multiple choice questions and image-based test). Pre and post-test scores were evaluated after CME programs for all radiographers. In phase two, audit of already maintained critical findings log is done in three months before and after completion of CME programs. The study population included full time radiographers and those trainee radiographers who are in process of core training completion. Pre and post test scores were compared among the life-threatening diagnoses (like pneumothorax, intracranial hemorrhage, pulmonary embolism etc.) and paired sample T-test was employed to assess the statistical significance. Second phase of the study was conducted in the following 3 months period of intervention (CME programs).

RESULTS: A total of 37 radiographers and trainee radiographers took pre- and post-test. Mean age of participants was 32 ± 9.07 years. 27 % radiographers had an experience of > 7 years, 35.1 % had experience of < 7 years, 16.2 % of radiographers were in their second year of training and 21.6 % were in first years of training. Mean cumulative pre-test score was 14.5 ± 4.62 , mean cumulative post-test score was 19.84 ± 4.13 . Mean general radiography, CT, MRI pre-test scores were 4.72 ± 1.57 , 4.69 ± 1.94 and 5.19 ± 1.73 respectively. Mean general radiography, CT, MRI post-test scores were 6.34 ± 1.48 , 6.94 ± 1.50 and 6.59 ± 1.66 respectively. Significant difference in pre and post-test scores were noted by paired sample T-test with a p-value of < 0.001 among all categories. Pre-test accuracy of radiographers picking up a panic finding, when compared to radiologist was 63.24%, and that in post-test sample was 65.96 %.

CONCLUSION: Significant improvement in radiographer's ability in identifying critical life-threatening diagnoses was observed after CME programs.

CLINICAL RELEVANCE/APPLICATION: Training of radiographers in identifying critical radiological findings can potentially help to a great extent in timely communication of those critical or life threatening findings to primary physician and may potentially reduce morbidity or mortality.

SCIENTIFIC SESSION (SSVII): Nuclear Medicine &

Oncology & Molecular Imaging

O-61

Detection of solitary spinal lesions on SPECT/CT in oncology patients

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OBJECTIVE: The aim of this study was to determine the role of SPECT/CT in detection of solitary spinal lesions in the diagnosed cancer patients who

presented with backache, osseous changes on the radiological findings (CT/MRI) and had an abnormal uptake on planar bone scan.

METHODS: The cross-sectional study of six months was performed on 78 patients who visited the Nuclear Medicine Department of INMOL Cancer Hospital, Lahore. The data was collected from 1st January - 31st March, 2021. SPECT/CT was performed on the patients with no history of trauma and an abnormal uptake on planar bone scan. The uncooperative patients, pregnant ladies and patients with previous spinal surgery were excluded from the study. The results were evaluated by applying Kappa interrater reliability test to determine the consistency between planar bone scan and SPECT/CT. Similarly, the radiological findings were also evaluated with SPECT/CT findings by determining the frequencies of confirmed patients on both modalities.

RESULTS: Out of 78 patients the abnormal uptake on planar bone scan was found in 59 (75.6%) patients whereas SPECT/CT was able to identify osseous metastases in 65 (83.3%) patients. And the Kappa interrater test showed a negative association. Whereas, out of 78 patients 37 (47.4%) patients were identified with lesions on CT/MRI and SPECT/CT was able to detect lesions in 65 (83.3%) patients.

CONCLUSION: SPECT/CT was able to identify the osseous metastases very frequently in the patients who were first investigated by either CT/MRI or planar bone scan. Hence, SPECT/CT was considered as reliable investigation for the diagnosis of solitary spinal lesions.

O-62

Efficiency of Ga-68 DOTATOC PET/CT in the detection of the suspected insulinoma.

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OBJECTIVES: To assess the diagnostic performance of Ga-68 DOTATOC PET/CT in patients with clinical and biochemical suspicion of insulinoma.

METHODS: Retrospectively we analyzed 12 patients (5 females and 7 males; age range 1m-61y years; mean age 29.13 years) who underwent Ga-68 DOTATOC PET/CT for suspicion of insulinoma on the basis of clinical symptoms and biochemical profile (increased serum insulin). PET/CT scans were analyzed by radiologist and nuclear medicine physician more than 10 years of experience, and any abnormal uptake on PET images were correlated with lesion on Tri-Phasic CECT and taken as positive. For reference, histopathological examination or clinical and biochemical findings were correlated.

RESULTS: Out of 12 patients Ga-68 DOTATOC PET/CT correctly identified lesions in 5 patients (41.6%) however, CT has detected positive lesions in 3 (25%) patients. Patients who were positive in Ga-68 DOTATOC PET/CT out of them 3 were positive on CT scans. Ga-68 DOTATOC PET/CT did not detect any positive lesion in paediatric patients all were negative.

CONCLUSIONS: Ga-68 DOTANOC PET/CT is a promising tool in the detection of primary lesions in case of suspected insulinoma, however it is not reliable in paediatric patients with suspected insulinoma.

O-63

Whole body DWI MR in comparison with FDG PET/CT scanning for evaluation of pediatric hodgkin lymphoma

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OBJECTIVE: The objective of this study was to evaluate accuracy of whole-body diffusion weighted MRI in terms of sensitivity and specificity for evaluation of hodgkin lymphoma in pediatric population in comparison with FDG PET/CT scanning as gold standard.

METHODS: 40 patients (mean age 8 ± 3.4 years) with diagnosed hodgkin lymphoma were evaluated with whole body DWI MR sequence and 18 FDG PET/CT scanning. 63 locations of lymphatic tissues were evaluated visually for restricted diffusion on MRI and FDG avidity on PET scanning.

RESULTS: 41 nodal stations which were diagnosed on PET/CT with FDG avidity showed restricted diffusion on whole body DW MRI while 15 nodal stations were negative on both imaging modalities. The sensitivity and specificity of whole body DW MRI was proved to be 93.2 and 81 % respectively. Significant correlation was also found between avidity and restricted diffusion ($R=0.645$ and p value = 0.000). 4 nodal stations found to be showing restricted diffusion on MRI without any avidity on PET scan, were significantly smaller in size.

CONCLUSION: WB-DW MRI is proved to be highly sensitive for evaluation of hodgkin lymphoma when compared with 18 FDG PET scanning and hence it can be used in pediatric patients as a radiation free imaging modality for proper assessment.

O-64

Disease free and progression free survivals in metabolic responders and non-responder on follow up FDG PET/CT after chemoradiation in nasopharynx cancer patients

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BACKGROUND: To determine disease free survival (DFS) and progression free survival (PFS) in patients with nasopharyngeal cancer (NPC) having achieved complete and partial metabolic response on post-chemoradiation (CRT) FDG PET/CT using standardized imaging and reporting protocols.

MATERIALS AND METHODS: This retrospective study was conducted at PET/CT Section of a JCI accredited healthcare facility of Pakistan and accrued 46 NPC patients who had baseline and post-CRT FDG PET/CT from April-2016 till April-2019 and followed-up till April-2021. Based on complete metabolic response (CMR) on post-CRT FDG PET/CT, 29 patients were categorized as responders and 17 were labeled as non-responder based on partial metabolic response (PMR) respectively. Both groups were followed for a median period of 14 months (range = 4 - 60 months). Kaplan Meier's survival curves were analyzed to measure DFS in responders and PFS in non-responders respectively.

RESULTS: On follow-up, mean DFS in responders was 41.14 ± 6.87 month and recurrence was found in 06 (21%) patients. Baseline SUVmax >7.4 of primary tumor, body mass index >24.609 and female gender were found significant predictors of recurrence in responder group using receiver operating characteristics curve analysis ($p < 0.05$). In non-responders group, the mean PFS was 4.17 ± 1.37 months. Higher primary tumor SUVmax and more stage

IV disease on baseline FDG PET/CT were found significant predictors of shorter PFS in non-responders on multiple regression analysis ($p < 0.05$).

CONCLUSION: Female gender, higher BMI and primary tumor SUVmax (>7.4) on baseline FDG PET/CT predict shorter DFS in patients who achieved complete metabolic response after CRT. In patients with partial metabolic response on post-CRT FDG PET/CT, higher primary tumor SUVmax and stage IV disease on baseline FDG PET/CT were found significant predictors of shorter PFS.

O-65

PET-CT applications in lung cancer management

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Lung cancer is the second most common cancer in both men and women. Despite major advances in prevention and treatment, it remains the leading cause of cancer-related deaths worldwide and accounts for almost 25% of all cancer deaths. 18F-FDG PET-CT permits the combined metabolic and morphological evaluation of cancers. In the clinical settings, 18F-FDG PET-CT has significant impact on the management of lung cancer patients resulting from considerable improvement in diagnostic accuracy. It has influenced the initial staging, treatment optimization, early treatment response assessment, restaging, and prognostication of lung cancer. The purpose of this review is to focus on the current and future roles of PET-CT in lung cancer management, and discuss its usefulness and limitations.

O-66

Higher negative predictive value on seven years follow up of normal gated myocardial perfusion imaging in diabetic patients with HBA1c ≤ 7.3

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PURPOSE: This prospective study was carried out to find the negative predictive value (NPV) of normal gated myocardial perfusion imaging (GMPI) in diabetics with a predefined cut-off value of HBA1c ≤ 7.3 .

METHODOLOGY: This study was conducted at Karachi Institute of Heart Disease (KIHD) after prior approval from ethical committee. Total 257 diabetics who had a normal GMPI from June 2011 till March 2012 were included. These patients were followed up on telephone for seven years for cardiac events like fatal myocardial infarction (FMI) and nonfatal myocardial infarction (NFMI). Follow up was not available in 33 patients, leaving a cohort of 224 participants. Mean HBA1c was calculated for seven years. Patients were subdivided according to predefined cut-off value of HBA1c 7.3 as determined in previously published study by same group (57 in group A with HBA1c >7.3 and 167 in in group B with HBA1c ≤ 7.3).

RESULTS: No statistically significant difference was found in age, gender, body mass index, hypertension, dyslipidemia, family history, LV function, Bruce and vasodilator stress protocol in both groups except metabolic equivalent of task (METS) was significantly higher in group B (<0.05). Overall mean survival was significantly higher in group B with HBA1c ≤ 7.3 (Mean=80 vs. 71; CI=78-83 vs. 64-78 months in Group B and A respectively; logrank

value=5.576; $p < 0.05$). Significantly higher fatal and non-fatal cardiac events during seven years follow-up were recorded in group A with HBA1c >7.3 with lower METS <7 (3 vs. 0 FMI and 11 vs. 9 NFMI and annualized event rate 0.75% vs. 0% and 2.8% vs. 0.76% group A and Group B respectively; $p < 0.05$).

CONCLUSION: We conclude that NPV of a normal GMPI is higher in diabetic patients having a good glycemic control (mean HBA1c ≤ 7.3) and better functional capacity (≥ 7 METS).

