LSURAD
Spring Research Symposium
Saturday, May 31, 2008

8:30 **Continental Breakfast**

9:00 **Opening remarks by Horacio D'Agostino, MD**

Abstracts

9:20 **"MRI Study of Lumbar Paraspinous Muscle and Fat Content Relationship with Gender, Age and Weight"**
R. Ordonez, MD; E. Gonzalez Toledo, MD; H. D'Agostino, MD

9:30 **"Use of gradient echo arterial spin tagging perfusion (GREAST) and DWI for ischemic stroke evaluation"**
Gonzalez-Toledo E, Ravi A, Hardjasudarma M

9:40 **"Apparent diffusion coefficient in neoplasms: a statistical analysis"**
Gonzalez-Toledo E, Weissmann E, Fowler M, Hardjasudarma M

9:50 **"Sestamibi Parathyroid Scintigraphy: Do scan protocols matter?"** Zhiyun Yang, MD., Amol Takalkar, MD., Jessica Caraway, MD., Cherie Ann Nathan, MD., Horacio D'Agostino, MD.

10:00 **"Management of Combined Malignant Biliary and Duodenal Obstruction: Is it worth placing of Biliary and Duodenal Metallic Stents?"**
Melvin Simien, MS IV; Horacio B D'Agostino, MD; Romulo Vea, MD; Mariano Gimenez, MD; Kyle Degetyer, MS Claudio J. Schönholz, MD; Paul Jordan, MD, Kenneth Manas, MD.

10:10 **"Planning and Implementing a Computed Tomography Dose Monitoring Program**
Jeremy Laborde MD, Maureen Heldmann MD, Tommy Lyles RT (R) (CT), Mark Randolph MBA, RRT, Joyce Robert BSRT (R) (CT), Fran Phillips RT(R) (M) (QM) and Michael Sullivan DABR

Exhibits

10:20 **"The Anterior Thoracoabdominal Body Wall- Congenital, Pathologic and Therapeutic findings with an Emphasis on Volume Rendering"**
Lowery Rogers MS-4, Satheavy L. Moore MD, Ginger Black MD, Kathryn Richardson MD and Maureen Heldmann MD

10:30 **Break**

10:50 **"MDCT imaging findings of Perineal and Extraperitoneal pelvic diseases"**
E. Chwoschtschinsky MD, G. Sangster MD, A. Sciuk MD, A. Carbo MD, L. Duvall MD, M. Heldmann MD.

11:00 **"Avoiding diagnostic pitfalls in the MDCT evaluation of hypervascular hepatic tumors. What do we need to know?"** E. Chwoschtschinsky MD, G. Sangster MD, M. Heldmann MD, A. Sciuk MD, A. Carbo MD, H. D'Agostino MD.

11:10 **"Uncommon benign diseases of the peritoneum, mesentery and omentum simulating peritoneal carcinomatosis. MDCT imaging pattern with PET correlation."**
A Sciuk, MD, Shreveport, LA; M G Heldmann, MD; E Chwoschtschinsky, MD; A Takalkar, MBBS; G P Sangster, MD

11:20 **"Differentiating benign and malignant ovarian neoplasms. MDCT imaging patterns with PET and surgical correlation"**
A Sciuk, MD, G P Sangster, MD; E Chwoschtschinsky, MD; A Takalkar, MBBS; M G Heldmann, MD

Work In Progress

11:30 **"Image Gently Campaign: Evaluation of Post Processing Software Image Resolution for Chest X-Ray and CT Scans of the Thorax"**
Kyle Degeyter MS III, Drs. Alberto Carbo, Thomas Gates, Eduardo Gonzalez-Toledo, Carlos Previgliano, Guillermo Sangster, Mathieu Nader MS IV, Adam Williams MS II, Andrew Mai MS III, Mike Sullivan, and Dr. Horacio D'Agostino

