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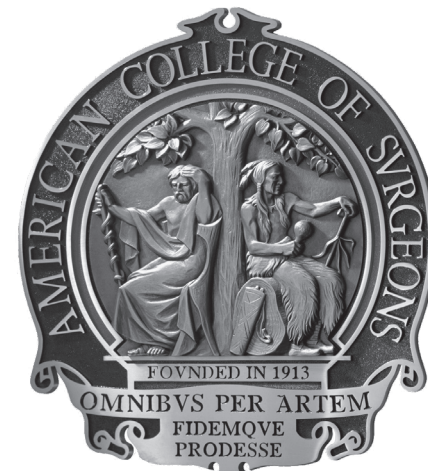
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# *North Texas Chapter of the American College of Surgeons 2009 Annual Meeting*

**Final Program**

*February 20-21, 2009*  
Cityplace Conference Center  
Dallas, Texas





## Perforated Appendicitis: An Unlikely Masquerador of Acute Myelogenous Leukemia

I Mitchell MD, JT Murphy MD, R Barber RN, AC Fischer MD PHD  
University of Texas Southwestern Medical Center, Dallas, TX

**Introduction:** Acute Myelogenous Leukemia (AML) can present with minimal to life-threatening symptoms due to depletion of normal bone marrow elements and /or organ dysfunction based on leukemic cell infiltration. Typical presentations include bleeding, persistent fever, pain and infection and less commonly seizures. Leukocytosis can cause hyperleukostasis in the setting of marked neutropenia resulting in a medical emergency for infectious complications. Rarely can AML present as septic shock.

**Methods:** After IRB approval, a chart review was completed on a child who presented as having perforated appendicitis which was the initial presentation of an undiagnosed AML.

**Results:** A 7 year old female presented with right lower quadrant pain, vomiting and fever, with an unremarkable prior history. She demonstrated localized peritonitis in the right lower quadrant with a leucopenia, WBC 3.7, and mild anemia of 8.9. A CT confirmed perforated appendicitis with 5X4 cm phlegmon with ascending right hydronephrosis. Interventional radiology felt her imaging did not warrant drainage and she was admitted for conservative therapy with triple antibiotic therapy, intravenous hydration, and bowel rest. On hospital day 4 she continued to improve marginally with her fever curve despite a progressive pancytopenia (WBC 1.9, Hbg 6.5, Plts 93), attributed to transient suppression secondary to sepsis. Given her neutropenia, she was taken to the OR for laparoscopic drainage of the pelvic abscess with drainage of frank pus and the appendix appeared very friable. Her fevers and pain resolved but her worsening pancytopenia led to the initiation of G-CSF. On POD 5 she had a bone marrow biopsy which demonstrated a 80% marrow involvement by AML. She returned on POD 5 for a difficult laparoscopic appendectomy since clearance of her infection was a prerequisite to the initiation of chemotherapy. She continued to have fevers, attributable both to AML as well as to perforated appendicitis, and a requirement for ongoing blood product transfusions to correct her anemia, thrombocytopenia and coagulopathy. She returned to the OR on POD6 for evacuation of a pelvic hematoma which cultured out Amp resistant E Coli. Chemotherapy was attempted within 3 days leading to seizures and by POD 5 she was in overwhelming gram negative sepsis, multiorgan failure with renal failure as well as a depressed cardiac function with an ejection fraction of 10%. She subsequently succumbed to overwhelming sepsis on POD6 in an uncorrected immunocompromised state since her chemotherapy was not in time to reverse the fatal infectious complications of her neutropenia and pancytopenia.

**Conclusion:** This case illustrates the rare presentation of perforated appendicitis in the setting of cytopenia and neutropenia which may indicate an underlying AML that is rapidly fatal without the prompt initiation of chemotherapy.

## Table of Contents

<u>2008-2009 Chapter Officers</u>	<u>Page 2</u>
<u>Overall Learning Objective</u>	<u>Page 2</u>
<u>Accreditation Statement</u>	<u>Page 2</u>
<u>CME Credit</u>	<u>Page 2</u>
<u>Endowed Lectureship Funds</u>	<u>Page 3</u>
<u>Robert S. Sparkman Memorial Lecturer</u>	<u>Page 4</u>
<u>Harry M. Spence Memorial Lecturer</u>	<u>Page 5</u>
<u>Meeting Schedule</u>	<u>Page 6</u>
<u>Oral Session Abstracts</u>	<u>Page 11</u>
<u>Mini Talk Abstracts</u>	<u>Page 41</u>
<u>Oral Poster Session Abstracts</u>	<u>Page 51</u>
<u>Poster Display Abstracts</u>	<u>Page 57</u>
<u>Exhibits and Sponsorship</u>	<u>Back Cover</u>

## 2008-2009 Chapter Officers

<b>President</b> Joseph A. Kuhn, MD	<b>Past Presidents</b> Ernest Dunn, MD Peter Rutledge, MD Warren Lichliter, MD	<b>Program Chairman</b> Colleen Kennedy, MD
<b>President-Elect</b> Joseph Minei, MD	<b>Regent</b> John T. Preskitt, MD	<b>Assistant Program Chairman</b> Roderich Schwarz, MD
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<b>Secretary-Treasurer</b> Mark Watson, MD		

## Overall Learning Objective

The scientific program of the Annual Meeting of the North Texas Chapter of the American College of Surgeons will provide up-to-date information for community surgeons, academic surgeons and the surgeon in training. Topics will cover a broad range of surgical practice interests including updates and advances in trauma and critical care, bariatric surgery, cardiac surgery, pediatric surgery, surgical education, surgical oncology, surgical endocrinology and vascular surgery. The intent of the program is to improve the quality of patient care and improve patient safety. Audience participation and interaction will be encouraged. The content and format of the program have been determined based on evaluations and suggestions of attendees of previous programs.

## Accreditation

The American College of Surgeons is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.



## CME Credit

The American College of Surgeons designates this educational activity for a maximum of 14.0 *AMA PRA Category 1 Credits*<sup>™</sup>. Physicians should only claim credit commensurate with the extent of their participation in the activity.

### Poster 65

## Inhibiting XIAP with Smac Mimetic JP-1201 Increases Sensitivity to Gemcitabine and Improves Survival in Murine Models of Pancreatic Cancer

SP Dineen MD, CL Roland MD, RM Greer BS, JG Carbon BS, JE Toombs B, RA Brekken PhD  
UT Southwestern Department of Surgery, Dallas, TX

**Introduction:** Pancreatic cancer has a dismal prognosis in part due to the poor response to systemic chemotherapy. One mechanism by which pancreatic and other tumors resist chemotherapy is by evading apoptosis – a characteristic that is considered a hallmark of all cancers. Therefore, activating apoptosis is an attractive strategy for increasing tumor cell death when combined with chemotherapy. Inhibitors of apoptosis proteins (IAPs) are frequently upregulated in cancer and thus prevent tumor cell death. Smac is a cytosolic protein that blocks the effect of IAPs and thus allows for caspase activation. We investigate the use of a synthetic Smac mimetic, JP-1201, in combination with chemotherapy for the treatment of pancreatic cancer in multiple murine models.

**Methods:** Pan02 cells were injected into the tail of the pancreas in C57Bl6/J mice and allowed to develop for 3 weeks prior to therapy. Treatment with gemcitabine (GEM), JP-1201, control, or JP-1201 + GEM was given 3 times a week for 2 weeks. At the time of sacrifice, the tumor and residual pancreas were excised en bloc and weighed to establish tumor burden. Metastases were counted by visual inspection. The survival study was performed in nude mice with MIA-PaCa-2 cells inoculated into the pancreas. Therapy was started 4 weeks after tumor injection and was administered as above. Animals were sacrificed when objective criteria for tumor burden were met or when moribund as determined by a blinded observer. Sensitivity to gemcitabine was determined by MTS assay in the presence of siRNA to XIAP, control siRNA, or JP-1201.

**Results:** In a syngeneic model of pancreatic cancer, we demonstrate a reduction of tumor size in animals treated with JP-1201 + GEM (control 0.430 g, JP + GEM 0.16 g,  $p < 0.01$ ). The incidence of metastasis was also reduced in combination treatment compared to control. In the survival study using Mia-PaCa-2 human cell line, we showed an increase in median survival using JP-1201 + GEM compared to control (71 days in control, 168 days JP + GEM,  $p < 0.01$ ). Additionally, we show that siRNA knockdown of XIAP sensitizes cells in vitro similar to treatment of JP-1201.

**Conclusion:** In this set of experiments, we show further evidence that Smac mimetic JP-1201 is effective in sensitizing pancreatic cancer to chemotherapy with gemcitabine. We demonstrate a reduction in tumor size in an immunocompetent mouse model and show that survival is increased in a xenograft model. Finally, we show that targeting of XIAP is a valid strategy based on in vitro siRNA knockdown studies. In summary, our data support the use of Smac mimetic JP-1201 in pancreatic cancer to improve therapeutic response to gemcitabine.

## Unexpected Neurological Deficit After Endoscopic Retrograde Cholangiopancreatography

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MK Markarian MD, R Schutt MCS, D Santana MD  
Texas Tech University Health Sciences Center, Lubbock, TX

**Introduction:** Retroperitoneal hematomas are a rare but morbid cause of lower extremity pain and neurological deficit. We describe a rare case of retroperitoneal hematoma following endoscopic retrograde cholangiopancreatography (ERCP). The hematoma caused lower extremity nerve compression and life-threatening bleeding, requiring prompt recognition and surgical evacuation.

**Methods:** Case presentation: a 72 year old male with no prior coagulopathy or anticoagulant history underwent ERCP. He received preoperative Enoxaparin for DVT prophylaxis. There were no procedural complications, or any trauma during positioning of the patient. Immediately following the procedure, the patient complained of severe right hip and lumbar pain. He also experienced loss of the right patellar reflex, inability to extend the right knee or externally rotate the right leg, and complete sensory loss over the anterior femoral cutaneous and saphenous nerve distributions. The physical exam was otherwise unremarkable. INR was 1.47 and hemoglobin dropped from 13.2 to 10.0g/dL. Remaining lab values were within normal limits. Computed Tomography on post-operative day #2 revealed a 7.5cm hematoma over the right iliopsoas muscle. Patient was taken to the operating room for emergent pelvic exploration of this retroperitoneal hematoma.