O-67

Efficacy of FDG-PET/CT in detection of primary locations in unknown primary cancers

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Carcinoma of unknown primary tumours (CUP) affects 0.5 percent to 9% of all patients with malignant neoplasms, with only 20% to 27% of primary sites being identified before death. CUP is currently diagnosed with 18F-fluoro-deoxyglucose positron-emission tomography (18F-FDG PET). The diagnostic yield of the primary site, on the other hand, is variable. The goal of this presentation was to see if PETCT offers any extra benefits in diagnosing the primary cause of CUP over a traditional diagnostic workup.

O-68

PSMA PET CT imaging in management of prostate cancer

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It is estimated that one out of eight men are at risk of developing prostate cancer (PC) during his lifetime. Six out of ten cases are diagnosed with PC in men who are 65 or older. Over 90% of PC has over-expression of prostate specific membrane antigen (PSMA). PSMA sites in these PC cases may be accurately targeted by PSMA-positron emission tomography-computed tomography imaging labelled with Gallium-68 (68Ga-PSMA-PET-CT). For metastatic disease, this relatively new molecular imaging modality has been shown to have superseded CT and appears superior to MR imaging. PSMA PET-CT may reliably stage the PC patient at presentation thus help in selecting optimal treatment approach. Other diagnostic applications of 68Ga-PSMA PET-CT include guiding biopsy to improve sampling accuracy and guiding surgery and radiotherapy of recurrence and metastasis. In addition to facilitating the management of metastatic castrate resistant prostate cancer (mCRPC), 68Ga-PSMA PET-CT can be used to select patients who may benefit from targeted radioligand therapy (RLT). 68Ga-PSMA is well-known diagnostic positron-emitting theranostic pair with beta emitter Lutetium-177 PSMA (177Lu-PSMA) and alpha-emitter Actinium-225 PSMA (225Ac-PSMA), both can be used to treat PSMA-avid metastases of PC. In conclusion, PSMA PET-CT scan has shown high accuracy and multiple clinical application in PC in published literature. PSMA PET-CT imaging has been launched in Pakistan recently.

SCIENTIFIC SESSION (SSVIII): Genitourinary System & Obstetrics

O-69

Diagnostic accuracy of ultrasound in adenomyosis taking MRI as gold standard

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The purpose of this study is to evaluate the accuracy of pelvic sonography in identification of adenomyosis and to characterize the most commonly seen sonographic features. MRI is the imaging modality of choice in diagnosis of adenomyosis, however MRI has limited access and high cost and availability. Transvaginal sonography provides a cost-effective, accurate and readily available alternative.

MATERIAL AND METHODS: The informed consent will not be required as this is a retrospective study and no patients particulars will be disclosed. The Picture Archiving and Communication System (PACS) will be searched for all consecutive MRI pelvis performed at AKUH between 1 January 2019 and 31 December 2020 and the pelvic ultrasound was performed ≤ 12 months prior to the pelvic MRI.

RESULTS: The study population consisted of 160 women, of which adenomyosis was found in 120 based on MRI as the standard of reference.

CONCLUSION: Transvaginal ultrasound is highly specific for diagnosing uterine adenomyosis, providing a cost-effective and readily available alternative to MRI.

O-70

Spectrum of imaging findings on MRI in placenta accreta

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OBJECTIVES: The objective of this study is to illustrate various forms of placenta accreta and describe the imaging findings of abnormal placentation on MRI. Ultrasonography (USG) and magnetic resonance imaging (MRI) are the modalities for prenatal diagnosis of PA, although USG remains the primary investigation of choice. MRI is a complementary technique and reserved for further characterization when USG is inconclusive or incomplete.

METHODS: This cross sectional study was conducted in radiology department of HMC. Total of 149 patients undergone MRI examination. All the pregnant patients with high suspicion of abnormally adherent placenta were included in the studies. MRI sequences like T1WI, T2WI, T2 FATSAT, HASTE sequences were done.

RESULTS: The most reliable MR imaging findings are uterine bulging, heterogeneous placenta, and placental bands. Focal interruptions in the hypointense myometrial border may also be helpful. PA is a clinical and diagnostic challenge that is being encountered with increasing frequency. Clinicians should be aware of the clinical issues, risk factors, and imaging findings associated with PA to facilitate optimal case management.

CONCLUSION: MRI is a complementary diagnostic modality in patients with high risk for PA and should be considered when USG is inconclusive or incomplete. Familiarity with MRI technique to assess the placenta and experience with imaging appearances of normal and invasive placentation will help the radiologist in contributing to an optimal outcome.

O-71

Atypical presentation of endometriosis

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OBJECTIVE: To determine role of magnetic resonance images (MRI) and computed tomography scan (CT) in case of perplexity for diagnosis of endometriosis occurring in unusual site.

MATERIALS AND METHODS: This observational descriptive study was observed at the Department of Radiology Khyber Teaching Hospital Peshawar from March 2020 to July 2021. Clinical information of total of 8 cases of atypical endometriosis were analysed. Pelvic pain, long and painful periods, painful intercourse, painful defecation and infertility were the main presenting complaint in these patients.

RESULTS: Ultrasound done after these complaints show hypo-echoic lesions in different part of abdomen including two cases in abdominal wall, one case of serosal surface of uterus, three cases of peritoneum and two cases at previous scar site. For which further investigations were ordered including MDCT and MRI. Cases were followed after laparoscopy and biopsy on which endometriosis was verified.

CONCLUSION: Hypoechoic lesions in unusual sites on ultrasound abdomen in patients having endometriosis must be investigated and confirmed further by MRI AND MDCT.

O-72

Early ultrasound findings- A critical tool for prediction of early miscarriages

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OBJECTIVE: Our objective was to validate the use of G-sac, yolk sac diameter, CRL and embryonal heart rate measurements to predict early pregnancy loss.

METHOD: This was a prospective cohort study of 1st trimester pregnancies. GS, YS diameter, CRL and heart rate measurements were serially obtained from 6 to 10 weeks gestation. Non parametric tests and logistic regression models were used for comparison of distribution and testing of associations.

RESULTS: A total of 250 patients were included of which 199 were singleton pregnancies and 51 were twins (301 total fetuses). 52 patients had 61 losses. We built nomograms with the changes of parameters evaluated in ongoing as well as in pregnancy loss. In the pregnancies which failed all the parameters showed significant changes. GS and YS were the first to become abnormal followed by changes in heart rate and CRL later on.

CONCLUSION: Our observations showed that after 5 weeks gestation, a small GS and a large YS reliably predicted pregnancy loss. YS identified the occurrence of miscarriage at least 7 days prior to its occurrence. CRL and HR become abnormal at later time and closer to the event. These findings have important implications for patient counselling and care planning.

O-73**Accuracy of prostate-specific antigen density in diagnosis of prostatic cancer**

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OBJECTIVE: Aim of this study is to determine the accuracy of prostate-specific antigen density in diagnosing prostate cancer.

MATERIAL AND METHODS: All patients undergoing ultrasound-guided prostate biopsy at the Diagnostic Centre were included. Biopsy samples were obtained from both prostatic lobes under endorectal ultrasound guidance. Prostate volume, as calculated on transrectal ultrasound, was divided by PSA levels to determine PSAD. Cut-off value for malignancy was taken as equal to, or greater than 0.20 ng/ml². Sensitivity, specificity, positive and negative predictive values and accuracy of PSAD were calculated considering histopathology result of prostate biopsy as gold standard.

RESULTS: Fifty-one subjects were included. Mean age was 69.53 years. PSAD had sensitivity and specificity of 94.29% and 56.25% respectively. Positive predictive value was 82.50% and negative predictive value of 81.82%. Accuracy was calculated to be 82.35%.

CONCLUSION: PSAD is a highly sensitive tool for identification of malignancy and guiding the physician in treatment planning; however, the specificity is only moderate.

O-74**MRI gestational trophoblastic disease depth of invasion**

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O-75**Diagnostic accuracy of Diffusion weighted image sequence in detection of prostatic carcinoma**

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OBJECTIVES: The main aim of this study is to govern the diagnostic accuracy of Diffusion-weighted image sequence in the detection of prostatic carcinoma.

MATERIALS AND METHODS: We prospectively employed 95 infants of both gender with Diffusion-weighted image sequences from Dec 2020 to May 2021 at the Radiology Department of Mardan Medical Complex, Mardan. The whole experimental work has been performed through expert and best medical experimental devices. All the information was recorded on a specially designed proforma based on patient profile and study variables by the researcher. Information was taken regarding the history of preterm birth and birth weight. Intracranial hemorrhage was labeled. The Diagnostic accuracy of Diffusion-weighted image taking sequence in detection of prostatic carcinoma.

RESULTS: The main cross-sectional experimental results of the study are, sensitivity is 93%, specificity is 87%, and accuracy is 91%. While the positive and negative predictive values are 84.49% and 86.0% correspondingly.

CONCLUSION: This the study concluded that Diffusion-weighted image sequence is a valuable, highly sensitive, and accurate procedure for the discovery of detection of prostatic carcinoma.

O-76**CT textural analysis in predicting histological grade of renal cell carcinoma**

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OBJECTIVE: The purpose of this study was to determine the potential role of CT based radiomic (texture) features in differentiating low-grade and high-grade renal cell carcinoma.

MATERIAL AND METHODS: This retrospective study included patients with renal cell carcinoma diagnosed on histopathology. Grade I and II were considered low-grade and Grade III and IV were considered high-grade. Pre-operative contrast-enhanced CT examinations were evaluated on arterial phase. A region of interest (ROI) was manually drawn on CT axial images having the tumor in its largest dimensions. The textural analysis was performed using Lifex software, and forty textural parameters were extracted. An independent sample's t-test was employed to study statistically different parameters. A p-value of less than 0.05 was considered statistically significant.

RESULTS: A total of fifty one patients with renal cell carcinoma diagnosed on histopathology were included in the study. A significant difference was found in the CT radiomic parameters including GLRLM LRE, GLRLM LRLGE, GLRLM LRHGE, GLZLM LZE, GLZLM LZLGE and GLZLM LZHGE in patients with low-grade versus high-grade RCC (p-value of 0.014 and 0.016, respectively). Similarly, GLRLM HGRE, GLZLM HGZE and GLZLM SZLGE were statistically different in the patients with ccRCC compared with other histologic subtypes (p-value of 0.042 and 0.023, respectively).

CONCLUSION: CT textural features may help in differentiating high-grade versus low-grade RCC. Moreover, they may aid in predicting the various histological subtypes.