11:40	**"Computer Tomography Angiography of Traumatic Extremity Vascular Injury: A Clinical Correlation"** Romulo Vea, M.D., Kelly Roberts, M.D.
11:50	**"The Coorelation between the Volume of MS Plaques and Black Holes on MR Images and the Degree of Disability of MS Patients"** S. Gurwara, MS III; M. Hardjasudarma, MD; E. Gonzalez Toledo, MD, PhD.
12:00	**Closing Remarks by Horacio D'Agostino, MD**
12:10	**Department Lunch: Dahn's Vietnamese Restaurant** **3312 Youree Drive**

Title: Use of gradient echo arterial spin tagging perfusion (GREAST) and DWI for ischemic stroke evaluation

Authors: Gonzalez-Toledo E, Ravi A, Hardjasudarma M

Purpose: Ischemic stroke has two main components that must be differentiated in the acute setting in order to allow early treatment within the therapeutic window. Those are infarct core and penumbra.
Infarct core, an area that cannot be recovered, can be assessed by diffusion weighted imaging (DWI, exponential diffusion and apparent diffusion coefficient). Penumbra, area of hypoperfusion, can be recovered when extending outside the core and can be imaged using radiofrequency labeled blood instead of exogenous contrast material .

Materials and Methods: From 41 patients admitted for stroke with positive DWI (October 2007-April 2008),10 patients were not included: 5 with chronic lesions, 5 with hemhorrage.
The GREAST technique uses a combination of a short TR spoiled gradient-echo (SPGR) sequence with a selective presaturation radio frequency (RF) pulse that allows acquiring each tagged and control image within 10-20 seconds. The slices were obtained in the area of most remarkable diffusion abnormality. Using MIPAV software (Medical image processing, analysis and visualization from Center for Information Technology, National Institutes of Health) tagged images were substracted from control images producing ASL images and processed to NIH color that produces sharper boundaries than gray scale images.
DWI (TR10,000 TE:135,2.6 mm thickness,128x128 matrix, FOV 23x23cm,b=0 and 1000) and calculated exponential diffusion and apparent diffusion coefficient maps.

Results: We found 18 cases with DWI/perfusion mismatch, where there was recoverable tissue.
13 cases had DWI/perfusion match, perfusion defect correlated with the infarct core. From these patients, 6 were followed up with computed tomography and the final lesion had the same size as the DWI/perfusion match.

Conclusions: DWI and GREAST are fast, non –invasive sequences that allow us to detect diffusion/perfusion mistmach in order to indicate further treatment. The time of the examination, including processing time is 4 minutes for perfusion and 1 minute for diffusion. No exogenous contrast media are required.

Title: Apparent diffusion coefficient in neoplasms: a statistical analysis

Authors: Gonzalez-Toledo E, Weissmann E, Fowler M, Hardjasudarma M

Purpose: Apparent diffusion coefficient values are related to the speed of water molecules in the extracellular compartment.
Neoplasms have different components influencing this motion: cell cohesivity, number of cells, cysts, necrosis.
The purpose of this paper is to find a statistically significant difference between normal values and the least ADC values in patients with CNS tumors.

Materials and Methods: Material and Methods:
We selected patients (n=32)with histologically proven neoplasms calculating the apparent diffusion coefficient within the tumor and obtaining the normal value in the contralateral hemisphere.
ADC= ln (S_{dwi} / S_{T2*})
In addition we recorded normal values, regardless of the values (n=59).
The lowest values were taken to obtain descriptive statistics (mean and standard deviation) in tumors and in the normal contralateral hemisphere.
T-test for paired samples was then applied to evaluate statistical significance.

Results: In 9 patients diagnosed with glioblastoma multiforme the mean was 1.16 and standard deviation 0.137; for astrocytomas (n=9) the mean wass 1.28, sd 0.42; oligodendrogliomas (n=4) mean was 1.27 sd0.18; meningiomas (n=7) mean:0.92 sd 0.16; pilocytic astrocytomas (n=3)mean 1.22sd 0.6.
For normal values (n=59): mean 0.74sd0.11.
T-test was only statistically significant in astrocytomas with a T score of 4.199 and p=0.03

Conclusions: ADC values are useful to categorize brain neoplasms when taken as a part of a thorough MR examination. However a statistically significant difference was found between ADC in astrocytomas and normal values in the contralateral hemisphere.

