

# Abstracts presented at the 15th National Radiological Conference held on October 12<sup>th</sup> to 14<sup>th</sup> 2008, in Karachi, Pakistan

Venue : Karachi Sheraton Hotel

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## 15th National Radiological Conference Abstracts

### INVITED LECTURES (T)

#### **Session-II Women and Genitourinary Imaging T-01**

##### **Ultrasound Evaluation of Normal and Abnormal First Trimester Pregnancy**

DR. TANVEER K. ZUBAIRI  
*OMI Hospital, Karachi, Pakistan*

In this presentation role of ultrasound is discussed in normal and abnormal conditions. 1st trimester ultrasound is mandatory even without any indication because it gives us enormous information. Exact gestational age is calculated in 1st trimester, viability is ascertained, number of fetuses and causes of bleeding. Most importantly fetal anomalies are detected. Markers of chromosomal abnormalities can also be detected.

Because of general trend of obstetricians for termination, lots of responsibility is on radiologist that we should be very sure of abnormality and it should be properly reported. In case of any suspicion of abnormality transvaginal ultrasound should be done which gives quite accurate picture of abnormality and sometimes 3D is also an additional help.

#### **Session-II Women and Genitourinary Imaging T-02**

##### **Sonography in Symptomatic Breast**

DR. BADRA HEWAVITHANA  
*Faculty of Medicine,  
University of Peradeniya, Sri Lanka.*

Breast imaging is an ever evolving modality. The developing world is faced with the problem of non availability of state of the art equipment such as MRI and PET CT scanning, at all corners of the country. Ultrasound represents a safe and readily available modality for the assessment of the symptomatic breast and provides an essential adjunct to clinical examination and mammography in both benign and malignant conditions. Although there is an increasing use of newer modalities in breast imaging, the role of breast sonography has not diminished-in fact, the applications of sonography have increased with the improvement of high-frequency equipment. Compared with other breast imaging modalities, current sonographic equipment has excellent spatial resolution and outstanding image contrast. Above all, sonography does not have the disadvantages of exposure to intravenous contrast media and potential adverse contrast reactions, skin fibrosis or renal damage, high cost, claustrophobia as in other modalities such as MRI and PET CT scanning. The primary disadvantage of sonography is that this technique is highly operator dependent, particularly in the breast. However, if one can overcome the barrier of operator dependence, the yield of imaging could be increased while potentially reducing the cost of diagnosis of breast cancers. It can be used in interventional procedures of breast such as image guided biopsies, wire localization and drainage of abscesses. It also evaluates the post-treatment breast and in some patients may represent the imaging modality of choice. Research is on-going into newer ultrasound techniques, including tissue elasticity imaging and sonographic contrast agents, which may further improve the diagnostic accuracy of ultrasound in the breast.

#### **Session-II Women and Genitourinary Imaging T-03**

##### **Intrauterine Growth Restriction (IUGR)**

PROF. DR. M. NAWAZ ANJUM  
*Parkview Clinic, Lahore, Pakistan*

What is intrauterine growth restriction (IUGR)?  
Intrauterine growth restriction (IUGR) is a term used to describe a condition in which the fetus is smaller than expected for the number of weeks of pregnancy.

New born babies with IUGR are often described as small for gestational age (SGA).

A fetus with IUGR often has an estimated fetal weight less than the 10th percentile. A fetus with IUGR also may be born at term (after 37 weeks of pregnancy) or prematurely (before 37 weeks).

What causes intrauterine growth restriction (IUGR)?

Intrauterine growth restriction results when a problem or abnormality prevents cells and tissues from growing or causes cells to decrease in size. This may occur when the fetus does not receive the necessary nutrients and oxygen needed for growth and development of organs and tissues, or because of infection. Although some babies are small because of genetics (their parents are small), most IUGR is due to other causes. Some factors that may contribute to IUGR include the following:

- Maternal factors:
- Factors involving the uterus and placenta:
- Factors related to the developing baby (fetus):

Why is intrauterine growth restriction (IUGR) a concern?

IUGR can begin at any time in pregnancy. Early-onset IUGR is often due to chromosomal abnormalities, maternal disease, or severe problems with the placenta. Late-onset growth restriction (after 32 weeks) is usually related to other problems.

How is intrauterine growth restriction (IUGR) diagnosed?

Ultrasound : Measurements can be taken of the fetal head and abdomen and compared with a growth chart to estimate fetal weight. The fetal abdominal circumference is a helpful indicator of fetal nutrition. Doppler flow: Blood vessels in the fetal brain and the umbilical cord blood flow can be checked with Doppler flow studies.

#### **Session-III Neuro Imaging and Nuclear Medicine T-04**

##### **Current status of stroke imaging**

DR. ZAFAR SAJJAD,  
*Department of Radiology  
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The imaging of neurological diseases was revolutionised by the advent of CT scanning. This has remained the mainstay of imaging in acute neurological disorders like stroke. The pitfall is that the CT features of acute infarction may not develop for several hours after the advent of clinical features. With the introduction of thrombolytic therapy the early diagnosis has become a necessity. The development of Diffusion Weighted Imaging (DWI) in MRI and perfusion imaging in CT and MRI has not only enabled us to accurately diagnose ischemic stroke within a few minutes of its onset but also to predict the eventual infarct size.

This short lecture will review the current recommendations regarding the use of DWI and Perfusion imaging in the management of stroke and review some of the evidence to support the use of these modalities in this context.

### Session-III Neuro Imaging and Nuclear Medicine T-05

#### Recent Advances in Neuroimaging of CNS Infections

DR. HUMERA AHSAN  
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Aga Khan University Hospital, Karachi, Pakistan*

Infections of the nervous system and adjacent structures are often life-threatening conditions. The prognosis mainly depends on rapid identification of the site of inflammation and pathogen to install effective antimicrobial treatment as early as possible.

Whereas analysis of CSF, biopsy, and laboratory analysis remain the gold standard to identify the infectious agent for instance in meningitis, neuroimaging is crucial in clearly depicting inflammatory lesions of brain and spine.

The most important viral infections of the central nervous system from an imaging point of view are aseptic meningitis, encephalitis, brain abscess, progressive multifocal leukoencephalopathy (PML), Herpes simplex encephalitis, and the human immunodeficiency virus (HIV), cytomegalovirus (CMV), and tuberculous brain infections. The imaging findings and particularly recent advances in MRI like Diffusion, Perfusion, and Magnetization transfer and MR spectroscopy has greatly increased the scope of diagnosis by imaging.

MR spectroscopy provides a measure of brain chemistry and is useful in differentiating infections from other radiological mimics and also to differentiate between various infections. Diffusion besides differentiating abscess from necrotic tumour has also other roles in CNS infections. Magnetization Transfer imaging is useful in early detection of Tuberculosis and other infections. Perfusion imaging is also very helpful in differentiating tumours from infections and may be a problem solving technique in difficult situations.

### Session-IV Radiation Oncology T-06

#### Dedicated Multi-slice SPECT-CT in Benign and Malignant Bone Disease

DR. GOPINATH GNANASEGARAN  
*Dept of Nuclear Medicine,  
Guy's & St Thomas' Hospital, NHS Foundation Trust, London, UK*

Nuclear medicine has entered a new era of multimodality imaging. Dedicated multislice SPECT/CT cameras are relatively new additions to the diagnostic armamentarium in nuclear medicine. Current gamma cameras systems are able to perform high-resolution imaging in short scan times and single photon emission computed tomography (SPECT) imaging has become widely available, leading to improved sensitivity and specificity for lesion detection. However, SPECT alone has limitations.

In general, fusion of functional and anatomical findings in PET/CT has been shown to increase the diagnostic performance of PET alone. Thus, multi-modality imaging with PET/CT is rapidly becoming an essential tool in oncology. Similarly SPECT/CT is showing great promise to improve the specificity of planar imaging and SPECT alone. The intergration of SPECT and CT provides precise localisation and may enable characterisation of abnormalities identified on planar or SPECT imaging by providing structural information by CT. Several initial reports on fusion imaging addressed the benefit of the fusion of SPECT data with CT performed on a separate camera at a different point of time. However, in therapy, the concept of software fusion was fascinating, but in practice, image fusion may be difficult to achieve and is often time consuming. Dedicated Multislice SPECT/CT provides improved specificity and diagnostic confidence and is relatively easier than the soft ware fusion. In this presentation, the current evidence, potential indications and limitations of SPECT/CT bone imaging in benign and malignant conditions will be discussed.

In our experience, we found SPECT/CT to be useful in both malignant and benign bone disease. In patients with malignant bone disease our experience and the current evidence suggests the addition of localized SPECT/CT of

indeterminate foci both enables a definitive diagnosis in the majority of cases and improves diagnostic confidence. Currently, there is limited evidence for the use of SPECT/CT in benign bone pathologies. Even-Sapir and coworkers prospectively assessed the role of SPECT/CT in patients with nospecific findings on planar imaging. SPECT/CT reached a final diagnosis in 58% of lesions and in 59% of patients, obviating the need to perform additional imaging. In our experience, SPECT-CT was useful in the assessment of patients with low back pain, complicated knee pain, ankle pain following surgery and wrist pain.

In general, hybrid imaging with SPECT/CT is not only fascinating, but also challenging and has the potential to influence medical practice with newer imaging algorithms. Majority of the studies support the usefulness of SPECT/CT. However, the literature on the applications of SPECT/CT is still extremely limited and well-designed prospective studies needs to be initiated to confirm the benefits of SPECT/CT in routine practice and show cost effectiveness.

From our own experience, we are optimistic and believe that SPECT/CT will be proven useful in many clinical scenarios. SPECT/CT is becoming more widely available and hopefully has a bright future. We should capitalise on this excellent opportunity to increase the profile of Nuclear Medicine.

### Session-IV Radiation Oncology T-07

#### Staging of Colorectal Cancer, MDCT versus MRI

DR. IMRAN SYED  
*Queens Hospital, London, U.K.*

The advent of multi-slice CT and Endoluminal Ultrasound technology allows for more detailed topographical anatomical assessment. However, Magnetic Resonance Imaging, is now helping to redefine and reclassify T3 Colorectal tumours, including the subclassification of T3 disease and thus dictate whether a Total Mesorectal Excision is feasible, for instance in rectal cancer. An overview of the current imaging protocols and advantages of each technique are outlined.

### Session-V Head and Neck Imaging T-09

#### Head And Neck Cancer: What the Clinician Wants to Know

DR. ZIA FARUQUI  
*Shoukat Khanum Memorial Cancer Hospital, Lahore, Pakistan*

Head and neck cancer is one of the commonest malignancies in the world. Radiation and surgery are the mainstay of treatment. Radiological staging is critical for both selection and planning of the correct treatment. CT with multiplanar imaging is the most commonly used imaging modality with MR especially useful for the base of the skull and for assessing perineural spread. FDG PET is also extremely useful in both staging and detecting recurrence. These tumours should be treated with a multidisciplinary approach. Radiology is essential both for local staging and distal spread as well as monitoring treatment.

### Session-VI Body Imaging T-11

#### An Imaging Protocol for Diagnosis of PE

DR. ARUNA S. PALLEWATTE,  
*Lady Ridgeway Hospital, Colombo, Sri Lanka*

Pulmonary embolism is an important clinical entity with a mortality rate of 30% which can be brought down to 2-8% by timely diagnosis and treatment. PE is not a disease by itself but is a complication of venous thrombosis elsewhere.

Diagnosis of PE is a nightmare for the clinician in view of its non-specific symptoms.

Therefore a diagnostic protocol combining clinical, hematological and radiological methods is necessary for accurate identification of PE. Clinical diagnosis in our set-up is based on Wells criteria which is the first step in diagnosis. Next we proceed to an assay of D-Dimer levels which if negative, practically rules out PE or venous thrombosis. If D-Dimer levels are high further imaging investigations are done to confirm or exclude venous thrombosis or PE.

The types of imaging studies used depend on the protocols followed at individual institutions, their availability, cost-effectiveness and personal experience in using them.

In our set-up we perform a chest radiography as a baseline investigation but our imaging modality of choice is CT pulmonary angiography. Duplex ultrasound to detect DVT in pelvic and lower limb veins are also done irrespective of the CTPA findings.

Some institutions use isotope imaging if available. The catheter pulmonary angiography still remains the gold standard but it is very rarely performed nowadays in view of its invasiveness.

The protocol we use is introduced here along with an example case to further illustrate the important aspects of diagnosis and management of PE.

### Session-VII Chest and CVS Imaging T-12

#### Cardiac CT: Image Acquisition, Analysis and Normal Anatomy

DR. NAJAMUDDIN

*Shaikat Khanum Memorial Cancer Hospital, Lahore, Pakistan*

Development in Multi-detector CT scanner has had a huge impact on Cardiac Imaging. This rapidly evolving technology has made it possible to offer a comprehensive reproducible test tool for cardiac and in particular coronary arteries with high overall accuracy. This short presentation would attempt to illustrate the basic principles of acquisition and ramification of the techniques used. The objective is not to go into detailed physics due to paucity of time. This would be followed by some detailing of a comprehensive cardiac protocol. Most of the time would be spent on highlighting the technique to review the acquired data in axial plane, as this forms the platform on which the maximum intensity projection data and or 3D surface shaded formats would eventually rely upon. Normal variants would be highlighted where and when they are relevant.

### Session-VII Chest and CVS Imaging T-13

#### Coronary Artery Bypass Graft Assessment with 64-Slice MDCT

DR. SHAHZAD BABAR KURESHI

DR. RASHID AHMED

*Advanced Radiology Clinic, Karachi, Pakistan*

**INTRODUCTION:** Coronary artery bypass graft (CABG) surgery is the standard of care in treatment of advanced coronary artery disease. The long term clinical outcome after myocardial revascularization depends on the patency of bypass grafts. With the recent advances in MDCT with ECG gating, it has emerged as an important non invasive tool for evaluation of CABG's for patency or occlusion, distal runoff and any progression of native vessel disease. Owing to its improved spatial resolution and its ability to produce 3 dimensional and multiplanar images, MDCT has assumed an integral role in characterization of graft patency, planning for repeat surgery and post operative complications. Because of their large diameter, limited calcifications and relative immobility,

bypass grafts and particularly saphenous vein grafts are well visualized by C.T.

**OBJECTIVES:** To assess coronary artery bypass graft patency, occlusion, stenosis complications like pseudoaneurysm and preoperative mapping in redo bypass surgery by 64 slice MDCT.

**METHODS:** Patients's were initially beta Blocked by metoprolol for heart rates more than 65. Patients were scanned by 64 slice MDCT Toshiba Aquilion. Scan parameters were 120 KV, 0.5M/sec/rotation and 400-500 mAs. Pitch was dependent on heart rate. Scans are acquired in cephalic to caudal direction with scan range from thoracic inlet upto the lung bases. The proximal subclavian arteries were also included. 80ml of non ionic contrast was used followed by 40 cc saline chase performed at a rate of 5ml/sec via a dual injector. All scans were reconstructed by using retrospective gating of R-R interval with 0.5 mm thick images.

**STUDY LIMITATIONS:** The only limitations to graft assessment are those where radio opaque metal markers at the site of anastomosis and dense metallic clips hindered evaluation of grafts.

**RESULTS:** Best image quality of all segments were obtained at a reconstruction interval of 40% to 70% of cardiac cycle. The patency, occlusion or partial stenosis of all the grafts were assessable.

In our study of 40 patients there were a total number of 35 arterial and 101 venous grafts.

In arterial grafts, there were 33 LIMA and 2 RIMA (free) grafts. 29 grafts were found patent and 6 occluded.

The venous grafts totaled 101, out of which 47 were patent and 32 occluded. 22 grafts had stenosis.

**CONCLUSION:** Patency of CABG is the most pressing clinical question in evaluation of CABG patient after surgery. The latest advances in MDCT allow this clinical concern to be addressed in rapid, convenient and non invasive manner. It also helps in pre-operative mapping before repeat CABG in order to minimize graft vessel injury during re-entry. Current 64 slice CT scan allows accurate assessment of graft patency, occlusion or stenosis with a sensitivity of almost 100%.

### Session-VIII Musculoskeletal Imaging and Radiation Protection T-14

#### Radiological Evaluation of Shoulder Joint

DR. DAWAR KHAN

*Department of Radiology,*

*Aga Khan University Hospital, Karachi, Pakistan*

Shoulder pain is common problem which warrants radiologic evaluation. Plain film radiography is often unhelpful to make a diagnosis, therefore further imaging is required. With the advent of MDCT, MRI, and high resolution ultrasound machines, we can evaluate shoulder joint more accurately to reach a diagnosis and proper management.

Both magnetic resonance (MR) imaging and ultrasound (US) are widely used for the evaluation of pathologic conditions of the rotator cuff and essentially obviate conventional arthrography.

Magnetic resonance (MR) arthrography is increasingly used in the evaluation of the shoulder joint, especially in the setting of labral injury. MR arthrograms can routinely be obtained in the transverse, coronal, and sagittal planes. This modality improves visualization of a variety of capsulolabral lesions compared with conventional MR imaging. Technical improvements, coupled with advances in the understanding of anatomic and pathologic characteristics of the rotator cuff, have resulted in the maturation of these two modalities. Despite encouraging results, however, diagnostic difficulties may be attributed to technical restrictions, interpreter skill, or both. MR imaging, while more universally accepted, may be limited in the depiction of partial cuff tears. US, although accurate in the

hands of experienced imagers, proves challenging for many beginners.

High-resolution real-time ultrasonography (US) has been shown to be a successful imaging modality for both rotator cuff and non-rotator cuff disorders. Advances in technology have substantially improved US image quality, producing spatial resolution exceeding that obtained with magnetic resonance (MR) imaging without the use of special coils and imaging parameters. Also, sonography is inexpensive, fast, and offers dynamic capabilities for examining the patient in multiple scanning planes and specific arm positions or movements, in addition to having the ability to focus the examination on the precise region of maximum discomfort.

### Session-VIII Musculoskeletal Imaging and Radiation Protection T-15

#### Emerging Issues of Radiation Protection in Advanced Radiology Practice

DR. MUHAMMAD AZEEMUDDIN

*Department of Radiology*

*Aga Khan University Hospital, Karachi, Pakistan*

Recent developments in two radiological modalities are associated with increased radiation dose to the patients and/or the operator. These include CT scanning and Vascular & Interventional Radiology particularly neurointerventions. However, since the number of patients undergoing VIR is limited, it does not contribute significantly to the overall radiation burden to the population.

On the contrary, the introduction of helical single detector row computed tomography (CT) and, more recently, multi detector row CT has greatly increased the clinical indications for CT. Correspondingly, CT examinations now account for greater than one-half of the radiation dose due to medical procedures.

CT scanning has been recognized as a high radiation dose modality, when compared to other diagnostic X-ray techniques, since its launch into clinical practice more than 30 years ago. Over that time, as scanner technology has developed and its use has become more widespread, concerns over patient radiation doses from CT have grown. The introduction of multi-slice scanners has focused further attention on this issue, and it is generally believed that it will lead to higher patient doses.

The level of CT radiation dose, especially in the pediatric population, is of concern to radiologists, medical physicists, government regulators, and the media at least in the developed countries. The amount of radiation dose a patient receives from a CT scan depends upon two key factors, the design of the scanner and also on the way that the scanner is used. This talk presents a current update on this issue of radiation burden on the population.

### Session-VIII Musculoskeletal Imaging and Radiation Protection T-16

#### Role of MSCT in Polytrauma

DR. A. K. BHATIA

*Apollo Hospital, Pune, India*

With the advent of multislice CT, the management of patients with multiple injuries has become easier and hospitalization time is also reduced. Rather than obtaining many plain film for supine chest, cervical spine, pelvis, and performing ultrasound, it is better to obtain whole body CT scan which takes less than 17 seconds with 64 slice CT. The MSCT has great role in diagnosis of thoracic injury to evaluate aorta, heart, peri-cardium, sternum, mediastinum, diaphragm and lungs. It has significant role in diagnosis of Splenic rupture, liver contusion, retroperitoneal injuries, site of active hemorrhage, renal vascular injury, injuries to urinary bladder and any subtle rib fractures. It gives quick excellent results for brain and facial bone injuries in form of 3D imaging. One must know that diagnosis of polytrauma is not sufficient. It

requires multidisciplinary approach by close coordination between trauma surgeon, ICU staff and radiologist. It must be emphasized that all polytrauma cases must be supervised and reported by Senior Radiologist to avoid any future Medico-legal problems.

### FREE PAPERS (F)

#### Session-II Women and Genitourinary Imaging F-01

##### Think Pink !

DR. KHWAJA BILAL

*Shoukat Khanam Memorial Cancer Hospital & RC, Lahore, Pakistan*

**OBJECTIVE:** To highlight the importance of a multidisciplinary approach towards management of patients having breast disorder in a single sitting.

**BACKGROUND:** Breast cancer is the most common malignancy in Pakistani women. Among Asian countries, Pakistan has highest rates of breast and ovarian cancers. The burden of disease is aggravated by limited number institutes dedicated for management of cancer patients. Our hospital is one of very few hospitals in Pakistan dedicated for catering such patients. The Radiology department is well reputed for providing services for both diagnosis and treatment of breast cancer patients, and in particular the deserving ones.

##### METHODS:

- Need for 'OSBC' (One Stop Breast Clinic)
- Clinic structure and timings
- Patients' registration
- Management protocol
- Clinical assessment and work up
- Imaging interpretation & biopsy results
- Final diagnosis / discussion
- Counselling and follow up
- MDC (Multi-disciplinary conference) breast
- Our experience and data

**RESULTS:** We have found OSBC a really effective way of applying multidisciplinary approach towards management of breast related problems. Its single day diagnostic work-up not only reduced patients' anxiety but also helps in early detection and management of breast cancer.

**CONCLUSION:** Early detection of breast cancer improves the prognosis of disease. A multidisciplinary approach is needed to combat breast cancer not only for its early detection but also for its management at an early stage.

#### Session-II Women and Genitourinary Imaging F-02

#### Neovascularity Patterns in Breast Carcinoma: Correlation of Doppler Ultrasound features with Sonographic Tumor Morphology

DR. RIFFAT SHAHEEN

DR. SABA SOHAIL

DR. KAUSAR JAHAN SIDDIQUI

*Department of Radiology*

*Dow University of Health Sciences and Civil Hospital, Karachi, Pakistan*

**PURPOSE:** To determine the association and correlation between morphologic features of breast cancer on gray scale ultrasound, and vascularity patterns and indices on color and spectral Doppler ultrasound.