**Results:** The retroperitoneal hematoma was noted to track under the right inguinal ligament, exerting a tenting effect on the femoral nerve. Following evacuation of the hematoma, surrounding tissue were visibly decompressed and instantly under less tension. Postoperatively, the patient had immediate relief of back and leg pain, but motor and sensory deficits have since persisted.

**Conclusion:** Retroperitoneal hematomas can present with severe lower extremity pain and neurological deficit. Femoral neuropathy is a relatively uncommon clinical syndrome with characteristic clinical features. The course of the femoral nerve beneath the inguinal ligament lends itself prone to mass effect from the retroperitoneal space. We suggest the triad of falling hemoglobin, lower extremity neurological deficit, and back or leg pain prompt early suspicion of a retroperitoneal hematoma.

## Endowed Lectureship Funds

### The Harry M. Spence Memorial Lectureship Fund

On February 17, 1990, during the annual business meeting of the North Texas Chapter of the American College of Surgeons, an annual lectureship was established to honor Harry M. Spence, MD. It was proposed that each year a distinguished guest speaker be invited to deliver the Harry M. Spence Lecture as a special feature of the annual chapter meeting.

Established at the outset as a permanent fund, the Harry M. Spence Endowed Lectureship had an initial goal of \$50,000. The fund reached its initial goal in December 1995, henceforth providing income used to support the lectureship. Further donations are welcomed and encouraged in order to guard against inflationary deterioration of this excellent endowment.

### The Robert S. Sparkman Lectureship Fund

During the annual business meeting of the North Texas Chapter of the American College of Surgeons on February 16, 1995, an annual lectureship was established to honor Robert S. Sparkman, MD. It was proposed that each year a distinguished speaker be invited to deliver the Robert S. Sparkman Lecture as a special feature of the annual chapter meeting. It was further proposed that a permanent fund with an initial goal of \$50,000 be established to provide an income to support this lecture.

The Robert S. Sparkman Fund was established as a permanent fund after reaching its initial goal in October 1996. The Council of the North Texas Chapter instructed that the fund remain in an open investment account until the close of the annual chapter meeting on March 1, 1997. Since that time, the fund has provided an income to support the lectureship. The friends, patients, pupils and colleagues of Dr. Sparkman are invited to participate with the Fellows of the North Texas Chapter in contributing the funds necessary to endow the Sparkman Lectureship. Donations of an size are welcome and are tax-exempt. The amounts of individual contributions will be kept confidential. Checks should be made payable to the North Texas Chapter of the ACS, and forwarded to the Chapter Secretary-Treasurer.

# James Patrick O'Leary, MD

Florida International University, Miami, FL

## Robert S. Sparkman Lecturer

*Leadership: A Personal Perspective*



James Patrick O'Leary was raised in Central Florida before matriculating at Belmont Abbey College in North Carolina where he was selected to Whose Who in American Colleges and Universities. He attended medical school at the University of Florida where he was elected to AOA and subsequently spent the bulk of his residency at this institution, and joining the faculty there in 1972. Dr. O'Leary has been recognized for his teaching activity by winning the Outstanding Teacher Award by the medical students at Florida (Hippocratic Award 1977), Vanderbilt (Shovel Award 1984), and at LSU (Aesculapian Award 1990 & 1995). In 1989 Dr. O'Leary was appointed The Isidore Cohn, Jr. Professor and Chairman of the Department of

Surgery at LSU in New Orleans, and served in that capacity until 2007 when he accepted the position of Assistant VP of Strategic Planning and Executive Associate Dean for Clinical Affairs at the founding new medical school at Florida International University in Miami.

Dr. O'Leary retired from LSU Health Sciences Center in July of 2007 to continue as Emeritus Professor and Emeritus Chairman of the Department of Surgery. Perhaps the most challenging of all these endeavors, is his current work to bring into an existence a new medical school at FIU in Miami.

## Poster 63

### Delayed Diagnosis of an Endoscopic Camera Capsule Causing Intestinal Obstruction : A Case Report

RS Padmanabhan MD, P Sharma MBBS

Medical Center of Arlington, Arlington, TX

**History:** Capsule Endoscopy is a well established procedure to evaluate the small bowel. There have been several case reports regarding retained capsules due to anastomotic stricture, inflammatory bowel disease, or tumor. The longest a capsule was retained in our review was for 6 weeks.

**Objective:** To present a case in which a capsule was retained for 4 months resulting in chronic intermittent obstruction in a patient with undiagnosed Crohns Disease leading to surgical intervention.

**Design:** Case Report

**Setting:** Community Hospital

**Case:** HH is a 40 year old Vietnamese male that presented with a 8 year history of intermittently progressive abdominal cramping, nausea and occasional vomiting. These symptoms progressively worsened and increased in frequency and intensity. He was seen by the GI service and a capsule endoscopy was done in April of 2008. After the capsule study was done his symptoms worsened further with more frequent obstructive symptoms. He was admitted to our ER in August of 08 and a retained capsule was noted on CAT scan. Conservative management of his bowel obstruction failed. He was taken to the OR and we found several strictures of his small bowel and severely diseased areas as well. A small bowel resection as well as 2 strictureplasties were done. The capsule was found just proximal to the first stricture. Pathology revealed multifocal segmental Crohn's disease with diffuse ulcerations, adhesions and stricture. Pt did well post operatively with an unremarkable hospital course.

**Conclusion:** This case again illustrates the risk of the endoscopic camera capsule becoming obstructed. This case is somewhat unique in that the capsule was retained for a period of 4 months with worsening symptoms. The importance of strict follow up after a capsule study is performed is illustrated in our case. Especially in patients with suspected inflammatory bowel disease, lack of follow up can lead to further complications.

## Primary Adenocarcinoma of the Colon with an Immediately Adjacent GIST Tumor: A Case Report

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RS Padmanabhan MD, P Sharma MBBS  
Medical Center of Arlington, Arlington, TX

**Abstract:** Primary adenocarcinoma of the colon with an immediately adjacent GIST tumor: A Case Report

**History/Background:** There have been a small number of reports in the literature of GI Stromal tumors(GIST) occurring simultaneously with other cancers. These include most commonly gastric cancers that are adjacent to or have collided with the GIST tumors. Small bowel cancers associated with GIST of the stomach are also described as well as colon cancers with GIST stomach primaries which are by far the least commonly described association. There is even a report of a GIST tumor of the stomach simultaneously with a somatostatinoma.

**Objective:** We would like to present a case of adenocarcinoma of the sigmoid colon with an incidental finding of a GI stromal tumor(GIST) immediately adjacent to the adenocarcinoma. This GIST tumor was adjacent to the cancer in the sigmoid colon itself. In our review, we have never seen a report of side by side GIST with primary adenocarcinoma of the colon. GIST tumors of the colon are rare and this association side by side with an adenocarcinoma is something we have not been able to find in the literature.

**Design:** Case Report

**Setting:** Community Hospital- Medical Center of Arlington

**Case:** JM is a 77 year old Caucasian male that presents with a 1 week history of painless rectal bleeding. Colonoscopy revealed a partially obstructing sigmoid colon cancer. Laparoscopic sigmoid resection was performed and the patient had an unremarkable post operative course. The pathology report surprisingly revealed a moderately differentiated adenocarcinoma with an immediately adjacent GIST tumor positive for C-aKit (CD117) and CD34.

**Conclusion:** GIST tumors and simultaneous GI tumors are unusual in combination. Most reports of synchronous lesions occur with GIST tumors of the stomach along with small bowel tumors, gastric tumors and occasionally colon tumors. Our case is very unique in that it shows a rare GIST tumor in the colon adjacent to an adenocarcinoma. Although no definite association has been made in the literature or indeed by this case, it may call for more investigation of some common etiology or carcinogen causing these tumors to occur together. The adjacent nature may also suggest an association or link not yet revealed.

## Yair Lotan, MD



Associate Professor, Department of Urology  
UT Southwestern Medical Center  
Holder of the Helen J. and Robert S. Strauss  
Professorship in Urology  
Dallas, Texas

### Harry M. Spence Lecturer

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Dr. Yair Lotan graduated from Baylor College of Medicine in Houston, Texas. He completed his residency in Urology at UT Southwestern Medical Center in Dallas, Texas. Following his residency, Dr. Lotan became a member of the faculty at UT Southwestern Medical Center. His practice focuses on oncology and endourology. His research is focused on the area of bladder cancer screening, biomarkers, decision analysis and health economics.

