Abstracts of Papers Presented at the 151st Research Meeting of the Medical Research Centre of Bombay Hospital Trust on Monday 09th July 2007 (Convener Dr HL Dhar)

1. Role of X-ray CT-Based Attenuation Corrected Myocardial Perfusion Scintigraphy and Its Comparison with Gated Images

Atul Marwah, Rajnath Jaiswar, Shefali Gokhale, Sunita Tarsarya, Pravin Salvi, Mahjabeen

Attenuation artifact is known to cause adverse effect to the diagnostic accuracy of myocardial perfusion scintigraphy findings to ascertain its specificity in diagnosis of coronary artery disease (CAD).

Methods : Twenty-five patients (14 Male, 11 Female, mean age 56 ± 3.5 years) underwent myocardial scintigraphy. ^{99m}Tc-MIBI gated SPECT imaging was performed on GE Millennium VG Nuclear Imaging Hawkeye system. Same patients underwent Hawkeye SPECT-CT clinical imaging protocol. Gated SPECT images were processed using Filtered Back Projection (FBP) technique having Butterworth critical frequency 0.52 and power 5. X-ray CT-based attenuation correction maps were applied to Emission and Scatter images using Iterative Reconstruction (IR) method. The resulting myocardial activity maps using both FBP and IR were processed and images were compared with wall motion and myocardial thickening on gated images.

Results : Myocardial perfusion images were reviewed for all short, vertical long and horizontal long axes. Qualitative analysis of gated SPECT as well as SPECT-CT corrected images were done and findings were compared. X-ray CT-based attenuation corrected (AC) images revealed significant variation as compared with the gated images (wall motion and myocardial thickening). The anterior wall perfusion artifacts were corrected adequately by CT-based attenuation correction, however the inferior wall perfusion defects were overcorrected in more than 40% of patients leading to erroneous results.

Conclusion : The results of our ongoing study selectively performed in obese patients having average weight more than 170 lbs has shown that X-ray CT-based attenuation correction method does over correction of the inferior wall in cardiac images, however, it may be of clinical use when anterior wall perfusion defect needs to be characterized.

2. Various modalities for imaging of breast lesions : A Comparative Study

Netra Dabake, Inder Talwar, Sunila Jaggi, Dinesh Choudhary, Poonam Khera, DB Modi

Breast cancer is the leading cause of cancer death among women. Though its incidence has been increasing, early detection through improved imaging has led to a considerable reduction in mortality. This is a study to compare the various imaging modalities used for detection of breast lesions.

Thirty nine cases of various age groups were studied during a period of one month. The main reasons for imaging were lumps or pain in breasts. A significant number (nearly 50%) were part of routine screening. Mammography, Thermography and Sonomammography were performed on all these patients and their imaging findings compared.

Mammography was done on a dedicated mammography unit with a single screening film combination. Two standard views i.e. mediolateraloblique (MLO) craniocaudal (CC) were taken for each patient; while

special views such as compression views were added as required. Findings such as mass, lobulations, calcifications and lymphadenopathy were noted. Sonomammography was performed with a 3-7 M42 linear array probe and the breast scanned in radial and antiradial planes. Lesions were characterized on the basis of their shape, echogenicity- shadowing, etc. Thermograph required a highly sensitive thermal camera for the detection of infra-red heat given off by the body. A set of 5 images – 1 front, 2 right and 2 left were recorded for each patient. The image was displayed in various colours as a function of temperature. Aggressive lesions have raised temperature due to angiogenesis and hence are recorded as hot spot.

On the basis of these findings. It was concluded that-

1. Mammography is a highly sensitive and specific technique. It should be used as the first imaging modality for detection accurate localization of lesions.
2. Sonomammography is a very specific technique. Its main role is to give detailed diagnosis, following an abnormal mammogram. It is also a guide to biopsy.
3. Thermograph is a sensitive Technique but has a low specificity. It gives very early detection of breast cancers at the stage where other investigations are normal.

Thus, imaging modality has a different role to play. They should be used in conjunction and not as a replacement of each other. Appropriate use of each modality according to the clinical situation can definitely go a long way in reducing the morbidity and morality associated with breast cancer.

3. A PET Scan Based Functional Imaging Approach for Detection of Myocardial Viability (Hibernating Myocardium) in Patients having Coronary Artery Disease and Ischaemic Left Ventricular dysfunction

Atul Marwah, Sunita Tarsarya, Shefali Gokhale, Rajnath Jaiswar, P Salvi, Mehjaben

The patients with multi-vessel coronary artery disease and ischaemic left ventricular dysfunction show improved clinical outcome after revascularization in case they have hibernating myocardium. This study was performed to evaluate myocardial viability prior to revascularization using Cardiac ^{18}F-FDG coincidence PET scan.