O-77**Diagnostic accuracy of intra-renal resistive index in diagnosis of diabetic nephropathy keeping urine albumin-creatinine ratio as gold standard**

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A total number of 142 subjects were enrolled in this present cross sectional validation study in the department of Radiology Hayatabad medical complex Peshawar during 1 year (2020) aim to evaluate the diagnostic usefulness of renal resistive index (RI) by duplex Doppler ultrasonography for detection of renal dysfunction i.e. diabetic nephropathy in diabetic patients. Clinically diagnosed diabetic patients referred to the department of Radiology in HMC for ultrasonography of Kidneys, Ureters and Bladder (KUB) region or whole abdomen were selected as sample. Biochemical reports (Serum creatinine and Urinary albumin) and the RI value of intrarenal artery were correlated and analysed. Those with incomplete data, current or past kidney diseases and current use of such drugs that could affect hemodynamic parameters were excluded. Both the kidneys were visualized by commercially available real time scanner equipped with a curvilinear transducer operating at 3.5 MHz. First Gray scale ultrasonography was done followed by Color Doppler of intra renal artery and then RI was measured. Majority (47.3%) patients were in 5th decade with the mean age was of 46.5 ± 7.7 years and ranging from 38 to 65 years in patients. Male was found to be 59.2% of diabetic patients with male to female ratio 1.2:1. Resistive index of (= 0.7) was found in 68.4% patients with diabetes with the mean resistive index of 0.71 ± 0.04. Positive correlation between resistive index with serum creatinine (r=0.581, p<0.01) and albuminuria

($r=0.725$, $p<0.01$) were observed. It can be concluded that resistive index measured by duplex Doppler ultrasonography is useful diagnostic modality for detection of renal dysfunction i.e diabetic nephropathy in diabetic patients. Resistive Index has value in identifying diabetic patients who are developing nephropathy and can be used as an additional diagnostic tool. Also it is well correlated with serum creatinine and albuminuria which are the biochemical parameters to diagnose diabetic nephropathy.

O-78

Imaging in female infertility

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O-79

Positive predictive value of ratio of transcerebellar diameter to abdominal circumference in diagnosing asymmetrical intrauterine growth restriction taking neonatal birth weight as gold standard

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OBJECTIVE: The objective of this study was to determine the positive predictive value of transcerebellar diameter/abdominal circumference ratio in diagnosing asymmetrical intrauterine growth restriction taking neonatal birth weight as gold standard.

METHODS: A cross-sectional study was conducted at department of Diagnostic Radiology, Sir Ganga Ram Hospital Lahore, from 22/11/2016 to 21/05/2017. This study involved 272 pregnant women aged between 18-35 years fulfilling inclusion criteria. Diagnosis of IUGR was confirmed on neonatal birth weight which was taken as gold standard and results of TCD/AC ratio on ultrasound were judged accordingly as true positive or false positive. A written informed consent was obtained from every patient and ultrasound was performed on TOSHIBA Aplio 50 (2-5 MHz Probe).

RESULTS: The mean age of the mothers was 25.7 ± 4.8 years. There were 181 (66.5%) primiparas and 91 (33.5%) multiparas. The mean gestational age at the time of scan was 28.1 ± 1.5 weeks. Transcerebellar diameter to abdominal circumference ratio ranged from 13.0% to 14.6% with a mean of $13.8\pm 0.5\%$. Diagnosis of asymmetrical IUGR was confirmed in 214 (78.7%) newborns at birth. Thus there were 214 true positive and 58 false positive cases which yielded a positive predictive value of 78.7% for TCD/AC ratio on ultrasound in the diagnosis of asymmetrical IUGR taking neonatal birth weight as gold standard. There was no statistically significant difference in the positive predictive value of TCD/AC ratio across various subgroups based on mother's age, parity gestational age at scan and neonatal gender.

CONCLUSION: Transcerebellar diameter to abdominal circumference ratio on ultrasound was found to have a high positive predictive value of 78.7% in the diagnosis of asymmetrical intrauterine growth restriction taking neonatal birth weight as gold standard which along with non-invasive and radiation free nature advocate its preferred use in future practice.

O-80

Diagnostic accuracy of focused assessment with sonography for trauma (FAST) for detection of renal injuries taking computed tomography as gold standard

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OBJECTIVE: To assess the diagnostic accuracy of focused assessment with sonography for trauma (FAST) for detection of renal injuries taking computed tomography as gold standard in patients presenting with blunt abdominal trauma.

MATERIAL AND METHODS: A cross sectional study was conducted in Sir Ganga Ram Hospital Lahore, Radiology Department from 5-6-2017 to 5-1-2017. 265 cases fulfilling inclusion criteria were enrolled in the study. Then patients underwent FAST scan by using a TOSHIBA Aplio 50. Presence of free or intraperitoneal fluid was detected. Patients were labelled as positive or negative. Then patients underwent CT scan by a single senior radiologist. Presence of free or intraperitoneal fluid was detected. Reports were assessed and patients were labelled as positive or negative. All information was collected on a proforma. Data was analysed by SPSS 20. For FAST and CT we estimated sensitivity, specificity, PPV, NPV and accuracy by generating 2x2 contingency table.

RESULTS: The sensitivity and specificity of FAST for detection of renal injuries was 69.05% and 82.06%. PPV and NPV for FAST was 42.03% and 93.37% respectively. Overall diagnostic accuracy of FAST was 80%.

CONCLUSION: Thus FAST is moderately reliable for diagnosis of renal injuries in blunt abdominal trauma.

O-81

Assesment of prostate lesion using PIRADS 2.1 in correlation with biopsy findings; our experinece at shifa international hospital

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OBJECTIVE: The objective of this article is to correlate the PIRADS grading with the biopsy findings.

METHODOLOGY: Total of 72 patients were selected from the radiology database retrospectively from 2020 to 2021. MRI scans were performed on Siemens 3 tesla and reviewed by consultants after which their PIRADS was calculated.

RESULT: These patients had mean age of 64, mean prostatic volume of 54.5cm³ and mean PSA density of 0.70229. 2 patients were labelled with PIRADS score 0 and biopsy wasn't performed (100%). 2 patients were labelled with PIRADS score 1 and biopsy wasn't performed (100%). 9 patients were labelled with PIRADS score 2 and biopsy wasn't performed (100%). 11 patients were labelled with PIRADS score 3 and biopsy wasn't performed in 7 patients (63.6%). 3 patients' opted for biopsy but results were negative for adeno-carcinoma (27.3%). 1 patient result came out positive for adenocarcinoma (9.1%). 23 patients were labelled with PIRADS score 4 and biopsy wasn't performed in 13 patients (56.5%). 10 patient's opted for biopsy, results were negative for adenocarcinoma for 7 patients (30.4%) while results of 3 patients turned out to be adenocarcinoma (13%).

24 patients were labelled with PIRADS score 5 and biopsy wasn't performed in 10 patients (41.7%). 14 patients' opted for biopsy, results were negative for adenocarcinoma for 5 patients (20.8%) while results of 9 patients turned out to be adenocarcinoma (37.5%). 1 patient was labelled with PIRADS score 6 and the biopsy result was positive for adenocarcinoma (100%).

Bone metastasis was frequent and was seen in 21 % of patients followed by neurovascular bundle involvement which was seen in 18.1% of the patients. 16.7 % of patients had seminal vesicles involvement and extra-cellular spread. Internal iliac and external iliac lymph nodes were more frequently involved i.e seen in 22.2% and 20.8% patients respectively. However, para-aortic and obturator lymph nodes are very involved in very few numbers of patients.

CONCLUSION: This PIRADS scoring system in MRI showed a statistically proven significant correlation with adverse histopathological findings. A Higher PIRADS score may help to project poor prognostic consequences like results more in favor of neoplasm, extracellular spread, bone metastasis, neurovascular bundle involvement, seminal vesicle involvement, and lymph node involvement. Thus, PIRADS scoring provides a potent substructure for evaluating the livelihood of prostate cancers on MRI.

O-82

Spectrum of imaging findings in MRI placenta

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OBJECTIVES: To study the spectrum of imaging findings on MRI placenta in radiology department, RMI.

METHODOLOGY: The study was performed in radiology department of Rehman Medical Institute, Peshawar. Twenty-five scans done between 2019 and 2021 were selected from PACS for a prospective study. 19 of which were done for placental localization and rule out morbidly adherent placenta. 2 had PV spotting and 4 had suspicion of placenta previa and placenta accreta. A radiology resident collected the data from PACS and compared the results with reports by consultant radiologist. This data was then analyzed.

RESULTS: The most common indication for placental MRI was for placental localization and rule out morbidly adherent placenta i.e 76%. 16% done for suspicion of placenta previa and accreta and 8% for PV spotting. Out of our 25 patients, 28% had placenta increta, 32% had placenta previa, 20% had placenta accreta, 4% had placenta percreta and 36% were normal.

CONCLUSION: The spectrum of findings in our study ranged from placenta previa to morbidly adherent placenta with placenta previa being the most common finding.

SCIENTIFIC SESSION (SSIX): Imaging Reporting

O-83

Reporting tips in oncology

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With increasing subspecialization in medicine, it is more and more difficult, if not impossible, for general radiologists to keep pace with the rapidly changing knowledge in the different fields of radiology. Such a changing environment increases the risk of losing value in radiology if radiologists are not focusing

on selected areas of imaging. We will discuss the importance of structured reporting of oncology scans and describe how to construct a good oncology report and how general radiologists can make their report comprehensible and useful to the oncologist. Some specific cancer reports will be described. The importance of using the proper lexicon and standardized staging and follow up vocabulary will be stressed.

O-84

Reporting CT of oral cancer and sinonasal disease; Lets walk you through it

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The purpose of this talk is to shed light on importance of diagnosis of oral cancer and its main mimicker: fungal infection. It is of utmost importance to know how to differentiate between the two entities and also have expertise in detecting recurrence of cancer versus post surgical and post radiation changes. Familiarity is crucial to avoid major diagnostic errors. In addition, commonly occurring sinonasal diseases and its differential diagnosis necessitates excellent knowledge for precise diagnosis. We will also discuss the importance of MDT meetings, which is the mainstay of patient treatment in the west. Core understanding of wide breath of major ENT pathologies is a must. This will enable them to become safe and competent radiologists making great impact on patient care, management and hence saving lives, which is our primary goal.

O-85

LI-RADS: Time to implement in our practice

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O-86

Structured radiology report; Pitfalls and medicolegal aspects

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O-87

A close audit to assess reporting appropriateness of CT PNS

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OBJECTIVE: To evaluate the appropriateness of CT PNS as per CLOSE protocol for better road mapping pre FESS for ENT surgeons.

STANDARD: "CLOSE" criteria as per RSNA Radiology review article published in 2016

MATERIALS AND METHODS: The reports of all patients who underwent CT PNS at Radiology department of Jinnah Postgraduate Medical Centre Karachi were collected for the audit. The patients were referred from ENT OPD as per advice of ENT Consultants for FESS road mapping from January to June 2021. Patient age range was from 14-80 years. Scans were performed

on a 640 slicer Toshiba scanner. 169 patients were selected. Post operative and paediatric patients were excluded from the study. In the reports there were 82 male and 87 female patients.

RESULTS: 3 (1.6%) reports had a comment on cribriform plate, 16 (9.4%) on lamina papyracea, 169 (100%) on sphenoid sinus and no one mentioned about Onodi cells and anterior ethmoidal artery.

CONCLUSION: Structured reporting is the key to a successful surgical planning. This concept should be introduced at hospital as well as national level. Re audit will be done after formal discussion with the reporting radiologists and implementation of CLOSE reporting.