Title: Sestamibi Parathyroid Scintigraphy: Do scan protocols matter?

Authors: Zhiyun Yang, MD., Amol Takalkar, MD., Jessica Caraway, MD., Cherie Ann Nathan, MD., Horacio D'Agostino, MD.

Purpose: To determine the value of various scan protocols s in the interpretation of parathyroid scans.

Materials and Methods: Parathyroid scans with Tc-99m sestamibi of 60 patients suspected to have parathyroid adenoma from July 2007 to May 2008 were included in this study. The standard protocol for parathyroid scanning consisted for acquiring planar scintigraphic images of the neck and mediastinum up to the heart in anterior projection (mediastinal views) at five minutes, one hour and two hours after intravenous administration of 20 mCi Sestamibi and SPECT images of the neck immediately following the five minutes and two hours planar images. The new protocol consisted of acquiring mediatinal views as same as ones in standard protocol and additional planar scintigraphic images in anterior, right anterior oblique (RAO) and left anterior oblique (LAO) projections from neck to mid-mediastinum (just excluding heart) at 5 minutes and 1 hour post-sestamibi administration and only anterior projection image from neck to mid mediastinum (again just excluding heart) at 2 hours post-sestamibi administration (no RAO or LAO views at 2 hrs). These are referred to as non-cardiac images. Six patients initially had parathyroid scans with the standard protocol only that were interpreted as non-diagnostic studies and had repeat studies within less than one year with the new protocol. The remaining 54 patients had the studies with the standard and new protocols at the same time.

Images for each patient were displayed and reviewed in 4 groups as follows: group I: 5 min, 1 hr and 2 hrs mediastinal views; group II: 5 min and 2 hrs SPECT images; group III: 5 min mediastinal view plus anterior, RAO and LAO views (non-cardiac images); and group IV: all planar images (5 min, 1 hr and 2 hrs mediastinal views, 5 min and 1 hr anterior, RAO and LAO non-cardiac images, and 2 hrs anterior images (non-cardiac images. These groups of images were reviewed separately by a certified nuclear medicine physician blinded to clinical information. Interpretation of findings based on standard protocol images (groups I and II) and new protocol images (groups II and IV) were compared and analyzed.

Results: For the 6 patients who had repeat studies within less than one year of a non-diagnostic study from standard protocol parathyroid scan, the final interpretation changed in 4 of these 6 patients from non-diagnostic scan to a positive scan with definite localization of an abnormal parathyroid focus. In the remaining two patients, the repeat studies added to the confidence level of interpreting the study as negative rather than non-diagnostic. In the remaining 54 patients, the new protocol provided more information and confidence in final interpretation compared to the standard protocol in 18 of these 54 patients (40%). These 18 scans demonstrated relatively smaller enlarged parathyroid glands. The rest 36 of these 54 patients come a same diagnosis based on either standard protocol or new protocol. SPECT images (group II) along did not add more information in all 60 patients except one patient’s scan, which demonstrated an ectopic enlarged parathyroid gland at the base of tongue.

Conclusions: Parathyroid scintigraphy with the new protocol may provide better information compared to the standard technique. This needs to be validated in a larger prospective study and correlated with surgical and pathological results. The further validation of new protocol may obviate the need for SPECT images to shorten a scan time and improve the yield of these studies at the same time.

Management of Combined Malignant Biliary and Duodenal Obstruction: Is it worth placing of Biliary and Duodenal Metallic Stents?

Authors: Melvin Simien, MS IV; Horacio B D'Agostino, MD; Romulo Vea, MD; Mariano Gimenez, MD; Kyle Degetyer, MS Claudio J. Schönholz, MD; Paul Jordan, MD, Kenneth Manas, MD.