**MATERIAL AND METHODS:** This cross-sectional, analytical study done in Department of Radiology, Dow University of Health Sciences and Civil Hospital Karachi from August 2006 to June 2007. Fifty adult female patients with histopathological proven breast cancer underwent ultrasound for evaluation of morphologic features on gray scale; vascularity patterns on color Doppler and flow indices measurement on spectral Doppler ultrasound. Regression analysis

was conducted to determine correlation between the variables and associations of vascularity patterns.

**RESULTS:** The 50 studied patients had predominantly solid tumor in 46 [92%] with depth to width ratio of  $>1$  in 37[76%]. The mean tumor size was 3.6 cm  $\pm$  1.34, with irregular margins in 41[82%], posterior shadowing in 43[86%] and calcifications in 27[54%]. Type 3 vascularity [multiple peripheral vessels] was the most frequent pattern [n=21, 42%] that showed a weak positive correlation with solid tumors [r=0.7, p<0.001]. Low resistance spectral waveform was seen in 44[88%] cases. The average size was 3.69 cm in vascular and 3.1cm in avascular tumors. Mean resistive index [RI] was 0.67. Mean pulsatility index [PI] was 1.1. RI was significantly high in cystic tumors [mean=0.8, p<0.001] and significantly low in tumors measuring less than 2cms [RI=0.18, p<0.001].

**CONCLUSION:** In this study, multiple peripheral vessels with low resistance flow was the pattern most significantly associated with all appearance of focal breast cancer. Apart from a weak positive correlation with solid tumors, markedly high RI in cystic tumors and markedly low RI in tumors less than 2 cms, there was no predictable gray scale ultrasound features to suggest possible Doppler vascularity patterns and flow.

### Session-II Women and Genitourinary Imaging F-03

#### Doppler Evaluation of Renal Transplant Patients and Role of Imaging in Timely Management of Relevant Complications

DR. HAMID MAJEED  
DR. RAFIA SHAHZAD  
DR. AMAILA RAMZAN

*Sharif Medical City hospital & SMDC, Lahore, Pakistan*

About forty thousand patients receive renal transplants every year worldwide. This study was carried out in our hospital a renal transplant centre, where on average more than 10 procedures carried out each month.

**STUDY:** Total 78 cases were investigated. Out of which 49 patients turned out to have complications ranging from manageable peri-nephric collection to irreversible acute rejection. Frequency of complications in order was as: peri-transplant fluid collections [28%], rejection of transplant [23%] and cyclosporine nephrotoxicity [11.8%]. Others were renal artery stenosis [9.5%], Acute Tubular Necrosis [8.34%], hydronephrosis [9%], vascular thrombosis [5.4%] and AVM [1.9%]. We determined resistive index [RI] and pulsatility index [PI] in the interlobar arteries and thrombosis of renal and lower limb veins. Serum creatinine [Cr] and cyclosporine levels were evaluated prior to sonographic assessment. The accuracy of Doppler USG for the detection of main renal transplant artery stenoses is excellent [Se 92%; SP 99%]. In these patients the mean serum Cr level [2.21  $\pm$  1.83 mg/dL] was significantly higher than among patients with patent renovascular tributary [1.49  $\pm$  1.00mg/dL; P=.03]. RI and PI were also significantly correlated with serum Cr [P=.05 and .001, respectively].

All peri-nephric collection were aspirated under USG guidance successfully. Obstructive causes and vascular complications were identified early and managed instantly.

**CONCLUSION:** Doppler imaging not only give valuable clues of pre & post-operative assessment and early diagnosis of complications but also extremely helpful in their timely management.

### Session-II Women and Genitourinary Imaging F-04

#### 75 Years Old and Time to go! Is Non-contrast CT replacing the traditional Intravenous Urogram

DR. FARHAN AHMED  
DR. NADIR KHAN  
DR. ABDUL ZAFAR MUEED  
DR. M HAMMAD ATHER\*  
*Department of Radiology*  
*\* Department of Surgery*  
*Aga Khan University Hospital, Karachi, Pakistan*

**INTRODUCTION:** Intravenous urogram [IVU] had been main imaging modality for diagnosing most upper urinary pathologies. Since the advent of computed tomography [CT] many papers have been published that have shown the improved diagnostic capabilities and better detection rates in various pathologies of the urinary system.

**OBJECTIVES:** To study the changing pattern in the imaging modalities from IVU to CT KUB evaluation of upper urinary tract at a single centre in a University hospital.

**MATERIALS AND METHODS:** We included all patients in the study who either had a CT KUB or an IVU examination from January 1, 2001 until December 31st, 2007. CT KUB protocol included non-enhanced acquisition of abdomen and pelvis from the D12 to symphysis pubis. Conventional IVU consists of acquisition of several images of urinary system at different times before and after intravenous contrast.

**RESULTS:** During the study period a total number of 5256 patients, [Male 3552, and Female 1704] had CT KUB examination. Within the same period 6368 [Male 4067, Female 2301] patients had IVU examinations. Mean age of patients with CT KUB examinations was 56 years and mean age of patients with IVU examinations was 52 years. There was a 118% decrease in the number of IVU from 1398 IVU examinations in 2001 to 640 IVU examinations in 2007. On the other hand there is a 330% increase in the number of CT KUB from 349 CT KUB procedures in 2001 to 1504 CTU examinations in 2007.

**CONCLUSION:** Single center experience has shown a decreasing trend of IVU and increase in the number of CT KUB. This is consistent with published international literature on the increasing use of CT KUB. However, IVU is still being ordered by some physicians.

### Session-II Women and Genitourinary Imaging F-05

#### Value of Breast Imaging in Women with Mastalgia

DR. IMRANA MASROOR  
DR. SHAISTA AFZAL  
DR. SAIMA SAKHAWAT  
DR. NADIR KHAN  
DR. MUHAMMAD AMAN  
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*Aga Khan University Hospital, Karachi, Pakistan*

**PURPOSE:** To evaluate the role of imaging in patients with diffuse / focal breast pain in breast who have negative physical examination of the breast.

**MATERIAL AND METHODS:** It was a descriptive study, conducted at Radiology Department of Aga Khan University Hospital from 2006 to 2007 for a period of 2 years. A total of 207 women were referred for mammography because of focal or diffuse breast pain, out of which complete follow up was available only in 55 patients. The outcome was follow up mammograms or ultrasound with negative findings or histopathology of suspicious area on imaging.

**RESULTS:** Out of 55 patient 31% had negative findings, benign findings in 62%, 4[7%] patients were subjected to mammographically guided breast

biopsy. The biopsy was done on the basis of abnormal findings on mammograms. All of the 4 patients had no evidence of cancer on subsequent histopathology.

**CONCLUSION:** Breast imaging in women who present with local or diffuse breast pain is of no significant value except, to reassure the patient as well as the clinician, biopsy of the suspicious area on imaging adds further to mental anxiety and cost to the patient.

### Session-II Women and Genitourinary Imaging F-06

#### Rare Fetal Anomalies: Prenatal Ultrasound and Aborted Fetal Correlation: Does it Help?

DR. MUHAMMAD UMAR AMIN  
*Combined Military Hospital, Attock, Pakistan*

Detection of rare fetal anomalies by prenatal ultrasound examination has been one of the great challenges since the investigation for fetal anomalies became part of the routine fetal examination. This study was carried out at Radiology and Imaging Departments of CMH Bahawalpur and Naval Hospital Islamabad by the Consultant Radiologists. This retrospective study compared the prenatal ultrasound [US] diagnosis with gross anatomical findings in 12 intact fetuses following induced abortion. Only rare fetal anomalies detected on prenatal ultrasound were included in the study. Common fetal anomalies were excluded from the study. All ultrasounds were performed with 3.5 MHz probe using TOSHIBA NEMIO ultrasound/color Doppler equipment. All these cases were followed up till therapeutic abortion/post natal stage. Based on the ultrasound report 12 cases were therapeutically aborted. We confirmed our diagnosis with features of aborted fetus. Only one case in which our diagnosis was duodenal atresia antenatally had full term survival. We performed plain x-ray and ultrasound abdomen of the new born in this case which changed our previous diagnosis. The US diagnosis was confirmed on pathological correlation in three cases of cystic hygroma at gestational age of 19, 13 and 18 weeks respectively, Meckel-Gruber syndrome, occipital encephalocele, polycystic kidneys, large abdominal cysts and thanatophoric dwarf in a case of twin pregnancy. The importance of detection of rare fetal anomalies and their follow up were highlighted in our study. Patients should be followed and features given on ultrasound should be confirmed on aborted fetus or further investigations post-natally if fetus manages a full term pregnancy. A significant improvement in the detection of rare congenital anomalies occurs and better understanding of rare fetal malformation is possible with correlation of antenatal ultrasound and gross features of aborted fetus.

### Session-III Neuro Imaging and Nuclear Medicine F-07

#### Outcome of Radio-iodine Therapy without, on, 3 Days Off or 6 Days Off Anti-thyroid Drugs in Patients with Hyperthyroidism.

DR. MASEEH-UZ-ZAMAN  
DR. KASHIF NIYAZ  
DR. NAUREEN NIZAR  
DR. JAVED IQBAL  
DR. SALMAN HABIB  
DR. NOSHEEN FATIMA  
DR. HINA HASHMI  
DR. ABID HAMEED  
*Karachi Institute of Radiotherapy and Nuclear Medicine,  
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**BACKGROUND:** Antithyroid drugs ameliorate hyperthyroidism but affect the outcome of simultaneous radioiodine therapy. We performed a clinical trial to clarify whether pre  $I^{131}$  ablation withdrawal or continuous use of antithyroid drugs during radioiodine therapy influences the final outcome of this therapy and to find out changes in thyroid hormonal levels pre and post  $I^{131}$  ablation.

**METHODS:** 70 patients with hyperthyroidism were rendered euthyroid by antithyroid drugs and randomized to stop antithyroid drugs 3 or 6 days before  $I^{131}$  [n=40] or to continue antithyroid drugs along  $I^{131}$  until development of euthyroidism or hypothyroidism [n=15] and [n=15] were not given antithyroid drugs. All patients with diffuse toxic goiter were given 10mCi and those with toxic nodular goiter were given 15 and 20 mCi of  $I^{131}$ . Serum TSH, FT4 and FT3 were measured 6 or 3 days before  $I^{131}$  therapy, on the day of treatment, and then at 3 wk, 6 wk and 3 months post  $I^{131}$  ablation. Primary end point was outcome 3 months after radioiodine therapy.

**RESULTS:** Overall success rate was 61.4% patients without antithyroid drugs showed significantly high success rate of 100% as compared to those with 3 days or 6 days off antithyroid drugs before  $I^{131}$  therapy or those who continued antithyroid drugs along with  $I^{131}$  therapy, with success rates of 60%, 50% and 40% respectively. There was no significant difference in success rates of radioiodine between these three groups at 3 months post ablation. Discontinuation of antithyroid drugs before  $I^{131}$  therapy causes significant rise in thyroid hormones before and after  $I^{131}$ .

### Session-III Neuro Imaging and Nuclear Medicine F-08

#### Role of Spect-CT in Evaluation of Solitary Vertebral Lesion in Patients with known Malignancy

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**AIMS AND OBJECTIVES:** The aim of study is to investigate the added value of SPECT-CT for the assessment of solitary focal area of increased tracer uptake over the vertebra on bone scan.

**INTRODUCTION:** In bone scintigraphy, the differentiation between degenerative processes and bone metastases is difficult when the lesion is solitary. Therefore, additional radiological studies are regularly needed for correlation. The now introduced hybrid gamma cameras combining single-photon emission computed tomography [SPECT] and CT are unique in the sense that they offer the opportunity to correlate the functional information with morphology in one session.

**METHODS:** 32 patients were analyzed with a solitary lesion in spine on  $^{99m}Tc$ MDP bone scan with known malignancy. There were 19 patients of Ca. breast, 11 cases of Ca. prostate, 1 patient with Ca. thyroid and 1 case of metastatic carcinoma with unknown primary. Hybrid SPECT-CT imaging of the vertebral lesion were performed in all patients using an Infinia Hawkeye-4 gamma camera.

**RESULTS:** The distribution of vertebral uptake on bone scan in 32 patients was: cervical [03], thoracic [10] and lumbar [19]. SPECT-CT revealed involvement of vertebral body and pedicles in 15 patients, indicating high probability of bone metastasis. 7 had equivocal SPECT-CT findings. 10 patients showed facet joint involvement on SPECT-CT, suggestive of degenerative changes rather than metastasis.

**CONCLUSIONS:** By anatomic localization hybrid SPECT-CT increases the degree of confidence for characterization of a single vertebral lesion.

### Session-III Neuro Imaging and Nuclear Medicine F-09

#### Quantitation of Left Ventricular Function determined by Gated Myocardial Perfusion Spect: Comparison with Echocardiography

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**INTRODUCTION:** The strongest predictor of long term survival with CAD is the functioning of left ventricle (LV). Ejection fraction (EF) is the most commonly used measure of the extent of LV dysfunction. Myocardial Perfusion Gated SPECT allows the simultaneous assessment of myocardial perfusion and left ventricular function for the determination of most beneficial management strategy for patients with CAD.

**OBJECTIVE:** To evaluate the role of Gated Myocardial Perfusion SPECT for the determination of left ventricular function and to compare it with Echocardiography.

**MATERIALS AND METHODS:** The study was carried out in 53 subjects (42 males and 11 females with mean age of  $52.45 \pm 10.80$  years) referred to NIMRA, Jamshoro during the period of January-June 2008 with the complaint of left sided chest pain. Baseline & Peak stress ECG and resting echocardiography was carried in all subjects. Myocardial Perfusion Gated SPECT was carried out in these subjects employing  $^{99m}\text{Tc}$ -Tetrofosmin as radiopharmaceutical and one day stress/rest protocol. The images were visually analyzed for left ventricular myocardial perfusion while LVEF, EDV & ESV were evaluated by employing GS Quant and 4DMSPECT computer software.

**RESULTS:** Myocardial Perfusion Gated SPECT revealed reversible myocardial perfusion defects in 13 (25%) subjects, fixed perfusion defects in 19 (36%) subjects, while 4 (7%) subjects revealed both fixed and reversible areas. 17 (32%) Subjects revealed normal myocardial perfusion. Mean LVEF estimated by Myocardial Perfusion Gated SPECT was  $51.85\% \pm 14.67\%$  and  $51.23\% \pm 17.98\%$  by Echocardiography. The results were in agreement ( $P < 0.05$ ).

**CONCLUSIONS:** Myocardial Perfusion Gated SPECT is a sensitive and reproducible technique for the determination of left ventricular function (LVEF) with comparable results to echocardiography. The technique can provide additional information regarding the left ventricular perfusion at the same time.

### Session-III Neuro Imaging and Nuclear Medicine F-10

#### Effect of Nifedipine (Dihydropyridine Calcium Channel Blocker) on $^{99m}\text{Tc}$ -DTPA Renogram Curve in Hypertensive and Normotensive Subjects

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Protective role of calcium channel blockers on renal function has been documented in humans by use of modalities other than renal scintigraphy. This study was conducted to evaluate the effect of nifedipine a dihydropyridine calcium channel blocker on  $^{99m}\text{Tc}$ -DTPA renogram curve.

**MATERIAL AND METHODS:** A total of 43 subjects, 20 normal and 23 hypertensives under went two  $^{99m}\text{Tc}$ -DTPA renal scan, with a three day interval in between in which they took oral nifedipine 10mg BD. All the subjects had normal renal function established by the routine lab investigations. Target ROI around the kidney and semilunar background ROI infrolateral to each kidney were drawn to generate renograms, which were used to calculate different renal

uptake and excretory function parameters of the kidneys. Paired student t-test was applied to check the statistical significance of the difference observed in the various calculated parameters, taking each kidney as an individual study organ.

**RESULTS:** Quantitative renal function parameters i.e. GFR, Peak height per mCi and uptake slope, improved significantly after use of nifedipine in both groups and more markedly in hypertensive group. GFR increased by 9.16% in hypertensive group and 6.14% in normal group [ $p < 0.05$ ]. Peak height/mCi increased by 6.55% in hypertensive group and 5.8% in normal group [ $p < 0.05$ ]. Parenchymal uptake slope increased by 12.6% in hypertensive group and 8.6% in normal group [ $p < 0.05$ ].  $T_{\text{max}}$  reduced by 10.6% in hypertensive group and 11.95% in normal group [ $p < 0.05$ ]. Statistically significant improvement in the renal excretory function parameters was observed only in hypertensive group.  $T_{1/2\text{max}}$  decreased by 13.4% ( $p < 0.05$ ), Parenchymal retention index 20/3 and 20/3 improved by 9.6% [ $p < 0.05$ ] 21.6% [ $p < 0.05$ ] respectively in hypertensive group. However no statistically significant change was observed in these parameters in normal group. Target to background ratio improved by 10.4% in hypertensive group and 11.5% in normal group [ $p < 0.05$ ].

**CONCLUSION:** Short term use of nifedipine even in small dose has significant impact on the different quantitative parameters derived from renal scintigraphic renogram curves. It improved all the quantitative renal uptake and excretory functional parameters in hypertensive subjects. In normal group, parameters related to uptake function demonstrate significant improvement and excretory functional parameters showed no significant change.

### Session - III Neuro Imaging and Nuclear Medicine F-11

#### MRI Findings of Pituitary Gland in Beta Thalassemia major Patients

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**PURPOSE:** This study was conducted in departments of Radiology and Genetics, The Children's Hospital and Institute of Child Health, in collaboration with Fatmid Thalassemia Foundation Lahore, from March 2005 to February 2006. The purpose of study was to evaluate the initiation of effective chelation and hormonal replacement therapy to prevent clinical manifestations of hypogonadism in beta thalassemia major patients.

**MATERIAL AND METHODS:** All patients were being treated with transfusion regimen that maintained the pre-transfusion hemoglobin level between 9.5 and 10.5 g/dl. They received iron chelation therapy with deferoxamine. Serum testosterone levels were measured in males. In female patients serum luteinizing hormone [LH] and serum follicle stimulating hormone [FSH] were measured. MRI studies were performed with 1.5 T Gyroscan NT- Phillips MR system. All examinations included an SE T1 weighted sequences and SE T2W-weighted sequences with coronal, sgittal and axial 3 mm thick sections through the pituitary gland.

**RESULTS:** This study confirms that excess iron deposition in the anterior lobe of pituitary gland results in variable degree of decrease in size and function of this gland leading to hypogonadotropic hypogonadism.

**CONCLUSION:** MRI is a non-invasive and clinically useful method to provide early diagnosis of iron overload in pituitary gland of beta thalassemia patients.



### Session-III Neuro Imaging and Nuclear Medicine F-12

#### Addition of Susceptibility Weighted Imaging in Magnetic Resonance Imaging (MRI)

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**INTRODUCTION:** SWI is a new T2 weighted Gradient Echo post-processing reconstruction technique that accentuates the paramagnetic properties of blood products and is very sensitive in the detection of intravascular venous deoxygenated blood as well as extravascular blood products.

**MATERIALS METHODS:** We retrospectively looked those MRI brain in the last two months who had SWI sequence performed in addition to other MRI sequences. If available we also compared them to CT brain studies of same patient.

**RESULTS:** There is an increase in the number of detection of microbleeds in our patient population. Patients who have hemorrhagic infarcts or HTN bleeds also show additional areas of bleed. The true extent of lesions such as AVMs and tumor mass can also be evaluated.

**CONCLUSION:** SWI have shown to increase detection of microbleeds. Addition of this sequence in patient with trauma and other disease process such as axonal injury, amyloid angiopathy may be very helpful. SWI should be done in all patients as diagnoses of underlying hemorrhagic foci may change diagnosis or treatment.

### Session - V Head and Neck Imaging F-13

#### Role of Ultrasound B - scan in Ocular Trauma

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**INTRODUCTION:** Examination of the intra ocular contents by ophthalmoscope is dependent upon transparent light conducting media. After trauma, the media are frequently opacified by hemorrhage, laceration; scarring or cataract etc, in this situation, direct visualization of the ocular contents by ophthalmoscope is usually difficult or impossible. But now ultrasound has revolutionized the management of ocular trauma. Ultrasound B-Scan (Brightness modulation) exceptionally gives detailed bi dimensional images of cornea, angle of anterior chamber, aqueous chamber, lens and vitreous etc.

**OBJECTIVE:** Objective of our study was to describe bi-dimensional gray scale features of traumatized eye on ultrasound B-scan.

**STUDY DESIGN:** Descriptive, purposive convenience sampling.

**DURATION OF STUDY:** This study was done at Radiology department at Ziauddin Medical University Hospital. From 02.03.2007 till 02.09.2007.

**METHOD & MATERIAL:** 40 patients including both sexes and different ages were scanned with B-mode Ultrasound; those were meeting our inclusion criteria. Through the lid contact, in supine position, using linear probe of 10MHz, transverse and longitudinal imaging and angulations of the transducer achieved complete visualization of ocular content.

**RESULTS:** Ultrasound B-Scan demonstrate 23 vitreous hemorrhage, 15 post traumatic cataract, nine retinal detachment, five dislocated lenses, three choroidal detachment, three intraocular foreign bodies, three partial retinal detachment

and one posterior vitreous detachment. Findings of ultrasound and surgery or clinical follow up were in complete concurrence in 37 cases (93%) while ultrasound B-Scan findings were incorrect in three cases only (7%).

**CONCLUSION:** So, Ultrasound B-Scan is a sensitive, non invasive and rapid way of assessing intraocular damage caused by blunt or penetrating eye injuries. These images provide essential and detailed information about soft tissue damage, helping in decision regarding early surgery, before chronic changes have occurred.

### Session - V Head and Neck Imaging F-14

#### Evaluation of Mandibular Erosion by Oral Cancers by Spiral CT with Histopathological Correlation

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**INTRODUCTION:** Carcinoma of oral cavity is very common malignancy in Pakistan due to different social habits like chewing beetel nuts, paan (beetle leaves) and naswar etc.

After establishing the diagnosis by clinical examination and tumor biopsy, Imaging is performed in order to assess tumor extent and infiltration and to plan surgical treatment.

In Pakistan CT scan is widely used for this purpose because of its wider availability, rapid acquisition time, better patient tolerance and superior bony details. CT based detection of mandibular erosion renders it necessary for the surgeon to perform partial or total mandibulectomy, thus significantly affecting the surgical treatment.

In this study we performed preoperative evaluation of mandibular erosion by oral cancers with spiral computed tomography and correlated radiological findings with postoperative histopathology.

**OBJECTIVES:** To assess diagnostic accuracy of spiral computed tomography in detecting mandibular erosion in cases of oral cancers.