SCIENTIFIC SESSION (SSX): Breast Imaging

O-88

Breast Ca screening in Pakistan: The present scenario and way ahead

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O-89

Digital breast tomosynthesis: A concise overview with case based discussion

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Breast cancer is not only the most commonly diagnosed malignancy among females, but also a leading cause of cancer-related deaths throughout the world. According to a report, Pakistan has the highest rate of breast cancer mortality and morbidity in Asia with 90,000 cases reported annually and more than 40,000 deaths. The "gold standard" for diagnosing breast cancer is mammography. Several studies have shown that, in women over the age of 40, mammography greatly reduces the risk of dying from breast cancer. Mammography is the best technology for breast cancer screening. However, mammograms are not perfect. Not all breast cancers are seen on a mammogram, especially if the breast are dense.

Here digital breast tomosynthesis acquisition provides additional information by decreasing the confounding effect of overlapping tissue, allowing for improved lesion detection, characterization, and localization. This presentation will highlight the current concepts of digital breast tomosynthesis imaging, including relevant physics, the improved lesion conspicuity gained with tomosynthesis and its association with improvements in patient outcomes and efficiency in mammographic imaging.

O-90

Practical approach for the interpretation of breast MRI

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O-91

Medical audit of diagnostic and screening mammography examinations in a tertiary care centre, JPMC

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PURPOSE: We audited the outcomes of our diagnostic and screening mammographic examinations performed concurrently.

MATERIALS AND METHODS: We analyzed the outcomes of 6,003 consecutive breast examinations from 2017 to 2020. Opportunistic screening and diagnostic cases were evaluated separately and mammographic assessments were based on Breast Imaging Reporting and Data System (BI-RADS).

RESULTS: In 6,003 examinations, 5,012 (83.3%) were performed for diagnostic while 991 (17%) performed for screening purpose. Age ranges from 33-87 years (mean 45 y in screening and 52.5 y in diagnostics). Among diagnostics, 1,628 (32%) examinations were negative compared with 477 (48%) of screening patients (BIRADS-I). 1,838 (37%) diagnostic patients had benign findings while 456 (46%) screening patients were benign (BIRADS-II). 180 (4%) in diagnostics and 21 (2%) were fall in BIRADS-III and short interval follow-up was advised. 498 (10%) and 18 (1.5%) were classified as BIRADS-IV, advised histopathology for suspicious abnormalities. In diagnostic patients 594 (12%) while 05(0.5%) in screening were highly suggestive of neoplastic lesions (BIRADS-V), referred for histopathology and immediate treatment action accordingly. 66 (14%) studies were inconclusive (BIRADS-0) in diagnostic group while 14 (1.2%) in screening and referred for further imaging.

CONCLUSION: Medical auditing of diagnostic mammography examinations yields substantially different results from those of screening examinations. Data collection is an important task and manual collection is tedious and time consuming. For this reason, special computer programs must have been designed to facilitate further annual audits and fear of loss of data is nullified.

O-92

Comparison of presentation of metastases between TNBC and non TNBC – A Pakistani perspective

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OBJECTIVES: Breast cancer is the most common cancer malignancy affecting the female population with a 1 in 8 chance of developing breast cancer in a woman who lives up the age of 80. Triple-negative breast cancer (TNBC) is a subtype of breast cancer with characteristic biological and pathological features. Among the subgroups of breast cancer, triple negative cancer is considered to be associated with poor outcome. However, clinico-radiological data on TNBC in our population is limited. The present study was aimed to find correlation, if any, between receptor subtype and preferential site of metastases on imaging modalities according to receptor subtype and to compare various clinic-pathological features of TNBC with non TNBC patients in our population.

MATERIALS AND METHODS: Radiological and pathological data of 68 breast cancer patients who visited Department of Radiology, PIMS were selected and assessed for metastatic spread. Statistical analysis was done using the Chi-square test.

RESULTS: Patients were grouped into TNBC and non TNBC. Data analysis revealed significant difference in mean age, mean tumor size, tumor grade between TNBC and non-TNBC patients. Axillary lymph node metastasis was

also higher in TNBC patients however this was not statistically significant. TNBC patients showed preferential metastases to lungs and liver where as non TNBC patients showed metastases to bones predominantly.

CONCLUSION: TNBC are associated with younger age, large tumor size, high-grade tumors, and a higher axillary lymph nodal burden and preferential involvement of lungs as compared to non TNBC.

O-93

Significance of resistance index in differentiation of benign and malignant breast lesions compared with histopathological diagnosis

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OBJECTIVE: The objective of this study is to assess the role of value of resistance index in evaluation of breast lumps and its significance in differentiating benign from malignant lesions.

METHODOLOGY: The study was conducted on 48 patients having breast lesions. We subjected the patients to Doppler Ultrasound (USG), took RI value and compared findings with their histopathological reports. Final data after comparison was used to calculate sensitivity, specificity, positive predictive value and negative predictive value.

RESULTS: The results of study showed sensitivity of 80%, specificity of 75%, positive predictive value of 90% and negative predictive value of 56%. The most specific doppler index was RI value (resistive index) to distinguish between benign and malignant lesion with cut off value of 7.

CONCLUSION: Doppler ultrasound of breast lesions is moderately sensitive and specific to distinguish between benign and malignant breast lesions with high positive predictive value. Hence it is a non-invasive, less time taking and comparatively easy modality for the diagnosis of the malignant breast lesions prior to biopsy and histopathology.

O-94

Frequency of hepatic metastases in newly diagnosed cases of breast cancer by computed tomography

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OBJECTIVES: To find out the frequency of hepatic metastasis in newly diagnosed patients of primary breast cancer by computed tomography. Many studies have been conducted previously regarding incidence of hepatic metastasis in breast cancer patients during course of disease, however there is limited literature published about occurrence of hepatic metastasis at the time of initial diagnosis of breast cancer.

METHODS: This was prospective study conducted in 1480 newly diagnosed female patients of breast cancer referred to Radiology department Hayatabad Medical Complex Peshawar for staging CT scan from 2018-2020. Multiphase CT scan abdomen was done with 128 slice helical CT scanner. Single radiologist evaluated the images and presence of hepatic lesions with characteristics of metastases on Triphasic CT scan abdomen was recorded. Data was stratified according to age, histological type and tumor size.

RESULTS: Hepatic metastasis were detected on Triphasic CT scan in 22 patients among 1480 patients with incidence of 1.48%. Hepatic metastasis was more common in age group of 40-65 yrs and with increasing tumor size.

CONCLUSION: This study revealed that frequency of hepatic metastasis on computed tomography is less common in newly diagnosed patient of breast cancer. It was also found that young age and increased tumor size are risk factors for hepatic metastasis of breast cancer.

O-95

Knowledge, attitude and practice (KAP) analysis for breast cancer awareness & prevention among Pakistani women: A cross-sectional study

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OBJECTIVE: Breast cancer is a fundamental public health concern showing alarming increase in Pakistan. The current study aimed to analyze knowledge, attitude and practice (KAP) regarding breast cancer among Pakistani women.

METHODOLOGY: A questionnaire was designed and participants were interviewed according to it in MCH Department, PIMS to assess regarding awareness of disease and role of mammography, clinical breast examination (CBE) and breast self-examination (BSE) in its prevention. Non-Probability consecutive sampling technique was used. All women coming to gynecology department and willing to participate in study were included.

RESULTS: Total 1000 women participated in study. Mean age of study population was 33.68 ± 11.9 years. Regarding Breast cancer awareness, despite 75% (n=750) of the women knowing the name of disease, only 32% had proper awareness regarding disease process, purpose of mammography and breast cancer prevention. Only 19.6% (n=196) among them had undergone mammographic screening. Majority (788, 78.8%) of the patients did not even know the right age of mammography. When questioned regarding reason for not having mammogram majority responded saying their physician didn't prescribe it. A small fraction (n=287, 28.7%) of the participants had knowledge regarding BSE who practice it however only 180 of them performed it properly. Only 30.3% (n=303) women were aware of CBE.

CONCLUSION: KAP regarding breast cancer prevention was too low. Only 1/3rd of the respondents were knowledgeable about mammographic screening for breast cancer prevention. Hence, training programs to keep women informed about breast cancer screening knowledge and practices are needed to augment quality of public health in breast cancer affected women of Pakistan.

O-96

Diagnostic accuracy of axillary ultrasound in breast cancer patients keeping histopathology as gold standard

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OBJECTIVE: To find out diagnostic accuracy of axillary ultrasound in breast cancer patients keeping histopathology as gold standard.

METHOD: A total number of 50 patients with primary breast cancer, planned for surgery were included in the study. A radiologist performed pre-operative

AUS and reported the final results in checklist. The results were then be compared with histopathology report to evaluate sensitivity, specificity, positive and negative predictive values of AUS in disease detection.

RESULTS: The result showed that pre-operative axillary ultrasonography had sensitivity 83.3%, specificity 64.4%, positive predictive value of 85% and negative predictive value of 60%. The most specific characteristics of axillary lymph nodes to be involved came out as absence of fatty hilum, increased cortical thickness and loss of oval shape.

CONCLUSION: Axillary lymph nodes ultrasonography is moderately sensitive and fairly specific in detection of metastatic axillary lymph nodes, however negative ultrasonographic findings do not entirely exclude the axillary lymph nodes metastases. Apparently the gold standard for diagnosis is histopathological examination.

O-97

Quality control audit of MRI breast

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BACKGROUND: Breast MRI is being performed on regular basis in our Radiology Department. Several technical artifacts and pitfalls have been observed by the reporting radiologists. Moreover, no audit has been performed previously. A few technical factors can potentially limit interpretation of images by masking or simulating disease. This audit is being performed to identify artifacts and pitfalls in MRI breast performed at SKM so that corrective measures and training can be done to improve the quality of MRI.

SCIENTIFIC SESSION (SSXI): Interactive Session

O-98

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O-99

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SCIENTIFIC SESSION (SSXII): Interventional Radiology

O-100

Improved diagnostic cytology of ultrasound-guided fine needle aspiration with rapid onsite adequacy assessment

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OBJECTIVE: To compare the diagnostic cytology of samples of fine needle aspiration (FNA) of thyroid nodules with and without rapid onset adequacy assessment (ROSAA) in the radiology department.

MATERIAL AND METHODS: A prospective study conducted in the Radiology Department, Aga Khan University Hospital Karachi. After ethical review, the study was completed in three cycles and included the diagnostic cytology of thyroid FNA before and after introduction of ROSAA. The patients who have undergone Ultrasound guided FNA between 01/01/2019 and 31/12/2019 before introduction of ROSAA were included in phase I of study. The patients between 01/01/2020 and 31/10/2020 after introduction of ROSAA were included in phase II of study. The patients between 01/11/2020 and 31/03/2021 after introduction of ROSAA were included in phase III of study. Final pathology reports were reviewed from the online database of Pathology and SPSS was used for data analysis.