# Meeting Schedule

## Friday, February 20

7:00am - 6:00pm	Registration Open	Northwest Corridor
7:00am - 8:00am	Continental Breakfast	Oaklawn UP I & II
7:00am - 3:30pm	Exhibits Open	Oaklawn UP I & II
7:00am - 6:00pm	Poster Displays	Oaklawn UP I & II
7:00am - 8:00am	NTC-ACS Council Meeting & Business Meeting	Highland Park II
8:00am - 8:15am	Opening Remarks & Welcome	
8:15am - 9:30am	SCIENTIFIC SESSION I — Endocrine	JC Thompson Center
	<i>Moderator: Mark Watson, MD</i>	
8:15am	1. Recurrent Differentiated Thyroid Cancer: An Analysis of 26 Patients <i>ZS Khan MD, SA Holt MD, FE Nwariaku MD, WH Snyder III MD</i> <i>The University of Texas Southwestern Medical Center at Dallas, Dallas, TX</i>	
8:30am	2. Surgical experience with non-insulinoma neuroendocrine tumors: results of a bi-institutional study <i>CL Roland MD, CY Lo MBBS(HK), MS(HK), BS Miller MD, SA Holt MD, and FE Nwariaku MD</i> <i>University of Texas Southwestern Medical Center, Dallas, TX</i>	
8:45am	3. Rate of Decline in Intraoperative Parathyroid Hormone during Parathyroidectomy for Primary Hyperparathyroidism <i>SL Woodruff MD, SA Holt MD, FE Nwariaku MD, WH Snyder III MD</i> <i>University of Texas Southwestern Medical Center, Dallas, TX</i>	
9:00am	4. Anterior versus Trans-staple line gastrojejunostomy. Moving towards an optimal technique <i>JE Dickinson MD, TL Fisher RN, JA Kuhn MD</i> <i>Baylor University Medical Center, Dallas, TX</i>	
9:15am	5. Surgical weight loss over 65 – Is it worth the risk? <i>C Willkomm MD, T Fisher RN, G Barnes MD, C Kennedy MD, J Kuhn MD</i> <i>Baylor University Medical Center, Dallas, TX</i>	
9:30am - 9:45am	Morning Break & Posters	Oaklawn UP I & II
9:45am - 11:15am	SCIENTIFIC SESSION II — Trauma	JC Thompson Center
	<i>Moderators: Michael Foreman, MD &amp; Joseph Minei, MD</i>	
9:45am	6. The Ventilator-Associated Pneumonia (VAP) Prevention “Bundle” In Trauma Patients: Not Effective or Harmful? <i>AL Eastman MD, K Matsushima MD, CR Hirschhorn RN, TE Tyner RN, HL Frankel MD</i> <i>The University of Texas Southwestern Medical Center—Dallas, TX</i>	
10:00am	7. A Major Metropolitan ‘Field Amputation’ Team: A Call to Arms...and Legs <i>CF Sharp MD, AJ Mangram MD, SA Clark MD, MV Hegar-Gonzalez MD, M Lorenzo MD, EL Dunn MD</i> <i>Methodist Health System, Dallas, TX</i>	

## Poster 61

### Pancreaticoduodenectomy (PD) at a Non University Tertiary Care Center (NUTCC): Outcomes and Feasibility

DE Curtis MD, AS Khithani, MBBS, AJ Saad MD, P Tarnasky MD, J Linder MD, DR Jeyarajah MD  
*Methodist Dallas Medical Center, Dallas, TX*

**Background:** A successful outcome to PD is attributed to a high volume at University Centers. Over the past decade, an association between volume and outcome in PD has been firmly established. Despite studies which suggest that community centers can perform these procedures with favorable outcomes, the underlying issue of where these complex surgeries should be performed is still debated. This paper examines the outcomes of PD in a NUTCC.

**Methods:** Medical records of 80 Patients, who underwent PD by a single surgeon between September 2005 to September 2007 at a high volume NUTCC, were analyzed. The patients were managed by a multidisciplinary team consisting of a gastroenterologist, surgeon, hepatobiliary fellow, general surgery residents, ICU nursing staff, operating room team, and a surgery floor nursing staff. The records were reviewed with respect to preoperative and postoperative data, thirty-day mortality, morbidity and histopathology data.

**Results:** A total of 80 patients underwent PD. There was a female predominance with a male to female ratio of 1:1.6. Comorbidities were documented in 61% patients. The mean age was 67 yrs. Jaundice was the most common presenting symptom in 68%. Preoperative ERCP with stenting was done in 41% patients. The mean operative time was 252 mins. The mean estimated blood loss was 493 ml. 34% underwent a pylorus preserving PD 31% patients received intraoperative blood transfusions, 14% received blood in the postoperative period. The mean length hospital stay was 13.5 days. Thirty day mortality was 2.5% and overall morbidity was 49%. Reoperation was necessary in 6% patients, mainly for wound problems. Periapillary carcinomas were the commonest indication for PD (64%), 41% patients had carcinoma of the pancreatic head. The mean number of nodes retrieved was 15.

**Conclusions:** PD can be performed at a NUTCC with results that meet and exceed nationally reported outcomes and benchmarks. The key elements to success in this endeavor include an incorporation of a multidisciplinary team for management of the PD patient.

## Operative Predictors of Early Postgastrectomy Outcomes, and Their Impact on Long-Term Survival

K Burnett MD, A Kirane MD, J Mansour MD, RE Schwarz MD  
UT Southwestern Medical Center, Dallas, TX

**Introduction:** Gastric resections are performed at variable extent for different indications. Clinical factors that predict postoperative outcomes are not extensively researched.

**Methods:** We reviewed clinical records of all patients undergoing gastrectomy in a single-surgeon academic practice to assess operative factors and their relation to outcomes.

**Results:** Between 1997 and 2008, there were 110 patients undergoing gastrectomy, including total (n=38), subtotal (n=25), distal (n=19), proximal (n=11), and segmental resections (n=17). There were 70 men (64%) and 40 women (36%), with a median age of 62 years (range: 24-98). Resection indications included 97 neoplastic (88%) and 13 benign disorders (12%). The frequency (in %) for the following operative characteristics was: esophageal anastomosis 45, thoracoabdominal incision 5, emergency case 8, additional visceral resection 28, splenectomy 10; reconstructions (in %) included Roux-Y 70, closure 12, B2 10, primary EG anastomosis 6, and SB interposition 2. The median for operation length was 5.5 hours, blood loss 450 cc, and IVF 5,500 cc; perioperative transfusions were given to 36% of patients. For 88 patients with malignant lesions, the R0 rate was 76%, R1 7%, and R2 17%. Postoperative morbidity occurred in 36%, with 18% major complications (grade 3-5) including 6% deaths. The median hospital stay was 10 days. Interestingly, disease or operative factors had no predictive impact on mortality. Blood loss (p=0.005) and emergency setting (p=0.07) predicted major complications. Aside from postoperative complications, emergency case, OR length, and patient age predicted the length of stay (all at p<0.007). At a median follow-up of 29 months (59 for survivors), the median overall survival was 50 months. Palliative intent, complications, and OR length were the only significant multivariate predictors of overall survival in all patients. Among gastric cancer patients, complications, N plus M stage categories, and gastrectomy extent were factors with significant survival impact. Major complications retained a strong negative impact even on conditional survival beyond 6 months (p<0.0001).

**Conclusions:** In this clinical experience with mixed indications for gastric resections, outcomes do not appear to differ between cancer patients and individuals with nonmalignant disease. From an operative technical standpoint, minimizing blood loss and avoiding complications would appear as important goals in order to achieve both early and long-term superior outcomes.

**10:15am** 8. Single Puncture, Intravascular Ultrasound-Guided Vena Cava Filter Insertion in the Intensive Care Unit: Safe and Still Cost-Effective  
AL Eastman MD, DS Pierce MD, RS Friese MD, AJ West MD, LB Wallace MD, JP Minei MD GP Clagett MD, ST Smith MD  
The University of Texas Southwestern Medical Center, Dallas, TX

**10:30am** 9. Civilian and Military Trauma: Does Civilian Training Prepare You for the Battlefield?  
AJ Mangram MD, M Truitt MD, EL Dunn MD  
Methodist Health System, Dallas, TX

**10:45am** 10. The Role of Rural Hospitals in External Disaster Relief  
JA Aucar MD, LG Fernandez MD  
Carle Foundation Hospital, Urbana, IL

**11:00am** 11. Use of transcranial Doppler in patients with severe traumatic brain injury  
G Funk, MD, D Ziegler, MD, G Cravens, MD, G Angles, RVT, R Gandhi, MD  
John Peter Smith Hospital, Fort Worth, TX

**11:15am - 12Noon** **Jeopardy: First Round** **JC Thompson Center**

**12Noon - 1:00pm** **Ethics Lecture: Withdrawal of Care Issues** **42nd Floor**  
Richard Voet, MD, Dallas, TX

**1:00pm - 1:45pm** **Robert S. Sparkman Memorial Lectureship: Leadership: A Personal Perspective** **JC Thompson Center**  
J. Patrick O'Leary, MD, Florida International University, Miami, FL

**1:45pm - 2:15pm** **Texas Association of Surgical Skills Laboratories**

**2:15pm - 3:00pm** **SCIENTIFIC SESSION III — Education** **JC Thompson Center**  
Moderator: Ernest Dunn, MD

**2:15pm** 14. Pediatric Surgeon or Gynecologist: Does surgical specialty impact management of ovarian masses?  
SC Oltmann MD, N Garcia MD, R Barber RN, D Schindel MD, A Fischer MD PhD  
University of Texas Southwestern Medical Center, Dallas, TX

**2:30pm** 12. The Role of Resident Fatigue on Sentinel Events in a Community Hospital  
RC Mooty MD, CD Mitchell MD, EL Dunn MD, KC Ramberger RN, AJ Mangram MD  
Methodist Health System, Dallas, TX

**2:45pm** 13. Maintaining Proficiency Following FLS Training: 1-Year Analysis of Skill Retention for Surgery Residents  
AO Castellvi MD, LA Hollett RN, A Minhajuddin PhD, DC Hogg BS, ST Tesfay RN, DJ Scott MD  
University of Texas Southwestern Medical Center, Dallas, TX

**3:00pm - 3:15pm** **Afternoon Break/Posters & Exhibits** **Oaklawn UP I & II**

**3:15pm - 4:00pm** **SCIENTIFIC SESSION IV — CT & Vascular** **JC Thompson Center**  
Moderator: Stephen Smith, MD

**3:15pm** 15. Office-Based Outpatient Endovascular Therapy: A New Paradigm  
J Chen MS, K Kollmeyer MD, S Ahn MD, P Uceda MD, C Ferrera DO  
DFW Vascular Group, Dallas, TX

**3:30pm** 16. The Effect of Endovenous Laser Ablation on Restless Legs Syndrome  
CA Hayes MD, JR Kingsley MD, KR Hamby RVT, JC Carlow PhD  
Vein Center of North Texas, Denison, TX

**3:45pm** 17. Surgery Remains the Most Effective Treatment for Paget-Schroetter Syndrome: 50 Years Experience  
*H Urshel MD, H Kourlis Jr MD, AN Patel MD*  
*Baylor University Medical Center, Dallas, TX*