Purpose: To report the results of a series of patients with combined malignant biliary and duodenal obstruction managed by percutaneous insertion of biliary and duodenal stents for relief of jaundice and vomiting.

Materials and Methods: The study involves 12 patients (men, 9; women, 3) with obstructive jaundice and vomiting from duodenal obstruction caused by unresectable locally invasive pancreatic carcinoma. Diagnostic workup included CT scan of the abdomen and upper GI endoscopy. A percutaneous approach was indicated after endoscopic attempts failed to resolve malignant obstructive jaundice. Biliary and duodenal obstruction occurred synchronically in 8 patients, while duodenal obstruction was clinically apparent after biliary stent placement in 4 patients. Ultrasound and fluoroscopy were used for biliary stent insertion guidance. Duodenal stents were placed under fluoroscopic guidance in a retrograde fashion using the left biliary access (8 patients), combined endoscopic-transbiliary (2 patients) and transgastric (2 patients). Wallstents 10x42-68 mm and 20x60-90 mm were used for resolving biliary and duodenal obstruction, respectively. Multiple stents were used in 10 patients. Patients were placed on a liquid or semisolid diet. Parameters evaluated were relief of symptoms and survival.

Results: Gradual decrease of serum bilirubin occurred in all patients. Ten patients were able to resume liquid and semi solid low residue oral feedings. Immediate relief of duodenal obstruction was complete in 8 patients and partial in 2 patients. Two patients did not improve after the procedure and continued vomiting until their demise. Two patients had postprocedure stent migration requiring insertion of another stent with endoscopic assistance. There were no other procedure associated complications. Survival of patients ranged from 10-164 days (median, 70 days; average, 57 days).

Conclusion: Percutaneous biliary and transhepatic or transgastric duodenal stents were effective in relieving symptoms of combined malignant biliary and duodenal obstruction in the majority of patients of this series. A percutaneous approach may be used when the endoscopic approach is unsuccessful.

Title: Planning and Implementing a Computed Tomography Dose Monitoring Program

Authors: Jeremy Laborde MD, Maureen Heldmann MD, Tommy Lyles RT (R) (CT), Mark Randolph MBA, RRT, Joyce Robert BSRT (R) (CT), Fran Phillips RT(R) (M) (QM) and Michael Sullivan DABR

Purpose: In order to meet good clinical practice and comply with ACR/AAPM recommendations for CT accreditation (table) we sought to implement a dose monitoring program which would provide Performance Indicators defined over time, supervised by a medial physicist and monitored by the Department Chairman and the institutional Radiation Safety Committee for oversight and recommendations.

Materials and Methods: In the first data assay, the average delivered dose of a "stone protocol" CT with automated tube current modulation (*Auto mA- GEMS*) performed on multi-site MDCT scanners as ordered by referring clinicians in the course of daily care in a University teaching hospital was determined. CT dose index (CTDI) in mGy was recorded for 53 consecutive helical CT exams of the abdomen and pelvis performed without radiographic contrast on three institutional CT scanners (General Electric LightSpeed 16 (2) and VCT (1)), and correlated with reference levels as previously put forth by the American College of Radiology and American Association of Physicists in Medicine and revised January 1, 2008. Outlier values where then correlated with CT scanner, patient weight and technical parameters such as centering, used of automated tube current modulation and noise level.
Subsequently, similar information was collected for 99 CT exams of the brain.

Results: The average CTDI for a non-contrast abdominopelvic exam was 25.37 mGy, with 9 outliers (16%) and an average patient weight for non-compliant dose exams of 241 pounds (range 120-420). None of the outliers was found to be on the basis of technical error, and at least one outlier was observed on all multi-detector scanner configurations.
Preliminary data on brain CT exams revealed 9 of the 90 (10%) exceeded the current ACR dose recommendations, and were also observed on all CT scanners.
After medical physicist review and patient weight correlation, all but one abdominopelvic outlier was felt to be appropriate dose per individual patient body habitus.
Brain CT dose findings are currently being assessed by section medical directors, technical and administrative staff. Small patient numbers preclude statistically significant scanner comparison data analysis at this juncture.
Further CT exam data will be reviewed and entered into threshold Performance Indicators and reported to the oversight personnel stated above.