RESULTS: A total of 1297 patients were studied. In Phase I, 74% (487 out of 651) samples were good enough to provide diagnostic cytology. In Phase II, 86% (332 out of 384) of samples gave diagnostic cytology. In Phase III, the adequate cytology was in 95% (251 out of 262) of samples.

CONCLUSION: The study demonstrates that ROSAA improved the diagnosis and adequacy rate of ultrasound-guided thyroid FNA. It is recommended to introduce ROSAA in all the centers doing ultrasound-guided biopsies.

O-101

Role of fine needle aspiration (FNA) prior to core biopsy for adequate tissue sampling in thoracic image-guided biopsies

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OBJECTIVE: Aim of this study is to assess the role of fine needle aspiration (FNA) prior to core biopsy for adequate tissue sampling in thoracic image-guided biopsies.

METHOD: Total 70 ultrasound/computed tomography (CT) guided thoracic core biopsies with prior onsite FNA were included in this retrospective study from April 2020 to April 2021. Information on demography, site of lesion, histopathological subtypes, adequacy of FNA and core biopsy sample and complications were recorded. Single incision technique is being used for acquiring sample. Post-procedure chest x-ray done to look for complication.

RESULTS: Age ranges from 6 yrs to 94 yrs with median age of 64 yrs. Adequacy of biopsy sample was 100%. Final diagnosis of malignancy was seen in 88.5% (Adenocarcinoma), 11.4% samples were benign. The most common region indicated was Rt lung followed by Lt lung and mediastinal masses. Complication rate was within the accepted rates.

CONCLUSION: FNA prior to Core Biopsy of thoracic lesions under image guidance ensures adequate sample for histopathology; hence significantly reducing the rate of re-biopsy and patient discomfort.

O-102

Inferior vena cava filter placement: Audit of safety, approach and level of renal vein impression draining into the IVC during cavogram

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OBJECTIVE: Purpose of this study was to evaluate safety of the procedure, frequency of using femoral or jugular routes to gain venous access, analyze the level of impression of renal vein insertion onto the IVC on cavogram

examination and to determine most common indications for IVC filter placement in our hospital.

METHOD: An audit was conducted in department of radiology, Aga Khan University hospital, Karachi, after approval of audit proposal. Data of patients who underwent IVC filter placement from 1-06-2018 to 1-06-2021 was obtained retrospectively from departmental picture archiving and communication system (PACS). In total 100 patients including 43 males and 57 females underwent IVC filter placement in our department during this period. Patient data including request forms, discharge summaries and reports of IVC filter placement were reviewed to determine the indications, comorbidities, complications during or after procedure and approach used to gain venous access. Cavogram images were reviewed by consultant radiologist to analyze post placement IVC filter position and level of renal veins impression onto IVC. In 60 patients simultaneously performed CT scan images were also reviewed to reconfirm the position of renal vein impression.

RESULTS: No immediate complication occurred during or after all IVC filter placement procedures included in this audit. Mean age of the patients included was 60 years with age range between 22 – 93 years. Most commonly used approach for venous access was jugular, n= 68 followed by femoral n = 32. 85 patients had unilateral and 15 patients had bilateral lower limb deep venous thrombosis. 25 patients had pulmonary embolism along with deep vein thrombosis at the time of filter placement. Patients had different underlying causes of DVT. 34 patients had underlying tumors, 14 patients were bed bound due to lower limb fractures while 3 patients had underlying chronic kidney disease. Few patients had contraindications to anticoagulation therapy including 14 patients with hemorrhagic stroke and 5 patients had history of GI bleed / surgery. In 30 patients no underlying cause determined.

Impression of renal vein insertion into inferior vena cava varied extending from upper border of D12 to upper border of L3 vertebra. Most common site of insertion of both renal veins was found to be lower border of L1 followed by upper border of L2 with 66 % of right renal veins and 67 % of left renal veins analyzed, seen draining into the IVC between lower border of L1 to upper border of L2 vertebra. Both renal veins were seen draining into IVC at same vertebral level in 94 % of patients and in only 5 % patient's disparity was seen in level of insertion of right and left renal veins into IVC.

CONCLUSION: IVC filter placement is a safe procedure with very low risk of complications. The indications included DVT, pulmonary embolism and contraindication to anticoagulation. Most common site of insertion of both renal veins is lower border of L1 followed by upper border of L2 and overall it varies between upper border of D12 to upper border of L3 vertebra.

O-103

Diagnostic and therapeutic role of lymphangiography in thoracic injury

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OBJECTIVE: To assess the diagnostic and therapeutic role of lymphangiography in detecting thoracic duct injury.

CASE REPORT: We present a case of 34 yr male patient with no previous co morbidities was referred from Khyber teaching hospital to radiology department Rehman medical institute Peshawar. He presented with cough and low grade fever from three months with no previous history of chest trauma. Chest x-ray done initially showed left sided moderate pleural effusion. He was initially managed conservatively with chest drain insertion that failed to stop chyle leak. He was then referred to radiology department RMI for lymphangiography to detect suspected thoracic duct injury. Lymphangiography performed at our department under direct fluoroscopic guidance by Interventional

radiologist with intranodal approach. Serial half hourly xray KUB performed to look for ascending contrast. Once contrast pooling is noted, CT chest, abdomen and pelvis without contrast is performed 7 and 20 hrs post procedure. CT demonstrated that the lipiodol had migrated to the retroperitoneal lymphatics, the paravertebral lymphatic plexus and progressive pooling in left pleural fluid confirming thoracic duct injury. The drain output gradually decreased and the chyle leak resolved completely 2 days after procedure.

CONCLUSION: This case demonstrates that lymphangiography can be used successfully as diagnostic as well as therapeutic procedure in patients with a chylothorax due to thoracic duct injury.

O-104

Diagnostic yield and complications of ultrasound guided renal biopsy

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OBJECTIVE: To evaluate the diagnostic yield of renal biopsies and post-biopsy complications among patients who will undergo ultrasound guided percutaneous renal biopsy using automated spring loaded biopsy device.

MATERIALS AND METHODS: A total of 139 patients were enrolled in the study. Patients underwent a pre-procedural ultrasound examination in order to make an approach. After which, renal biopsy was performed. Patients were then followed for 1 hour and for 1 week to know about the post biopsy complications, if any.

RESULTS: A total of 139 patients were enrolled in this study. Range of patients was 16-65 years with mean age of 39.6 ± 15.0 years. There were 94 males (67.6%) and 45 females (32.4%). Mean experience of radiologist was 15.5 ± 3.9 years. Size of needle gauge 18/16 was used in 131 patients (94.2%) and needle gauge 18/10 was used in 8 subjects (5.8%). Distribution of angulation path was as follows: cephalic 49 (35.3%), straight 62 (44.6%) and caudal 28 (20.1%). Mean number of cores was 2.6 ± 0.6 . Following post-biopsy complications were found: gross hematuria in 18 patients (12.9%) and per-nephric hematuria in 15 patients (10.8%) while there was no case of arteriovenous fistula. Stratification for age, gender, number of cores, gauge of needle and angulation path was also carried out.

CONCLUSION: In conclusion, with more experience of the radiologist, using cephalic approach and with less number of cores the rate of complication was lesser. Size of the needle gauge did not show any significance. 90% of diagnostic yield was observed. A repeat biopsy was performed in 10% of the cases.

O-105

Percutaneous CT guided lung biopsy: Updates and review

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The objective of percutaneous lung biopsy is to establish diagnosis with minimally invasive technique as compared to surgical biopsy. Many recent publications have reassessed the subject of chest biopsy to assess borderline or controversial indications such as very small lesions, ground-glass opacities, and cases with prior nondiagnostic percutaneous biopsy. These new indications promise to expand the numbers of biopsy procedures performed by radiologists.

This review will discuss the current role of image-guided percutaneous lung biopsies, different techniques and latest research in relation to these interventional procedures.

O-106

Percutaneous transhepatic cholangioplasty in biliary lesions

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BACKGROUND: PCI stenting in patients with non resectable biliary and pancreatic tumors is a palliative procedure. It is a standard measure for patients with end stage disease, to relieve jaundice, pruritus and other associated symptoms.

PURPOSE: The purpose of this study is to assess the clinical outcome of biliary stenting in patients with unresectable biliary or pancreatic lesions.

METHODOLOGY: This is a retrospective descriptive study performed in Radiology department of Rehman Medical Institute Peshawar from 26 th August 2015 to 29 october 2021. This study was comprises of 26 patients (9 males and 17 females, Mean age =40 years) with pancreatic or biliary lesions. 8 (eight) patients had post hepaticojejunostomy stricture, a single patient was suspicious of klatskin tumor, 1 had recurrent cholangitis, 1 iatrogenic injury to CHD and had hepatojejunostomy, 1 had raised ALP and tight stricture at confluence of ducts reaching up to anastomotic site, 1 had biliary leak hep jejunostom, 11 patients had CBD/Hilar stricture, 2 patients had large distal CBD stone, . Procedure was performed under live fluoroscopy. 10 Fr PTBD was inserted via percutaneous transhepatic route. No complication during procedure was observed.

RESULTS: Stenting the biliary tract markedly decreased the serum bilirubin levels and therefore reduced the jaundice and pruritus. There was a significant reduction in nausea and indigestion. Patients reported improved quality of life.

CONCLUSION: We conclude from this study that biliary stenting has good clinical outcome with significant improvement in LFTs, alleviating symptoms like jaundice, pruritus, nausea and indigestion, and improving quality of life in terminally ill patients.

O-107

Impact and effects of family presence during invasive interventional radiological procedures

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HYPOTHESIS: Practice of FP in IR procedure adds transparency to healthcare delivery, increases familie's confidence and increases awareness about image guided procedures/IR.

METHODS: Study is conducted by IR – LRH Peshawar after ERB approval. One attendant was offered to stay with patient during the IR procedure or in rehab. Consecutive sampling of patients referred for IR procedures performed through a questionnaire.

RESULTS: The study is ongoing, expected completion by last week of September. Early results demonstrate overwhelming trend of a large proportion in favor of FP. FP markedly reduced intraoperative anxiety and increase

confidence and awareness. There were no disruptions caused by FP. Small proportion of attendants felt uncomfortable left the procedure-room.

CONCLUSION: Practice of the FP during IR procedures adds to confidence and transparency of healthcare delivery and should be encouraged whenever possible.

O-108

Microwave ablation of different body parts

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This paper reviews state-of-the-art microwave ablation (MWA) of different regions and different types of tumors. MWA is a novel method for treating inoperable tumors, ie, tumors that cannot be treated surgically. A literature review of MWA for breast, liver, lung, fibroids and kidney tumors is reported here, with tabulation of our findings according to the type of technique used, with a detailed description of the time, type of microwave generator used, and number of patients treated with MWA. MWA is a technique that has proved to be promising and likely to be used increasingly in the ablation of cancerous tumors. However, MWA needs to be used more widely to establish itself as a common tool in the treatment of inoperable tumors.