**4:00pm - 5:00pm** **MINI TALKS**

*Moderators: John Preskitt, MD & Colleen Kennedy, MD*

**4:00pm** 18. Out With The Old in With The New: A Novel Approach to Treating Pain Associated With Rib Fractures  
*M Truitt MD, D Amos MD, A Mangram MD, M Lorenzo MD, E Dunn MD*  
*Methodist Health System, Dallas, TX*

**4:06pm** 19. Laparoscopic Cholecystectomy Performed After Cholecystostomy Tube Placement  
*BR Hill MD, TL Fisher RN, VE Cedillo RN, CR Tate MD*  
*Baylor University Medical Center, Dallas, TX*

**4:12pm** 20. Case Report: Minimally Invasive Treatment Of SMA Syndrome after Laparoscopic Roux-Y Gastric Bypass  
*ST Steen MD, JA Kuhn MD*  
*Baylor University Medical Center, Dallas, TX*

**4:18pm** 21. Transumbilical Laparotomy in young children: A single surgeon's 5 year experience.  
*IC Mitchell MD, R Barber RN, DT Schindel MD*  
*University of Texas Southwestern Medical Center at Dallas, Dallas, TX*

**4:24pm** 22. Laparoscopic Lateral Roux-en-Y Pancreaticojejunostomy: A Case Series  
*JW Allen MD, JS Burdick MD, VE Cedillo RN, JA Kuhn MD*  
*Baylor University Medical Center, Dallas, TX*

**4:30pm** 23. Pancreaticoduodenectomy in the gastric bypass era: A new technique that works  
*DE Curtis MD, AS Khithani, MBBS, DR Jeyarajah, MD*  
*Methodist Dallas Medical Center, Dallas, TX*

**4:36pm** 24. Carcinoid Within a Meckel's  
*CH Olson MD, R Ahmad MD, JM Downs MD*  
*Presbyterian Hospital of Dallas, Dallas, TX*

**4:42pm** 25. Modified Single Incision Laparoscopic Surgery for Interval Appendectomy in a Young Child: A Case Report  
*SC Oltmann MD, I Mitchell MD, N Garcia MD, AC Fischer MD PhD*  
*University of Texas Southwestern Medical Center, Dallas, TX*

**4:48pm** 26. A Nationwide Review of the Association between Cervical Spine Injuries, Head Injuries, and Facial Fractures  
*RP Mulligan BA, JA Friedman MD, RC Mahabir MD*  
*Scott & White Memorial Hospital, Temple, TX*

**4:54pm** 27. Minimally Invasive Approach to Proximal Subclavian Artery Pseudoaneurysm  
*SE Brooks MD, D Santana MD*  
*Texas Tech University, Lubbock, TX*

**5:00pm - 5:45pm** **Jeopardy: Second Round** **JC Thompson Center**

**6:00pm - 7:30pm** **Cocktail Reception** **42nd Floor**

*Poster 59*

**Orbital Retention of a Toothbrush Head: Removal and Precautions**

AJ Johnson PhD, J Cordero MD  
*Texas Tech University HSC School of Medicine, Lubbock, TX*

Here we present a unique case in which a 36 year old Caucasian female with a retained toothbrush head in the posterior orbit after a violent attack. The eye was undamaged during the attack with a minute entry wound. On radiograph the object was shown to be lodged between the lamina papyrea, sphenoid, and posterior ethmoid. We removed the foreign body transnasally. We managed to avoid traumatic injury to the eye, a decrease in visual acuity, or oculomotor deficits. We briefly discuss possible complications and thoughts on infectious prophylaxis after such a case.

Poster 58

## Papillary Thyroid Cancer in a Man Exposed to Chernobyl Nuclear Fallout in Norway

M Cusick MD, JC O'Brien MD  
Baylor University Medical Center, Dallas, TX

**Introduction:** This is a case report of a 55 year-old man with papillary thyroid cancer who was in Norway at the time of the Chernobyl nuclear power plant explosion.

**Methods:** A review of the patient's thyroid cancer and treatment and a review of the Chernobyl nuclear power plant explosion and the effects of the radiation fallout.

**Results:** The Chernobyl nuclear power plant explosion occurred during a test on reactor number four on April 26th, 1986. The fire burned for ten days sending a plume of radioactive material that spread over Belarus and traveled northwestward across Europe and Scandinavia. Dosimetric models and radiological data estimate that Chernobyl may have caused 1,000 extra cases of thyroid cancer in Europe. The incidence of thyroid cancer has increased in children and adolescents living in Belarus and the Ukraine after the Chernobyl explosion, but there is no strong evidence that thyroid cancer incidence has increased in the remainder of Europe.

This 55 year-old man lived in Norway from 1984-1989 working as a geologist. He was 23 years old at the time of the explosion. He has no significant past medical history. Specifically he has no history of thyroid problems and has no family history of thyroid cancer. He was in his usual state of health when in 2008 he underwent a screening CT scan for an every 3-year physical and a right thyroid nodule and multiple enlarged cervical and superior mediastinal lymph nodes were identified. On physical exam he had an enlarged thyroid mass just to the right of midline. A fine needle aspiration of the thyroid nodule revealed papillary cancer of the thyroid.

The patient was taken to surgery and a total thyroidectomy, bilateral modified radical neck dissection, and median sternotomy with superior mediastinal lymph node dissection was performed. The cricoid was involved with tumor and could not be completely removed. The recurrent laryngeal nerves were dissected free from the tumor and left intact, but he suffered paralysis of the left vocal cord diagnosed by direct laryngoscopy following the resection and clinical exam postoperatively. He did not experience hypocalcemia and had a normal intact parathyroid hormone level after the surgery.

Pathology revealed T4a N1b well differentiated papillary thyroid cancer.

**Conclusion:** This is a report of a man with papillary thyroid cancer with lymph node metastasis who was living in Norway at the time of and 3 years following the Chernobyl power plant explosion. Whether the radioactive exposure from the Chernobyl fallout is consequential or incidental to his thyroid cancer is unknown.

## Saturday, February 21

7:30am - 1:00pm	Registration Open	Northwest Corridor
7:00am - 8:00am	Cancer Liaison Meeting	Highland Park III
7:30am - 8:00am	Continental Breakfast	Oaklawn UP I & II
7:30am - 11:00am	Exhibits Open	Oaklawn UP I & II
7:30am - 1:00pm	Poster Displays	Oaklawn UP I & II
8:00am - 8:45am	SCIENTIFIC SESSION V — Oncology & Esophagus	JC Thompson Center
Moderator: Roderich Schwarz, MD		
8:00am	28. Endoscopic Treatment of Early Esophageal Cancer M Cusick MD, JA Kuhn MD, J Campbell MD, M Arnold RN, R Meyer MD, J Burdick MD Baylor University Medical Center, Dallas, TX	
8:15am	29. Esophageal Mucosal Resection versus Simple Biopsy for Dysplasia M Cusick MD, JA Kuhn MD, JC Campbell, M Arnold RN, RL Meyer MD, JS Burdick MD Baylor University Medical Center, Dallas, TX	
8:30am	30. Safety of Minimally Invasive Esophagectomy in Malignancy A Khithani MBBS, D Curtis MD, A Vo RN, J Jay MD, DR Jeyarajah MD Methodist Dallas Medical Center, Dallas, TX	
8:45am - 9:00am	American Cancer Society's Cancer Resource Network	
9:00am - 10:00am	SCIENTIFIC SESSION VI — Oncology & Breast	JC Thompson Center
Moderator: Roshni Rao, MD		
9:00am	31. Tumor Harvesting for Vaccine Development: Predictors of Optimal Outcome V Stager MD, S Steen MD, J Nemunaitis MD, JA Kuhn MD Baylor University Medical Center, Dallas, TX	
9:15am	32. Liver resection improves survival for non-metastatic gallbladder cancer: a 10 year review SP Dineen MD, RE Schwarz MD, JC Mansour MD UT Southwestern Department of Surgery, Dallas, TX	
9:30am	33. Trends in Bilateral Mastectomy Rates for Early Primary Breast Cancer JJ Marengo MD, AM Leitch MD, DM Euhus MD UT-Southwestern Medical Center, Dallas, TX	
9:45am	34. Delayed Primary Breast Reconstruction with Immediate Tissue Expanders in the Irradiated Breast T Dao MD, PG Pin MD, MD Grant MD Baylor University Medical Center, Dallas, TX	
10:00am - 10:45am	The Harry M. Spence Memorial Lectureship	JC Thompson Center
Yair Lotan, MD, Dallas, TX		
10:45am - 11:00am	Coffee Break/Posters	Oaklawn UP I & II

**11:00am - 11:30am Oral Poster Presentations**

**Oaklawn UP I & II**

**35. Should Age be a Factor for Level 1 Trauma Activation?**

*VK Shifflette MD, J Lorenzo MD, AJ Mangram MD, MS Truitt MD, JD Amos MD, EL Dunn MD  
Methodist Health System, Dallas, TX*

**36. Impact of clinical and diagnostic characteristics on a surgical approach to retroperitoneal mass lesions**

*K Burnett MD, JC Mansour MD, RE Schwarz MD  
UT Southwestern Medical Center, Dallas, TX*

**37. The utility of F-18 fluorodeoxyglucose positron emission tomography/computed tomography fusion imaging in the patients presenting with primary breast cancer**

*P Papavasiliou MD, V Cedillo, RN, T Fisher, RN, JP Lamont MD  
Baylor University Medical Center, Dallas, TX*

**38. Metabolic Benefits of Perfusion Preservation in Canine Hearts Stored for Short Intervals**

*DH Rosenbaum MD, M Peltz MD, ME Merritt PhD, ME Jessen MD  
UTSW Medical Center at Dallas, Dallas, TX*

**39. Role of Nongenomic Estrogen Receptor Signaling in Breast Cancer**

*SC Oltmann MD, K Chambliss PhD, C Roland MD, SP Dineen MD, Q Wu PhD, R Brekken PhD, PW Shaul MD  
University of Texas Southwestern Medical Center, Dallas, TX*

**40. The use of the OnQ pump in acute management of rib fractures**

*S Dissanaik MD, M Banister MD, A Halldorsson MD, J Griswold MD  
Texas Tech University Health Sciences Center, Lubbock, TX*