Conclusions: Preliminary data support the need for education, quantification and, in some cases, remediation of current CT exposures in the Department of Radiology LSUHSC-S.
Radiology programs have an obligation to develop a quantitative assessment of daily operational indicators to ensure compliance with benchmarks set forth by advisory panels and upheld by the American College of Radiology.
A team approach is necessary to ensure education of all stakeholders in performance improvement, and availability of data to all healthcare providers. Oversight of and data analysis is needed at Departmental and Institutional levels, not only as a means to patient protection and compliance with ACR guidelines, but to advance the goal of education in the principles of radiation safety and appropriate utilization of imaging.

The Anterior Thoracoabdominal Body Wall- Congenital, Pathologic and Therapeutic findings with an Emphasis on Volume Rendering

Lowery Rogers MS-4, Satheavy L. Moore MD, Ginger Black MD, Kathryn Richardson MD and Maureen Heldmann MD Louisiana State University Health Sciences Center-Shreveport

Computed tomography is the fastest growing imaging modality in the radiology armamentarium, and great strides have been made in hardware and software applications of CT in the last decade. Radiologists specializing in body imaging have historically focused upon mastering diagnosis within the confines of the thoracic, abdominal or pelvic cavity organs, while clinicians have greater familiarity with surface anatomy and pathology. Early surface rendering techniques were of intellectual interest, but failed to portray the full gamut of densities that subtend the body wall, such as bone, muscle, fat and skin. With the advent of volume rendering techniques, the full fidelity of body wall abnormalities can be portrayed, and radiologists may gain insight from thoracoabdominal body wall investigation. Reconstructive surgery, wound patterns, and therapeutic device placement are but a few of the manifestations of medical intervention that promote greater understanding of surgical procedures and complications, and promote a comprehensive assessment of patient status.

Purpose/Aim: Identify variant anatomy, superficial manifestations of systemic disease, wound management devices, and surgical materials that may be unfamiliar to the general radiologist. Promote greater understanding of thoracoabdominal surgical procedures and complications, and enhance comprehensive imaging assessment. Demonstrate the utility of 2- and 3 dimensional CT techniques in the comprehensive assessment of various developmental and acquired conditions of the body wall.

Content organization: Review the anatomic structure of the thoracoabdominal body wall including operative and radiologic examples. Portray the full gamut of disease processes affecting all layers of the anterior thoracoabdominal body wall, including bone, muscle, fat and skin.

- Congenital
- Degenerative
- Infectious/inflammatory
- Neoplastic
- Traumatic
- Postoperative
- Vascular

Illustrate the value of mutiplanar and rendered image data in comprehensive assessment of the body wall.

Learning objectives: 1. Depict variant anatomy, superficial manifestations of systemic disease, wound management devices, and surgical materials that may be unfamiliar to the general radiologist. 2. Illustrate neoplastic diseases primary or secondary to the body wall components. 3. Demonstrate the utility of 2 dimensional reformat and 3 dimensional

volume rendering techniques in various acquired and traumatic conditions of muscle and fascia.

Conclusions: A broad spectrum of disease states are manifest in the non-visceral thorax and abdomen. Robust two and three-dimensional computed tomography software applications can enhance a radiologist's understanding of surgical techniques and complications. Interrogation of the body wall can provide insight into primary and secondary pathology.

MDCT imaging findings of Perineal and Extraperitoneal pelvic diseases.

E. Chwoschtschinsky MD, G. Sangster MD, A. Sciuk MD, A. Carbo MD, L. Duvall MD, M. Heldmann MD.

Objectives/Teaching points:

1. To review the anatomy of the perineum and extraperitoneal pelvis in males and females.

2. To illustrate common and uncommon pathologic processes affecting the perineum and extraperitoneal pelvis.

3. To highlight multidetector computed tomography (MDCT) imaging features to differentiate between extraperitoneal from intraperitoneal lesions.