**STUDY DESIGN:** Cross-sectional comparative study.

**SETTING:** Study was conducted at Department of Radiology, Liaquat National Hospital, Karachi.

**DURATION OF STUDY:** From 1st February 2007 till 30th June 2008.

**SUBJECTS AND METHODS:** A group of 50 patients with recent diagnosis of oral cavity cancer fixed to the mandible, were included in this study. All these patients underwent spiral CT with and without intravenous contrast administration. Surgery was subsequently done in all cases and surgical specimens were sent for detailed pathologic analysis. The radiological findings on the CT scans were compared with the pathological findings. Out of these 40 patients 32 patients were male and 18 female. The age ranged from 26 to 65 years.

**RESULTS:** The results proved that spiral CT had 91% sensitivity and 84% specificity for detection of mandibular invasion.

**CONCLUSION:** This study proves that spiral CT has a significant and pivotal role in preoperative evaluation and subsequent management of oral cancers.

### Session-V Head and Neck Imaging F-15

#### Emergency Ultrasound Interpretations by Residents during On-call Hours at AKUH, Radiology Department

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**BACKGROUND:** Radiology residents play an important role in supplementing radiology coverage, especially after normal hours of operation. Radiology residents provide consultative services for all patients after hours therefore assessing the impact of their interpretations of ultrasounds is important.

**OBJECTIVE:** The purpose of the study was to determine the concordance between the findings on ultrasonography performed during the on-call hours by senior residents and the diagnosis reflected at discharge in patients referred through Emergency Department.

**MATERIALS AND METHODS:** 100 patients irrespective of age, referred through ER, during on call hours for an ultrasound, when the resident on call is responsible for all ultrasound Examinations.

Patients with prior imaging were excluded from the study. Ultrasonographic examinations included all body regions. Scan interpretations made by Year III and IV residents were recorded.

Diagnoses were compared against the final diagnosis at discharge either from ER or the respective wards in case the patient was hospitalized, by a survey of the medical records.

**RESULTS:** overall concordance was found to be 91.8%.

**CONCLUSION:** Ultrasounds performed during the on-call hours by the senior residents are reliable and significant.

### Session-V Head and Neck Imaging F-16

#### Endovascular Intracranial Aneurysm Coil Embolization: Technique, Complication and Outcome

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**INTRODUCTION:** The incidence of intracranial aneurysms in the general population has been estimated to be 10 to 15 per 100,000 and autopsy prevalence is 0.2% to 7.9%. The peak age for rupture is 40 to 70 years. Approximately 50% of cases subarachnoid hemorrhage is due to rupture of an aneurysm of one of the major cerebral arteries or their branches at the circle of Willis. Clinically patients presents with severe headache radiating occipital region. On CT scan aneurysm presented with subarachnoid hemorrhage, ischemia and mass effect. Intracranial aneurysm is formed as a result of weakness in the media and elastica of arterial wall. About 80% of intracranial aneurysms are located in anterior circulation and about 20% are located in posterior circulation. More than 10% patients die before reaching hospital, 10% die from progressive deterioration from initial hemorrhage, over all 50% patients die within first month and only one third patients get well or have good results after treatment. Aneurysm of less than 5mm rarely bleed, whereas that of 6 to 10mm in a diameter often present with bleed.

Intracranial aneurysms are either treated surgically [clipping or wrapping or coating] or by endovascular coiling.

**PURPOSE:** To evaluate the technical success, complications and outcome of endovascular brain aneurysm coiling.

**PATIENTS AND METHODS:** This retrospective case series was carried out in Aga Khan university Hospital from April 2003 to April 2008. Total 35 patients were included in this study, 18 males and 17 females with age range were 20 to 77 years. Mean age was 52 years. We included all patients who referred in our department for coiling of intracranial aneurysm after all diagnostic investigations. We haven't included those patients who had history of allergy to water soluble contrast media, uncontrolled coagulopathy Standard four vessels cerebral angiogram was performed in those patients who do not have optimal angiography; selective preliminary cerebral angiography was performed in rest of the patients. We assessed location, size, orientation, neck diameter, shape of intracranial aneurysm. All procedures were performed via femoral arterial puncture. Guiding catheter was placed main artery and micro-catheter was used for coil deployment Detached-able coils were used for embolization. Dense packing of aneurysm was the end point for procedure. For patient outcome we used Modified Rankin Score.

All data was collected from patients file and from radiology reports and it was filled in proforma and used SPSS 10 for statistical analysis.

**RESULTS:** Technically success rate for endovascular intracranial aneurysm coiling was 94% [33/35 patients). Six percent failure rate due to anatomically difficult catheterization of aneurysm or supplying artery. All 33 patients had dense packing in aneurysm with coils.

Out of 25 patients five patients had major complications. Out of these five two patients had infarct and three patients had ruptured aneurysm during coiling but all recovered completely. According to Modified Rankin Score; out of 35 patients 21 had score 0-1 [Good], six patients had score 2 [Good], two patients had score 4 [Dependency] and six patients had no Data available. No mortality was seen in any patient.

**CONCLUSION:** The initial experience of coiling showed high technical success and reasonably good outcome.

### Session - VI Body Imaging F-17

#### Assessment of Liver Damage Following Transarterial Chemoembolization

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**PURPOSE:** To evaluate the value of volumetric CT in the assessment of liver damage following transarterial chemoembolization [TACE] for hepatocellular carcinoma with Child's score.

**MATERIAL AND METHODS:** From January to December 2007 TACE was performed in 34 pts [22 males; 12 females], mean age of 59 years [range from 46 to 76]. Tumor volume was less than 30% of total liver volume in all patients. Base line liver function was evaluated with Child's Pugh Scoring system. All pts underwent biphasic CT prior to chemoembolization while follow up triphasic CT scan and liver function evaluation was done after 6 weeks. Pre and post TACE liver volume of non tumorous parenchyma was calculated through volumetric technique using inking method [Phillips EBW].

**RESULTS:** The volume of non tumorous liver parenchyma was reduced in 31 out of 34 patients, from a mean of 1265cc to 1156cc post TACE. There was no significant change in Child's score when non tumorous liver volume reduced up to 20 %. Significant reduction (i.e. 28%) of normal liver parenchyma was related with increase in Child's score from A to C in 2 patients. The degree of lipiodol uptake by tumor was not significantly associated with reduction in non tumorous liver volume. In remaining 3 patients, volume of non tumorous liver remains stable, without significant change in Child's score. Good lipiodol uptake [ $> 70\%$ ] seen in tumors [mean tumor volume  $< 15\%$ ] in all 3 patients.

**CONCLUSION:** More than 20% reduction in normal liver volume may be a good indicator of non tumorous liver damage and correlates with change in Child's score.

#### Session-IV Body Imaging F-18

##### CT Virtual Colonoscopy

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CT Virtual Colonoscopy is a medical imaging procedure which uses x-rays and computers to produce two- and three-dimensional images of the colon [large intestine] from the lowest part, the rectum, all the way to the lower end of the small intestine using only air as contrast medium and display them on a screen. The procedure is used to diagnose colon and bowel disease like polyps, diverticulosis and cancer. It also provides 3D reconstructed endoluminal views of the bowel. It holds significant promise for effective large-scale colorectal cancer screening. Although many radiologists continue to use the 2D images for polyp detection, more emphasis on the 3D images for primary detection of polyps has yielded the best results for screening detection. The primary target lesion for colorectal screening is the adenomatous polyp, since detection and removal of all larger or advanced lesions could potentially prevent approximately 95% or more of all colon cancers. A total of 12 cases were evaluated for our study and the patients presented with varying complaints ranging from abdominal pain to bloody diarrhea. The patients age range was from 30-70 years. 7 cases turned out to be normal. One case showed synchronous Ca Colon which was confirmed peroperatively and on histopathology, two cases were of diverticulosis one of which was associated with polyp, one case showed inflammatory mass at the ileocecal region and one case was of pararectal abscess. In addition of colonic disease CT Virtual Colonoscopy also helps to detect some incidental findings like simple bone cyst and hiatus hernia which were detected in our study.

**CONCLUSION:** CT Virtual Colonoscopy is an effective modality as a screening tool for evaluation of colorectal cancer as well as diagnosis of diverticulosis and polyps.

#### Session-IV Body Imaging F-19

##### Sonographically Determined Clues to the Symptomatic or Silent Cholelithiasis

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**OBJECTIVE:** To determine an association between sonographically determined contractility with the symptomatic or silent nature of gallstone.

**DESIGNING:** Comparative, cross-sectional study.

**PLACE AND DURATION OF STUDY:** Radiology Department, Dow University of Health Sciences [DUHS] and Civil Hospital, Karachi [CHK], from April 2004 to March 2005.

**PATIENTS AND METHODS:** Adult gallstone patients without [group I] and with biliary symptoms [group II] were compared with age and gender-matched controls. Demographic data, body mass index, risk factors, size, number and mobility of gallstone, gallbladder wall thickness [GB WI], volume and Ejection Fraction [EF] were determined on ultrasound before and after a standardized fatty meal [BFM and AFM]. Demographic data, risk factors and gallstone

characteristics were analyzed by Pearson Chi-square test and the gallbladder characteristics were analyzed by One-way ANOVA and Post Hoc tests by multiple comparisons on SPSS 11 with significance  $p=0.05$ .

**RESULTS:** The gallbladder contractility as measured by changes in wall thickness and volume changes BFM and AFM, and ejection fraction was similar in controls and asymptomatic cholelithiasis groups and significantly reduced in symptomatic patients [ $p < 0.001$ ]. Multiparity [ $p=0.002$ ], female gender [ $p=0.018$ ], age less than 50 years [0.05], impacted calculi [ $p=0.001$ ], multiple calculi [ $<0.001$ ] end calculi 5mm [ $p < 0.001$ ] were associated with pain.

**CONCLUSION:** A sluggishly emptying gallbladder was more significantly associated with symptomatic cholelithiasis compared to controls and asymptomatic cholelithiasis state in this series. Consideration of age, gender, impaction of calculi, number and size of calculi is important in causing symptom state and management options.

#### Session - VI Body Imaging F-20

##### Percutaneous Cholecystostomy (PC) in Management of Acute Cholecystitis in High Risk Patients. Experience at Tertiary Care Hospital

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**OBJECTIVE:** To review the experience of percutaneous cholecystostomy at a tertiary care hospital.

**METHOD:** Medical record of patients who underwent PC was retrospectively reviewed. The patients demographic data, comorbid, Ultrasound findings of biliary tree. Indication for Percutaneous Cholecystostomy, its route complication during or after procedure (upto 48 hours) and patients clinical outcome [up to 30 days] was noted. Data analyzed and results compiled using SPSS.

**RESULTS:** A total of 63 patients underwent PC during the study period. 22 patients were excluded as their follow up was unavailable, 41 patients with complete medical record and follow up were finally included in the study. There were 15[37%] male and 26[63%] females. Mean age was 64 years [range 16-88 years]. The main indication for PC was calculus cholecystitis in 25[61%], acalculous cholecystitis in 10[24%]. Other indications were empyema and GB perforation in 6[15%].

No complication was seen during or after procedure in 31[75%] patients. Complications occurred in 10[25%] patients: these included Vagal reaction and pain during procedure, Tube blockage, Catheter dislodgement and bile leakage. 34[83%] patients responded to the procedure with improvement of symptoms. The clinical condition was unchanged in 2 patients. The 30 day mortality rate was 12 % [5 patients], the deaths were due to underlying disease and unrelated to the procedure.

**CONCLUSION:** Percutaneous Cholecystostomy is a useful and safe alternative method to treat non resolving acute cholecystitis in circumstances where emergency surgery is hazardous. In addition it offers effective palliation in patients not suitable for surgery.

## Session-VI Body Imaging F-21

### Diagnostic Value of Ultrasonography in the Evaluation of Blunt Abdominal Trauma

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Abdominal trauma maybe a life-threatening entity that requires immediate action by all physicians involved. The initial survey of a patient who has sustained blunt abdominal trauma requires quick and comprehensive evaluation of the patient's situation. The mortality of patients with blunt abdominal trauma was significantly reduced by the introduction of Screening Focused abdominal assessment in trauma (FAST).

**PURPOSE:** To evaluate the diagnostic value of ultrasonography (US) in detecting intraabdominal injuries in patients with blunt abdominal trauma.

**MATERIALS AND METHODS:** Data of 415 patients who underwent FAST US examination from 1 OCT, 2007 to 14 JUNE 2008 were retrieved. 134 patients were excluded who do not have history of blunt abdominal trauma. A total of 281 patients were included with history of blunt abdominal trauma. Out of which 260 were reported to be FAST negative and therefore not undergone confirmatory CT. Ultrasonography results were compared with findings of CT in 21 patients who have undergone both examinations. Sensitivity, specificity, positive, negative predictive values and accuracy of FAST US in detecting free fluid were calculated.

**RESULTS:** True-positive, True Negative, False positive and False negative cases were 15, 4, 1 and 1, respectively. Sensitivity, specificity, positive Predictive value, negative predictive value and accuracy of US in detecting free intraabdominal fluid were 93.0%, 80.0%, 93.0%, 80.0% and 90.0%, respectively.

**CONCLUSION:** Ultrasonography has high diagnostic performance in the screening of patients with blunt abdominal trauma. Abdominal US is a useful and valuable diagnostic tool after clinical evaluation in patients with blunt abdominal trauma.

## Session-VI Body Imaging F-22

### Association of Computerized Tomographic Scan and Serum Alpha Fetoprotein for the Evaluation of Transarterial Chemoembolization

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**OBJECTIVE:** The objective of this study is to determine the association of Triphasic Computerized Tomography scans findings with serum alpha fetoprotein level in predicting the therapeutic response of Transcatheter Arterial Chemoembolization in patients of unresectable hepatocellular carcinoms.

**STUDY DESIGN:** Cross-sectional

**PLACE AND DURATION OF STUDY:** Radiology department of AKUH, from May 2006 to March 2003.

**METHOD:** Forty eight patients of unresectable HCC, regardless of age and sex who had undergone TACE will be included in the study according to the inclusion criteria. Patients were referred by gastroenterologist, oncologists or surgeons with a diagnosis of unresectable HCC. These patients already had CT scan and AFP levels before TACE. Follow up CT scan and AFP levels were done in six weeks after TACE. The data were analyzed on SPSS 16. Pearson chi-square test was used to assess the association between CT scan AFP to see the response after TACE. Statistical significance will be taken at p, 0.05.

**RESULTS:** CT scan had shown good response in six patients and poor response

in 42 patients on the basis of tumor enhancement pattern, lipiodal uptake and necrosis. The changes in the serum AFP levels, as assessed by the percentage reduction in the baseline values 6 weeks after initial treatment were noted. 20 patients had shown good response with decrease in AFP level more than 20%. 28 patients have shown less than 20% decrease in AFP level. The statistical analysis showed chi-square value of 10.338 with p-value of 0.002 between CT and AFP to see the response for TACE. Therefore we have sufficient evidence to conclude that there is no association between CT and AFP for TACE at 90% level of confidence.

**CONCLUSION:** AFP alone could not be used to assess the therapeutic response of TACE. Triphasic CT scan is necessary in evaluating the response and assessing the need of further therapy. CT scan also helps in identifying the new lesions which can not be possible with AFP level alone.

## Session - VI Body Imaging F-23

### CT in Blunt Abdominal Trauma. Introducing CT to the Denying Surgeon

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**OBJECTIVE:** Introducing Abdominal CT in blunt abdominal trauma in emergency set up.

**METHOD:** 25 consecutive patients with abdominal trauma blunt presenting in emergency of Allied Hospital were offered CT by the Radiology department. Previously CT was not being advised by the surgeons in abdominal trauma patients. All the patients had undergone ultrasound examination before the CT. Spiral CT without oral contrast and only IV contrast was done from dome of diaphragm till the pubic symphysis. 7mm axial slices.

**RESULTS:** Out of 25 patients 15 had surgical opinion of exploratory laprotomy, decision was reversed in 5 patients after CT scan. 10 patients though to be managed conservatively were scanned and decision in 3 had to be reversed after CT scan.

**CONCLUSION:** Introducing Trauma CT to the surgeons is a necessity for patient betterment and it is the job of the Radiology community to offer Abdominal CT more in emergency setups.

## Session - VI Body Imaging F-24

### Role of Graded Compression Ultrasonography in the Diagnosis of Acute Appendicitis in Padiatrics.

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DR. AMIR RAHIM  
DR. MAQBOOL ABID  
DR. MAHFOOZ-UR-REHMAN  
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**OBJECTIVE:** To evaluate the usefulness of Graded Compression ultrasonography in establishing the diagnosis of Acute Appendicitis in children with ambiguous clinical findings.

**SETTING:** Pediatrics Radiology Department Mayo& Children Hospital Lahore. Non consecutive Prospective & cross sectional study from September 2006 to March 2008.

**MATERIAL AND METHODS:** 30 patients of age ranges between 5-13 years of both sexes having equivocal clinical picture of acute appendicitis were

included in this study. Renal time Trans abdominal ultrasonography was performed with high 5&7 MHZ multi frequency convex & linear probes, graded compression technique employed from umbilicus to right lower quadrant to establish the diagnosis of acute appendicitis in clinically suspected children or other possible alternate diagnosis.

**RESULT:** 12 patients having characteristic Ultrasonic features of acute appendicitis were compared with surgical findings confirmed the diagnosis as gold standard. 3 had false positive with caecal wall thickening, 5 patients were with inflamed appendix diameter>7mm, fluid/pus filled distended edematous appendix with diameter> 10 mm were 3, 3 patients had appendicular abscess/mass, 2 had pelvic abscesses secondary to perforated appendix without signs of inflammation & managed conservatively with unremarkable follow up. The overall sensitivity is 80% and specificity 91% in our study.

**CONCLUSION:** Trans abdominal Ultrasonography with graded compression technique is a non invasive, cost effective, portable & very useful first line simple imaging modality in establishing the diagnosis or excluding the appendicitis. Early diagnosis and prompt surgical operative intervention reduces both mortality & morbidity in pediatrics since morbidity increases after the appendix perforation & in delayed diagnosis.

### Session-VII Chest and CVS Imaging F-25

#### Endovascular Treatment of Vascular Injuries : Results of Local Experience at AKUH

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**OBJECTIVE:** To evaluate retrospectively the results, complications and follow-up of patients after endovascular treatment of vascular injuries.

**METHODS:** Fifty transcatheter embolisation procedures [TCE] were performed in 46 patients between 1999 and 2008. Injuries in 14 patients were due to road traffic accident: in 13 patients iatrogenic in 6 patients accidental. Firearms, bomb blast and earthquake contributed to injuries in 8,4 and 1 patients respectively. All patients underwent angiography and had evidence of active hemorrhage, pseudo aneurysm, abnormal vascularity or arteriovenous fistula. Follow up ranged from 1 day to 6 years with mean of 10.5 months. Medical record files, lab results, imaging reports were utilized for this purpose. Procedure was declared as technically successful when there was cessation of extravasation, occlusion of fistula or exclusion of pseudo aneurysm in the post embolisation angiograms. Treatment was deemed clinically successful if there was resolution of the indication for which procedure was done.

**RESULTS:** Transcatheter embolisation was technically successful in occluding vascular lesions in all 46 patients [100%]. Lesions recurred in 4 patients who underwent initially successful TCE. These patients were treated effectively with repeated TCE. 43 patients survived to be discharged from the hospital. Three patients died during the same hospital stay and 3 patients died after being discharged from the hospital. All these patients were treated successfully with TCE and had factors other than TCE contributing to their mortality.

**CONCLUSION:** The retrospective review of data revealed satisfactory results with low morbidity and mortality rate in patients treated with transcatheter embolisation for vascular injuries.

### Session - VII Chest & CVS Imaging F-26

#### Computed Tomography rather than Positron Emission Tomography in the Diagnosis of Malignancy in Solitary Pulmonary Lesions

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**INTRODUCTION:** Computed tomography (CT) is an important tool in the noninvasive evaluation of pulmonary lesions. We have studied the diagnostic efficiency and accuracy statistics of CT based assessment of malignancy in solitary pulmonary lesions [SPL] conducted in our department. Also with the expected availability of positron emission tomography [PET] in Pakistan we consider it necessary to review whether this new modality offers any substantial advantage over CT in the timely and accurate diagnosis of the most frequently reported malignancy in men in Pakistan i.e. lung cancer.

**MATERIALS AND METHODS:** 52 patients; 42 males and 10 females with solitary pulmonary lesions seen on CT scan were included in the study. Ages ranged between 23 and 83 years with mean age of 63 years. These lesions were assessed as benign or malignant based upon certain established CT criteria. All patients underwent CT guided biopsy and correlation of CT based diagnosis with histopathology was performed. The data was analyzed for accuracy, sensitivity, specificity, the negative and positive predictive values.

**RESULTS:** In our series CT was found to have a sensitivity of 97.7%, specificity of 30%, positive and negative predictive values of 91% and 75% respectively and accuracy of 85% in the diagnosis of malignancy in solitary pulmonary lesions. False positive assessments especially in cases of solitary tubercular lesions have considerably reduced the specificity. On reviewing recent literature PET has shown variable sensitivity in diagnosis of lung malignancy [69 - 96.8%]. The reported specificity is generally significantly higher than CT [75-85%]. On closer scrutiny of the PET results we find that <sup>18</sup>F-FDG uptake values in tubercular and other inflammatory lesions are often similar to those seen in the malignant lesions.

**CONCLUSION:** CT based assessment of lung malignancy is truly sensitive and shows high positive predictive value. PET requires further evaluation in our native scenario to prove its superiority.

### Session - VII Chest and CVS Imaging F-27

#### Multidetector Row CT Angiography: Initial Experience at a Single Center

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CT angiography has been a valuable addition for the diagnostic evaluation of vascular diseases and anatomy. The advent of Multidetector row technology has further improved the diagnostic accuracy of this technique which has widely replaced the use of catheter angiographies for diagnostic purposes. The technology however is in a growing stage in our country and hardly any study or data can be found describing local experience.

We present our experience of using this technique on 16 detector row CT. We have performed 19 cases during four months, using the technique for various purposes for different body regions. The cases include 7 peripheral angiographies,

2 carotid, 2 cerebral, and 2 for arch of aorta. A total of 6 cases of abdominal angiographies were done including 2 for renal and 4 for mesenteric/cealic vessels.

According to our limited experience the MDCT angiography is a highly effective technique for diagnosing a variety of vascular disorders and to accurately define vascular anatomy and its variants.