**11:30am - 12:30pm SCIENTIFIC SESSION VII**

**— Oncology & Miscellaneous**

**JC Thompson Center**

*Moderator: Joseph Kuhn, MD*

**11:30am 41. The role of ethnic, economic, and insurance disparities in the outcome of patients with colorectal adenocarcinoma**

*CL Roland MD, RE Schwarz MD, JC Mansour MD  
University of Texas Southwestern Medical Center, Dallas, TX*

**11:45am 42. Routine nasogastric decompression is unnecessary after pancreatic resections**

*CL Roland MD, SP Dineen MD, RE Schwarz MD  
UT Southwestern Medical Center, Dallas, TX*

**12:00pm 43. Curative Treatment for Pseudomyxoma Peritonei**

*TR Kroeker MD, TL Fisher RN, JA Kuhn MD  
Baylor University Medical Center, Dallas, TX*

**12:15pm 44. Completely Transvaginal NOTES Cholecystectomy in a Porcine Model Using Novel Endoscopic Instrumentation**

*AO Castellvi MD, SJ Tang MD, DC Hogg BS, PW Ho BS, LA Hollett RN, CO Olukoga MD, JA Cadeddu MD, DJ Scott MD  
University of Texas Southwestern Medical Center, Dallas, TX*

**12:30pm - 1:00pm Jeopardy: Final Round**

**JC Thompson Center**

**1:00pm Awards & Concluding Remarks**

*Poster 57*

**Carcinoid of the Duodenum**

JK Abbott MD, J Lamont MD

*Baylor University Medical Center, Dallas, TX*

**Introduction:** There has been a paucity of reports on carcinoids of the duodenum. This presentation is a report of the last five years at our institution and a discussion of a new surgical treatment for this unique disease.

**Methods:** All pathology results at our institution within the last 5 years were searched for duodenal carcinoid. Those with some type of resection were included in the study.

**Results:** There were 14 cases, with the average age of 57 (range 27-85). The average size was 7mm, (range 3mm-16mm) and all of the lesions were either mucosal or submucosal. 7 patients underwent local excision via transduodenotomy, while 4 had excision via esophagogastroduodenoscopy (EGD). 3 patients with larger tumors had resection by EGD with laparoscopic assistance. There were no perforations by resection by EGD, and all had excellent local control.

**Conclusion:** Duodenal carcinoids are a relative indolent disease and resection by EGD is a legitimate option, with open surgery reserved for either large or periampullary masses.

## Thyroid Nodule Sampling: Comparison of 22 Gauge Versus 25 Gauge Needles

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E Roe MD, C Adair MD, V Cedillo RN, J Kuhn MD  
Baylor University Medical Center, Dallas, TX

**Background:** The technique of needle biopsy for thyroid nodules remains controversial. Historically, general surgeons use a smaller gauge needle (25 gauge) with gentle aspiration. Some radiology groups suggest larger needles (22 gauge) without aspiration in order to obtain a better sample. The patients under consideration for this review underwent routine collection of both specimens. The purpose is to assess the quality of specimens and determine the superior technique.

**Methods:** This study is a retrospective review of 48 patients undergoing ultrasound guided thyroid fine needle aspiration. These specimens were obtained using two different size needles, 22 and 25 gauge, with three passes per needle. The samples collected with 25 gauge needles had gentle aspiration applied while 22 gauge samples did not. All samples were reviewed by a single pathologist who was blinded to the size of needle used for collection. Samples were judged on amount of blood contamination, cellular quality, amount of colloid present, and specimen adequacy. Blood contamination, cellular quality, and amount of colloid present were graded high, medium, low, or none. Specimen adequacy was graded from 1 to 5 with 1 being the lowest score and 5 being the highest score. After review of each patient's slides, the pathologist marked which specimen provided the better quality or if both samples were equal in quality.

**Results:** Blood contamination was higher in 22 gauge specimens than 25 gauge specimens (92% vs. 75% with moderate – high contamination). Cellular quality was similar in 22 gauge specimens and 25 gauge specimens (50% vs. 48% receiving low ratings). Colloid was noted to be present in higher quantity in specimens from 25 gauge needles versus 22 gauge needles (70% vs. 65% receiving high rating). When overall specimen quality was compared using all parameters, 40% of the 25 gauge specimens were viewed superior, 30% of the total specimens were viewed as equal in quality, and 29% of the specimens favored the 22 gauge needle.

**Conclusion:** A fine needle aspiration with ultrasound guidance is an optimal technique for cytologic evaluation of thyroid nodules. This study suggests that a 25 gauge needle with gentle aspiration yields optimal cytologic material with less blood contamination and better colloid quality when compared to a 22 gauge needle without aspiration.

## Oral Session Abstracts

### Presentation 1

## Recurrent Differentiated Thyroid Cancer: An Analysis of 26 Patients

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ZS Khan MD, SA Holt MD, FE Nwariaku MD, WH Snyder III MD  
The University of Texas Southwestern Medical Center at Dallas, Dallas, TX

**Introduction:** Most patients with differentiated thyroid cancer have an excellent prognosis. However, disease recurrence is associated with increased morbidity and mortality. The aim of this study was to characterize patterns of disease recurrence, means of detection, and outcome in patients with recurrent differentiated thyroid cancer.

**Methods:** Retrospective review of 86 patients with differentiated thyroid cancer treated at an academic medical center.

**Results:** Of the 86 patients with differentiated thyroid cancer reviewed, 26 were found to have disease recurrence (30%). The median time to detection was 2 years (range 2 months to 12 years). Regional nodal basins were the most common site of recurrence (n=17). Locally invasive and distant metastatic disease accounted for 6 and 7 cases, respectively. Recurrent disease was detected by imaging in 24 patients (92%), thyroglobulin measurement in 15 (58%) and physical exam in 7 (27%). Treatment for disease recurrence included surgery in 14 (54%), radioactive iodine alone in 6 (23%), external beam radiation in 2 (8%) and chemotherapy in one patient. The complication rate following reoperative surgery was 23%, including recurrent laryngeal nerve dysfunction in two patients and hypoparathyroidism in one patient. Median follow up in the 26 patients with recurrent disease was 4 years (range 1 month to 14 years). Disease specific mortality was 4% (n=1). Twelve patients were rendered disease free by treatment and eleven had imaging and/or laboratory evidence of persistent disease in follow up. The remaining two patients were lost to follow up.

**Conclusions:** The risk of recurrence in patients with differentiated thyroid cancer favors long-term surveillance. A combination of imaging and laboratory analysis is required for early detection of recurrent disease. Recurrence is most often nodal, and surgery is the first line of treatment.

## Presentation 2

### Surgical Experience with Non-Insulinoma Neuroendocrine Tumors: Results of a Bi-Institutional Study

CL Roland MD, CY Lo MBBS(HK), MS(HK), BS Miller MD, SA Holt MD, and FE Nwariaku MD  
University of Texas Southwestern Medical Center, Dallas, TX

**Background:** Neuroendocrine tumors (NETs) of the pancreas are rare entities with a wide variation in presentation and prognosis. Despite advancements in radiologic imaging and minimally-invasive surgery, the evaluation and management of neuroendocrine tumors (NETs) is institution and surgeon dependent. Therefore, the reported surgical outcomes are highly variable. Here, we review the clinical presentation, preoperative evaluation and management of patients with non-insulinoma NETs between two international tertiary care surgical units.

**Methods:** We performed a retrospective review of all patients who underwent surgery for NETs over an 86-month period at two international tertiary referral centers. Data collected included imaging studies, operative procedure, complications and outcomes. Given the natural history of the disease, patients with the diagnosis of insulinoma were excluded.

**Results:** Twenty-one patients were identified. The mean age at the time of diagnosis was  $52.0 \pm 2.9$  yrs. 20% of patients had a history of MEN I syndrome. 52.3% of NETs were found incidentally. Of symptomatic patients, 80% reported abdominal pain. Fourteen patients had non-functioning NETs and five had gastrinomas. 19% of patients were found to have multi-focal lesions, of which 75% had MEN I. 100% of patients underwent pre-operative localization by CT scan, which was successful in 19/21 patients (90.4%). Surgical management consisted of distal pancreatectomy in 11 patients, pancreatoduodenectomy in 4 patients, central pancreatectomy in 3 patients and enucleation in 3 patients. In Hong Kong, 75% operations were performed laparoscopically, compared to 0% at UTSW. 47.6% of patients underwent intra.-operative ultrasound, all of which were positive. Five patients had positive lymph nodes at the time of surgical resection. All patients with gastrinomas had positive lymph nodes. Eight post-operative complications were identified, including 4 pancreatic fistulas. Mean follow-up was  $34.6 \pm 5.9$  months. Sixteen patients were alive without evidence of disease at last follow-up. 3 patients were alive with disease and 2 patients died as a result of their disease, 24 months (gastrinoma) and 97 months (non-functioning) after surgery, respectively. Both patients had metastatic disease to the liver.

**Conclusions:** This bi-institutional experience documents low mortality and moderate morbidity for patients treated operatively for non-insulinoma neuroendocrine tumors. The most favorable outcomes are observed in patients with spontaneous, non-gastrinoma neuroendocrine tumors without a history of MEN I. With the more frequent use of CT scans, more patients are being found incidentally to have NETs.

## Poster 55

### Maintenance of Human Heart Oxidative Metabolism After 12 Hour Perfusion Preservation

M Cobert MS, M Peltz MD, DH Rosenbaum MD, L West MS, ME Jessen MD  
University of Texas Southwestern Medical Center at Dallas, Dallas, TX

**Introduction:** Perfusion preservation with oxygenated preservation solution may extend the storage interval and permit utilization of marginal donor hearts. We previously evaluated a perfusion device (LifeCradle TM, Organ Transport Systems, Inc.) in a large animal model and demonstrated improved post-transplantation ventricular function, reduced apoptosis, and reduced lactate accumulation. We applied the same preservation strategy to rejected hearts from human donors to evaluate device performance in a human model.