Content organization:

Illustrate the anatomic landmarks of the perineum and extraperitoneal pelvis. Review the MDCT findings of common and uncommon processes involving these areas. Examples of congenital anomalies, trauma, infection, hernias and neoplastic conditions are reviewed. Highlight valuable imaging signs to differentiate extraperitoneal from intraperitoneal processes such as: displacement of the ureter and rectum, effacement or encasement of the iliac vessels and effacement of the pelvic musculature.

Conclusion/summary:

After reviewing this exhibit the reader will be familiar with the anatomy, common and uncommon processes affecting the perineum and extraperitoneal pelvis. Even though diagnosis could be quite challenging in some case,s the viewer will be able to elaborate a wise differential diagnosis that will facilitate appropriate triage and management.

Uncommon benign diseases of the peritoneum, mesentery and omentum simulating peritoneal carcinomatosis. MDCT imaging pattern with PET correlation.

A Sciuk, MD, Shreveport, LA; M G Heldmann, MD; E Chwoschtschinsky, MD; A Takalkar, MBBS; G P Sangster, MD (asciuk@gmail.com)

PURPOSE/AIM

1. To illustrate normal radiologic appearance of peritoneal, mesenteric and omental anatomy
2. To review multidetector computed tomography (MDCT) and positron emission tomography (PET) imaging features of uncommon benign diseases affecting the peritoneum, mesentery and omentum
3. To display MDCT and PET appearance of peritoneal carcinomatosis

CONTENT ORGANIZATION

The isotropic strength of MDCT allows evaluation of the complex peritoneal anatomy, which is the key to understand the pathological processes contained by or disseminated via these peritoneal pathways. Uncommon benign peritoneal diseases such as sarcoidosis or mycobacterial infection can mimic peritoneal carcinomatosis. Certain MDCT imaging patterns, in conjunction with FDG-PET, can be helpful to distinguish uncommon benign peritoneal diseases from primary and secondary peritoneal malignancies.

SUMMARY

The major teaching points of this exhibit are: 1. Reinforce normal radiographic appearance of the peritoneum. 2. Familiarize the reader with relevant CT and PET appearances of uncommon peritoneal, mesenteric and omental benign diseases. 3. Provide key features which can help differentiate uncommon benign peritoneal lesions from peritoneal carcinomatosis.

Differentiating benign and malignant ovarian neoplasms. MDCT imaging patterns with PET and surgical correlation.

A Sciuk, MD, Shreveport, LA; G P Sangster, MD; E Chwoschtschinsky, MD; A Takalkar, MBBS; M G Heldmann, MD (asciuk@gmail.com)

PURPOSE/AIM

1. To discuss pathogenesis of benign and malignant ovarian conditions. 2. To illustrate the multidetector computed tomography (MDCT) imaging spectrum of various ovarian neoplasms. 3. To correlate MDCT imaging findings with positron emission tomography (PET) and surgical specimens.

CONTENT ORGANIZATION

Certain ovarian neoplasms have distinct macroscopic appearances, and can be characterized by radiographic techniques. However, a considerable overlap in benign and malignant processes is seen, when lesional fat is absent. MDCT features of malignant conditions combined with analysis of their metabolic activity can be of diagnostic value in differentiating malignant from benign entities, directing biopsy and guiding therapy.

SUMMARY

The major teaching points of this exhibit are: 1. The pathogenesis of ovarian neoplastic processes can predict MDCT morphologic appearance and PET metabolic activity . 2. MDCT offers a powerful noninvasive diagnostic tool for characterizing ovarian lesions. 3. A combined CT and PET analysis can aid ovarian tumor differential diagnosis and staging.