### Session-VIII Musculoskeletal Imaging and Radiation Protection F-29

#### Film Reject Analysis Pre and Post Computed Radiography & PACS

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Every facility, regardless of its size, should account for each x-ray film it uses. A program to analyze film use [sometimes called a Repeat or Reject Analysis Program] provides a framework to manage film use, monitor equipment performance, and measure the effectiveness of the facility's quality assurance program. Analyzing all aspects of film use and rejection is important for a facility because it may identify specific problem areas.

The improved image quality reduces the number of repeated radiographs which reduce the cost in terms of money and time as well as saves patients from unnecessary radiations. Subsequently, this improves the rate of flow of patients through the department. One benefit of QC is that, along with improved image quality, increased consistency of the procedures is also realized which ultimately increase the reliability efficiency, and cost effectiveness of the equipment used by the department in producing those images. The quality of the radiographs themselves improved and standardization of the radiographic results is also achieved and maintained. While increased overall departmental efficiency in itself is considered to be a major advantage along with betterment of personnel morale resulting from such improvements.

The objective of this talk is to present the audit carried out at Radiology AKUH ,internationally the acceptable rejection rate quoted is 10% or less, where as initially the calculated rejection rate at our department was 12%, which was brought down to 5-7% after the careful study and implementation of several measures, staff education and training and improved practices, which thus resulted in facilitating with health care professionals the development and maintenance of an optimum level of practice in Radiology services in the department. And after incorporation of CR, which is the first step towards ultimate aim of PACS, the film rejection rate has further brought down to [2-3]%

### Session-VIII Musculoskeletal Imaging and Radiation Protection F-30

#### Using Google Desktop to Create a RIS Search Engine

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**BACKGROUND:** One of the limitations of current radiology information systems [RIS] and picture archiving and communication systems [PACS] is the inability to easily search through the content of textual reports. In contrast, search capabilities on the Internet and in most documents are increasingly robust. We report on the development of a live RIS search engine using free or open source tools to bring Web-centric search capabilities to the patient-centric medical imaging domain.

**METHOD:** We used an open source HL7 listener and parser [www.mirthproject.org] as middleware to convert the HL7 stream to HTML files. Using

scripting language, HTML files were stored and a function to launch the PACS viewer was created. Google desktop was used to index HTML documents and provide a Web interface to search through the report repository.

**EVALUATION:** Our resulting implementation provides a robust, fast, and easy way to perform simple text-based report queries. Radiologists have found the search engine extremely useful in providing on-demand access to historical information. Although the search engine is proficient in facilitating radiologist workflow, a few limitations were identified, such as inability to perform search around a particular concept, inability to correct for spelling errors in queries, lack of image preview or independent imageviewer, and potential limit on hard-disk space for storage. Implementation of searches using Google desktop and MIRTH requires minimal technical knowledge and can be implemented easily.

**CONCLUSION:** A Web-based report query system can provide an important tool with which radiologists and clinicians can retrieve desired information in a familiar Web interface. Such tools can be created to search through any HL7-based report repository system.

### Session - VIII Musculoskeletal Imaging and Radiation Protection

#### F-31

#### Is Greulich Pyle Atlas applicable to Pakistani population?

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**PURPOSE:** Skeletal age [SA] assessment plays a pivotal role in clinical and medicolegal decisions. Greulich Pyle atlas is mostly employed for this purpose owing to convenient and time-saving application. Skeletal growth and maturity tends to vary across socio-economic status and ethnic background. We assessed the applicability of GP atlas for accurate SA assessment in Pakistani children.

**MATERIALS & METHODS:**A retrospective cross-sectional study was conducted at Age Khan University Hospital, Karachi, Pakistan. Hand-Wrist radiographs obtained from January 2005 to March 2008 for an indication of trauma, in subjects with chronological age [CA] up to 216 months, were reviewed independently by two radiologists blinded to CA. Subjects ever investigated for metabolic, nutritional or growth disorder[s] were excluded. SA was assessed according to GP atlas. CA was determined from hospital records. One hundred random radiographs were assessed by both observers to establish inter-observer reliability.

Males and females were divided into four subgroups according to CA [in months]; Early Childhood [males 0-45, females 0-46], Middle Childhood [males 46-90, females 47-100], Late Childhood [males & females 101-159] and Adolescence [males & females 160-216]. For each subgroup, mean difference [SA minus CA] was calculated and significance was established by two-tailed, paired t-test at  $\alpha < 0.05$ .

**RESULTS:** Hand-Wrist radiographs of 889 subjects [535 males, 354 females] were included in the final analysis. Inter-observer correlation coefficient [r] was 0.992. Mean difference [SEM] in months between SA and CA for males was: Early Childhood 2.37 [0.73], Middle Childhood -13.78 [2.09], Late Childhood -6.58 [2.33], Adolescence 3.43 [2.04]. For females, mean difference [SEM] was: Early Childhood 2.54[0.61], Middle Childhood -6.13 [2.20], Late Childhood 7.96 [3.68], Adolescence 10.03 [3.37]. The difference was significant [p<0.05] in all groups except male adolescents [p=0.10]

**CONCLUSION:** Our findings in a sample of Pakistani children suggest against the applicability of GP atlas to this population. We propose a cautious approach in employing GP atlas for SA assessment in Pakistan.

### Session-VIII Musculoskeletal Imaging and Radiation Protection F-32

#### Probability of Radiation induced injury to patients and Radiation workers in Radiology and Nuclear Medicine

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**INTRODUCTION:** The ionizing electromagnetic radiation when interact with tissue can cause radiation injury. Radiation effects may be deterministic or stochastic. Stochastic effects are important for low radiation areas like the Radiology and Nuclear Medicine departments in a hospital. The purpose of this study is to evaluate the chances of radiation injury to working personnel in Radiology department and Nuclear Medicine of The Aga Khan University Hospital and to their patients.

**METHODOLOGY:** The radiation dose received by the staff has been measured using TLDs. The working staff consists of nuclear physicians, radiologists, medical physicist, NM technologist, radiographers and nurses.

The radiation doses to staff during last three years from 2005-2007, radiation dosimetry of the x-ray units and the radiation survey of the x-ray rooms during the diagnostic procedures are included in the study.

**RESULT:** The average exposures [in mSv/year] to nuclear physicians was 2.70, for radiologists and radiographers it is in the range 0.00-2.00, for the medical physicist it is 2.00, for NM technologists it is in the range 0.50 to 4.50 and for nurses 0.30 to 3.0 mSv/year. The recommended dose limit for radiation worker is 20 mSv/year.

Radiation dosimetry and surveys found in agreement with the reference doses to patients during different Radiological and Nuclear Medicine procedures.

**DISCUSSION:** Data clearly shows that though the exposure to the NM technicians is slightly more than the other radiation workers but the radiation exposure to all personnel working in Radiology and Nuclear Medicine in AKUH is well below the limits recommended by the national and international radiation protection bodies. However, this could only be achieved if radiation protection measures are practiced regularly.

**CONCLUSION:** We conclude that radiation exposure in a busy Radiology and the NM department is quite below than the recommended dose limits and the chance of the radiation injury is unlikely. Every measure should be taken to minimize the delivery of radiation to the working personnel in accordance with the ALARA principle.

### Session-VIII Musculoskeletal Imaging and Radiation Protection F-33

#### Rare and Atypical Radiological patterns of Skeletal Tuberculosis

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**PURPOSE:** The purpose of this study is to collect and present atypical and rare radiological patterns of skeletal tuberculosis which act as a diagnostic challenge to a clinical radiologist.

**MATERIAL AND METHODS:** All cases of classic and typical skeletal tuberculosis diagnosed on the basis of both clinical and basic plain radiographic findings including cases of typical tuberculous arthritis and classic caries spine were excluded from the study. Only those bizarre and rare cases of skeletal tuberculosis which were both not suspected on clinical grounds and on initial plain Radiographic work up were included in the study.

**RESULTS:** Many Atypical cases of skeletal tuberculosis including Brodies abscess, peripheral multiosseous skeletal tuberculosis, avascular necrosis hip

leading to limb shortening, pre sacral abscess and atypical patterns of caries spine presenting as an abdominal mass were finally diagnosed as rare cases of skeletal tuberculosis either on highly specified radiological investigations or ultimate tissue diagnosis.

**CONCLUSION:** Skeletal tuberculosis in our society is quite common and may sometimes give a very bizarre and atypical clinical and radiological appearance presenting as a diagnostic challenge to clinical Radiologist. So, a very high index of suspicious of musculo-skeletal tuberculosis coupled with application of highly specialized radiological modalities is warranted in definitive diagnosis of certain specific, rare and atypical entities of Skeletal tuberculosis.

### Session - VIII Musculoskeletal Imaging and Radiation Protection

#### F-34

#### Diagnostic Yield of CT guided Per cutaneous Bone Biopsy: An initial experience

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**PURPOSE:** To evaluate the diagnostic yield of computed tomography [CT]-guided percutaneous biopsy procedures [Fine needle aspiration/Trucut core Biopsy] in cases of suspected bone malignancy on the basis of histopathology analysis.

**INTRODUCTION:** Imaging- guided biopsy of bony lesions is a safe procedure, with development of major complications being rare. Reported accuracy ranges from 68% to 97% CT is currently the modality of choice for guiding biopsy of bony lesions. CT more precisely shows the needle position and is potentially safer as there is less likelihood of injury to adjacent structures, such as, major vessels and nerve roots.

**MATERIALS AND METHODS:** Retrospective study was carried out to evaluate 40 consecutive percutaneous CT-guided bone biopsy procedures [Fine needle aspiration / Trucut core Biopsy] done at AKUH Radiology department in one year period from Feb 2007 to Feb 2008, to find out the diagnostic yield which was calculated on the basis of histopathology. In addition, sizes of the used needles and the procedure technique was also correlated with the results. 18 gauge needle was found to be used in 26 patient and 16 gauge needle in 10 patient along with it 15, 20,22 and 23 gauge needles were used in one patient each. Coaxial technique was used in 12 patients.

**RESULTS:** Study population was 40 patients. 28 patient underwent core biopsy among which 21 [75%] were conclusive on histopathology. 12 patient underwent FNAC among which 3 [33%] were found to be conclusive. On combining the results of both procedures, than 24 [60%] out of 40 biopsies are conclusive and out of 24 conclusive biopsies 17 [71%] were reported as malignant lesion and rest of 7 [29%] as non malignant. Total 16 [40%] biopsy samples were labeled as inadequate by histopathologist. Co-axial technique was used in 12 patient out of which 10[83%] were found to be conclusive. 18 gauge needle was used in 26 patients conclusive results were found in 14 [54%] patients and 16 gauge needle was used in 10 patient among which 8[80%] samples were conclusive. Among the other used needles which includes 15, 20, 22 and 23G needles, the only adequate and conclusive sample was with 20G needle.

**CONCLUSION:** Percutaneous CT-guided biopsy of bone lesions is a viable alternative to open surgical biopsy. According to our experience at AKU, chances of getting conclusive bone biopsy results are more when Trucut core biopsy carried out with coaxial technique and using 16 gauge needle.

**PAPERS IN RESERVE (RES-T)****REST-T-01****Diffusion Weighted MRI Imaging in Oncology**

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The introduction of magnetic resonance imaging for the use of detection of disease processes and pathologies within the human body brought a new dimension to the understanding and detection of pathologies. One of the novel techniques used in MRI is diffusion weighted imaging. The use of this technique was introduced at least two decades ago within the intracranial sites. This was used to diagnose infarction, ischemia, tumor and many other disease processes within the brain. Its use was limited within the cranium due to technical reasons. With the development of new MRI sequences coupled with hardware advances i.e. parallel imaging, a higher gradient, better computing and faster sequences especially echo planar imaging, the use of diffusion weighted sequences is now a possibility and is taking its place as a routine sequence within the abdomen and other extracranial sites. It is fast, does not require IV contrast and qualitative and quantitative data for interpretation.

Due to the ability to diagnose and identify molecular motion of water resulting in different patterns of edema and behavior of tissue on the basis of cellular versus non-cellular, necrotic versus cystic etc. the use of diffusion weighted sequences is becoming more and more practical to identify, diagnose, characterize and also to evaluate the post treatment response of the tissue by this technique. The talk will focus on the understanding of the basic principles of diffusion weighted sequences from the point of view of understanding the interpretation and its established and possible future roles in the evaluation of tumor and related issues. This is by no means comprehensive talk, as this is an evolving subject and still large lacunae are present in the understanding of the diffusion weighted sequences and in its applications. An attempt will be made to give the Fundamentals of diffusion weighted sequences with reference to oncological imaging.

**RES-T-02****MDCT of Acute Abdomen: Bowel Related Etiologies**

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With recent technological developments, the role of computed tomography [CT] has gained more importance than ever for the acute abdomen. State-of-the-art multidetector row CT [MDCT] technology has revolutionized abdominal imaging. With widespread use of 64-detector scanners, rapid acquisition of scan data has become routine and has added significantly to CT diagnosis and evaluation of acute abdominal conditions. CT now plays a primary role in the evaluation of the abdomen particularly for bowel because of the availability of high-quality multiplanar reformations.

CT has proved to be extremely sensitive, specific and fast for the diagnosis of various abdominal conditions. It is recommended when clinical findings remain indeterminate. With the use of sagittal and coronal reformations accuracy to pathologies in relation to bowel, diaphragm and mesentery has increased. CT should be performed with intravenous injection of contrast material. "CT enterocolitis" might improve sensitivity and specificity in depicting small bowel tumors or inflammatory changes such as in Crohn's disease

CT is reported to have a sensitivity of 78% - 100% for the detection of small bowel abnormality. New multiplanar reformatted imaging may help identify the site, level, and cause of abnormality especially in bowel such as obstruction. CT can demonstrate changes in ischemic bowel segments accurately, is often helpful in determining the primary cause of ischemia, and can demonstrate important coexistent findings or complications. CT can also demonstrate findings that indicate the presence of acute inflammatory conditions, bowel obstruction, perforation, intussusceptions, tumors, metastatic disease and internal hernias. Many of these necessitate urgent surgical care.

MDCT is a very versatile and valuable tool in the evaluation of patients with

acute abdominal conditions. It allows appropriate and timely diagnosis of acute abdomen which leads to better patient care especially in emergencies.

**REST-03****Digital Mammography: Implementation and Interpretation:**

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Breast cancer is one of the most common cancers among women in Pakistan. Early diagnosis plays a critical role in reducing mortality and prognosis of the disease. The gravity of invasive breast cancer increases with the size and extent of invasion at first diagnosis. Therefore, proper diagnosis is very crucial for the treatment. High-quality mammography images are essential for this purpose.

Recent advances in digital detector technology have made it possible to perform full-field digital mammography. The performance of these systems has evolved to the point where replacement of screen-film mammography systems is becoming practical. The mammographic process in digital systems involves exposure of the breast to x-rays of mammographic energies (kilovolt peak) followed by the transmission and scattering of x-rays through breast tissue. The attenuated x-ray photons that pass through the grid interact with the image receptor and are finally absorbed as a latent image on the recording devices. After processing, the recorded images are then displayed for diagnosis and later archived.

With screen film system, the entire process is captured, displayed, and archived with a single medium, which is film. The widespread popularity of the screen film system is due to its many inherent advantages, including high spatial resolution [up to 20 line pairs per millimeter]. Despite this and other advantages, there are a number of inherent limitations with Screen film Systems [SFM].

Digital mammography has the potential to overcome the limitations of SFM and has the potential to improve early breast cancer detection and characterization. The advances in digital detectors offer improved detection due to the improved efficiency of absorption of incident x-ray photons. Also, with digital mammography, the processes of image acquisition, displaying, and archiving are decoupled, unlike in screen film mammography thereby providing an opportunity to independently optimize each process.

**POSTERS (P)****P-01****Multiple Bilateral Head and Neck Glomus Tumors: A Rare Finding**

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Glomus tumors are rare, benign neoplasms arising from paraganglionic tissue. Paragangliomas comprise 0.6% of all neoplasms in the head and neck. Multiple paragangliomas arise in at least 10% to 50% of cases. The coexistence of carotid body and other glomus tumors ipsilaterally seems to be quite a rare phenomenon. A careful preoperative evaluation of the extent of the tumor, including its relationship to neurovascular structures and the possibility of synchronous glomus tumors, is important for planning the appropriate surgical procedure. We present a case of a male patient presented to us with history of enlarging right neck mass. He was otherwise asymptomatic apart from a complaint of



decreased hearing from the right ear. His previous imaging had been performed on an MRI that showed bilateral glomus tumors. We performed a CT to assess the relation with vascular structures and its supply. On CT the patient was found to have right sided glomus tympanicum vagale as well as carotid body tumor giving appearance of a single mass. Contra-lateral carotid body tumor was also found

#### P-02

##### Multidetector CT Evaluation of Congenital Heart Disease in Pediatric Patients

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**INTRODUCTION:** Echocardiography is the initial diagnostic modality for a patient with suspected congenital heart disease. In some patients, however, use of this modality is encumbered by its limited ability to delineate great arteries and intracardiac anomalies, pulmonary veins, and coronary arteries. Diagnostic cardiac catheterization, which has a small but well-known risk, is usually performed if echocardiography fails to provide a confident evaluation of the lesion. In overcoming these limitations CT has an important role and has been used in the morphologic evaluation of CHD.

**OBJECTIVE:** To see the diagnostic yield of MDCT as an adjuvant tool with echocardiography to diagnose CHD with surgical findings as gold standard.

**MATERIAL AND METHODS:** The study enrolled 7 consecutive patients (median age, 4.7 years; median weight, 16.5 kg) with congenital heart disease who underwent 64 slice MDCT angiography during the period June 2007 through August 2008. A team of Radiologists evaluated the MDCT images and decided if further diagnostic cardiac catheterization was necessary. The accuracy of MDCT in detecting separate cardiovascular anomalies and bolus geometry of contrast enhancement were calculated.

**RESULTS:** A total 7 patients with CHD were included in the study and evaluated with MDCT, out of which 5 had undergone surgery. In those 5 patients, the sensitivity of MDCT in diagnosing cardiovascular anomalies was 100% in association with echocardiography as seen with surgical findings.

**CONCLUSION:** Multidetector technology provides important information with high accuracy and specificity for anatomic details of congenital heart disease for the referring cardiologist. One of the most important benefits of these modalities is the possibility of anatomic evaluation of different anatomic structures [i.e. heart, great vessels, lungs and abdomen] and also assess pulmonary artery size and morphology in one acquisition.

#### P-03

##### Situs Inversus Association with Complex Venous Anatomy: A Rare Association

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We present a case of a 14 years old male referred to us with history of lower backache, mild dysuria and supra-pubic pain for one year, not associated with fever, frequency or hesitancy. This patient had a history of known congenital cardiac anomalies. There were no other co-morbidities. Relevant clinical examination was relatively unyielding except the cardiovascular system. Previous history regarding medical treatment or any surgical intervention was unremarkable. His previous ultrasound abdomen had revealed Situs Inversus. The CT scan imaging was performed on 16 detector row MDCT that revealed situs inversus

along with ectopic right kidney. Renal pelvis of both moieties showed sudden tapering due to pelvi-ureteric junction narrowing. Vascular anatomy on CT revealed double IVC crossing anterior to the Aorta and joining IVC above the level of renal hilum. The association of these findings with situs inversus is very rare.

#### P-04

##### Pelvic Endometriosis Presenting as Acute Abdomen: Case Report

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**INTRODUCTION:** Endometriosis, a common disorder involving growth of functional endometrial tissue outside the uterine cavity, it is commonly a progressive disease affecting women in their reproductive period.

**CASE REPORT:** A young female unmarried presented in emergency on 28th Nov 2007 with severe abdominal pain since morning, fever for 3 days and 3-4 episodes of vomiting since morning. On examination patient was pale and tachycardic. On abdominal examination, there was generalized tenderness with tense abdomen. Ultrasound showed bilateral tubo ovarian masses, tubes were showing internal debris suggestive of pyohemosalpinx. The dilatation was more pronounced on the left side. Ovaries were visualized but it was difficult to identify their margins clearly. Right ovary was measuring 4.6x3.7cm. Bowel loops were slightly prominent in the pelvis. Possibility of adhesion could not be ruled out. Uterus appeared normal.

MSI pelvis was done and it showed elongated structures in both adnexa. These were high on T1 weighted images and non enhancing on post contrast images, fluid level are also identified on T2 weighted images. Appearances were most likely suggestive of hydrosalpinx. Mild ascites was also present. Exploratory laprotomy done, showed bilateral tubo ovarian multiloculated masses, swollen tubes on both sides. Bilateral ovarian cystectomy was also performed. Sample was sent for histopathology. Patient remained stable in her post operative course. Histopathology report showed endometriotic ovarian cysts.

**DISCUSSION:** The accuracy of diagnosis of endometriosis from clinical perspective is low. Although the disorder is associated with clinical triad of dysmenorrhoea, dyspreunia, and infertility in about 40% of patients, symptoms correlate poorly with extent of disease. Laparoscopic visualization of implants is the accepted means by which a diagnosis of endometriosis is made.

Dilated fallopian tubes can be recognized on MR imaging and they usually have folded configuration. Longitudinal structures adjacent to the tubal wall represent incompletely effaced mucosal folds and sub mucosal folds. High signal intensity in dilated tubes on T1 weighted images correlates with the presence of pelvic endometriosis and may be the only MR imaging findings that indicate endometriosis.

#### P-05

##### Detection of Hepatoma by Ultrasound in Patients with Chronic Liver Disease

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Patients with chronic liver disease (CLD) are at increased risk for developing Hepatoma. Ultrasound is most commonly used easily available imaging modality

for screening CLD patients for early detection of tumor because it's reliable, cost effective and non invasive.

**OBJECTIVES:** The primary objectives of the study was to calculate sensitivity, specificity and accuracy of ultrasound for hepatoma detection in CLD patients in our population and comparison with published literature as well as to see agreement b/w CT and U/S for detecting hepatoma.

**METHODS:** Data was collected from CLD patients who referred to our department with clinical suspicion of hepatoma for sonographic evaluation during the audit period.

**RESULTS:** Total of 159 patients were studied in which both U/S and CT was performed. U/S identified hepatoma in 45 patients out of 75 patients positive in CT. The sensitivity of U/S is 60%, specificity is 92% and accuracy is 77% for identifying hepatoma in CLD patients. The reported sensitivity of US in the detection of Hepatoma in literature is from 35% to 84%. The Kappa statistics b/w CT and U/S is 0.54 representing good agreement for picking hepatocellular carcinoma in the background of chronic liver disease.