**Methods:** Human hearts unsuitable for transplantation (n=9) were obtained from potential donors throughout our local organ procurement organization. Explanted hearts (n=8) were flushed with University of Wisconsin Machine Perfusion Solution, connected to the perfusion device and perfused at 10 mL/100g/min at 5 degrees C for 12 hours with the same solution. One heart underwent conventional static storage for the same interval. Temperature, flow, and pressure were recorded in perfused hearts. After 12 hours of perfusion, Hearts were removed and weighed. Tissue samples were collected, frozen in liquid nitrogen and later analyzed by proton magnetic resonance spectroscopy (MRS). The lactate/alanine ratio was used to evaluate the metabolic state of stored hearts as previously described.

**Results:** Donor patients ages in this study range from 20-67 years. Perfusate temperature was maintained at  $6 \pm 2$  degrees C. Aortic pressures averaged  $16 \pm 2$  mmHg. After 12 hour storage, perfused hearts showed no evidence of myocardial edema. Initial heart weights were  $429 \pm 31$  g. Final heart weights were  $404 \pm 29$  g (p=NS). Final LV water content was  $76.8 \pm 0.9\%$ . Oxidative metabolism was preserved in perfused hearts. LV extract lactate/alanine ratios were  $0.68 \pm 0.22$  for perfused hearts. This ratio was 2.55 in the static storage heart.

**Conclusion:** Perfusion preservation supported myocardial metabolism over this extended storage interval without myocardial edema formation. These data suggest that perfusion preservation may be an effective strategy to preserve human hearts for long intervals.

**Results:** A total of 58 patients were diagnosed with stage III or IV ovarian cancer during the study interval. 24 (41%) were suboptimally debulked. Of the 34 optimally debulked patients, 21 (61%) were offered IP chemotherapy. 13 (62%) accepted and received IP chemotherapy and 12 (92%) completed all 6 cycles. 8 (38%) patients were offered but did not receive IP chemotherapy. Of those, 4 (50%) preferred an open trial, 2 (25%) preferred conventional IV, and 2 (25%) had port complications. Of those optimally debulked, 13 (39%) were not offered IP chemotherapy for the following reasons: one patient chose to follow-up elsewhere, two patients had intraoperative bowel resections and declined reoperation for IP port placement, one patient had a history of poor compliance with therapy and was thought to be a poor candidate, 3 patients had postoperative complications and delays, and two patients had concurrent primaries. In 4 instances, the treating physician's preference was to proceed with conventional therapy.

**Conclusion:** In this single institution study, 38% of optimally debulked patients ultimately did receive IV/IP chemotherapy. IP port complications and physician preference were significant barriers to IV/IP chemotherapy in this group of optimally debulked advanced ovarian cancer patients. However, a majority of optimally debulked advanced stage ovarian cancer patients who did not receive IV/IP chemotherapy were patients who chose not to have it opting instead for open clinical trials or conventional therapy. Of note, a patient's insurance status was not found to be predictive of whether a patient received IV/IP therapy.

### *Presentation 3*

## **Rate of Decline in Intraoperative Parathyroid Hormone during Parathyroidectomy for Primary Hyperparathyroidism**

SL Woodruff MD, SA Holt MD, FE Nwariaku MD, WH Snyder III MD  
*University of Texas Southwestern Medical Center, Dallas, TX*

**Introduction:** Intraoperative parathyroid hormone (IOPTH) monitoring has been shown to be a reliable predictor of biochemical cure at the time of parathyroidectomy for primary hyperparathyroidism (PHPT). The commonly accepted criterion is a greater than 50% decrease in IOPTH from the baseline value at ten minutes following gland excision. The aim of this study was to determine whether the percentage decrease at 5 minutes post excision was predictive of single gland disease (SGD) versus multigland disease (MGD) and thereby shorten operative time.

**Method:** A retrospective review of a database consisting of patients undergoing parathyroidectomy for previously untreated sporadic PHPT. All patients had preoperative sestamibi and ultrasound for parathyroid localization. All patients with localization by imaging were approached in a directed fashion utilizing a small incision with limited dissection based on the imaged abnormality, and the use of IOPTH to predict cure and need for further exploration. Patients with negative localization were excluded from this study.

**Results:** Of 300 patients in the database, 271 (90%) were initially approached in a directed fashion based on imaging suggestive of SGD. 237 patients (87%) had successful directed parathyroidectomy and 34 (13%) were converted to four-gland exploration. 253 patients (93%) had SGD, whereas 18 (7%) had MGD. The mean percentage drop in IOPTH at 5 minutes post gland excision in the SGD group was 73%. The mean percentage drop at 5 minutes for the MGD group was 37%. There was one patient of 271 with persistent disease. Two patients had recurrent disease requiring reoperation 3 and 7 years postoperatively. The mean length of follow up was 27 weeks (range 0-388 weeks).

**Conclusions:** The rate of decline in IOPTH is quicker in patients with SGD compared to those with MGD. A 73% decrease at 5 minutes post excision is a reliable predictor of SGD vs. MGD. New IOPTH criteria based on the rate of decline at 5 minutes post excision may allow for quicker intraoperative decision-making regarding termination of the case or the need for further exploration.

#### Presentation 4

### Anterior Versus Trans-Staple Line Gastrojejunostomy. Moving Towards an Optimal Technique

JE Dickinson MD, TL Fisher RN, JA Kuhn MD  
Baylor University Medical Center, Dallas, TX

**Introduction:** Concerns about ischemic areas around the anteriorly placed circular anastomosis (anterior) in the pouch led to a new technique involving a circular anastomosis through the staple line in the pouch (trans-staple). The purpose of this study is to compare the anterior and trans-staple line techniques and contrast the stricture and leak rates between the two styles.

**Methods:** A retrospective review of 1097 patients undergoing laparoscopic RYGB between 2003 and 2008 was performed. We compared two separate techniques for the gastrojejunostomy anastomosis. In all cases a 25mm circular anastomosis was made with an antecolic antegastric roux limb. Overall stricture and leak rates were compared.

**Results:** 143 patients undergoing the trans-staple line anastomosis were compared to 954 patients having the circular anastomosis anterior to the staple line. The trans-staple line anastomosis was significantly better than the anterior when comparing leak rate (0% vs 0.31%) and stricture rate (2.79% vs 7.9%). There was no significant difference in bleeding rates (1.39% vs 1.46%) or percent excess body weight loss at 12 months (86.3% vs 78.2%).

**Conclusions:** This study demonstrates a novel technique for a trans-staple line anastomosis that significantly decreases the incidence of strictures and leaks.

#### Poster 54

### Intraperitoneal Chemotherapy in Optimally Cytoreduced Ovarian Cancer: A Single Institution Experience

LP King MD, S Wingo MD, T Heffernan MD, D Miller MD  
UT Southwestern Medical Center, Dallas, TX

**Background:** GOG 172 was published in January 2006, clarifying the benefits of intraperitoneal (IV/IP) chemotherapy on survival in optimally cytoreduced stage III ovarian cancer. The complication rate associated with IV/IP therapy is significantly higher than with IV chemotherapy alone. Given the potential complications, side effects and difficult access, candidates for IV/IP must be carefully selected and even then, not all potential candidates receive the regimen. Thus, controversy about the application of IV/IP has ensued. The aim of this study is to review our experience with IV/IP therapy in newly diagnosed ovarian cancer patients over the past 2 years and explore perceived barriers to IV/IP chemotherapy use.

**Methods:** Data was retrospectively collected in patients with newly diagnosed ovarian, peritoneal, or fallopian tube cancer from January 2006 until present. Demographic, surgical, and pathologic characteristics were obtained for all patients, in addition to the use of and rationale behind the selection of adjuvant IV/IP chemotherapy or conventional IV therapy.

Table I Basic Demographics

	Optimally Debulked with IVIP n = 13	Optimally Debulked with Conventional Chemo n = 21	Suboptimally Debulked n = 24
Average age	49	51	79
Race			
White	10 (76%)	12 (57%)	14 (58%)
Hispanic	0	1 (5%)	3 (13%)
Black	1 (9%)	4 (19%)	5 (21%)
Asian	0	1 (8%)	2 (8%)
Other	2 (15%)	3 (11%)	0
Insurance			
Yes	4 (31%)	13 (62%)	8 (33%)
No	9 (69%)	8 (38%)	16 (67%)
Stage			
IIIa	1 (7%)	4 (20%)	0
IIIb	1 (7%)	3 (14%)	0
IIIc	11 (86%)	11 (52%)	17 (71%)
IV	0	3 (14%)	7 (29%)
Grade			
2	2 (15%)	5 (24%)	3 (13%)
3	10 (77%)	10 (48%)	18 (75%)
4	0	2 (9%)	1 (4%)
unknown (staged elsewhere)	1 (8%)	4 (19%)	2 (8%)
Histology			
Papillary Serous	7 (53%)	6 (28%)	14 (58%)
Mucinous	1 (8%)	2 (10%)	0
Endometrioid	3 (23%)	5 (24%)	5 (21%)
Clear Cell	0	1 (5%)	1 (4%)
Transitional	1 (8%)	1 (5%)	0
Other	1 (8%)	6 (28%)	4 (17%)

## Rheumatoid Arthritis Causing a Surgical Airway Emergency: A Case Report

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RC Mooty MD, AJ Mangram MD, B Serkin MD, EL Dunn MD  
Methodist Health System, Dallas, TX

Rheumatoid arthritis (RA) is a chronic systemic inflammatory disease of unknown etiology that primarily targets synovial tissues. Disease involvement of the cricoarytenoid joint, may lead to a syndrome of acute respiratory distress with or without stridor. We report a case of bilateral vocal cord paralysis secondary to RA, resulting in the need for an emergent tracheostomy.