O-109

Pelvic artery embolization in aquired uterine vascular anomaly, our experience

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OBJECTIVE: To retrospectively review imaging findings and the outcomes of transcatheter arterial embolization in symptomatic acquired uterine vascular anomalies.

METHODS: We identified 15 cases of acquired uterine vascular anomaly from 2010 to 2020 who were evaluated with US, CT, and MRI, either alone or in combination. All patients had history of D&C or uterine instrumentation. They underwent angiography and embolization of uterine arteries with or without ovarian artery to control bleeding. Outcome was assessed clinically and/or follow up ultrasound. Post procedure pregnancies were also recorded.

RESULTS: Non-invasive imaging was abnormal in all patients however was unable to accurately classify the type of vascular anomaly except pseudo aneurysm. Angiography showed uterine artery hyperemia in 6, AVM in 7 and pseudo aneurysm in 2 patients. The procedure was technically successful in all patients with no repeat embolization. Follow up ultrasound in 12 patients revealed resolution of abnormal findings, remaining three were normal on clinical follow up. Seven patients (46.7%) had a normal pregnancy, 15.7 months after the procedure (range 4-28 months).

CONCLUSION: Trans-arterial embolization is a safe and effective management option for intractable severe bleeding in patients with uterine vascular anomaly post instrumentation and does not impair future pregnancy.

O-110**Interventional radiology and pain management****Shahzad Karim***Department of Radiology, Mayo Hospital, Lahore, Pakistan.
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The review aims to highlight the effectiveness of interventional radiology in pain management under image guidance for increased accuracy with decreased complications as compared to a routine approach.

Interventional radiology is rapidly growing super specialty of radiology which is resulting in more accurate results with reduced hospital stay. Interventional pain management is another area in which IR can help patients with targeted treatments which are mostly done blind without image guidance. Procedures like peripheral nerve blocks, intra discal and peri ganglionic blocks, intra articular injections, celiac axis and ganglion impar blocks for cancer pains can be done using ultrasound, fluoroscopic and CT guidance. Procedures can be very precise since every movement of the intervention is being observed visually resulting in minimal chances of soft-tissue or vascular injury.

Interventional pain relieving procedures therefore have increased safety and fewer complications compared to the traditional blind approach.

O-111**Uterine artery embolization for symptomatic fibroids****Nida Gul**, Aman Nawaz Khan, Zamara Sohail, Ummara Siddique Umer*Department of Radiology, Rehman Medical Institute (RMI), Peshawar, Pakistan.
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OBJECTIVE: To evaluate the efficacy, symptom relief and outcomes of uterine fibroid embolization in patients with symptomatic fibroids.

MATERIALS AND METHODS: This is a prospective observational descriptive study performed at Radiology department of Rehman Medical Institute, Peshawar. Twenty four patients who had undergone UAE for fibroid between 2016 and 2021 were selected. Preprocedure imaging work-up was performed by magnetic resonance imaging (MRI) of the pelvis. Informed consent was taken and the procedure along with its complications was discussed. A preembolization lab work up was performed, which included complete blood count (CBC), International Normalized Ratio (INR) and Renal function tests (RFTs). A consultant interventional radiologist performed all the procedures in an angiography suite on a digital subtraction angiography (DSA) unit (Siemens artis zee). Micro-catheter was used and 500-710µm polyvinyl alcohol (PVA) / micron particles were administered for embolization. Failure and success of the procedure was assessed by improvement of the clinical symptoms as well as improvement in radiological imaging. Out of our 24 patients, 16% of the patients did not come back for follow up and they could not be contacted.

RESULTS: Out of total 24 patients, 11 patients (45%) had no active complaints on follow up, 4 patients (16%) showed no response to embolization and had active complaints, 4 (16%) patients could not be contacted and did not show up for follow up, and 5 patients (20%) had recent embolization and follow up will be done.

CONCLUSION: As an initial experience in our department, UAE for fibroid showed promising results and it should be considered as a treatment option for symptomatic fibroids.

O-112**Thermal ablation for HCC****Sami Ur Rehman**, Aman Nawaz Khan, Ummara Siddique Umer*Department of Radiology, Rehman Medical Institute (RMI), Peshawar, Pakistan.
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PURPOSE: To evaluate the initial results of radiofrequency ablation (RFA) for the treatment of hepatocellular carcinoma in 23 patients at our center.

MATERIALS AND METHODS: At Rehman Medical Institute, there is electronic database for all patients referred with suspected HCC. 23 patients underwent radiofrequency ablation (RFA) in radiology department of Rehman Medical Institute Peshawar (RMI) between July 2015 to October 2021 under general anesthesia with age range of 30-75 years. All patients had confirmed radiological and biochemical diagnosis of HCC. Procedure was performed under general anesthesia with fluoroscopy / ultrasound guidance. Clinical response was assessed by follow up with dynamic CT liver on 128 slice Toshiba MDCT scanner.

RESULTS: All 23 patients underwent procedure with complete ablation of the lesion with a 1 cm margin. On follow up imaging out of 23 cases, 9 patients (39.13 %) showed complete response, 4 patients (17.3 %) showed partial response, 6 patients (26%) showed progressive disease and 4 patients (17.39 %) are with no follow ups.

CONCLUSION: Our result shows that thermal ablation techniques are minimally invasive and shows promising results and can be used as palliative treatment option for patient with early Hepatocellular carcinoma.

Miscellaneous**O-113****Basic Life support awareness in radiology Staff****Karishma Israr**, Ummara Siddique Umer, Abdullah Safi*Department of Radiology, Rehman Medical Institute (RMI), Peshawar, Pakistan.
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OBJECTIVE: In radiology department, medical staff receives most of the patients in severely ill conditions with a risk of cardiopulmonary arrest in no time. They may also encounter life threatening anaphylactic reaction towards contrast media. Good basic resuscitation skills and effective cardio pulmonary resuscitation (CPR) may retrieve patient back with decrease in mortality rate. It is essential for all medical staff to learn effective resuscitation skills and update it annually according to recent guidelines.

METHODOLOGY: This cross sectional study was conducted at the Radiology Department of Rehman medical institute, Peshawar from in October 2021. A questionnaire contain questions regarding basic steps of resuscitation, emergency trolley, drugs used, timings of defibrillation and last training attended. All consultant radiologists, radiology residents and radiographers of radiology department were audited.

RESULTS: Our result is totally based on answers of questions asked in questionnaire, in which total of 77.6% of medical staff knows basic steps of resuscitation. Among them, 60% staff had opportunity to attend training courses in which 33% attended last training for resuscitation awareness within 2 years while 31% attended more than 2 years ago. 36% have not received any basic training from more than 5 years.

CONCLUSION: We concluded from our study that, 77.6% staff were aware about resuscitation basic steps and 60% attended training courses in past, in which 33% attended within two years while 31% attended in more than two years. All staff needs to be updated about recent basic and advanced life support guidelines. We will suggest arranging resuscitation training for all medical staff in radiology department and then repeat re-audit after 3 months of training.

O-114**Different manifestations of mucormycosis in COVID-19 patients on MRI brain**

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There are increasing case reports of rhino-orbital mucormycosis in people with coronavirus disease 2019 (COVID-19), especially from Indian subcontinent. Diabetes mellitus (DM) is an independent risk factor for both severe COVID-19 and mucormycosis. We aim to present a case series reported in radiology department of Mayo hospital Lahore to find out the different manifestations of this potentially fatal fungal disease in COVID-19 patients. Since, MRI plays a pivotal role in diagnosis, it can also help the clinician for timely management of the complications and therefore treatment.

The primary reason that appears to be facilitating mucorales spores to germinate in people with COVID-19 is an ideal environment of hypoxia, diabetes, new-onset hyperglycemia, steroid-induced hyperglycemia, metabolic acidosis, diabetic ketoacidosis, increased ferritins and decreased phagocytic activity of white blood cells WBC due to immunosuppression coupled with several other shared risk factors including prolonged hospitalization with or without mechanical ventilators.

Mucormycosis is an angioinvasive disease and involves sinonasal region and complications include radiological findings like orbital extension, intracranial extension and cavernous sinus involvement coupled with intracranial ICA thrombosis making worse prognosis. We will present 4 MRI brain cases including involvement of ICA and cavernous sinus, intracranial extension and disease limited to the sinonasal region. In a nutshell, all efforts should be made to maintain optimal glucose and only judicious use of corticosteroids in patients with COVID-19 alongwith with early imaging done to save patients' lives.

O-115**Are we underutilizing venous phase CT for evaluating biliary pathologies? Comparative study keeping MRCP as gold standard**

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OBJECTIVE: Biliary duct pathologies are encountered commonly. As a radiologist, one must choose appropriate and convenient imaging that provides enough diagnostic information, thereby helping in clinical management of the patients. Our study tries to demonstrate that contrast enhanced computed tomography (CECT) also provides additional information outside the biliary and pancreatic ductal system that is often relevant and clinically beneficial to the patient and cost effective as it yields more information compared to magnetic resonance cholangio-pancreatography (MRCP).

METHOD: After IRB approval, a retrospective study was done with patients from January 2018 to August 2021 admitted in Shifa International Hospital, Islamabad. Total 962 patients had MRCP performed during this time period. Patient with no obvious findings in MRCP were excluded from our study. Total 53 patients were included in our study with age range between 20 to 80 years who have undergone both CECT and MRCP. The findings of CECT were read by senior radiologist blinded to imaging findings of MRCP.

RESULTS: Total 53 patients were included in our study with mean age of 49 years. MRCP showed dilatation of right hepatic duct in 75.5%, left hepatic duct in 73.6%, CHD in 58.5%, CBD in 37.7%, pancreatic duct in 13.2%. In addition to this, causative stones were seen in 20.8%, stricture in 52.8%, peri ampullary and CBD mass in 17% and wall thickening in 9.4%. The study

positively portrayed that contrast enhanced CT is comparable to MRCP in detecting biliary pathologies. Diagnostic accuracy of contrast enhanced CT was overall very high i.e. 96.2% as compared to MRCP with RHD dilatation seen in 71.7%, LHD in 69.8%, CHD in 56.6%, CBD in 35.8%, pancreatic duct dilatation 13.2%, stone in 20.8%, stricture in 51%, wall thickening in 7.4% and mass in 17%.

CT was able to find additional pathologies including CLD in 16.9%, HCC in 5.6%, cholangitis in 3.7%, collections in 9.43%, renal abnormalities including cysts and stones in 16%, 1 patient had adnexal cystic lesion, hernia and liver hemangioma, Caroli's disease, adrenal gland, myolipoma and liver mets were seen in 1.8%. Cholangiocarcinoma was seen in 3.7%.