**CONCLUSION:** We have sufficient evidence to conclude that our sonographic practice for diagnosing hepatoma in CLD patients is up to the international standards.

## P-06

### Incidental Findings in Non-Contrast Multi Detector Computed Tomography of Kidneys, Ureters and Bladder (CT KUB)

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**INTRODUCTION:** CT KUB is becoming the imaging of choice for patients with ureteric colic and suspected urolithiasis. Besides being highly sensitive and specific for urolithiasis and obstruction it also allows to exclude diseases with other causes of flank pain and some incidental diseases. Previous studies have shown approximately 12 % incidental findings with noncontrast CT. Multi detector 64 slice CT scanner may further increase the number of incidental findings. This study is performed to evaluate the incidental findings using 64 slice MDCT scanners.

**MATERIALS AND METHODS:** MDCT KUB reports were retrospectively reviewed from June 1, 2007 to December 1, 2007. A total of 832 MDCT KUB examinations were performed in radiology department of Aga Khan University. A total of 543 male [age range 1-77 years] and 289 female [age range 14-80 years] had this procedure during the 6 months. All incidental findings were further confirmed or excluded by evaluation of medical records, laboratory findings and other imaging modalities used for the patient.

**RESULTS:** A total of 114 [14%] incidental findings were reported in 832 examinations. Besides ureteric colic, other renal/urinary findings were excluded from the study. 61 [53.5%] of incidental findings were confirmed by per-operative findings, histopathology, laboratory examinations and medical records.

**CONCLUSION:** MDCT KUB is an excellent imaging modality in patients with ureteric colic and other urinary symptoms. Non contrast MDCT has the significant capability in identifying incidental findings in these patients. The number of incidental findings in our study is 14%.

## P-07

### Case Report of Gastric Schwannoma

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**INTRODUCTION:** Gastrointestinal mesenchymal tumors are a group of tumors originated from the mesenchymal stem cells of the gastrointestinal tract, consisting of gastrointestinal stromal tumors (GIST), leiomyomas or leiomyosarcomas. and schwannomas

**CASE HISTORY:** A 45-year-old man was referred to our hospital with a recent history of a small amount of hematemesis. Outside our hospital he also get ultrasound done which revealed a gastric mass later on he develop hematemesis and black stools. An endoscopic (outside AKU) study revealed an elevated lesion measure 5 cm X 4.5 cm covered with normal mucosa in the body of the stomach. Arterial phase contrast enhanced computed tomography (CT) revealed an round and homogenous low-density mass in the body of stomach. The histopathologic and immunohistochemical features were consistent with a benign gastric schwannoma.

**DISCUSSION:** Gastric schwannoma is a very rare gastrointestinal mesenchymal tumor, which represents only 0.2% of all gastric tumors and 4% of all benign gastric neoplasms. When gastrointestinal schwannoma occurs, the most common site is the stomach. It is the most common peripheral nerve-sheath tumor and usually solitary. Gastric schwannomas arise from the nerve sheath of Auerbach plexus or, less commonly, Meissner plexus. They are slowly-growing encapsulated tumors composed of Schwann cells in a collagenous matrix. Gastric schwannomas occur more frequently in the fifth to sixth decade of life and commonly in female patients. They are often asymptomatic and can be discovered incidentally at laparotomy or radiographically.

**CONCLUSION:** In conclusion, we report a case of gastric schwannoma. Evaluation of it's computed tomography appearance, tumor's size, layer of origin, and enhancement pattern may contribute to the diagnosis of this entity.

## P-08

### A Case of Intracranial Hypotension Secondary to Spinal CSF Leak

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**INTRODUCTION:** Intracranial hypotension may have variable clinical presentations, but has a rather uniform component of postural headache among its symptomatology.

**CASE REPORT:** 38 year male, known case of Marfan syndrome with a history of Aortic root dissection and TIA 6 months back, now presented with headache for 15 days and one episode of Generalized Tonic clonic seizure. Headache was mild and increased on standing and bending forward. One episode of vomiting. Also had an episode of generalized body stiffening and jerking but no frothing or incontinence. Patient was afebrile and vitally stable. Cranial nerves were intact, motor and sensory system was normal. MRI done showed dural ectasia in the lumbosacral region. Accumulation of fluid noted in the posterior paraspinal region especially on right side. Possibility of dural tear

with CSF leakage with intracranial hypotension was raised. Dural tear repair was successfully performed with blood Patch. Patient headache was improved significantly after that and he was later discharged.

**CONCLUSION:** Spinal MR imaging has been successfully used to reveal the location of CSF leaks. Unlike RC and CT myelography, MR imaging of the spine can yield positive results even if the CSF leakage is not active and can demonstrate CSF accumulation.

#### P-09

##### Portal Venous Gas Secondary to Pneumococcal Pneumonia Detected on Ultrasound but not by 64-Slice CT Scan

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**INTRODUCTION:** Portal venous gas is commonly associated with mesenteric ischemia but may be caused by non ischemic conditions and remain idiopathic in 15% of cases. It can be detected by plain radiography and CT scan but ultrasonography have shown to be more sensitive in detection of portal venous gas.

We report a case of portal venous gas detected on ultrasonography but not by 64-slice CT scan. The cause of portal venous gas was probably secondary to pneumococcal pneumonia.

**CASE:** A 18-year old man presented with fever and rigors, pain in right hypochondrium and vomiting for 1 day. On examination he was febrile with temp 39°C, liver palpable with tenderness in right hypochondrium. Labs showed W.B.C. of 21,000, deranged coagulation with INR. of 1.69.

His chest X-ray showed consolidation in right lower lobe. Ultrasound abdomen revealed air in portal venous channels and mild hepatomegaly without obvious cause for portal venous gas. Enhanced CT abdomen did not show the portal venous air. Repeat ultrasound again showed air in portal channels. Blood culture report showed growth of *Streptococcus pneumoniae*. He was managed with antibiotics. On follow-up his symptoms significantly subsided.

**DISCUSSION:** Portal venous gas is commonly associated with mesenteric ischemia but may result from non ischemic causes. Clinical outcome is usually determined by the underlying disease process and non ischemic causes has good prognosis. Ultrasonography is more sensitive than computed tomography in detection of portal vein gas as described in literature and supported by our case in which cause of PVG was secondary to pneumococcal pneumonia. To the best of our knowledge it has never been reported in the literature.

#### P-10

##### Abdominal Cocoon: Case Report

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Abdominal cocoon or sclerosing encapsulating peritonitis is a rare condition characterized by a thick grayish-white fibrotic membrane encasing the small bowel. Clinically patients present with features of acute, sub-acute or chronic features of bowel obstruction and usually a palpable, fluctuant, soft non-tender mass in the abdomen. A pre-operative diagnosis is difficult and most cases are diagnosed incidentally at laparotomy.

We present a case of a young girl with repeated episodes of lower abdominal pain and decreased appetite for the past one year. X-ray and ultrasound showed bowel obstruction in this patient. CT revealed obstructed bowel and a differential possibility of internal hernia was raised. Upon surgery it was discovered that

the bowel loops were encased in a membrane. Histopathologic specimen of the membrane also confirmed the findings as seen in cocoon.

Patient presented subsequently with a subacute intestinal obstruction due to post surgical adhesions whereby adhenolysis was done. Follow up visits showed considerable recovery and improvement in the patient's clinical condition.

#### P-11

##### Retroperitoneal Bleeding from Renal Angiomyolipoma

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**INTRODUCTION:** Tuberous sclerosis [TS] is a genetic multi-system disease commonly presenting with seizures, mental retardation, behavior problems, and skin abnormalities

**CASE SUMMARY:** A 38-year old female with history of Tuberous Sclerosis [TS] and right nephrectomy due to bleeding angiomyolipoma [AML] presented with left flank pain and hypotension. Computed tomography [CT] revealed a large retroperitoneal hematoma and evidence of a new area of increased density consistent with hemorrhage. Aortography revealed tortuosity and small aneurysms arising from the left renal artery. Selective upper pole arteriography demonstrated an enlarged arterial feeder and slow extravasation which was embolized using polyvinyl alcohol [PVA] to preserve her single kidney.

**CONCLUSION:** Tuberous sclerosis [TS] is a genetic disease. AMLs associated with TS are more often multiple, are larger, and bleed more often than sporadic AMLs. 82 % of AMLs larger than 4 cm become symptomatic. As in our patient, symptomatic tumors  $\geq 4$  cm should be considered for treatment by transcatheter arterial embolization [TAE] particularly when one kidney is remaining.

#### P-12

##### Biliary Ascariasis with Pseudocyst

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Ascariasis is a common parasitic infestation in humans. It is endemic in the Indian subcontinent. Normally ascaris worms inhabit the intestinal lumen but they may migrate into bile duct and can cause serious complications. In these circumstances radiological imaging can play a vital role in the diagnosis of disease, the distribution of worms and complications due to worm infestation. We present a 58 year old female who presented with pseudocyst associated with pancreatitis caused by ascariasis in biliary channels which was diagnosed by ultrasound. Computed tomography can play a major role in complications associated with biliary ascariasis.

**P-13****Adrenoleukodystrophy**

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**INTRODUCTION:** Adrenoleukodystrophy [X-ALD] is a serious progressive, genetic disorder, which affects the adrenal glands and the white matter of the nervous system.

**CASE REPORT:** My patient is a 7 year old boy who presented with decrease concentration for 1 year, low IQ level resulting in demotion to Grade-i jerky movements of left limbs, change of speech and started to laugh when alone. Family history is positive for the psychiatric illness in two paternal uncles. EEG showed focal seizure disorder in the right occipital region. MRI done on May 2007 showed marked prolongation of T1 and T2 relaxation time seen in the periventricular occipital deep white matter with peripheral enhancement and atrophy of splenium of corpus callosum. Involvement of corticospinal tract and brainstem is also observed, the appearance consistent with Adrenal Leukodystrophy. Specific biochemical work-up was not done. The parents were counseled and the child was prescribed dietary therapy of low fat diet and Lorenzo's oil. The disease is slowly progressing on clinical follow-up.

**DISCUSSION / CONCLUSION:** Five MR imaging patterns are recognized. Pattern 1 was defined as primary involvement of the deep white matter in the parieto-occipital lobes and of the splenium of the corpus callosum. Pattern 2 was defined as involvement of the frontal lobe or genu of the corpus callosum. Pattern 3 was defined as primary involvement of the frontopontine or corticospinal projection fibers. Pattern 4 was defined as primary cerebellar white matter involvement. Pattern 5 was defined as combined involvement of the parieto-occipital and frontal white matter.

**P-14****Comparison of Computed Tomography of Kidneys, Ureters and Bladder with Intravenous Urethrogram**

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**INTRODUCTION:** Computed tomography Pyelogram is becoming the leading modality in the detection of urinary tract calculi and obstructive uropathy and related complications. The goals of this study, is to compare the findings in CT KUB and IVP which were performed in same patient.

**MATERIAL AND METHODS:** In a retrospective review of 5256 CT KUB [3552 male and 1704 female] and 6368 IVP [4067 male and 2201 female] procedures from 2001 to 2007, only those patients were selected who had a CT KUB and IVP procedure within 4 weeks of each other. The findings were first collected in proforma and then entered into epidata and SPSS for further evaluation. The number of calculi, hydronephrosis, hydroureter, cysts and wall thickening were looked at in both CT and IVP. Additionally perinephric stranding in CT and delayed excretion in IVP was also entered in data.

**RESULTS:** 139 patients [87 males and 52 females] had both CT KUB and IVP procedure within 4 weeks with 73.4% [n=102] patients having positive findings in CT KUB and 51.1% [n=71] in IVP. Of the 193 total findings, in CT KUB the number of calculi, mass, hydronephrosis, hydroureter, cysts, wall

thickening and perinephric stranding were seen in 80[41.5%], 1[0.5%], 43[22.3%], 34[17.6%], 1[0.5%], 4[2.1%], 7[3.6%] patients respectively in CT KUB.

In IVP the number of calculi, hydronephrosis, hydroureter, cysts, wall thickening and delayed excretion were seen in 46 [36.5%], 31[24.6%], 18 [14.3%], 1[0.8%], 1[0.8%] and 5[4.0%]. Additionally incidental findings were also noted in CT [n=23/139] in comparison to IVP [2/139].

**CONCLUSION:** CT KUB has demonstrated more number of calculi and related obstruction than IVP. Increase in number of incidental findings also makes CT more useful. One major advantage of IVP is the evaluation of delayed excretion which cannot be evaluated by CT KUB.

**P-15****Comparison of CT and Ultrasound findings in Abdominal Tuberculosis**

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**INTRODUCTION:** Abdominal TB is very common in third world countries with poor socioeconomic status like Pakistan. Majority of patients end up in intestinal obstruction and other complications and finally undergo surgery. Abdominal tuberculosis may be, enteric, peritoneal, nodal and solid visceral TB or in any combination of these four varieties. In some cases, response to therapeutic trials of anti-tuberculous drugs is the basis of diagnosis that may cause a delay in the diagnosis of other diseases which mimic abdominal tuberculosis. Therefore, diagnosis of abdominal tuberculosis is an ongoing challenge to the physicians, especially with limited resources. Ultrasound and CT are good diagnostic helping tools in diagnosis of abdominal tuberculosis.

**OBJECTIVES:** To compare the diagnostic accuracy of Computerized Tomographic and Ultrasonographic findings in Abdominal Tuberculosis considering Hsitolpathology as gold standard.

**STUDY DESIGN:** Comparative cross sectional.

**SETTING:** Department of Diagnostic Radiology, Mayo Hospital Lahore.

**DURATION OF STUDY:** Twelve months after the approval of synopsis, from June 2007 to May 2008.

**SUBJECTS AND METHODS:** 50 patients with clinically suspected abdominal tuberculosis who were candidate for elective surgery were selected, history, examination and relative investigation were recorded and analyzed with SPSS version 10.

**RESULTS:** CT is a better modality in finding ileocecal involvement, omentum involvement and para-aortic lymphadenopathy than USG and USG is slightly better in finding mesenteric lymphadenopathy than CT in abdominal tuberculosis.

**CONCLUSION:** Although none is 100% accurate but there is difference in diagnostic accuracy of computerized tomographic and ultrasonographic findings in abdominal tuberculosis.

**P-16****Case Report: Mullerian Adenosarcoma**

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**INTRODUCTION:** A 58-year-old woman was post-menopausal for 5-6years. para 7. She presented with spotting per vaginum for 2 days. She was a known case of hypertension, diabetes mellitus and hypothyroidism. There was no history of breast cancer or tamoxifen therapy.

**CASE SUMMARY:** 58 Years old lady with history of post menopausal bleeding off and on, ultrasound pelvis revealed enlarged uterus 138x84x78mm with expanded endometrial cavity due to heterogenous solid cum cystic mass 90x60mm. MRI pelvis showed enlarged uterus with heterogenous intensity of the endometrium, multiple hyper and hypo intense areas. No significant contrast enhancement and no myometrial invasion. Cervix, vagina and ovaries normal. Underwent Hysterectomy and Bilateral Salpingoophorectomy. High grade neoplastic lesion on Histopathology Adenosarcoma of the Endometrium with sarcomatous overgrowth. CT scan chest revealed no metastatic deposits.

**CONCLUSION:** Adenosarcomas are biphasic tumors with benign glandular elements and malignant stroma. Available data suggest that correct diagnosis of Mullerian Adenosarcoma with sarcomatous overgrowth is important because prognosis in these cases is worse than in adenocarcinomas without sarcomatous overgrowth. Ultrasonography and MRI are useful tools for identifying the morphological characteristics of the tumor.

**P-17****A Clinical Trial on Cleaning Methods for Ultrasound Probes to Reduce Nosocomial Infection**

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**OBJECTIVE:** To determine the effectiveness of three different methods of Ultrasound probe cleaning for the prevention of nosocomial infections.

**STUDY DESIGN:** Randomized clinical trial, experimental

**PLACE AND DURATION OF STUDY:** Radiology department of Aga Khan University Hospital Karachi & Microbiology department JPMC Karachi Pakistan from December 2006 to April 2007.

**METHODS:** A total of 75 culture swabs from ultrasound probes used for sonographic examinations of different body parts of patients were included (N=75). Probes were prospectively randomized into three equal groups with 25 probes in each group. Culture was sent before and after using three different techniques of cleaning ultrasound probe which included sterilized paper towel, 0.9% saline and swipe over with standard bath soap applied on group A [n=25], group B [n=25] and group C [n=25] respectively. Number of colony forming unit [CFU] of bacteria were calculated on standard agar plate to find out the effectiveness of cleaning methods in reducing bacterial count from the ultrasound probe after the procedures. All samples were tested in single microbiology lab by using same bacterial growth media provided by same manufacturer. Kruskal Wallis, Jonckheere-Terpstra and Wilcoxon sign rank tests were applied to find out statistical significance.

**RESULTS:** There was a significant reduction in bacterial count after applying either of all three cleaning methods for ultrasound probe as compared to bacterial count on the probes before cleaning [P-value<0.001], however soap cleaning method was the most effective in decreasing bacterial count to the minimum level in comparison to other two methods [P-value<0.001]. The overall reduction in pathogenic bacterial count after performing each cleaning method was 45%, 76% and 98% for paper cleaning, normal saline and soap cleaning method respectively.

**CONCLUSION:** Cleaning ultrasound probe after performing each procedure is a cost effective and easily implemental practice with great potential of reducing nosocomial infections. Soap cleaning technique is the most effective method for reducing bacterial count that acquires due to patients' body contact with the ultrasound probes.

**P-18****Causes of Film Retakes in Digital Radiography**

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**OBJECTIVE:** To determine the causes of film retake in digital radiography.

**STUDY DESIGN:** Cross-sectional

**PLACE AND DURATION OF STUDY:** Radiology department, from June 2008 to August 2008.

**METHODS:** X-rays of different body parts during the study period were conducted with digital radiography [n=32950] were included in this study. Measurements were done for number of X-rays retake due to different quality control reasons in digital radiography. Quality control reasons included underexposure, over exposure, positioning errors, patient movements, portable X-rays, grid cut off, and others [i.e. equipment related] due to which X-ray quality was questionable.

**RESULTS:** A total of 300 X-rays [1%] repeated in digital radiography [n=32950] due to underexposure [4%], Over-exposure [1%], positioning errors [54%], patient movement [37%], artifacts (3%), and others [1%]

**CONCLUSION:** Digital radiography is associated with significantly lesser number of retake X-rays however positioning error was the most common reason in digital radiography emphasizing training need for technologist.

**P-19****Rapunzel Syndrome: A Case Report**

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**INTRODUCTION:** Bezoars are collections of indigestible material in the gastrointestinal tract. Trichobezoars occurs due to ingestion of hair and are associated with trichotillomania. Rapunzel syndrome is a very rare complication

of trichobezoar formation in which the mass of hair extends through the pylorus into the small bowel and can even reach the colon.

**CASE REPORT:** We present the case of a 5½ -year-old girl presented with 15 days history of loose motions & vomiting for 2 weeks. Barium studies were performed, which showed multiple intraluminal filling defects extending from the duodenum to the ileum.

On the basis of radiological findings, laprotomy was done, which showed a large trichobezoar extending from the stomach to 50 cm proximal to ileocecal junction.

**CONCLUSION:** Thichobezoars commonly present in young females usually with intestinal obstruction and may present a diagnostic dilemma.

## P-20

### Placental Chorioangioma: Case Report

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**INTRODUCTION:** Chorioangioma, originally described by Clarke in 1798, is the most common tumor of the placenta, with reported prevalence of approximately 0.5%-1.0%. Most chorioangiomas are small and are found incidentally at screening obstetric US examinations.

**CASE REPORT:** A 30 yrs old pregnant female married for one year presented in obstetric clinic with complains of decreased fetal movements for 15 days. Patient was electively admitted for further work up. Ultrasound done in AKU on 8th Jan 2008 showed absent fetal heart and body movements. The Spaulding sign was positive as well as the, skin was thickened. Placenta anteriorly placed and showed hypoechoic mass. It was measuring 11.7x7.5 cm in size. No flow seen on doppler imaging. Possibility of chorioangioma/hemangioma of placenta was raised. MRI done in AKU on 11th Jan 2007 showed single fetus with longitudinal lie and cephalic presentation showing swelling of all soft tissues and fetal ascites consistent with fetal hydrops. Large heterogeneous mass with cystic and solid component arising from placenta. It measures 10x9x10.5 cm in size, most likely representing placental tumor. Labour induction was done, followed by manual removal of placenta under general anaesthesia. Placenta was sent for histopathology. Histopathology report confirmed the diagnosis and showed features consistent with chorioangioma [hemangioma of the placenta].

**DISCUSSION:** Although first reported some 208 years ago, placental chorioangiomas have recently been described as a lesion which can complicate maternal and fetal well being. Pre-eclamptic toxemia polyhydramnios and its sequele, and premature labour are clinica complications of chorioangiomata. Antepartum heamorrhage has been reported in 15 to 20% of these patients, possibly due to retroplacental bleeding or rupture of the vascular pedicle of the tumor. In our case as the fetus was already dead so a labour induction was done followed by manual removal of the placenta and patient had a unevent full recovery.

## P-21

### A Free Open-Source Teleradiology Software for Developing World

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Teleradiology, being the major successful component of telemedicine, has a worldwide proven value in distant healthcare delivery. But due to economic,

cultural and technical barriers, the adoption of teleradiology in developing countrreis like Pakistan is not up to its optimum level. Considering foresaid barriers, our group has developed a free open-source teleradiology software. The software is developed using DICOM standards with JPEG2000, XML and dcm4che. Our presentation will focus on features available in teleradiology software, so that radiologists can understand and implement the concept in their local available resources.

## P-22

### Color Doppler in Unilateral Leg Swelling

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450 consecutive patients presented in the Radiology Department with unilateral leg swelling for screening were enrolled in the study. Following findings were found and will be presented in the poster format

Normal scan  
DVT  
Bakers Cyst  
Aneurysm of popliteal artery  
Pseudo aneurysm after trauma  
Lymph nodes  
Cellulitis  
Joint effusions

## P-23

### The Role of Magnetic Resonance Myelography in Lumbar Spine Disc Disease

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**INTRODUCTON:** Low back pain has a very high prevalence in the community and places very high demands on medical resources. Magnetic resonance imaging provides a good quality image over the entire length of the spine and can assess the morphology of the discs and cord. Besides herniated discs, the direct evaluation of nerve roots by MRI has been considered an important asset to facilitate decision making in patients with back pain. MR myelography has another added advantage in the depiction of multi-segmental and severe spinal canal stenosis.