Method : In our institution, total 89 patients who had significant coronary artery disease underwent cardiac PET scan to evaluate myocardial viability. Seventy-three male patients with the mean age of 59 ± 11 years and 16 female patients with mean age of 61 ± 7 years were selected for the study. All had angiographically proven coronary artery disease, echocardiogram confirmed left ventricular dysfunction and had left ventricular ejection fraction < 35% (mean 22 ± 8%). All patients underwent cardiac perfusion SPECT and metabolism PET scan. Cardiac metabolism ^{18}F-FDG and 12-15mCi of ^{99m}Tc-MIBI as per imaging protocol. Coincidence PET and MIBI SPECT images obtained were reconstructed in transaxial, coronal and sagittal planes and also in 3 orthogonal planes (short axis, horizontal long axis and vertical long axis). Interpretation using qualitative (visual) analysis was performed by comparing tomographic slices of cardiac ^{18}F-FDG PET with ^{99m}Tc-MIBI SPECT images.

Results : Out of the total 89 patients, 48 patients (54%) were diagnosed to have hibernating myocardium which led to further management of these patients by revascularization procedure for salvaging the myocardium and thus aiding to improvement of left ventricular ejection fraction. Out of these 48 patients, we have a 6-8 months follow-up of 20 patients who have shown improvement in left ventricular ejection fraction post revascularization. Rest of the 41 patients (46%) had no hibernating myocardium which led to modification of management strategy from invasive to medical, thus, avoiding the considerable risk of procedure related morbidity and mortality, as revascularization would have given to benefit to these

patients.

Conclusion : Patients were benefited by the Cardiac ^{18}F-FDG coincidence PET scan, as it is a decision making functional non-invasive modality for detection of viable myocardium in patients with known coronary artery disease and ischaemic left ventricular dysfunction.

Abstracts of Papers Presented at the 152nd Research Meeting of the Medical Research Centre of Bombay Hospital Trust on Monday 13th August 2007 (Convener Dr HL Dhar)

1. A Retrospective Analysis of Urological Presentations and Management of ADPKD in our Institution

Dinesh Kumar, SW Thatte, Umesh Oza, DD Gaur, Sandeep Punamiya

Material and Method : Total no of patients – 24 in age group 45 to 68 years with M:F of 3:1 from January 2002 to May 2007. All patients are evaluated by routine blood investigation, ultrasonography, CT abdomen and in some cases TC 99 scan and angiography.

Results : 75% (18) patients had pain either due to huge renal mass, infection, stone or haematuria. Pain due to only renal mass in 4 patients initially managed by analgesics and reassurance but 2 patients required laparoscopic deroofing of cyst. 50% (12) patients had gross haematuria out of which 2 were managed by angioembolisation, 6 were managed by nephrectomy and remaining 4 were by conservative management. 33% (8) patients had infected cyst, localization of infection in some cases done by antibody tagged with Tc 99 scan out of which 4 patients required nephrectomy who had uncontrolled infection. 3 (12.5%) had renal stone, 1 patient treated by ESWL, 1 patient by PCNL and 1 patient by nephrectomy.

Discussion : In our study the incidence of urological complication in ADPKD patients in similar to other studies. Options for management of these patients include conservative management and interventions like laparoscopic deroofing of cyst, angioembolisation and nephrectomy. Management of renal stones in ADPKD patients is similar to normal population.

Conclusion : ADPKD patients presenting with urological manifestations need thorough evaluation, early diagnosis and timely judicious management. With support of nephrologists, intensivists and intervention radiologists these patients can be successfully managed by multimodality approach with least morbidity and mortality.

2. Ureteric Calculi in Transplant Kidney with Foreign Body (Broken Pen Tube) after 17 yrs of Kidney Transplantation – A Case Report

Dinesh Kumar, SW Thatte, Umesh Oza, Sandeep Punamiya

Forty one male who underwent renal transplant for ESRD in 1990 in our institution presented with acute right iliac fossa pain with oliguria. On examination found to have mild tenderness in right iliac fossa and he is hypertensive.

Routine investigation : HB%-12.4 g S. creatinine-3.8 mg%. Ultrasonography-gross hydronephrosis of transplant kidney with hydroureter with multiple ureteric calculi in lower ureter. X-ray KUB-3 radio-opaque shadow near right ischial spine CT Abdomen-gross hydronephrotic transplant kidney with lower ureteric calculi.