SCIENTIFIC SESSION (SSXIII): Cardiovascular & Thorax**O-116****Classification of vascular anomalies and radiological imaging spectrum**

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Vascular Anomalies are categorized into main two varieties, vascular tumors (benign, locally aggressive or borderline and malignant) and vascular malformations. Vascular malformations are further characterized into capillary malformation (CM), Lymphatic Malformation (LM), Venous Malformation (VM), Arteriovenous Malformation (AVM), Arteriovenous fistula (AVF). Combined malformation have two or more vascular malformations in one lesion. Vascular malformation may be associated other anomalies and genetic abnormalities such as Klippel-Trenaunay syndrome: CM + VM +/- LM + limb overgrowth PIK3CA, Parkes Weber syndrome: CM + AVF + limb overgrowth RASA1, Servelle-Martorell syndrome: limb VM + bone overgrowth, Sturge-Weber syndrome: facial + leptomeningeal CM + eye anomalies +/- bone and/or soft tissue overgrowth GNAQ, Maffucci syndrome: VM +/- spindle-cell hemangioma + enchondroma IDH1 / IDH2. The Radiological diagnosis involves plain radiography, grey scale and Color Doppler Ultrasound, MRI with contrast and in some cases CT Angiography. The main diagnosis depends upon correlation of ultrasound and MRI findings, which both are having no radiation hazard in paediatric population. Usually these anomalies have the genetic abnormalities PIK3CA, RASA1 / EPHB4, STAMBP, GNA11, GNAQ.

O-117**Classical signs on thoracic imaging: Back to basics**

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O-118**Comparison of 128-slice spiral computed tomography pulmonary angiography findings with plasma D-dimer levels in patients with clinical suspicion of pulmonary embolism**

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OBJECTIVE: To compare the utility of plasma D-dimer levels with findings of 128-slice spiral computed tomography pulmonary angiography (CTPA) in patients with clinical suspicion of pulmonary embolism (PE).

STUDY DESIGN: Retrospective cohort observational study

PLACE AND DURATION OF STUDY: Department of Computed Tomography, Armed Forces Institute of Radiology & Imaging (AFIRI), Pak Emirates Military Hospital (PEMH) Rawalpindi. Duration of 12 months from January 2018 to December 2018.

PATIENTS AND METHODS: A total of 59 patients were included in this study who presented in Emergency department, PEMH Rawalpindi with clinical suspicion of PE. The main symptoms were shortness of breath and chest pain. Plasma D-dimer levels of these patients were sent to the laboratory and CTPA was performed at CT scan department, AFIRI using 128-slice spiral computed tomography.

RESULTS: 36 patients were males and 23 were females with an average age of 48.03 years \pm 18.065 (range 23 to 85 years). Out of 59 patients, D dimer levels were raised in 28 (47.4%) and 31 patients showed D dimer levels within normal range. PE / filling defects in pulmonary arteries were detected by CTPA in 30 cases (50.8%) while 29 patients were without obvious abnormality.

CONCLUSION: Plasma D-Dimer levels show low sensitivity, specificity and negative predictive value and cannot exclude PE without CTPA. CTPA remains the investigation of choice for definitive diagnosis of PE.

O-119

Diagnostic accuracy of computer aided reading of chest x-ray in screening for pulmonary tuberculosis in comparison with Gene-Xpert

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OBJECTIVES: Pakistan ranked fifth amongst 22 high-burden TB countries, and its epidemic in Pakistan, hence screening is performed nationally, as part of the ambitious ZERO TB drive. To assess the diagnostic accuracy of Computer Aided Detection (CAD4TB) software on chest xray in screening for pulmonary tuberculosis in comparison with geneXpert.

METHODS: The study was conducted by Radiology Department Lady Reading Hospital Peshawar in affiliation with Indus Hospital network over a period of one year after ethical review board approval. Screening was done by using mobile Xray unit equipped with CAD4TB software with scoring system. All of those having score of more than 70 and few selected cases with strong clinical suspicion however score of less than 70 were referred to dedicated TB clinic for Gene-Xpert analysis.

RESULTS: Among 26,997 individuals screened, 2617 (9.7%) individuals were found presumptive for pulmonary TB. Sputum samples for Gene-Xpert were obtained in 2100 (80.24%) individuals, out of which 1825 (86.9%) were presumptive for pulmonary TB on CAD4TB only. Gene-Xpert was positive in 159 (8.7%) patients and negative in 1,666 (91.3%). Sensitivity and specificity of CAD4TB and symptomatology with threshold score of ≥ 70 was 83.2% and 12.7% respectively keeping Gene-Xpert as gold standard.

CONCLUSION: Combination of chest x ray analysis by CAD4TB and symptomatology is of immense value to screen a large population at risk in a developing high burden country. It is significantly a more effective tool for screening and early diagnosis of TB in individuals, who would otherwise go undiagnosed.

O-120

Spectrum of findings of COVID-19 associated pneumonia on initial computed tomography chest and their association with duration of hospital stay and 30 days mortality

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BACKGROUND: RT-PCR is standard for diagnosing COVID-19 however this test may not be readily available in emergency. CT chest can be used as complementary tool for diagnosis of COVID-19 pneumonia. CT severity score is representative of the extent of pulmonary involvement and prognosis.

OBJECTIVE: Objective of our study is to evaluate the spectrum of pulmonary findings on CT chest in patients with COVID-19 associated pneumonia on initial CT chest and its association with duration of hospital stay and 30 days mortality.

METHODOLOGY: A cross sectional study was conducted in Radiology Unit of Hayatabad Medical Complex from 1/4/2020 to 3/12/2020. Patients with positive PCR test were included in our study. CT chest features at initial presentation and CT severity score were evaluated and association was assessed with duration of hospital stay and 30 days mortality.

RESULTS: Out of total of 203 confirmed PCR positive bilateral lung involvement was observed in 201 (99%) patients. In 145 patients (71.4%) the distribution of disease in axial plane was peripheral. Mean total score of lung severity was 13.04 with 5.332 standard deviation. 51 patients (25.1%) had mild disease, 90 (44.3%) had moderate disease and 62 (30.5%) had severe disease. 32 (15.8%) had ground glass opacities, 151 (74.4%) had ground glass opacities and consolidation and 16 (7.9%) had consolidations only. Mean of hospital stay was 10.94 days with 8.994 standard deviation. One month mortality was observed in 3 patients with mild disease, 30 patients with moderate disease and 27 patients with severe disease ($p < 0.001$) on initial CT chest.

CONCLUSION: Patients with COVID-19 associated pneumonia have certain typical features on CT chest, knowledge of which can help in rapid screening of such patients. CT severity score can aid in determining the extent and severity of disease. It can be used as a predicting factor for assessing the duration of hospital stay and mortality.

O-121

Impact of COVID-19 pandemic upon radiological services in a tertiary care hospital - A clinical audit

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OBJECTIVE: This audit study aimed to evaluate the impact of COVID-19 on the radiological services in a tertiary care hospital in terms of workload and case mix.

PLACE AND DURATION OF STUDY: Shifa International Hospital Islamabad between March 2019 to December 2020.

METHODOLOGY: We retrospectively reviewed and compared the overall workload of the radiological department, using the Radiology information system (RIS), emphasizing the number of CTs and Chest radiographs performed during the COVID pandemic. Two study periods were selected, the first period starting when the first confirmed case presented to our hospital and the second control period in the same months in 2019. The imaging parameters included

the total number of CTs, MRIs, Ultrasounds, Radiographs, CTs performed from the emergency room (ER), OPD, IPD, and the number of total CT chest performed for COVID and other emergency indications (CTPA and trauma), etc. All parameters were compared and calculated by taking average each month in both study periods.

RESULTS: An overall decrease was observed in the number of all primary imaging modalities during the pandemic, with ultrasound showing a maximum reduction in numbers (36.5%) followed by radiographs (29.6%) and MRIs (13.8%) compared to 2019. However, total CTs showed a minimal decrease of 1.6% with a significant leap in HRCTs performed reaching up to 80.5%.

CONCLUSION: COVID-19 and resultant movement restrictions, although they did lead to a reduction in overall radiology work volume, were compensated by an increase in the number of studies performed through emergency and for management of COVID infection.

O-122

Incidence of pulmonary embolism in COVID-19 patients in patients admitted in Fauji Foundation hospital Rawalpindi during peak months of the pandemic

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BACKGROUND: Coronavirus disease 2019 (COVID-19) remains an increasing global pandemic, with significant morbidity and mortality. Severe complications of COVID-19 associated with coagulation changes have been observed, mainly characterized by higher thrombosis risk, in particular pulmonary embolism (PE).

OBJECTIVE: To find out the incidence of pulmonary embolism amongst PCR positive COVID-19 patients admitted in Fauji Foundation Hospital, Rawalpindi who underwent CT pulmonary angiograms during the peak six months of the pandemic.

METHOD: A retrospective study was performed by reviewing the reported CT pulmonary angiograms done in the 6 months with peak incidences of COVID-19. Of these patients, those who had a positive COVID-19 PCR result, constituted the study population. The period between 15 May 2020 to 15 July 2020 was considered first wave, 15 November 2020 to 15 January 2021 was considered second wave and 15 March to 15 May 2021 was considered the third wave.

RESULTS: A total of 29 COVID-19 patients were investigated with CT pulmonary angiograms for pulmonary embolism in these months. Out of these six (20.6%) were found to have filling defects in their pulmonary arteries.

DISCUSSION: Respiratory tract infections are a known risk factor for pulmonary embolism. (2) SARS-Cov-2 virus can lead to systemic coagulation activation with increased levels of D-Dimers and prolonged prothrombin time. (3) As a result a high incidence is noted in patients diagnosed with COVID-19 pneumonia. Our results are comparable with other studies showing an incidence of 22-32% (4,5). Randomized control trials of prophylactic anticoagulants should be considered.

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Is it true arterial occlusion or pseudo occlusion in lower limb vessels: Role of 2nd phase of angiography in evaluation of below knee arteries

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OBJECTIVE: Objective of this study is to assess effect of acquisition of 2nd phase of lower limb angiography in assessment of below knee vascular occlusion.

METHODS: 200 patients of lower limb angiography will be retrieved from SIH data base and CTA will be reviewed. We are acquiring CTA's in two phases. 2nd phase is acquired for below knee arteries only after 1 minute delay from end of acquisition of 1st phase. We have observed that for more than 60 percent of cases vessels which appear severely attenuated or stenosed on 1st phase lit up on acquisition of 2nd phase and presence of contrast in vascular lumen gives a true diagnosis of percent stenosis or occlusion. This is also depiction of result of hemodynamic slow inflow, slow flow from proximal leg/thigh vessels contributed can also be contributed by chronic atherosclerotic diseases, stenosis or acute thrombotic occlusion.

RESULTS: Data will be entered in SPSS and a comparison of percentage luminal narrowing on 1st phase and 2nd phase will be given. This will differentiate false occlusion from true occlusion on basis of better luminal visualization on delayed 2nd phase of lower limb angiograms.

CONCLUSION: Lower limb CTA's are of utmost importance for management of vascular occlusion and limb salvage procedures. Technique must be adapted to give accurate results.

O-124

Incidence of barotrauma associated with mechanical ventilation for management of novel corona virus disease 2019 associated respiratory distress syndrome (CARDS)

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OBJECTIVE: Purpose of this study was to determine prevalence of i) Pneumothorax, ii) Pneumomediastinum, iii) Pneumopericardium and iv) Subcutaneous emphysema in patients who underwent mechanical ventilation for COVID-19 infection associated respiratory distress syndrome (CARDS).