**OBJECTIVE:** To determine diagnostic accuracy of Magnetic Resonance Myelography in comparison with conventional magnetic resonance imaging for spinal canal stenosis in patients undergoing Standard lumbar spine MR imaging for disc herniation.

#### MATERIAL AND METHODS:

**Study Design:** Cross-sectional analytical study

**Setting:** Department of Radiology, Aga Khan university hospital Karachi, Pakistan.

**Duration of the study:** 6 months after the date of approval of synopsis

**RESULTS:** The sensitivity, specificity and accuracy of MRM relative to the

chosen Gold standard [conventional MRI + MRM] are 68%, 96% and 87% respectively. The MRM technique yields images that resemble conventional myelography and may be used to help confirm abnormalities seen on conventional MR in selected cases.

**CONCLUSION:** MR Myelography is not a useful adjunct to Conventional MRI in the investigation of spinal canal stenosis in lumbar spine disc herniation.

#### P-24

##### Non Coronary Findings on Contrast Enhanced Cardiac MDCT

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**INTRODUCTION:** Cardiac Computed Tomography angiography [CTA] is commonly performed for suspected coronary artery disease. Obtained images also show lungs and upper abdomen besides cardiac and coronary sections. The purpose of our study was to evaluate the incidence of non coronary findings on contrast enhanced cardiac multi-detector computed tomography [MDCT].

**PATIENTS AND METHODS:** CTA was performed in 92 patients, most of them were suspected to have coronary artery disease and in some patients with known co-morbid and high risk factors, CTA was performed as a screening method for detection of coronary artery disease.

Cardiac CTA was performed on a 64-MDCT scanner with ECG-gating and bolus timing.

Two radiologists assessed each examination in consensus. The findings were judged and categorized in two groups according to their clinical significance.

Those findings which require therapeutic intervention or radiologic follow-up were judged potentially significant.

**RESULTS:** In this study, 10 patients [11%] had at least one unsuspected non coronary, potentially significant finding including pulmonary edema, pneumonia and mesenteric inflammation, gallstones, renal calculi and solitary pulmonary nodule. 28 patients [30%] had one or more insignificant non coronary findings detected on these scan.

**CONCLUSION:** Clinically significant non coronary, non cardiac findings can be seen in cardiac MDCT if adequate chest coverage was obtained during cardiac scan, either by using large field of view or repeating low dose CT chest following cardiac CT, but latter carries risk associated with high radiation exposure which has to be justified against clinical benefit.

#### P-25

##### IUGR Doppler

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512 consecutive patients presented in the Radiology Department with suspected IUGR were scanned on Doppler ultrasound machine. Interesting findings are presented in the poster.

#### P-26

##### Sonographic Assessment of Cervical Length Changes During Normal Pregnancy

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**OBJECTIVE:** To assess relationship between cervical length and gestational age during normal pregnancy both in nulliparous and multiparous women by transabdominal and transvaginal Sonography.

**DESIGN:** Cross sectional descriptive study.

**PLACE AND DURATION OF STUDY:** Radiology Department Civil Hospital and Dow University of Health Sciences, Karachi, from April 2007 to November 2007.

**METHODOLOGY:** This study comprises of 62 healthy pregnant women who attend ultrasound clinic for routine antenatal check up at the Radiology department of civil hospital & Dow University of Health sciences Karachi, from April 2007 to November 2007. The inclusion criteria were sonographic confirmation of gestational age within the 10th week, single live pregnancy regardless of parity and maternal age, with expected delivery during the 38th to 40th weeks & in the absence of any risk factors for preterm birth. The exclusion criteria were the history of first trimester bleeding, presence of uterine malformations and leiomyoma, presence of pregnancy induced hypertension, gestational diabetes and other medical disorders such as renal disease, essential hypertension, which may influence gestational age at delivery. Cervical length was measured by transabdominal and transvaginal Sonography & measurement taken in a straight line if the cervix did not show any curvature, in the presence of cervical curvature, the measurement was broken down into 2 or more segments. The distance between the external and internal OS was taken as cervical length. All these measurements were repeated thrice and the averaged readings were taken for statistical analysis.

**RESULTS:** Out of 62 healthy pregnant women 27 [43.6%] were nulliparous & 35 [56.4%] were multiparous. Median maternal ages were 25 years. Mean gestational age at the time of scan were 22weeks [20-25 weeks]. Cervical length measurements were divided into 6 groups on the basis of gestational age at the time of the sonographic scan. Mean & SA were reported for each group. Mean value at 10th-13th weeks of cervical length in nulliparous was 4.01 cms and multiparous was 3.76 cms, which declined to 2.70 cms at 37th-40th weeks of gestation in both. Therefore it shows that cervical length appeared to decrease significantly in relation to gestations age and statistically no significant differences found in cervical length measurements between nulliparous and multiparous women from 26th to 40th weeks.

**CONCLUSIONS:** This study shows a progressive, linear reduction of cervical length between the 10th and 40th weeks of gestational age. Cervical length is comparable in nulliparous and multiparous women in early pregnancy [10th - 25th weeks] but there was no statistically significant difference in later weeks [26th - 40th] of pregnancy. Reference ranges constructed for the whole gestational period & might be more useful than a single cutoff value for more efficient prevention and management of preterm birth Transvaginal sonography is a reliable technology for measurement of true cervical length & transabdominal approach gives higher values as cervical length is artificially lengthened by bladder compression.

**P-27****Evaluation of Causes of Scrotal Pain in 300 Patients with Ultrasound Examination**

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**INTRODUCTION:** The scrotum is the superficial structure, which clinical examination is frequently not enough for making a specific diagnosis, because the patients' clinical history and physical findings are similar in many conditions. Due to superficial location of the scrotal contents, in present, ultrasound with high frequency transducers, and color Doppler is useful to investigate the scrotal abnormalities clearly. Ultrasound is the simplest and least expensive imaging technique for diagnosing scrotal disease. In most clinical problems, ultrasound supplies sufficient information for correct diagnosis. Today ultrasounds with real time and color Doppler imaging have superseded other imaging technologies in evaluating the scrotum.

**OBJECTIVES:** The objectives of this study are to evaluate the role of gray scale and color Doppler ultrasound in the evaluation of etiology of scrotal pain.

**DURATION OF STUDY:** This study was performed at King Abdulaziz University Hospital, Ultrasound Department, Jeddah, Kingdom of Saudi Arabia, over 12 months period [June 2005- June 2006]

**METHOD & MATERIAL:** 300 patient's scrotal sonographic examinations were performed, referred to the ultrasound department who presented with scrotal symptoms. Scrotal ultrasound was performed using [ATL-HDI 5000 SONO CT Machine-Philips] by using a 12.5 MHz linear array transducer with color and power Doppler capability. The scrotum evaluated in at least two projections, long axis and transverse. The testicles, epididymis and any other scrotal contents were assessed. Color and pulsed Doppler used to assess the testicular and epididymal blood flow. As standard practice in our institutions, a sonographer performed ultrasound and the designated Radiologist rechecked & confirmed the findings. All the images documented were collected and tabulated.

**RESULTS:** These results were analyzed and discussed & will be presented in tabulated form.

**P-28****A Case of Congenital Intrathoracic Stomach**

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**INTRODUCTION:** A right intrathoracic stomach is a rare form of congenital hiatal hernia seen in childhood. Unlike other congenital diaphragmatic defects, a right intrathoracic stomach are discovered later in childhood because of the absence of a mass effect, pulmonary hypoplasia, and signs of incarceration or strangulation.

**CASE REPORT:** 1 year old male child presented with shortness of breath in the emergency. CXR AP view revealed homogenous haze seen in the right lower lung, which appears to be rounded soft tissue opacity on lateral view. ? of bronchogenic cyst or hiatus hernia was raised. Later barium meal examination and CT Abdomen with oral and V contrast was carried out, which showed short esophagus ending at the level of carina. Stomach was found to be intrathoracic with organoaxial volvulus and enlarged Hiatus. Both hemidiaphragm appeared to be normal. At surgery, the gastric fundus was found to lie in the right chest cavity above the diaphragm and the esophageal hiatus was wide. The stomach was moved into the abdominal cavity and Nissen fundoplication was done.

**DISCUSSION/CONCLUSION:** A congenital hiatus hernia is very rare in neonates. In this form, hernia of stomach occurs through the esophageal hiatus. The hiatal hernias are classified according to their anatomic characteristics as: sliding [type I], characterized by an upward migration of the gastroesophageal junction into the posterior mediastinum & paraesophageal [type II], characterized by an upward dislocation of the gastric fundus alongside a normally positioned gastroesophageal junction.

**P-29****Traumatic Lung Cyst caused by Blunt Chest Trauma A Rare Finding**

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Lung laceration due to trauma may result in pneumothorax, haemothorax, contusion, traumatic pseudo cyst and massive haemoptysis. Recognition of traumatic lung cysts is important to avoid confusion with other causes of lung masses or cavities as it resolves spontaneously requiring no special treatment

We report a case of 22-years male patient with blunt chest trauma and imaging features that support the diagnosis of Traumatic lung cyst and follow up examinations proved the diagnosis and demonstrated complete resolution.

**P-30****Magnetic Resonance Mammography**

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Conventional breast assessment includes the combination of screen-film X-ray mammography, high resolution breast ultrasonography [US], and clinical breast examination. This tried-and-true method leads to the detection of approximately 85-80% of breast malignancies. The result of this assessment also serve as the final arbiter for the use of breast biopsy in breast screening programs worldwide. Despite the usefulness of this approach, almost every breast radiologist is familiar with cases in which assessment fails to depict a breast malignancy accurately. Significant minority of patients, breast lesion is not adequately assessed by using conventional imaging and physical examination. In each of the scenarios, MRM has been shown to be a sensitive and effective method of detecting, diagnosing and also staging intramammary breast malignancy, even when conventional imaging results have been negative. The use of MRM may change the clinical management in these situations if unexpected abnormalities are detected. MRM has been the subject of active research and development around the world, and its use for certain specific indications has accepted inspite of technical variations in different centres.

**PURPOSE:** To present the usefulness and technical developments that propelled MRM into its current importance and subject of active research around the world.



**P-31****Correlation Between Hyperthyroidism and Renal Function**

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 DR. MUHAMMAD IQBAL  
 DR. RAFIA TOOR  
 DR. SHAHEEN ZAREEN  
 DR. SUMAIRA MUSHTAQ  
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**OBJECTIVE:** Renal function is profoundly influenced by thyroid status~ however, this has not been studied in detail in human subjects. The purpose of the present study was to determine the relationship between renal function and hyperthyroidism before and after treatment.

**MATERIALS AND METHODS:** In 37 consecutive hyperthyroid patients renal function as measured by glomerular filtration rate [GFR] [based on the Gate's formula using a gamma camera] was determined before treatment and after return of FT3 & FT4 to within normal range.

**RESULTS:** Renal function changed significantly during treatment of hyperthyroidism. A significant correlation between FT4 levels and GFR was present in hyperthyroid patients.

**CONCLUSION:** The kidney is an important target of thyroid hormone action.

**P-32****Clinical Management and Outcome of Well Differentiated Thyroid Cancer Presenting with Metastasis at Diagnosis: A New Paradigm**

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 DR. SHAHID KAMAL  
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 DR. BASIT IQBAL  
 DR. MINJAH MAQBOOL  
 DR. BASHIR AHMAD  
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**PURPOSE:** Complete ablation of well differentiated thyroid cancer (WDTC) shows good prognosis after complete thyroidectomy and Iodine ablation therapy. However, retrospective evaluation of these cases with recurrence or metastasis revealed that multiple ablative doses of iodine-131 therapy have not been able to render the patient in disease free status. The clinical outcome was assessed with respect to survival and factors that may determine prognosis.

**MATERIAL AND METHODS:** All patients treated for residual or recurrent WDTC were retrospectively evaluated for their response to treatment and outcome. [1998 — 2007] Data on relevant patients was collected and treatment factors predicting the development of multiple therapy failures and disease-specific survival were evaluated.

**RESULTS:** A total of 394 patients [102 male, 272 female: median age, 52 years (range, 11-82 years)] came for radio-active Iodine [RAI] treatment, whose final histopathologic diagnosis was papillary carcinoma in 262, follicular carcinoma in 108, and mixed in 24 cases. Initial management included total thyroidectomy for 144 patients [36%], subtotal thyroidectomy for 250 [63%], and adjuvant Iodine 131 therapy for 388 [98%]. During the follow-up 55 patients did not come for yearly evaluation [drop out rate 14%]. Adequate 1-131 ablation therapy of WDTC rendered about 77% [307 patients] free of disease. As they were divided into 3 groups: group 1 [no recurrence after single dose of 1-131, n=127], group 2 [no recurrence after 2 doses of 1-131=180], and

group 3 [residual/recurrences after multiple doses, n=32(8%)].

**CONCLUSION:** Effective RAI ablation therapy for WDTC can be achieved by high dose but new paradigm of dosimetric guided RAI approach should be explored as an alternative pathway for residual/recurrent cases. Administration of effective, safe and single RAI therapy might prevent dedifferentiation and loss of iodine-concentrating ability of tumors which could be the reason of failure therapy.

**P-33****Proper Barium Examination is Still the Best, Cheapest and Quickest mode of Radiological Diagnosis of Most of the G.I.T Problems**

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We know that most of medical OPD patients the world over especially poor countries like ours complain either coughs and colds with fevers or GIT's vague dyspeptic abdominal pains, constipation or dysenteric complaints. Occasionally emergencies like intestinal obstruction or visceral leaks or Hematemesis. My aim is to focus on Proper Training of budding radiologist or technicians and to save time and money of poor and illiterate patients who roam after specialists living in big cities. Proper barium examination of stomach and duodenum is explained in stages and various diseases diagnosed like, Menitriers albumin losing Gastropathy, Gastro-esophageal refluxes, hiatus hernias, congenital duodenal abnormalities and volvulus etc. Because of vastness of GIT chapter right from oro-pharynx and oesophagus down to anus and there is a long list of disorders! only upper GIT problems are discussed. Also poor countries like ours who cant afford big and sophisticated machines like various types of CT, M.R.I or Image intensifying x-ray machines costing crores of rupees for our rural and even teaching hospitals of the cities.

**P-34****GUT Ultrasound Special Reference to the Appendicular Pathologies**

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**OBJECTIVE:** Appendicular ultrasound has a significant role in complicated patients in emergency setup

**METHODS:** 125 patients with RIF pain and clinically doubtful for being of appendicular pathology were scanned through a convex and linear probe ultrasound machine.

**RESULTS:** Out of these 125 patients 42 had negative examination. Rest of the patients had following findings

Acute Appendicitis  
 Perforated Appendix  
 Appendicular mass formation  
 Appendicular Abscess  
 Ureteric Calculi  
 Renal Stones  
 Renal hydronephrosis  
 Right Ovarian Cyst, Haemorrhagic cyst, torsed cysts  
 Ileocecal mass with free fluid

**CONCLUSION:** Appendicular ultrasound should be the first line of investigation in emergency set up and atleast ultrasound should be employed in every case.

**P-35****Prevalence of Coronary Artery Disease in Patients having Essential Hypertension with or without Diabetes Mellitus Detected by Myocardial Perfusion Scintigraphy**

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**PURPOSE:** The aim of this retrospective study was to find the prevalence of coronary artery disease (CAD) in hypertensive patients with or without diabetes mellitus.

**MATERIALS AND METHODS:** Data of patients having essential hypertension [n=931] referred to PINUM from April 2005 to December 2007 for stress / rest myocardial perfusion scintigraphy [MPS] was analyzed. This data was divided into two groups. HD<sub>m</sub> group contains data of patients having hypertension with diabetes mellitus [n=456, 48.98% of total population, M:F=245:211]. While data of patients having hypertension without diabetes mellitus was placed in H group [n=475, 51.02% of total population, M:F=254:221]. The mean age was 52.4 ± 10.2 years in HD<sub>m</sub> group and 48.7 ± 10.9 years in H group. Duration of hypertension was 5.2 + 5.0 years in HD<sub>m</sub> group and 5.6 + 5.5 years in H group. Duration of diabetes mellitus was 7.0 ± 5.8 years in HD<sub>m</sub> group. Each group was divided into subgroups based on gender, clinical presentation and age. Patients with perfusion defects on MPS were considered to have CAD. Prevalence of CAD in HD<sub>m</sub> and H groups was statistically compared using 1-2 [Chi-square] test.

**RESULTS:** Prevalence of CAD is higher in HD<sub>m</sub> group than H group subjects [47.8% vs. 30.1%; p<0.001]. Prevalence of CAD is higher in males than females in HD<sub>m</sub> [53.9% vs. 40.8%] and H groups [33.4% vs. 19.5%] respectively. The difference of prevalence of CAD in HD<sub>m</sub> and H groups is more marked in female [40.8% vs. 19.5%; p<0.001] than males [53.9% vs. 39.4%; p=0.001]. Prevalence of CAD in patients with typical presentation is not statistically significant in HD<sub>m</sub> and H groups [72.3% vs. 68.4%; p=0.645], while in subjects with atypical presentation prevalence is significantly higher in HD<sub>m</sub> group than H group [40.8% vs. 26.8%; p<0.001]. Considering males and females together, prevalence of CAD increases with increasing age in both HD<sub>m</sub> [age<36 years; 25.0%, age 36-50 years; 44.8%, age 51-65 years; 49.5%, age>65 years; 64.3%]. and H groups [age < 36 years; 13.2%, age 36-50 years; 25.7%, age 51-65 years; 40.28%, age>65 years; 45.5%]. However in females, the prevalence of CAD almost remains same till the age of 65 years. Thereafter prevalence of CAD in females approaches to prevalence in males.

**CONCLUSION:** Prevalence of CAD is higher in the group of patients having essential hypertension with diabetes mellitus than the group of patients having essential hypertension without diabetes mellitus. Prevalence of CAD is higher in males than in females in both groups. Prevalence is almost similar in patients with typical presentation in both groups. While in patients with a typical presentation, prevalence of CAD is significantly higher in patients having essential hypertension with diabetes mellitus. Prevalence of CAD increases with increasing age in both groups. However in females, this increase in prevalence with increasing age is markedly slower till the age of 65 years, as compared with males. After the age of 65 years, prevalence of CAD in females approaches to prevalence in males.

**P-36****Esophageal Web with Secondary Fungal Infection**

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Esophageal webs are thin membranes located in the middle or upper esophagus.

They are mainly observed in the Plummer Vinson syndrome which is associated with iron deficiency anemia. Its main symptoms are pain and difficulty in swallowing (odynophagia).

A case of esophageal web is hereby presented manifesting as secondary candidial infection in 60 years old female with history of dysphagia. This case represents as one of few reported cases of esophageal web with candidiasis.

**P-37****Osteochondroma of Spinous Process in Cervical Spine**

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Osteochondroma is most common benign cartilage tumor. Spinal involvement is however rare, only in 2% cases, cervical > thoracic > lumbar. Lesions are essentially an osseous outgrowth arising from bony cortex. Characteristic appearance showing continuity of bone cortex and medulla with host bone cortex and medulla, is seen. Growth points away from nearest joint and at right angle to long axis of bone. Growth usually ceases after skeletal maturity and patients are asymptomatic usually. Diagnosis can be easily made on conventional radiography due to its characteristic appearance, but can be best seen on CT or MRI. We present an unusual case of a female referred to us with non tender firm swelling in midline on posterior aspect of neck at level of C3 / C4 vertebrae without associated neurological deficits. Her x-rays cervical spine and CT scan of cervical spine performed with 3D reconstruction of images. It showed large bony exostosis arising from spinous process of C3 vertebrae extending to spinous process of C4 vertebrae with little fragmentation. No spinal canal stenosis noted. On follow up imaging no change in the character of the lesion was noted.

**P-38****An Unusual Presentation Of Huge Parapelvic Cyst**

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Different types and locations of renal cysts have been described. We present an unusual case of a huge para pelvic cyst causing diagnostic difficulties. Different imaging appearances are described and literature reviewed.

62 years male presented with complaints of right lumbar pain, vomiting and fever for last 15 days. Large palpable slightly tender mass was identified on right side of the abdomen extending from right hypochondrium to right iliac fossa. Ultrasound was done showing large anechoic area at right side of the abdomen.

CT scan abdomen revealed a huge para-pelvic right renal cyst causing significant displacement of right kidney superiorly and significant compression on the pelvi-ureteric junction resulting in moderate hydronephrosis. This cyst was

causing compression and displacement of inferior vena cava. Another cyst also found at upper pole of left kidney. The imaging findings were confirmed on subsequent surgery. The cyst was excised and marsupialization performed. After operation patient recovered well and had no complaints on follow up.

### P-39

#### Role of PET-CT in Oncology

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Over the last 10 years, the potential role of Positron Emission Tomography (PET) in cancer imaging has become increasingly recognized in the clinical and preclinical settings. Great strides have been made in molecular science to increase our knowledge of basis of tumor biology, particularly with regard to the molecular basis of cell cycle control and proliferation. This has coincided with extensive advances in nuclear imaging technology based on improved electronics, greater computing power, better sensitivity and resolution. Thus PET in combination with C.T has emerged as a powerful tool. With the rapidly increasing incidence of cancer in developing countries, diagnosis of primary tumor as well as distant metastases has become an urgent need to determine the mode of therapy for achieving better prognosis. PET CT is changing the way in which cancer is managed because it is forcing a reassessment of connection staging with CT and MRI in certain cancer groups. The first PET cyclotron with CT is under installation at INMOL.

The main objective of this presentation is to familiarize Oncologists in PET application to clinical management for cancer patients.

This task will cover briefly about the imaging modalities in Nuclear Oncology, pharmaceuticals used for PET, normal physiological uptake, malignancies where PET [PET/CT] is useful or not useful and limitations or pitfalls of PET.

PET-CT can help us in:-

- Early detection of primary and metastatic disease.
- Tumor staging and restaging.
- Planning the delivery of treatment.
- Early detection of recurrence.
- To know the prognosis.

In conclusion, PET as well as PET- CT is an excellent and helpful technique for cancer detection and management.

### P-40

#### Medical Audit of Mammography Examinations at INMOL.

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**PURPOSE:** We performed a medical audit of our mammography practice to assess its accuracy in comparison with the clinical outcomes of our patients.

**MATERIAL AND METHODS:** We analyzed 1000 consecutive mammography examinations conducted at our radiology department with effect from 1st January 2007 onwards, including data on demographics, image interpretation with ultrasound correlation and tissue diagnosis results. All patients were tracked for one year and raw data was processed for the following parameters: True positives, False positives, True negatives, False negatives, Positive predictive values, sensitivity, specificity, final assessment analysis and recommendation analysis.