**Case Report:** A 46-year old female, with a long-standing history of RA, asthma, and obstructive sleep apnea, presented to the emergency department with a four day history of progressively worsening dyspnea and stridor. Initial treatment with supplemental oxygen, intravenous/nebulized steroids, and racemic epinephrine; temporarily alleviated her symptoms. Despite aggressive medical intervention, the patient's condition deteriorated. Evaluation by Otolaryngology, General Surgery and Anesthesia found the patient to be tachypneic, exhibiting an audible biphasic stridor, and recruiting her respiratory accessory muscles. Bedside fiberoptic laryngoscopy showed bilateral true vocal cord fixation at the midline. The laryngoscopic findings, stridor, and impending respiratory failure necessitated the need for an emergent airway. The patient was taken to the operating room for a tracheostomy and direct laryngoscopy. In the operating room, anesthesia secured general endotracheal intubation with fiberoptic guidance, and the surgical team performed a standard open tracheostomy. Direct laryngoscopy was done and noted significant supraglottic edema. Both vocal cords were visualized and affixed in the midline. Post-operatively, the patient was transferred to the intensive care unit on mechanical ventilatory support, receiving scheduled bronchodilators and intravenous steroids. To further evaluate the etiology of the bilateral vocal cord paralysis, the patient was taken back to operating room five days later for suspension laryngoscopy, and biopsy. Microscopic visualization allowed for mucosal and submucosal biopsies of the left arytenoid and interarytenoid/postcricoid tissue. Pathology results noted submucosal stromal degeneration, edema, and reactive regenerative changes, accompanied by scattered chronic inflammation - findings consistent with RA. After the second procedure, the patient was weaned from the ventilator. Her remaining hospital course was uneventful. At follow-up appointment, she no longer required supplemental oxygen, was without stridor, and had her tracheostomy capped. The future plan is to perform surgical lateralization of the paralyzed vocal folds.

**Discussion:** Ankylosis of the cricoarytenoid joints due to RA can cause upper airway obstruction by fixation of the vocal cords in the midline. An acute life-threatening airway compromise may result from the location of the vocal cords in the paramedian/median positions. In these circumstances, it is essential to recognize the potential need for emergent tracheostomy for an acute airway obstruction.

## Surgical Weight Loss Over 65 – Is It Worth the Risk?

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C Willkomm MD, T Fisher RN, G Barnes MD, C Kennedy MD, J Kuhn MD  
Baylor University Medical Center, Dallas, TX

**Background:** Weight loss surgery in patients over age 65 has been underutilized secondary to morbidity and mortality concerns of healthcare providers. Comparative outcomes analysis in this patient population has been lacking. The purpose of this report is to evaluate the safety and outcome of gastric bypass in patients over age 65.

**Methods:** A prospective database was used for analysis of safety, operative morbidity, and outcome. All patients undergoing surgery since January 2005 were included.

**Results:** Analysis of 1474 patients demonstrated a higher operative risk profile for patients over 65 (n=100) compared to under 65 (n=1374) related to sleep apnea (45% vs 34%), diabetes mellitus (65% vs 33%), and hypertension (81% vs 57%). Operative outcomes were similar for both groups based on operative time (70 vs 65 minutes), length of stay (1.97 vs 1.3 days), and 30 day readmission (6.0% vs 7.4%). Postoperative complication rates were low in patients over 65 (bleeding 1.0%; pulmonary 3.0%; cardiac 2.0%; wound 2.0%; and mortality 0%). Percent excess body weight loss in gastric bypass patients was similar in patients over 65 compared to under 65 at 12 months (75.9% vs 77.8%) and at 24 months (75.5% vs 79.2%).

**Conclusions:** This experience represents one of the largest series of laparoscopic gastric bypass in elderly patients. The data shows excellent outcomes compared to a younger population.

*Presentation 6*

**The Ventilator-Associated Pneumonia (VAP) Prevention “Bundle” In Trauma Patients: Not Effective or Harmful?**

AL Eastman MD, K Matsushima MD, CR Hirschhorn RN, TE Tyner RN, HL Frankel MD  
*The University of Texas Southwestern Medical Center, Dallas, TX*

**Introduction:** Third party payors are reconsidering whether VAP is truly preventable in all types of ICU patients. Specifically, the efficacy of a VAP prevention bundle (VAP-PB) has not been well studied in injured patients.

**Methods:** Rate of VAP was determined prospectively for the 18 months before and after the institution of a VAP-PB in the closed SICU of a large, urban Level I trauma center. The VAP-PB consisted of head of bed elevation, daily oral care, sedation holiday, and spontaneous breathing trial. VAP was defined by BAL criteria; early VAP occurred in those on vent support < 5 days. Paired-samples t-test was used for statistical comparison.

**Results:** Injured patients accounted for 3,248 ventilator days during the study period. There were no differences pre- and post-VAP-PB institution with regards to age, sex, or mean ISS. Compliance with the VAP-PB was 89%. In all injured intubated patients there was no change in VAP rate after the institution of the VAP-PB (21.4±2.1 vs. 18.4±3.0 VAPs/1000 ventilator days, p=0.189). In patients with neurologic trauma, subgroup analysis revealed a significant increase in the VAP rate (30.3± 11.1 vs. 8.6±8.2 VAPs/1000 ventilator days, p=0.013, 95%CI=6.0-36.5). 41% of injured patients with VAP had early VAP (compared to 10% of non-trauma SICU patients).

**Conclusions:** In trauma patients after the initiation of the widely accepted VAP-PB, there was no difference in the mean VAP rate, whereas in the neurologically injured, VAP rates tripled. Further study is warranted to identify other strategies to prevent this cohort from developing VAP that is frequently classified as “early,” as adoption of the VAP-PB doesn’t appear efficacious.

*Poster 52*

**Blunt Traumatic Abdominal Aortic Dissection with Concomitant Traumatic Abdominal Wall Hernia and Small Bowel Injury - A Surgical Conundrum**

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Acute traumatic dissection of the abdominal aorta secondary to blunt trauma is an infrequent and potentially fatal injury. These injuries can initially be overlooked due to the presence of concomitant thoracic, abdominal, and/or pelvic injuries. We report a case of an acute abdominal aortic dissection with associated traumatic abdominal wall hernia and small bowel injury.

**Case Report:** A 45 year-old female presented to our emergency department (ED). She was a restrained passenger involved in a high speed motor vehicle collision with a tree. On presentation, she was hypotensive, tachycardic, and complaining of right-sided abdominal pain. Chest radiography was negative and focused abdominal sonography for trauma was equivocal. The patient responded to intravenous fluids, and received computer assisted tomography (CT) of the chest/abdomen/pelvis. The scan noted free fluid in the abdomen and pelvis, a traumatic right flank abdominal hernia containing bowel, as well as, an abnormal appearance of the para-renal aorta with what appeared to be a circumferential dissection. Before and after CT, the patient’s vascular exam was intact. With the above findings, the patient was emergently taken to the operating room for exploratory laparotomy. Intra-operatively, there was a large right flank abdominal hernia, two complete small bowel mesenteric disruptions, and a 1.5cm segment of contusion to the surrounding abdominal aortic tissue. Vascular surgery staff assisted in the exploration/evaluation of the abdominal aorta recognizing no aortic adventitial disruption or extravasation. With the patient’s multiple injuries, contaminated surgical field, and lack of vascular compromise; decision was made to non-operatively manage the aortic injury. In a two-staged operation, the patient required small bowel resection with primary anastomosis, followed by repair of the traumatic hernia with biologic tissue matrix. Post-operatively, the patient had no signs of vascular compromise. Follow-up CT angiogram, compared to initial CT, showed no change in the 1.5cm segment of circumferential distal abdominal aortic dissection. The patient’s remaining hospital course was uneventful. The patient was discharged home on anti-platelet therapy and scheduled for close clinical follow-up of her aortic injury including repeat imaging studies.

**Discussion:** Blunt abdominal aortic injury is an uncommon occurrence in trauma. It is well cited that such an injury commonly presents as multi-trauma. Trauma surgeons need a high index of suspicion for potential aortic injury in patients with significant blunt abdominal trauma. Understanding the mechanisms of injury and clinical presentations will allow for prompt recognition and necessary intervention.

*Poster 51*

**An Acinetobacter Baumannii Outbreak:  
Is Unit Closure a Requirement?**

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**Introduction:** Acinetobacter baumannii is a gram negative coccobacillus found commonly in our environment, that has been gaining increased awareness as a nosocomial pathogen. In the critical care setting, this infection can lead to a significant increase in morbidity and mortality. Severe drug-resistant A. baumannii outbreaks usually require unit closure.

**Purpose:** This study describes a multidisciplinary approach in controlling a drug-resistant Acinetobacter baumannii outbreak in our surgical intensive care unit (SICU) without unit closure.

**Methods:** In January 2008, two patients cultured a drug-resistant A. baumannii strain in our SICU. An interdisciplinary strategy was developed which included patient cohorting for nursing assignments, instituting universal contact isolation, providing written and verbal family education, and terminal cleaning of all patient rooms and equipment after patient discharge from the SICU. Admission and biweekly surveillance cultures of all patients in the SICU were overseen by Infection Control. Patient transport to ancillary departments continued with the implementation of terminal cleaning of all equipment encountered during transport. Multidisciplinary daily rounds were performed with a special focus on containing any nosocomial transmission.

**Results:** Over a period of fifty-one days following the recognition of two patients with drug-resistant A. baumannii, interdisciplinary efforts effectively suppressed the infection, exposure, and prevented SICU closure. After the institution of surveillance cultures, three more patients were found to be infected with the same strain. A unique characteristic of this isolated strain was its susceptibility to only Colistin. Of the five patients infected, four died after life support was withdrawn. The fifth patient was eventually discharged to a long term facility.

**Conclusion:** Our study shows successful containment of a drug-resistant Acinetobacter baumannii outbreak can be done by a concerted effort between multiple departments without having to close the intensive care unit.

*Presentation 7*

**A Major Metropolitan ‘Field Amputation’  
Team: A Call to Arms...and Legs**

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**Background:** As early as 1979, suggestions were made to establish amputation teams and protocols in major metropolitan areas. It was recognized that preplanning on such calls would be valuable to carrying out rescues of that nature. Since then, questionnaires and collegial conversations reveal the existence of such teams remains the exception in our nation’s cities.