Title: Image Gently Campaign: Evaluation of Post Processing Software Image Resolution for Chest X-Ray and CT Scans of the Thorax.

Authors: Kyle Degeyter MS III, Drs. Alberto Carbo, Thomas Gates, Eduardo Gonzalez-Toledo, Carlos Previgliano, Guillermo Sangster, Mathieu Nader MS IV, Adam Williams MS II, Andrew Mai MS III, Mike Sullivan, and Dr. Horacio D'Agostino

Purpose: To evaluate the ability of a post-processing software (Clarity, Sapheneia, Stockholm, Sweeden) to enhance image resolution in images obtained at routine protocols. Eventually, a potential benefit of using image enhancement is that it may allow diagnostic images at reduced radiation exposure without sacrificing diagnostic quality.

Materials and Methods: This is a retrospective study that centered on the interpretation of 40 radiographic examinations (CT scans of the thorax, 20; PA chest X-Rays, 20). The images were acquired using routine chest X-Ray and thoracic CT protocols. The studies were scored by six blinded radiologists using a specifically designed form for statistical analysis. The resolution of unprocessed and post-processed images was evaluated by focusing on the degree of visualization of ten (for X-Ray) and seven (for CT) anatomical landmarks. The ten anatomical landmarks used for evaluation of X-Rays were: 1. blood vessels through the heart, 2. blood vessels through the right hemidiaphragm, 3. blood vessels through the left hemidiaphragm, 4. lower thoracic spine, 5. trabecular markings within the ninth ribs, 6. lung markings at the upper most apices, 7. lung markings within the periphery of the lung fields, 8. carina, 9. azygous vein, 10. minor fissure. The seven points of evaluation used in CT scans were: 1. interface between the esophagus and the mediastinal fat at the gastroesophageal junction, 2. interface between the esophagus and the mediastinal fat at the distal esophagus, 3. mediastinal pulmonary vessels at the main trunk bifurcation, 4. interface between spine and surrounding tissue at T6, 5. interface between spine and surrounding tissue at T12, 6. muscle fiber distinction in the pectoralis major, 7. the left lung fissure.

Completed forms were submitted for statistical evaluation. The student t-test was used to compare the mean scores (non-parametric method was available instead of t-test for a non-normal distribution). The chi-square test was used to test the association between variables. Kappa coefficient was estimated and a z-test used to test for statistical significance (from zero or some other constant). We hoped to prove if there was a statistically significant change in score from using the Clarity application.

Results: Results are pending.

Conclusions: The study must be completed before conclusions can be drawn.

Title:
"Computer Tomography Angiography of Traumatic Extremity Vascular Injury: A Clinical Correlation"

Authors:
Romulo Vea, M.D.
Kelly Roberts, M.D.

Purpose:

1. To describe sequelae of traumatic vascular injuries of the upper and lower extremities.
2. To correlate CT findings in acute traumatic vascular insult of the extremities with operative findings and/or long-term sequelae of these injuries in cases of non-surgical intervention.
3. To determine the accuracy of imaging studies with respect to anatomic findings of surgical intervention involving traumatic injuries to the vascular systems of the upper and lower extremities.

Materials and Methods:

Imaging findings from CTA of the upper and lower extremities in cases of acute traumatic insult will be collected from exams performed from the time frame of 2003 (the advent of 16-slice CT imaging at LSUHSC-Shreveport) until the present. In cases of surgical intervention, the findings reported from imaging studies will be compared to anatomic findings discovered during surgery, as reported in operative notes. For cases in which CTA findings were not addressed surgically, individual patients will be questioned regarding the long-term sequelae of vascular injury which was incurred. A retrospective analysis will be conducted to determine the accuracy of CTA findings with respect to anatomic findings revealed during surgical intervention. We hope to prove that CT angiographic imaging directly correlates with the severity of anatomic findings. Should this not be the case, we hope to address methods of improving accuracy of determination of the extent of traumatic vascular injury of the extremities utilizing advanced CT angiographic techniques.

Results:
To be announced.