**RESULTS:** Our results showed that our final analysis were mostly in concordance with the clinical outcomes of the patients and international recommendations. However, we noticed that in comparison with international medical audits,

there was a marked difference in type of patients in our institution with 67% of patients, being diagnostic in nature. The remaining 33% were for screening and most of these were known breast cancer patients who were undergoing screening of contra lateral breast. This markedly affected our medical audit results and we had to tailor or omit a few parameters to meet our needs.

**CONCLUSION:** Medical audit of diagnostic examinations yields substantially different result compared with screening examinations and the audit parameters need to be manipulated to suit our setting.

A comprehensive medical audit of a mammography practice is a powerful tool in assessing the ability of mammography to detect breast cancer. The audit serves primarily as a self assessment device, revealing both successes and deficiencies in the practice, thereby facilitating enhancements that improve patients care.

### P-41

#### Extranodal Lymphoma: Spectrum of Findings on Cross - Sectional Imaging

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**PURPOSE:** The purpose of this presentation is to illustrate, as a pictorial essay, the spectrum of appearances of extranodal lymphoma using cross-sectional imaging techniques.

**MATERIALS & METHODS:** All cases diagnosed with lymphoma on histopathology in the last 4 years amounting to a total of 346 cases were reviewed. Those cases with extra-nodal disease [69 cases] were selected and analyzed. 21 cases exclusively of primary extra-nodal lymphoma were also reviewed.

**RESULTS:** Mean age was calculated at 15 years with a range of 1 year 3 months to 73 years. Male to female ratio was 1.3:1. Secondary musculoskeletal lymphoma was seen in 17 cases [24.6% of extra-nodal cases]. CNS [Brain and spinal cord] involvement noted in 18 [26.1%]. Head & Neck involvement was seen in 7 [10.1%], while extra-nodal abdominal lymphoma was diagnosed in 42 cases [60.8%]. Imaging characteristics of these cases were noted.

**CONCLUSION:** Extranodal lymphoma can mimic other neoplastic or inflammatory conditions. Although a definitive diagnosis is possible only with biopsy, it is important to consider extranodal lymphoma in the presence of certain imaging appearances in the appropriate clinical setting for the correct diagnosis, accurate staging, and optimal management

### P-42

#### Caring for the Major Trauma Victim: The Role for Radiology

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Trauma is an emergency and it is 3<sup>rd</sup> most common cause of death world wide. Advancement in radiology instruments and active radiologist participation have improved the care of the major trauma victim in the past 20 years. The new trends has been the intensive use of radiology for immediate patient evaluation,

To reduce delay in the institution of life-saving surgery, the major trauma victim must have priority of access to radiologic facilities.

**PURPOSE:** This audit is carried out to evaluate the diagnostic role of ultrasonography [US FAST], skeletal survey and CT brain / abdomen [plain] in detecting injuries [bony, abdominal , brain] in patients with trauma [blunt , penetrating].

**MATERIALS AND METHODS:** Data of total of 281 patients with history of trauma from 1st OCT, 2007 to 14th JUNE, 2008 was retrospectively reviewed, which included their skeletal survey, ultrasound FAST and CT head / abdomen.

**RESULTS:** Out of 281 patients 16 patients were found to be FAST positive. Based on ultrasound findings and clinical assessment 21 of 281 patients underwent CT abdomen. 15 scans were positive for abdominal visceral injuries or for free fluid. Liver is most frequently injured organ [9] followed by kidney [3] spleen [1] bowel [1] and hemoperitoneum [1]. Skeletal survey of all these patients revealed fractures in 99 patients involving appendicular skeleton, axial skeleton and both, in 56, 32 and 9 patients respectively. On basis of clinical assessment 138 patients underwent plain CT brain. 62 scans show post traumatic intracranial injuries of various nature and skull and facial fractures of visualized bones. Common CT findings include facial and skull fractures [25], brain contusion [12], subdural hematoma [9], epidural hematoma [7], subarachnoid hemorrhage [7] and cerebral edema [5].

**CONCLUSION:** Effective use of Radiology significantly reduces morbidity and mortality in major Trauma victim patient.

#### P-43

##### A Case of Hepatic Artery Pseudoaneurysm

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**INTRODUCTION:** The hepatic artery is the fourth common site of intraabdominal aneurysm from any cause following infrarenal aorta, iliac artery and splenic artery. Hepatic artery aneurysm [HAA] represents approximately 20% of all visceral aneurysms. 80% HAAs are extrahepatic and 20% are intrahepatic. 63% of HAAs involve the common hepatic artery, 28% involve the right hepatic artery, 5% involve the left hepatic artery, and 4% both the left and right hepatic arteries.

**CASE REPORT:** 55 year old male admitted through Emergency with abdominal pain on and off for one and a half year with increasing severity for 1 week. Also had melena on and off. EGD done outside AKUH was normal. Viral serology was negative. He was vitally stable at the time of admission. His Hb was low. Abdomen was soft and tender. DRE was negative. Ultrasound done, which showed bulky pancreas with vascular aneurysm? Originating from Hepatic artery. CT abdomen showed large aneurysm arising from Hepatic artery compressing the pancreatic head, with signs of portal hypertension and possible leak. Vascular consult taken and Angiography done, which revealed a large aneurysm arising from hepatic artery with a possible small leak. Based on angiographic findings patient was not a candidate for Endovascular treatment and vascular surgery was planned which the patient refused because of financial issues.

**CONCLUSION:** In conclusion, hepatic artery aneurysms are uncommon lesions that have varied clinical presentations. Early diagnosis is essential because the natural tendency of the lesion is to rupture into peritoneal cavity or surrounding organs.

#### P-44

##### Comparative Diagnostic Role of Non Enhanced Helical Ct and Intravenous Urography in Suspected Cases of Urolithiasis

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**OBJECTIVE:** The objective of the study was to compare the usefulness of non enhanced Helical computed tomography [NEHCT] and intravenous urography [IVU] in promptly and accurately diagnosing urolithiasis and associated complications.

**DURATION OF STUDY:** Six months after the approval of synopsis, from December 2006 to July 2007.

**SUBJECTS AND METHODS:** One hundred patients presenting with flank pain or haematuria to Urology outdoor or referred to Radiology department were selected and they first underwent non enhanced Helical CT followed by intravenous urography. Sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy were calculated for both tests.

**RESULTS:** Non enhanced Helical CT was more sensitive diagnostic modality with 100% sensitivity and 96% specificity as compared to IVU which showed 81% sensitivity and 92% specificity for total urinary [renal+ureteric] stones.

**CONCLUSION:** Non enhanced spiral CT is a reliable and rapid diagnostic modality for the detection of urinary stones, providing a morphological study equivalent to that of IVU and able to guide appropriate treatment. It should replace IVU in the diagnostic assessment of renal and ureteric colic.

#### P-45

##### A Case of Primary Intravascular Lymphoma of Brain

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**INTRODUCTION:** Intravascular lymphoma [IVL] is a rare non-Hodgkin's lymphoma that is characterized by massive intravascular growth of lymphoma cells with relative predilection for the central nervous system. In the absence of extraneural manifestations, the disease is not recognized until autopsy in the majority of cases.

**CASE REPORT:** A 45 year old female patient presented with sudden loss of vision in the right eye with hearing impairment. She was treated as optic neuritis. Later, she developed left hemiparesis and dysarthria. This time she was hospitalized and treated for Viral Encephalitis. After receiving the treatment her vision and left sided weakness improved. She remained well for 2-3 months, and then started becoming restless and irritable with progressive deterioration of mental function. At that point in time her first MRI Brain was done which showed subacute revascularized hemorrhagic infarct in right middle cerebral artery territory. Her MRI brain was again repeated because of worsening of symptoms. MRI showed acute infarction in posterior parietal region bilaterally showing diffusion restriction. Multiple areas of old cortical infarcts are noted with laminar necrosis leading to gyral calcification and petechial hemorrhages. Later her work-up for vasculitis and Echocardiography as well as ultrasound carotid Doppler were normal. She underwent brain biopsy which showed brain tissue involvement by INTRAVASCULAR LYMPHOMA. Later patient received radiotherapy and chemotherapy [intrathecal methotrexate]. Last MRI done in July 2007 showed progression of disease with newer development of infarcts

in right ACA territory and left parieto-occipital region along with bilateral chronic subdural hematoma and radiation changes in white matter.

**DISCUSSION/ CONCLUSION:** MRI findings of the brain in IVL included infarct-like lesions, focal parenchymal enhancement dural arachnoid enhancement, and nonspecific, patchy foci of increased signal intensity in white matter on long-TR images.

#### P-46

### Multidetector CT in the Evaluation of Thoracic Aortic Disease

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**INTRODUCTION:** CTA of the thoracic aorta has significantly benefited from the advent of MDCT. The versatility of the CTA by its post processing technique makes it an accurate modality in detecting and quantifying aortic diseases. Choosing the right study to image the affected area requires anatomical orientation and the limitations of the imaging modality. CTA is applicable for diagnosis of congenital anomalies, vasculitis, injuries, vascular involvement from neoplasm, occlusive disorders and source of embolism. It is particularly important in postoperative and post interventional vascular procedures and stent graft evaluation.

**OBJECTIVES:** The aim of the study was to demonstrate a non-invasive technique for evaluation of luminal and extra-luminal components of the disease process and its extent with demonstration of vascular anatomy from multiple angles choosing large data size.

**MATERIAL AND METHODS:** Toshiba 64-slice Aquilion Helical C.T. Scanner was used. Unenhanced scan of the Chest was performed to visualize landmarks and to establish the field of view before contrast examination. This helps to identify mural hematomas, calcification and presence of stent graft. An 18 Gauge antecubital I/V cannula is positioned for contrast examination. This was followed by post processing techniques.

**STUDY LIMITATIONS:** The limitation to the study were patient with renal insufficiency and allergy to iodinated contrast.

**RESULTS:** This was a retrospective study from May 01, 2006 to August 30, 2008. Both sexes of variable age groups were included. Total No. of cases included 65 patients, 18 patients had aortic aneurysm, 13 patients had coarctation, 8 patients for post surgical assessment, 5 patients had dissection, 5 patients had stenosis and occlusion, 5 patients had congenital abnormalities, 3 patients had arteritis, 1 patient had interrupted aorta and 7 patients were normal.

**CONCLUSION:** On account of its advantages of non Invasiveness, less radiation dosage and better visualization of vascular anatomy and pathology using one data acquisition with ability of reformatting, MDCT proves itself as an eminent platform in imaging of Thoracic Aortic Diseases.

#### P-47

### Moyamoya Disease

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**INTRODUCTION:** Moyamoya disease is a condition where there is progressive blockage or occlusion of the ends of the internal carotid arteries and their major "terminal" branches in the brain. In jargon, "a progressive obliterative arteriopathy

affecting the intracranial circulation". The condition affects the anterior circulation, and tends to spare the posterior circulation. The arterial blockage leads to a classic "puff of smoke" appearance on a cerebral angiogram. The 'puff of smoke' s actually a myriad of tiny vessels that forms in response to the blockage, in order to allow blood to continue flowing to the brain through this alternate tiny vessel network or pathway. The word *moya* is Japanese, and is taken to mean 'tiny', referring to the tiny vessel network that forms. Moyamoya disease affects children and also adults.

**CASE REPORT:** 10 year old, female child admitted with the complains of severe headache in the temporal region bilaterally since few hours. No vomiting or associated symptoms are noted. She has past history of intermittent weakness on left side with episodes of difficulty in speech. Her school performance was also noted to be on decline since 4 to 5 years by the parents and school teachers. Her MRI brain was done which revealed, tiny flow voids seen in both basal ganglia in territory of thalamostriate and lenticular striate vessels. Flow void in the region of MCA cannot be distantly identified. The appearances were in keeping with moyamoya disease. Patient was treated symptomatically and was discharged on Phenobarbital.

**DISCUSSION:** Regular CT head scan and MRI head scan [with diffusion weighted imaging or DWI sequence] can show strokes and hemorrhages associated with moyamoya disease. A CT-angiogram or MR-angiogram may show the abnormal vessels [blockages and microvessel proliferation] and any aneurysms associated with this condition. However, the gold-standard for evaluation of moyamoya disease is cerebral angiography An angiogram may also show brain aneurysms and, rarely, brain arteriovenous malformations [AVM] which can both occur in patients with moyamoya disease. Special investigations for moyamoya disease include CT-perfusion and positron-emission-tomography [PET] scanning.

#### P-48

### Chorangioma of the Placenta with Hydrops Fetalis

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**INTRODUCTION:** Chorangioma is the most common benign tumor of the placenta. Its recognition and diagnosis is often made without difficulty. Hydrops fetalis is commonly associated with an immune hemolytic anemia. We report a patient with chorangioma of the placenta presenting with hydrops fetalis.

**CASE REPORT:** G1P0+0 unbooked case presented at 31 weeks with complain of decrease foetal movements for 15 days. On examination foetal heart sounds were absent. Her ultrasound done which revealed placenta anterior in location with hypochoic heterogeneous mass arising from the lower end of the placenta measuring 11.7x7.5cm. No foetal cardiac activity noted along with foetal hydrops with positive Spaulding sign. The findings were confirmed on MRI. BHCG was 12853.

Patient was operated and large solid cum cystic mass is seen arising from the placenta. Manual removal of mass and placenta performed easily. Histology showed a well circumscribed benign mass composed of closely packed vascular spaces lined by endothelial cells, features consistent with PLACENTAL CHORANGIOMA.

**DISCUSSION / CONCLUSION:** Placental chorioangiomas occur in 1% of pregnancies. Large chorioangiomas may cause serious complications such as fetal anemia, hydrops and fetal death. The clinical significance of placental chorangiomas is related to the size of the tumor.

**P-49****A Budd-Chiari Syndrome Mimicking Primary Liver Tumor**

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**INTRODUCTION:** Budd-Chiari Syndrome [BCS] is characterized by hepatic venous outflow obstruction at the level of the hepatic venules, the large hepatic veins and inferior vena cava. We report a case of pathologically proven Budd-Chiari Syndrome [BCS] that on radiological and gross surgical inspection was felt to represent a primary liver tumor.

**CASE REPORT:** A 77-year old female presented with right upper quadrant pain. Ultrasound revealed heterogeneous nodular appearing liver parenchyma in the right lobe, suggestive of tumor infiltration. A contrast computed tomographic [CT] scan of abdomen showed a heterogeneously low-attenuation mass with diffuse infiltration of the liver with mass effect from the venous system which is suspicious for a primary liver. For further evaluation a transjugular liver biopsy was performed after which patient became unstable. Repeat CT revealed a subscapular hematoma which was taken to interventional suite for hepatic artery embolization. Subsequent exploratory laparotomy revealed approximately 4 to 5 liters of blood with active bleeding from right hepatic lobe that was treated with lobectomy. Biopsy report described findings consistent with of BCS.

**CONCLUSION:** Angiomyolipomas have a variety of clinical presentation. Ultrasound, CT and MRI can be used for their diagnosis. However their imaging characteristics may also mimic liver mass as in our patient.

**P-50****Ultrasonographic Diagnosis of Placenta Accreta**

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**INTRODUCTION:** Placenta accreta is the abnormal adherence of placenta to myometrium due to defect in decidua basalis. Prenatal diagnosis of placenta accreta is of importance because it reduces the fetal and maternal morbidity and mortality as appropriate preoperative and perioperative procedures are possible.

**CASE REPORT:** A case of 27 years old patient who had two previous cesarean sections because of fetopelvic disproportion. In her third pregnancy she was diagnosed as complete previa at the time of anomaly scan. She had another ultrasound at 28 weeks of gestation, which showed anterior, type four previa with thinning of myometrial zone beneath the placenta. In her third scan which was done at 36 weeks of gestation due to heavy vaginal bleeding showed type four previa with complete loss of myometrial zone between the placenta and the bladder wall. Color Doppler imaging confirmed the diagnosis by showing the parallel running vessels at the outer margin of urinary bladder wall with low resistance placental flow. Placenta was labeled as type four previa with placenta increta. Emergency cesarean section was performed because of profuse vaginal bleeding. On surgery it was found that placenta was inseparable from the myometrium and appears to lie beneath the bladder wall. Emergency cesarean hysterectomy was performed because of hemorrhage. On histopathology chorionic villi traversing the myometrium without intervening deciduas basalis confirming the diagnosis of placenta increta.

**DISCUSSION/ CONCLUSION:** Diagnosis of placenta accrete is possible by ascertaining certain ultrasonographic features on gray scale as well as on colour Doppler imaging.

**P-51****A Case Report of Basal Ganglia Calcification in Hypoparathyroidism**

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**INTRODUCTION:** Brain CT scan, which easily detects calcium, is the preferred method of localizing and assessing the extent of cerebral calcifications. Most frequently affected is the lenticular nucleus, especially the internal globus pallidus. Calcifications in the putamen, thalami, caudate, and dentate nuclei are common.

**CASE REPORT:** 15 year old boy presented in AKU with history of fever and vomiting for 15 days. Two episode of generalized tonic clonic seizure and post ictal drowsiness. His vital at time of examination were: pulse 60 b/min, BP 132/90, temp 102F, Respiratory rate 20 min. O<sub>2</sub> sat was 100%. On examination muscle tone was decreased. Reflexes were exaggerated plantar are equivocal. Rest of local and systemic examination was normal. Laboratory analysis shows hypocalcaemia [Ca= 5.9], hypomagnesaemia [Mg=2.3] hyper phosphatasia [Po<sub>4</sub> = 9.4], parathyroid hormone = 3.0 [low] Thyroid stimulating hormone = 1.05 [normal] vitamin D =58.7 [normal] CSF analysis was done and it was normal. CT scan was also done shows extensive basal ganglia calcification.

**CONCLUSION:** There-are multiple causes of basal ganglia calcification including metabolic, infectious, idiopathic etc. As compared to MRI, CT is far superior to detect Basal ganglia calcification.

**P-52****Emphysematous Gastritis with Gastric Outlet Obstruction**

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42 year old female presented with repeated non-projectile, non-bilious, vomiting increasing in frequency for 2 months. On examination soft, tender epigastric mass with positive succussion splash. Laboratory examination showed significant leukocytosis and deranged electrolytes. Her chest and abdominal radiograph shows a hugely distended stomach with intramural air. Computed tomography [CT] shows dilated stomach with markedly thickened emphysematous gastric wall, with maximum thickening at the region of pylorus. Endoscopy with biopsy diagnosed esophagitis and pangastritis. Scope could not be negotiated into pylorus. Barium study showed a non-peristaltic stomach with only a linear streak of contrast passing into duodenum. Subsequently patient taken to operating room. Partial gastrectomy and gastrojejunostomy performed. On histopathology pyloric thickening confirmed as a poorly differentiating adenocarcinoma. Presence of air in the gastric wall is rare and is usually seen first by radiological examination. Emphysematous gastritis, gastric emphysema and pneumatosis intestinalis are different terms explaining this phenomenon. It is important to diagnose this disease early and differentiate with benign gastric emphysema as even with prompt treatment and aggressive therapy emphysematous gastritis has a high mortality rate.

**P-53****Ectopic Pregnancy: A Malpractice Paradigm.**

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**INTRODUCTION:** The incidence of ectopic pregnancies has risen considerably in the USA from 17,800 in 1970 to more than 70,000 in 1986. But fortunately the death rate, mostly related to blood loss has substantially decreased during this same interval, from 3.6% per 1000 ectopic pregnancies to 0.5 per 1000 in 1986. We present a case of pelvic abscess which proved to be an ectopic pregnancy after laprotomy and subsequent histopathology.

**CASE REPORT:** A 22 yrs old female known case of pulmonary tuberculosis, married for 1½ yrs, presented in Gynae clinic with history of D&E for missed abortion outside AKU two weeks back. Patient experienced off an on lower abdominal pain since then and it had aggravated since last 3 days. She also had spikes of fever. On examination she had tense abdomen with tenderness in lower abdomen. She had mild per vaginal bleeding and painful vaginal examination. Patient was admitted for further work up. Ultrasound done in AKU on 25th Feb 2008 showed an organized mass with heterogeneous echoes in the cul-de sac, measuring 5.5x9.9 x 11.1cm with approximate volume of 320 ml, representing organized collection. Ultrasound was repeated on 28th Feb 2008, showed decrease in previously seen pelvic collection and now it measured 10.1 x 10.3 x 4.5 cm with a volume of 245ml. On repeated vaginal examination, fullness and pain were found in pouch of Douglas. She was planned for laprotomy. Laprotomy done on 1st March 2008, showed one liter bloody collection with blood clots which was removed from pelvis. Dilated right tube was seen with normal right ovary. Right sided salpingectomy was done due to hematosalpinx. BHCG was checked and it was 1743mIU/ml. Histopathology report was suggestive of ectopic pregnancy.

**DISCUSSION:** The term ectopic pregnancy refers to a gestation that forms outside the endometrial lumen, most commonly within the fallopian tube. Tubal rupture or extensive hemorrhage that occurs with this entity can be life threatening if it remains undetected or is improperly treated. The risk of morbidity is also remarkable. Even with current specific and sensitive laboratory tests and improved imaging technology with excellent spatial and contrast resolution, ectopic pregnancy remains difficult to diagnose properly.

**P-54****A Case of Lower GI Bleed Detected on MDCT**

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**INTRODUCTION:** Massive GI bleed is life threatening emergency. Nuclear scan is a sensitive tool to detect GI bleed. Conventional Angiogram is sensitive to localize the site of GI bleed. Now Multi detector CT and CTA are emerging as a new modality to detect and localize the site of GI bleed.

**CASE REPORT:** 27 year old female, married P3+0, housewife with no previous Co-morbid, admitted in AKU on 25/9/07 with recent past history of IUCD insertion on 5/9/07 after which patient developed severe lower abdominal pain. On 10/9/07, D & C was done no IUCD was found in uterus. Next day exploratory laprotomy was carried out, uterine and bowel perforation were noticed, most likely due to extra uterine displacement of IUCD. Hysterectomy and bowel resection was done. Patient was fine there after, suddenly fecal and purulent discharge was seen coming from surgical wound on 18/09/07 [entero cutaneous fistula formation] on 6/10 patient develop severe lower GI bleed and her Hb drop to 8mg/dl, BP was 90/60 mmHg, her platelets were 80,000. She was

given multiple blood transfusion, I/V fluid, Gelafundin and inotropes support. She underwent twice upper and lower GI endoscopy between 7th to 10th OCT showing large amount of clotted intraluminal blood, In the same duration conventional mesenteric angiogram was also performed twice, but localization of the site of hemorrhage was not possible. CT along with CTA was done later which revealed extraluminal contrast within jejunal loops and arterial bludh noted in jejunal branch of SMA. On subsequent conventional mesenteric angiogram bleeding branch was embolized with PVA particle and coiled. On later followup patient condition was improved and enterocutaneous fistula was also healed in one month.