Ultrasound guided PCN done. After 2 days S. creatinine-1.1 mg%. Antegrade pyelography revealed grossly dilated tortuous ureter with stones in lower ureter with 3 to 4 cm stricture of ureter distal to stones. Antegrade jj stenting failed Cystoscopy –native ureteric orifice normal, transplant ureteric orifice is stenosed and retrograde jj stenting failed. After 4 days of PCN, Pigtail catheter broken down with distal end remaining in PCS of kidney. Open ureterolithotomy done with removal of broken pigtail by using 7 fr Teflon scope by retrograde URS and transplant ureter anastomosed with native ureter by end to side across jj stent after discarding unhealthy ureter.

Stone analysis showed calcium oxalate stones.

Abstracts of Papers Presented at the 153rd Research Meeting of the Medical Research Centre of Bombay Hospital Trust on Monday 10th September 2007 (Convener Dr HL Dhar)

1. Sacro Spinous Colpopexy – Revival of a Dying Art

Neelima Mantri, Kavita Salve, Nagendra Sardeshpande, Kunjal Batija, Pratima Chipalkatti

Introduction : Sacro-spinous colpopexy is unilateral fixation of sacro-spinous ligament to the vaginal vault. Sacro-spinous colpopexy is indicated in women with vaginal or vagino-uterine prolapse with weakness of level II supports.

Material and Methods : A prospective study of 63 women with genital prolapse of which 32 women selected for Vaginal Hysterectomy with anterior and posterior repair and 31 women selected for Unilateral Sacro-Spinous Colpopexy was carried out matching all the confounding factors. Surgeries were performed from July 2002 to July 2004 followed by a three year follow up.

Observations : The vaginal hysterectomy patients had pelvic haematomas not requiring blood transfusion in 3.2% and granulation of vault in 3.2% of cases whereas the sacro-spinous colpopexy patients had intra-operative haemorrhage not requiring blood transfusion in 3.3% and perineal abscess in 3.3% of cases

The three year follow up showed no cases of rectocoele and no cases of vault prolapse with sacro-spinous colpopexy and no cases of failure of surgery, as compared to 6.3% cases with rectocoele and 15.6% cases of vault prolapse with vaginal hysterectomy.

Discussion and Conclusion : Thus Sacrospinous colpopexy replaces weakened uterosacral ligament and restores the normal vaginal axis, is less invasive and less morbid thus making it the best prophylactic measure against vault prolapse as well as the treatment for the same.

2. Screening of Mentally Retarded and Autistic Children for Metabolic Disorders : A Camp Experience

BN Apte, CA Datar

Background : The results of a camp conducted at Spandan Holistic Institute, Mumbai, are presented in this paper. The camp was organized to examine and investigate paediatric cases of mental retardation and autism. The children in whom genetic diagnostic was confirmed (e.g. Down syndrome) were not included in the camp.

Cases : A total number of 37 cases (n=37) were examined in the camp. The cases were mostly children (age group 0-12 years) who were diagnosed as mentally retarded, autistic or showed delay or regression of developmental milestones. Most of the children had coarse facial features and other phenotypic abnormalities. They presented with features like frank mental retardation, autistic behaviour, and developmental delay in all domains.

Methods : Blood (10 ml) and urine (50 ml) samples were obtained from 30 patients. These samples were subjected to biochemical investigations. Urine spot tests and microscopy, thin layer chromatography (amino acids and sugars), estimations of blood ammonia, pyruvate, and lactate, biotinidase enzyme estimation, and electrophoresis for MPS were some of the tests done on the samples.

Results : We could reach to a conclusive diagnosis in 16 out of the 30 patients (54%). Of these 37% (6 children) were diagnosed as having one of the *mucopolysaccharidosis*, 25% (4 children) had *homocystinuria*, another 25% (4 children) had *biotinidase deficiency* and 12.5% (2 children) had *both homocystinuria and biotinidase deficiency*.

From the above data it can be appreciated that, in 10 of the 30 patients (33.3%) , the disorder can be managed by nutritional supplements and dietary modifications so as to bring about some improvement in their symptoms and quality of life, by correcting the metabolic disorder. In all the above diagnosed cases, prenatal diagnosis can be offered for the next issue of the couple whose child is affected.

Conclusions : These results point to an important finding that metabolic derangements could be responsible for some if not all symptoms of mental retardation and autism or they could simulate these disorders. Thus, it would indeed be helpful to perform biochemical investigations in all cases of mental retardation and autism, to determine the manageable element of these disorders and thus improve the quality of life of these patients.