METHOD: A retrospective case control study was conducted in the department of radiology, Aga Khan University hospital, Karachi, after obtaining exemption from institutional ethical review committee. Data of patients who underwent mechanical ventilation in all critical care units of the hospital from 1-08-2020 to 1-02-2021 was acquired from institutional health information and management systems using keyword mechanical ventilation. In total 5652 radiographs of 261 patients were reviewed on departmental PACS by two national board-certified Radiologists to document barotrauma on follow up radiographs after initiation of mechanical ventilation.

RESULTS: 115 patients of CARDS and 146 patients for rest of causes were mechanically ventilated during the study period. Significantly higher incidence of barotrauma documented in CARDS group 39/115 Vs 8/146. Pneumomediastinum was the most frequently observed type of barotrauma in CARDS group 29/39 Vs 3/8 in the rest of cases. Subsequently in decreasing order subcutaneous emphysema (n=18), pneumopericardium (n=18) and

pneumothorax (n=15) also occurred more frequently in patients from CARDS group compared to patients managed for the rest of causes. 30/39 CARDS patients developed barotrauma between 2nd to 5th day post initiation of mechanical ventilation compared to 9/39 who developed barotrauma after day 6 of mechanical ventilation.

CONCLUSION: Patients who undergo mechanical ventilation for management of CARDS are at significantly more risk of developing barotrauma. In our cohort, the most frequently observed type of barotrauma was pneumo-mediastinum. Highest risk of developing barotrauma observed between 2nd and 5th day, post initiation of mechanical ventilation. A radiologist must be aware and more watchful in identifying these panic findings when reviewing x rays from COVID-19 critical care units.

O-125

Incidence of aortic root abnormalities on CT aortograms

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OBJECTIVE: To review the incidence of various aortic root abnormalities on CT aortograms in 102 patients from 20-11-2018 to 25-10-2021.

METHODOLOGY: This cross sectional study was conducted in Radiology department, Rehman medical institute from 20-11-2018 to 25-10-2021. A retrospective study was done after informed patient consent. It included 102 cases with imaging diagnosis involving various aortic root abnormalities and also non-aortic root pathologies as well.

CT Angiograms were performed on 128 slice CT machine in arterial phase. 1ml/kg contrast was given intravenously at a rate of 4-5ml/sec via a power injector. Multiplanar reformatted images in sagittal, coronal and oblique sagittal were reconstructed and were reviewed by consultant radiologist on workstation.

RESULTS: Out of 102 patients, 26 cases had aortic disease involving the aortic root (25%). Among 26 patients, 15 had aortic root aneurysms (57%), 7 cases had thickening of aortic root/valve (26%), 1 had bicuspid aortic valve (3.8%), 2 had dissection (7.6%) and 2 cases had aortic valve vegetation (7.6%).

CONCLUSION: We concluded from our results that 25% of all diseases involving aorta picked on CT aortograms had involved aortic root and the most common aortic root abnormality in our study was aortic root aneurysms. There should be prompt inspection of aortic root on all CT aortograms.

O-126

To determine average calcium score in patients undergoing computer tomography angiography at Rawalpindi institute of cardiology

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INTRODUCTION / PURPOSE: To determine the average calcium score in patients undergoing CT coronary angiography. To identify the low risk and high group of calcium score for prophylactic management and intervention treatment respectively.

METHODOLOGY: We carried out a cross-section study at Department of RIC for the six months from July 2018 to December 2018. Data was collected

for risk factors for a calcium score. Calcium score screening was done in all patients undergoing CT coronary angiography.

RESULTS: Total 422 patients were enrolled in which 159 female and 263 are male patients and the age range was 25-85 years. Calcium score was found 8%, 10%, 13% and 9% of female patient with CCA 1-10, 11-100, 101-400 and \geq 400, respectively. Calcium score was found 6%, 14%, 13% and 13% of male patient with CCA 1-10, 11-100, 101-400 and \geq 400, respectively. Significant calcium score was found 9% in female and 13% in male. The incidence of significant calcium score according to age of both male and female patients was 4%, 10% and 19% with age \leq 40 years, 41-60 years and \geq 60 years respectively. DM was the most affecting comorbid (74%) in significant group.

CONCLUSION: CT calcium scoring is very effective tool in assessment of low and high risk groups leading to coronary artery disease, which is a major disease burden in modern world. There is significant number of patients who are falling in low risk group which can be targeted with timely life style modification and prophylactic medication reducing the morbidity.

O-127

Spectrum of imaging findings in multisystem inflammatory syndrome in children (MIS-C) associated with coronavirus disease (COVID-19)

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BACKGROUND: A multisystem inflammatory syndrome in children (MIS-C) associated with coronavirus disease (COVID-19) has recently been described.

OBJECTIVE: The purpose of our study was to evaluate the imaging findings of MIS-C associated with COVID-19.

METHODS: Imaging studies and medical records of patients (age range, 0–18 years) admitted to Aga Khan University Hospital, Karachi, with MIS-C between March 2020-May 2021, were retrospectively reviewed after approval by institutional Ethical Review Board. Images were reviewed by two pediatric radiologists on PACS. Imaging studies of each patient, including chest and abdominal radiography, abdominal ultrasound, and CT of the chest, abdomen, and pelvis were included in the study. Patient confidentiality was maintained in accordance with HIPAA guidelines. Normally distributed continuous variables such as age and length of hospital stay were expressed as the mean, SD, and range. Imaging findings were summarized descriptively using absolute counts and percentages. Statistical analysis was performed with Microsoft Excel.

RESULTS: Thirty three patients (20 male and thirteen female patients; age range, 0-18 years) were included in this study. All 33 patients presented with fever. Other presenting signs and symptoms included the following: vomiting (24/33, 72%), abdominal pain (22/33, 66%), rash (20/33, 65%), conjunctivitis (10/33, 30%), diarrhea (14/33, 42%), headache (12/33, 36%), and sore throat (10/33, 30%). Chest radiography showed cardiogenic pulmonary edema (10/33, 30%), atelectasis (20/33, 65%), pleural effusions (17/33, 51%), acute respiratory distress syndrome (5/33, 15%), and pneumonia (13/33, 39%). Abdominal imaging findings (ultrasound, CT, and radiography) included small-volume ascites (12/33, 36%), hepatomegaly (13/33, 39%), echogenic kidneys (11/33, 33%), bowel wall thickening (10/33, 30%), gallbladder wall thickening (8/33, 24%), mesenteric lymphadenopathy (16/33, 48%) and splenomegaly (5/33, 15). Three patients (1%) had distended, thickened appendix mimicking appendicitis. Absolute interobserver agreement was 0.69-1 for thoracic findings and 0.17-1 for abdominal findings. There were no mortalities.

CONCLUSION: MIS-C associated with COVID-19 is characterized predominantly by respiratory abnormalities, although solid visceral organ, gallbladder, and bowel abnormalities as well as ascites are also seen, reflecting a multisystemic inflammatory process.

O-128

HRCT thorax reporting in patients with suspected idiopathic pulmonary fibrosis (IPF) as per ATS / ERS guidelines

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OBJECTIVE: The aim of this audit is to evaluate reporting practices of HRCT chest in patients with suspected idiopathic pulmonary fibrosis (IPF) or interstitial lung disease (ILD) in accordance with ATS/ERS/JRS/ALAT guidelines.

STUDY DESIGN: Retrospective study.

DURATION: From 1st January 2019 to 31st December 2019 in HRCT of patients with suspected IPF/ interstitial lung disease.

RESULTS: Out of 60 patient reports 42 of reports (72%) reported according to ATS/ESR guidelines. Among them 32/42 reports (76%) labelled as definite UIP/Probable UIP pattern and 10/42 reports (24%) labelled as others with definite diagnosis or differentials. Among these patients 32 (53.3%) were males and 28 (46.6%) were females with mean age of 60 years.

CONCLUSION: Concluding my study, that according to ACR/ESR 76% of patients were labelled as definite / probable UIP and 24% labelled as in other categories.

O-129

Cardiac CT scan

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Computed tomography of the heart or cardiac CT is routinely performed to gain knowledge about cardiac or coronary anatomy, to detect or diagnose coronary artery disease (CAD), to evaluate patency of coronary artery bypass grafts or implanted coronary stents or to evaluate volumetry and cardiac function (including ejection fraction). The lecture will include indications/ contraindications for cardiac CT, protocols of cardiac imaging (ECG gated vs non ECG gated) calcium scoring, pitfalls in imaging and post processing. The lectures will also include coronary angiogram cases from my department.

O-130

Triphasic CT with mesenteric angiography in the evaluation of acute mesenteric ischemia

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PURPOSE: To assess the role of biphasic computed tomography (CT) with mesenteric CT angiography in the diagnosis of acute mesenteric ischemia (AMI).

MATERIALS AND METHODS: 25 patients with clinically suspected acute abdomen underwent imaging with biphasic multidetector CT. Mesenteric CT angiography was performed starting 25 seconds after 140 mL of intravenous contrast agent was administered, followed by portal venous phase imaging with a 60–70 second delay. CT angiograms were reconstructed with multiplanar, maximum intensity projection, and volume-rendered techniques. All scans were evaluated prospectively by two independent radiologists for CT evidence of Superior mesenteric arterial or venous thrombosis and bowel ischemia. Acute bowel ischemia was confirmed with surgical proof in 10 patients.

RESULTS: The CT angiogram depicted arterial disease in 15 patients and venous disease in 7. 3 patients had normal angiograms. A finding of any one of pneumatosis intestinalis, venous gas, superior mesenteric artery occlusion, celiac and inferior mesenteric artery occlusion with distal SMA disease, or arterial embolism was 100% specific. Alternatively, a finding of bowel wall thickening in addition to focal lack of bowel wall enhancement or solid organ infarction was indicator of impending ischemia.

CONCLUSION: We conclude from our results that venous thrombosis was more common cause for bowel ischemia. Biphasic CT with mesenteric CT angiography is effective in the diagnosis of acute mesenteric ischemia. This study has to be done in a larger number of patients and at a larger scale including different centers.

O-131

COVID-19: Mobilizing HRCT chest as a primary management tool

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As the COVID-19 pandemic has continuously been hitting across the globe, physicians as well as patients are eager to diagnose it as early as possible because of its so varied presentations and horrifying outcomes. Many of the patients appear to be seronegative despite of subtle to strong symptoms. Similarly, many have no symptoms and appears to be PCR positive. In the same way sometimes waiting for RT-PCR result may take more than 24hours in remote areas of Pakistan. CXR is also not reliable in grey zone patients. However, gives adequate information in red zone patients with a quantifiable percentage of lungs involvement. High Resolution CT Chest is a solution to many of these problems. Its use has been increasing day by day not only for diagnosing, but also for assessing disease activity and a guide to treatment follow up.