**CONCLUSION:** Arterial phase multi-detector row CT is a new good modality for both detection and localization of acute massive GI bleeding.

**P-55****Torsion of Ovarian Dermoid: A Case Report**

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**INTRODUCTION:** Adnexal torsion is the fifth most common gynecologic emergency condition encountered, with a prevalence of 2.7%. Prompt diagnosis and surgical restoration of blood flow may avoid irreversible damage. We report a case of torsion of an ovarian dermoid.

**CASE REPORT:** An 18 yrs old female unmarried presented in ER on 24th of May 2008 with complains of severe abdominal pain for two to three hours. Ultrasound done this time showed a large solid cum cystic lesion in the left adnexa.

This lesion was measuring 8.86 x 6.4 x 5.9 cm with volume of 178ml. Minimal free fluid was noted in the cul de sac. Uterus was normal. On ultrasound, appearances were suggestive of dermoid /complex cyst. CT abdomen and pelvis was done, appearances were suggestive of left side ovarian dermoid. The possibility of torsion was raised as the free fluid had increased since the last ultrasound examination. Patient had laprotomy which revealed hemorrhagic ascitic and left hemorrhagic cyst with one twist and fallopian tube was attached to it. Left salpingoophorectomy done.

Histopathology report showed mature cystic teratoma. Patient was discharged and is doing well.

**DISCUSSION:** A dermoid is a benign, cystic lesion containing tissue from all the three embryonic layers: endoderm, mesoderm and ectoderm. Ovarian dermoids comprise 1015% of ovarian tumors and tend to occur in young women in the reproductive years, although presentation has been reported in prepubertal and elderly patients. Torsion is the most common complication occurring in approximately 3.5% of cases. Ultrasound is the initial imaging investigation which may only show an adnexal mass which is a non specific finding. Computed tomography and magnetic resonance imaging features of adnexal torsion include fallopian tube thickening, smooth wall thickening of the twisted adnexal cystic mass, ascites, and uterine deviation to the twisted side. Treatment options are laparoscopic surgery or laprotomy followed by removal of the cyst.

**P-56****Bronchoalveolar Carcinoma Presenting as Extensive Bilateral Consolidation**

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We present a case of broncho-alveolar carcinoma lung presented as extensive bilateral consolidation.

A young female was referred to our department with history of mild chest pain and cough for 6 months, not associated with fever but with weight loss. The patient denied any history of previous chest conditions or any co-morbidities. Relevant clinical examination was unremarkable. Her chest X-ray showed extensive bilateral consolidation which was refractory to empirical treatment. We performed her CT examination on a 16 detector row MDCT. The scan revealed extensive bilateral airspace consolidation, which was occupying left lung virtually completely. There was no evidence of pleural effusion or lymphadenopathy. The overall findings were non-specific and raised a wide spectrum of differential possibilities encompassing infective, inflammatory or neoplastic etiologies. Patient was hence recommended biopsy. The biopsy revealed that the reason of extensive bilateral air space consolidation was carcinoma of lung, broncho-alveolar type.

**P-57****Non Bronchial Arterial Sources of Massive Hemoptysis**

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**INTRODUCTION:** Bronchial artery embolization [BAE] is a procedure of choice in those patients who has massive hemoptysis and they are poor surgical candidates for lung resection. Source of bleeding in patients with massive hemoptysis is mainly from bronchial artery but non bronchial systemic arteries are also has significant contribution. Knowledge of their anatomy and anatomic variations are important to the operator. In this study we evaluate the contribution of non-bronchial systemic arteries in the causation of massive hemoptysis in patients under going bronchial artery embolization [BAE].

**PATIENTS AND METHODS:** Two years data was retrospectively evaluated of patients who under went embolization for massive hemoptysis in our department. All patients had physical examination, chest x-ray, chest computed tomography [CT], and fiber optic bronchoscopy before procedure. Bronchial and non bronchial arterial angiography and embolization was performed with standard protocols. These angiograms were analyzed by two radiologists with over 5 years of experience in angiography. We recorded all feeders which were supplying the lesion e.g. bronchial artery, phrenic artery, intercostals artery, internal mammary artery & its branches, branches of subclavian [other than internal mammary artery] and axillary arteries.

**RESULTS:** All 22 patients had bronchial artery contributing [100%] to the hemoptysis. Ten [45.5%] patients had only bronchial artery supply without contribution from non-bronchial systemic arteries. Remaining twelve [54.5%] patients had mix arterial supply from bronchial and non bronchial arteries. Total 50 arteries were embolized in twenty-three sessions of embolization in twenty-two patients.

Total 28 [56%] non bronchial arteries were contributing the massive hemoptysis. The breakup of non bronchial arterial contribution are 3 [10.7%] phrenic arteries, 11 [39.2%] intercostals arteries, 06 [21.4%] internal mammary arteries and 06 [21.4%] arterial branches of subclavian [other than internal mammary artery] and axillary arteries

Except 01 patient, no other recurrence was observed in thirty days follow-up.

**CONCLUSION:** In our study more than half of patients had non bronchial systemic arterial source of their hemoptysis. Therefore it is important to search for non bronchial arterial contribution in cases of massive hemoptysis when performing endovascular embolization.

**P-58****A Rare Presentation of Hydatid Disease at an Unusual Site: The Seminal Vesicles**

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Human echinococcosis is caused by the larval stages of cestodes of the genus *Echinococcus*. Hydatid disease is an endemic illness in many countries including Pakistan. *E. granulosus* can reach any organ or tissue in the body where it develops into hydatid cysts. We are reporting a case with one of the rare sites of involvement that is hydatid cyst in seminal vesicle. Other unusual sites such as the heart, spleen, pancreas and muscles are very rarely affected.

Our patient also had nonspecific clinical presentation and was referred to be investigated for lower abdominal and low back pain along with recurrent episodes of burning micturition and retention of urine. Initially, an MCUG was requested which was later followed by a transrectal ultrasound and then CT scan. On radiological investigation patient had cystic mass between bladder and prostate suspected to be a Hydatid Cyst. On subsequent laparoscopic removal and biopsy the diagnosis of Hydatid Disease was confirmed.

Unusual sites for this disease can cause diagnostic problems due to nonspecific clinical presentation.

**P-59****Colorectal Carcinoma, Preoperative Evaluation by Spiral Computed Tomography**

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**OBJECTIVE:** To assess the capability of spiral computed tomography [CT] scan in preoperative evaluation of colorectal carcinoma [CRC].

**METHODS:** A cross sectional study on 52 patients with recent histopathologic diagnosis of CRC was conducted over a period of one year at the Aga Khan University Hospital, Karachi. All these patients underwent spiral CT with oral and intravenous contrast administration. Surgery was subsequently done in all cases and surgical specimens were sent for detailed pathologic analysis. The radiologic findings on the CT scans were compared with the pathological findings.



**RESULTS:** The results proved that spiral CT had 60% sensitivity and 83% specificity for assessment of local spread of disease, 66% sensitivity and 76% specificity for the evaluation of lymph nodal metastases and 89% sensitivity and 94% specificity for hepatic metastases. In all the cases, the visualized tumour growth with wide zone of resection and regional nodal chains were surgically removed. It was however, the distant metastases which made a difference to the type of curative or palliative surgery planned and in this study spiral CT had 92% accuracy for detection of hepatic metastases.

**CONCLUSION:** With technological advances and improvement in imaging protocols the results for local tumor spread are expected to improve, however based on the accuracy in detecting hepatic metastases in clinically unsuspected patients, this study proves that spiral CT has a significant role in preoperative evaluation and subsequent management of CRC.

## P-60

### Imaging Update of Ovarian Tumors

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Ovarian cancer is the second most common gynecological cancer and is frequent cause of death from gynecological malignancy. In malignant epithelial tumors the overall 5 year survival rates are in Stage I: it is 73-95% Stage II: it is 46-50% Stage III: it is 19-30% and Stage IV: it is 5- 8%. Therefore early diagnosis is crucial in improving the patients survival. Radiological imaging plays an important role in this regard. The purpose of imaging is at present is for diagnosis and differentiation of benign and malignant tumors. Preoperatively imaging helps in assessment of disease extent. Radiological imaging also aids in postoperative assessment of residual disease and assessing response to adjuvant chemotherapy. Imaging characteristics of ovarian tumors on ultrasound, MDCT, MRI, PET and Scintigraphy and update on screening tools are discussed.

## P-61

### Evaluation of Gastrointestinal Stromal Tumors by 64-Slice CT Scanner

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**INTRODUCTION:** GIST: Formerly classified as leiomyomas or leiomyosarcoma are mesenchymal tumours of the gastrointestinal tract. They are most frequently found in stomach [60-70%] followed by small intestine [20 to 30%]. The colorectum [10%] and esophagus [<5%]. They account for 2-3% of all gastric tumors. They can be benign or malignant [in upto 30%] or have a borderline to low malignant potential. Malignant tumor frequently show metastasis to liver, peritoneum, lung, bone or lymph nodes. With recent advances in MDCT, introduction of 64 slice CT scanner and the seamless volume coverage multislice CT has markedly improved diagnostic accuracy compared with conventional CT. Interactive tracking of the stomach and bowel loops on workstation has optimized diagnostic accuracy and predictions of malignancy by its superb resolution MIP, MPR, axial, sagittal and coronal images. The features of size, contour, mesenteric fat infiltration, calcification, ulceration, regional lymphadenopathy and exophytic growth pattern, central or liquefactive necrosis, vascular encasement and enhancing patterns help to differentiate between malignant and benign tumor.

**OBJECTIVES:** To describe the CT findings of Gastrointestinal Stromal Tumors [GIST] and to determine whether some features are useful for predicting malignancy in these tumors.

**METHODS:** Helical C.T was performed with Toshiba 64 slice MDCT scanner. Oral iodinated contrast was given to all the patients to distend the stomach and bowel loops. Each patient received 100ml of non-ionic contrast through a 18G cannula inserted in a forearm vein. The contrast was injected at a rate of 4ml/sec using an automatic power injector. Helical CT was performed. Multiplanar reconstructive images were obtained, in MIP, MPR, sagittal, coronal and axial planes for optimal display.

**STUDY LIMITATIONS:** Patients with renal insufficiency and allergy to iodinated contrast medium.

**RESULTS:** In our study of 6 patients, 4 were men and 2 women. Age ranged from 55-75. with mean age of 65.

In 2 patients mass was arising from stomach, 2 from duodenum and 2 from ileal small bowel loops.

The extent, contrast enhancement, mesentric infiltration, necrosis, local and distant visceral involvement, vascular involvement were all optimally visualized through the high resolution and multiplanar images obtained in MIP, MPR, Coronal, Sagittal and Axial planes with precise depiction of tumor characteristics and differentiation between malignant and benign tumors. Out of 6 cases, 2 were malignant and 4 benign.

**CONCLUSION:** With current advances in technology and through application of latest of 64 slice MDCT. The diagnostic accuracy has remarkably improved to assess between the benign and malignant GI stromal tumors by its excellent resolution and multiplanar imaging in various planes.

## P-62

### Castleman's Disease

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**SYNONYMS OF CASTLEMAN'S DISEASE:** Angiofollicular Lymph-Node Hyperplasia, Giant Benign Lymphoma, Giant Lymph-Node Hyperplasia, Lymphoid Hamartoma, Castleman's disease [CD], first described by Castleman in 1956, is a heterogeneous group of lymphoproliferative disorders of uncertain cause presenting with lymphadenopathy. It is histologically and prognostically distinct from malignant lymph-node hyperplasia.

50 years man, referred to Mayo Hospital with three years history of bilateral neck swellings with no associated clinical problem. No past/present history of benign or malignant disease. There is no relevant family history.

**NECK DOPPLER:** Revealed highly vascular anterior chain neck nodes of variable sizes extending from supra-clavicular region to the level of angle of mandible bilaterally. Carotid vessels and soft tissues are found normal.

**CECT NECK:** Multiple enlarged lymph nodes of variable sizes showed intense enhancement with contrast. Normal neck vessels.

**CECT CHEST:** No mediastinal lymphadenopathy. Normal lung parenchyma.

**CONCLUSION:** Lymph node Biopsy: The morphologic findings are consistent with Castleman's Disease.

**P-63****Contrast-Enhanced Magnetic Resonance Mammography (CE MRM)**

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**OBJECTIVE:** To describe the clinical indications for Contrast-Enhanced Magnetic Resonance Mammography [CE MRM] as supported by medical literature and our clinical experience.

**METHODS:** Scans performed at our radiology department from July 2007 to July 2008, on a 1.5T MRI GE, were retrospectively reviewed regarding their clinical indications and interpretation. Scans were categorized according to BI-RADS classification keeping in view the morphological appearance and enhancement kinetics. The diagnosis on MRI was confirmed on subsequent biopsy under ultrasound, mammography or by follow up MRI in 3-6 month interval. Final results were categorized as benign and malignant.

**RESULTS:** MRI was found to be an effective modality not only for screening high risk women in detection of breast cancer but also for pre-operative evaluation of extent of disease and its multifocality. It also helped to differentiate residual tumor from surgical scar and to monitor chemo response on tumor size besides evaluating for occult breast primary and difficult-to-read mammograms.

**CONCLUSION:** Limitations of conventional mammography in detection of breast cancer [sensitivity 80-85%] have stimulated the evolution of adjunctive imaging modalities. Breast MRI is one of these imaging tools with documented high sensitivity. MRI is a powerful tool for evaluating the breast and in its early detection. It is a useful adjunct to mammography and sonography when specific indications exist.

**P-64****Synovial Osteochondromatosis of Suprapatellar Pouch: A Rare Entity Diagnosed on Multimodality Imaging Approach**

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Synovial Osteochondromatosis is an unusual benign neoplasm affecting typically the large joints in young to middle aged adults, with a predilection of two to four folds for men over women. A 29 year old female presented with complaints of intermittent night knee swelling, pain and restriction of movements since five years. There was no history of trauma or any other significant illness. On examination the joint was tender. Plain XRay of the right knee showed multiple calcified/ossified bodies in relation to lower shaft of femur and calcification of the synovium. Ultrasound and CT scan of knee/lower femoral shaft confirmed the presence of osseous bodies within fluid filled distended suprapatellar pouch. Nuclear Scan and MRI were also performed to delineate the imaging features of synovial osteochondromatosis of suprapatellar pouch. Synovectomy was performed and gross and histopathological features confirmed our diagnosis of the Synovial Osteochondromatosis of the suprapatellar pouch.

**P-65****Hepatic Artery Variants in Patients Undergoing Transarterial Chemoembolization**

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**OBJECTIVE:** The objective of our study was to determine the frequency of different arterial variants identified at angiography performed during transarterial

chemoembolization.

**RESULTS:** Database from 2000 to 2007 which included 134 patients who underwent Transarterial chemoembolization for hepatic neoplasm were reviewed. Initial angiography was performed in every case to determine the vascular anatomy which included common and uncommon arterial anatomical variant were recorded.

**CONCLUSION:** Variant hepatic arterial anatomy is common. It is very important to recognize and document common and uncommon variants that are important for the radiological as well as surgical management of patients with hepatic neoplasm.

**P-66****Case Report: Papillary Neoplasm of the Common Bile Duct**

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Papillary adenocarcinoma of the CBD is regarded as an uncommon tumor with a more favourable prognosis and better survival compared with other carcinomas of the extrahepatic bile ducts. This distinct pathologic entity is a low-grade malignancy that is often limited to the mucosa infiltrating and penetrating the bile duct wall in its late phase. The clinical course may be that of a benign biliary tract disorder.

We present a case of a middle-aged male who presented with jaundice, weight loss and lethargy for a period of two months. Ultrasound showed moderately dilated intra and extra hepatic ducts. CT abdomen revealed a soft tissue enhancing irregular mass lesion in distal common bile duct causing biliary obstruction.

On surgery a polypoidal tumor localized to CBD and cystic duct was discovered. Histopathology confirmed the tumor to be papillary adenocarcinoma.

Reassessment at subsequent follow up visits showed gradual improvement in the patient's clinical condition.

**P-67****Incidence of DVT in Pregnancy**

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Color Doppler study of lower extremity is a sensitive and accurate Non-invasive modality for the diagnosis of D.V.T.

**MATERIAL & METHODS:** Total no of cases = 116  
Female = 74 and male = 42

Color Doppler study of both lower limbs were performed in each case with high frequency [7.5 MHz] micro-convex transducer.

**RESULT:** The results are shown in table I to V.

The majority of female patient involved with age group between 20 to 40 years of age [75%], left side commonly involved as compared with right leg, and in 7% case bilateral involvement noted.

**CONCLUSION:** Pregnant women more prone to DVT [64.8%] as compared with nonpregnant women [35.2%].

## P-68

**An Unusual Case of Pyknodysostosis with Bilateral Hypoplastic Medial end of Clavicle**

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**HISTORY:** An eleven years-old male patient, Asian, had a history of recurrent right shin fracture at a younger age. He is the first child of a consanguineous [second-cousins] marriage. Family history is otherwise unremarkable. There was no complication during the pregnancy with a term caesarian delivery. At the clinical evaluation his weight was 28 kg and stature 115cm [below the 3<sup>rd</sup> percentile]. He presented with multiple fractures of lower limb for last three years. He has multiple dysmorphic features including frontal bossing, occipital bossing, proptosis of both eyes, prominent nose, short stubby hands, defective nails, micrognathia, defective dentine with malocclusion. Absence of medial end of clavicle was noted. He has a younger brother 10 years old with similar dysmorphic features. Neuropsychomotor development was normal. At age one and half year, over sized head was noted.

**INTRODUCTION:** Pyknodysostosis [PKND] is an autosomal recessive disorder. The term pyknodysostosis is derived from Greek, pykno means dense, dys means defect, and osteosis means bone pathology. Patients with PKND usually have normal intelligence, sexual development and life span. Other clinical features include skull deformities, an obtuse gonial angle, hypoplastic paranasal sinus, shortened terminal phalanges and a history of multiple fractures. Oral manifestations include anterior cross bite, increased incidence of dental caries; hypoplastic maxilla, Radiographic findings include increased bone density, persistent open fontanelles and failure of closure of the cranial sutures. This syndrome has been seen in many races and nationalities, including blacks, Arabs and caucasians.

**DISCUSSION:** Pyknodysostosis was recognized as an entity in its own right by MAHETEUX & LAMY in 1962. Pyknodysostosis is characterized by short stature, measuring less than 150 cm. There is a generalized diffuse osteosclerosis with or without hypoplastic clavicle usually involving the acromial end of clavicle, in our case medial end of clavicle is absent. There are usually short stubby fingers, partial absence of distal phalanges of hands and feet The head is usually large with fronto-parietal bossing and open fontanelles. Wormian bones of skull, hypoplastic malar and maxillary bones accompanied with relative proptosis, beaked nose, and obtuse mandibular gonial angle are known features. Intraoral features include grooved or furrowed palate, and delayed exfoliation of deciduous teeth with eruption of permanent dentition prematurely, giving rise to crowding. Parental consanguinity has been recognized and accepted as the cause of this autosomal recessive disorder.

It is caused by mutations in the CTSK gene situated at 1 q21 and encoding for cathepsin K, a lysosomal cysteine protease of papain family, which is abundant in osteoclast and is required in osteoclast mediated bone resorption and remodeling. The mutations affect metabolism of the skeletal system resulting in serious problems in the bone formation especially of the craniofacial system. Some of the clinical and radiological features of pyknodysostosis resemble that of cleido-cranial dysostosis and osteopetrosis. In our case there is resorption of medial end of clavicle which is unusual for the Pyknodysostosis. Cases have been reported with hypoplastic lateral end, absent or bilateral congenital pseudarthrosis of the clavicle.

## P-69

**“MADURA FOOT: DOT-IN-CIRCLE SIGN ON MRI”: A Case Report**

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**INTRODUCTION:** Eumycetoma is a chronic cutaneous and subcutaneous infection caused by various genera of fungi and bacteria. The disease is marked by progressive destruction of soft tissues and nearby anatomic structures, often followed by amputation due to delay in diagnosis. The three cardinal features are tumefaction, formation of sinus tracts and fistulas and the presence of grains in the sinuses.

**CASE REPORT:** We are presenting a case of a 60 yr old male with no known co-morbid. who works as a farmer in Balochistan and presented with swelling and multiple discharging sinuses on right foot for last 10 yrs. On examination, his foot was grossly swollen and disfigured with multiple draining sinuses and few areas of necrosis and erythema. X-ray was done which showed multiple well circumscribed lucent lesions involving third metatarsal with significant soft tissue swelling. MRI showed multiple abnormal bone marrow signals in third as well as head and base of fourth metatarsal with significant erosion of the cortex of third metatarsal. Large heterogeneous soft tissue component with cellulitis and multiple micro abscesses in skin was also seen. Many of skin lesions demonstrated the “dot-in-circle sign” seen as hypointense center with hyperintense periphery [arrows in MRI images]. Total amputation of the rightfoot was performed and sent for histopathology which revealed chronic inflammation, abscess formation with florid granulomatous reaction along with colonies of filamentous organisms, consistent with Madura foot.

**DISCUSSION:** The dot-in-circle sign is a recently described sign reflecting the unique pathological feature of mycetoma. It is seen as a tiny hypointense focus within high-intensity spherical lesions. This sign was proposed by Sarris et al. in 2003 on T2-weighted, STIR, and T1-weighted fat-saturated gadolinium enhanced images. They correlated the MRI and histological findings in cases of mycetoma and concluded that the small central hypointense foci represented the fungal balls or grains, while the surrounding high signal intensity foci represented the inflammatory granulomata. It is proposed that it is likely to be a highly specific sign for mycetoma.

**CONCLUSION:** We would like to emphasize the importance of MRI in the early diagnosis of mycetoma before the development of sinuses and extrusion of grains. Since these organisms may be difficult to demonstrate either on biopsy or culture, it often requires multiple surgical biopsies, thus increasing morbidity due to delay in diagnosis and treatment. MRI can be extremely helpful in such situations. It can strongly suggest the diagnosis of mycetoma when it demonstrates the dot-in-circle sign.

## P-70

**Awareness about Radiation Protection**

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## P-71

**Multiple Faces of Skeletal Lymphoma**

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