3. B/L Ovarian Endometriosis Presenting as Acute Abdomen (Endometriosis – "The Puzzle Continues")

Purnima, Preeti Kantak, Nitin Paidhungat, PB Paidhungat, AB Singhal

Introduction : Endometriosis of ovary is a well known and documented entity in gynaecological practice. But rarity does appear when atypical manifestation of endometriosis presents in clinical practice.

Case Report : A 30 year old unmarried female presented to casualty with complaints of abdominal pain for past 3 days. Pain was sudden in onset and spread all over the abdomen, more so in the lower abdomen. It was associated with high grade fever with chills. She gave h/o burning micturition and obstipation since 2 days.

With clinical diagnosis of acute abdomen, an ultrasound examination was sought which revealed bulky uterus with small anterior wall fibroid. Both ovaries were well visualized and enlarged in size with complex cystic areas in both ovaries forming ovarian masses, with significant free fluid in the abdomen.

Decision to proceed with an exploratory laparotomy was taken. Bilateral abscesses formed in endometriomas were drained and cyst wall excised.

The histopathological examination revealed strips of ovarian tissue covered on external aspect by fibrinous necrotic material containing neutrophils. The ovarian parenchyma showed a cyst cavity lined by columnar endometrial type lining cells with underlying endometrial stroma and partly by clusters of siderophages.

4. Iron Deficiency Anaemia in Antenatal, Postnatal and Gynaecological Patients, Clinical Practice and Role of Intravenous Iron Sucrose

Preeti Kantak, Sangeeta Agrawal, Asha Singhal

Objectives : Iron deficiency anaemia is a very frequent condition affecting 50-60% of women in reproductive age group in developing countries. Our study had the aim of determining the place and efficacy of treatment with intravenous iron : iron sucrose.

Patients and Methods : We conducted a prospective, open study with individual benefit involving 50 patients with Hb levels between 7-10 gm/dl and S. ferritin value of < 50 µg/lit (at Bombay Hospital Institute of Medical Sciences from Feb. 2006 to May 2007). Main outcome measures – Hb, haematocrit, red cell indices and ferritin levels were measured on day 0, 5, 14 and 40.

Results : By day 5, the Hb level in women treated with iron sucrose had risen from 7.0 ± 0.9 to 9.8 ± 0.7 g/dl. A mean increase in haemoglobin of 2.0 g/dl within 14 days and of 3.5 g/dl within 40 days without any serious side effects.

Conclusion : Iron sucrose appears to be a treatment without serious side effects indicated in correction of proven iron deficiency anaemia or iron stores depletion. This treatment undoubtedly avoids some blood transfusions in young women, even though the indication for transfusions is unquestionable in the context of an emergency.

5. Interesting Case of 36 Weeks Pregnancy with Fibroid Uterus

Aditi Dani, Uma Kinnarkar, Deepak Bhenki, Nitin Pai Dhungat, Shashi Goyal, PB Pai Dhungat

Thirty one year old G4P2L2A1 with 36 weeks pregnancy with large lower segment uterine fibroid was admitted for safe confinement. Patient underwent an elective LSCS at 36.4 weeks of gestation. Intra-op myomectomy was done to facilitate baby delivery, an 18 x 19 cms fibroid was enucleated. Baby was delivered as breech, cried immediately after birth. The myoma bed and uterine incision were closed. In layers. Two pints of blood transfusion were given post-operatively to the patient. Further post-op course was uneventful and patient was discharged on day 5 of surgery.

6. Interesting Case of Vesico-Cervical Fistula

Uma Kinnarkar, Aditi Dani, Deepak Bhenki, Nitin Pai Dhungat, Shashi Goyal, PB Pai Dhungat

Thirty six years old lady, P2L2, with history of previous LSCS came to us with complains of urinary leak per vaginum after normal delivery in 1999. She was diagnosed as vesico-vaginal fistula and repaired abdominally in 1999. Pt. developed leakage of urine again after catheter removal post surgery. Investigations like IVP, urodynamic study, and cystoscopy revealed vesico-cervical fistula. We managed this case by abdominal repair of bladder defect with hysterectomy.

7. An Interesting Case of Pregnancy with Adenomyosis

Mamta S Katakdhond, Deepak Bhenki, Nitin P Paidhungat, PB Paidhungat

Adenomyosis usually is not common in mid reproductive age and generally does not exceed 12 to 14 weeks. Patients with adenomyosis have extreme difficulty in conceiving and if they do conceive, there is no documented single best management.

We are presenting this case as the adenomyosis was nearly 16 to 18 weeks, patient conceived spontaneously and we managed her as a high risk pregnancy.