**Methods:** Our team was formed in 1984 after an EMS request for a surgeon to perform an amputation on a person who had become entrapped with both arms in an industrial candy press was made. In its current form, the team consists of an attending trauma surgeon, a resident surgeon, a registered nurse, and a pilot, all hospital based. Equipment is limited to medications for sedation and pain control, two units of un-crossmatched blood, and a pre-bundled duffle bag of bandages, a scalpel, various saws, and hemostats. Transportation to the scene is provided by the helicopter based at our Level II Trauma Center.

**Results:** Since its inception, the team has been activated three to four times per year, resulting in nine amputation rescues. Three of these cases, presented here, are from an unusually busy five weeks during the spring of 2008. The first case involves a tree shredding device, the second an industrial auger, and the third, a forklift and a steel toed boot. In these cases the utilization of the amputation team resulted in successful patient rescues and outcomes.

**Conclusion:** A field amputation team can be an integral part of any EMS system, filling an infrequently used but helpful adjunct to emergency care.

### Presentation 8

## Single Puncture, Intravascular Ultrasound-Guided Vena Cava Filter Insertion in the Intensive Care Unit: Safe and Still Cost-Effective

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**Introduction:** Prevention of venous thromboembolism (VTE) remains challenging in high-risk trauma and surgical patients. In polyinjured patients with a contraindication to systemic anticoagulation, prophylactic inferior vena cava filter (IVCF) placement is indicated. While intravascular ultrasound (IVUS)-guided techniques have been described, previous techniques use extracorporeal measurement and catheter markings to guide filter placement making them error-prone. The purpose of this study is to describe a novel single puncture technique of placing IVC filters at the bedside using intravascular ultrasound. A secondary goal of this report is to quantify the cost and time savings associated with IVUS-guided bedside IVCF placement.

**Methods:** From August-September 2008, a novel method of IVUS-guided bedside IVCF placement was evaluated in the intensive care units of a level-one trauma center. Under ultrasound guidance, right femoral vein access is obtained and a Cook Select 8.5Fr introducer sheath is placed into the IVC. A Visions 8.2 IVUS catheter and Volcano IVUS system are then used to image the entire IVC. Filter placement location is guided by the profound difference in image intensity when the IVUS catheter-tip leaves the introducer sheath. After identification of the renal veins, the IVCF is positioned without extracorporeal measurement. Proper placement was subsequently confirmed by portable KUB at the bedside. Data was collected with regards to procedure time, total cost, complications and malposition, and these were compared to the previous cohort of 12 IVCFs placed via standard techniques. Mann Whitney U was used for statistical comparison where appropriate.

**Results:** Over seven weeks, 12 patients met criteria for bedside IVCF placement and all were placed using the above technique. The patients' median [IQR] age was 47 years [28,57] years, 67% (n=8) had traumatic brain injury or complex spine fracture, and all had normal coagulation at time of IVCF placement. 100% were considered high-risk for VTE and all had contraindications to systemic anticoagulation. IVCFs were placed a median [IQR] of 2.5 [2.0,4.75] days following injury. No patients had to leave the protective environment of the T/SICU and there were no cases of IVCF malposition. When compared to previous technique of placement, mean total procedure time was shorter (26.7 vs. 74.9 minutes,  $p < .001$ ) and mean total IVCF placement costs were less (\$4,195 vs. \$6,301,  $p < 0.001$ ). This translates to a single-center savings of more than \$187,000/year.

**Conclusions:** Single-puncture, IVUS-guided, bedside IVCF placement in the T/SICU is safe, expeditious, and cost-effective while preventing the risk and difficulty of patient transport from the T/SICU. Further experience should establish this as the standard of care for IVCF placement.

### Poster 50

## Relieving Anastomotic Pancreatic Ductal Obstruction Post Pancreaticoduodenectomy with a Pancreaticogastrostomy: A New Technique

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**Background:** Due to improved survival following Pancreaticoduodenectomy (PD), patients may develop complications due to PD and not due to malignancy per se. Exocrine insufficiency may be related to pancreatic duct obstruction or strictures at duct-mucosa anastomosis in pancreaticojejunostomy (PJ). We propose a technique of managing a post PD duct obstruction.

**Methods:** From September 2005 to June 2008, 3 patients with a previous PD presented with symptomatic pancreatic duct obstruction. Intraoperative and postoperative data was collected. All patients were treated surgically by drainage of the pancreatic duct with a pancreaticogastrostomy (PG)

**Technique:** the patient is explored through a midline incision. The stomach is mobilized off the pancreatic remnant taking care to stay away from the prior PJ. The PD is identified using ultrasound and a 21 gauge needle is used to confirm the duct. The duct is incised for as long a distance as possible and the ductotomy is continued toward the PJ as much as possible. A posterior gastrotomy is created and a single layer, 3-0 prolene running anastomosis is created between the stomach and the PD.

**Results:** All the patients were females aged 62 and 78 and 45 yrs respectively. Comorbidities were documented in two patients. Two patients presented with severe acute abdominal pain and hyperamylasemia while the other patient was asymptomatic for abdominal disease. Two patients underwent an MRCP with secretin stimulation; while in one patient ERCP was attempted. The operating time was 99 mins, 158 mins and 154 mins. The estimated blood loss was 250ml, 400 ml and 500 ml respectively. A single layer, side-side Pancreatico-gastrostomy was performed as the drainage procedure in all patients. There was no mortality associated with any of the patients within the 30 days. Morbidity was seen only in one patient. None of the patients needed a reoperation. The mean length of hospital stay was 9 days. All patients remain asymptomatic.

**Conclusions:** Side - side Pancreaticogastrostomy is a durable technique for treating anastomotic pancreatic ductal strictures post PD that appears to result in superior postoperative outcome.

## Gallbladder Cancer — Still a Bad Disease

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**Background:** The aim of this retrospective study is to review our institutional experience with gallbladder cancer (GC) in the modern era of sophisticated imaging. Specifically, the issue of resectability and ability to achieve R0 resection in this condition was examined.

**Methods:** Patients diagnosed with gallbladder cancer (GC) from January 2005 to May 2008 were identified by diagnosis code in the hospital database and a case review was performed. Presentation, operative data, and pathology results were of particular interest in this review.

**Results:** 22 cases were reviewed, 16 female and 6 male, with a mean age of 61 years (Range 29-87). The diagnosis of GC was established preoperatively in 1 case (palliative procedure), intra-operatively in 11, incidentally following pathologic examination of cholecystectomy (LC) specimens in 9, and liver explant in 1 (OTL). 9/22 (41%) cases were resected with radical resection (en-bloc cholecystectomy, bile duct resection, segment 4b/5 liver resection, and lymphadenectomy) (7 LC, 2 jaundiced). Palliative surgery was performed in 1 (known metastatic), and 1 was removed incidentally (OTL). The 11 unresectable cases were deemed such due to local invasion in 8 (36%) (liver, duodenum, local LN), metastatic disease in 2 (9%) (ascites, widespread peritoneal disease), and both in 1 (5%).

Of those treated with radical resections, 7 achieved negative margins (R0 resection, 78%), and 2 were margin positive (22%). Of note, all of the 9 patients with incidental GC found after LC had residual cancer following exploration, and 5/9 (56%) were resected with negative margins.

**Conclusions:** Even in the modern era of excellent imaging, 32% (R0) of patients with GC are found to be resectable in this cohort of patients. In this study, all patients that have GC diagnosed at LC had residual disease (9/9). However they can be deemed R0 with aggressive surgery.

## Civilian and Military Trauma: Does Civilian Training Prepare You for the Battlefield?

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**Objective:** The surgical management of trauma patients continues to be a major focus of resident training. The knowledge gained is essential for the successful management of the trauma patient whether on the battlefield or in the urban trauma center. The purpose of this review is to compare the patterns of injury in civilian and military penetrating trauma and to ascertain whether or not we are adequately preparing the next generation of surgeons to treat these injuries.

**Methods:** We reviewed all presentations to an urban Level II Trauma Center for gunshot wounds over a 5 year period (2002-2007). We then compared this data to that recently acquired from the military in Operation Iraqi Freedom (OIF).

**Results:** There were 7,732 trauma patients seen during that time with 760 (9.8%) sustaining gunshot wounds (GSW). Of those, head and neck injuries occurred in 229 (30%). One hundred and ninety-nine (26%) sustained a GSW to the thorax, and injuries to the abdomen and pelvis were sustained in 217 (28.5%). In total, truncal trauma accounted for 54.5% of the injuries seen. Extremity injuries occurred in just 258 (34%). Data from OIF, shows the mechanism and distribution of injuries to be quite different. In contrast to previous conflicts, improvised explosive devices accounted for greater than 50% of the injuries in OIF. Head/Neck injuries accounted for 30% of the wounds, which is similar to the civilian experience; however, truncal injuries accounted for just 14% of the injuries seen and extremity injuries accounted for, a significant, 56% of all the injuries observed.

**Conclusion:** The civilian experience with gunshot wounds often focuses on truncal trauma, yet the military data shows a need for knowledge of injuries to the extremity. Trauma training programs should emphasize the care of the injured extremity with special consideration to vascular trauma. This is particularly salient in the era of diminishing opportunities secondary to vascular fellowships since a significant number of military surgeons train in civilian programs. This divergent experience may be important in the future as the civilian trauma surgeon is called upon to support the military.

### *Presentation 10*

## **The Role of Rural Hospitals in External Disaster Relief**

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**Introduction:** Local and regional disasters affect major health care institutions as well as their surrounding environs. When circumstances mandate evacuation of a medium or large hospital, initial reliance is placed on nearby large urban hospitals for rapid accommodation of transferred patients. The target hospitals are likely to already be stressed by a surge in new patient activity and other relief efforts related to the disaster. The purpose of this study was to assess the intensive care (ICU) and total licensed bed capacity of trauma designated Level III, Level IV, and non designated hospitals within the Piney Woods Regional Advisory Council (RAC) area of East Texas.

**Methods:** This study consists of two parts. The first is a description of the circumstances, preparatory events, emergency plan execution, and lessons learned during the 96 hour period surrounding the landfall of hurricane Rita, from the perspective of a rural hospital. Secondly, we compare the number of intensive care and total hospital beds available throughout the RAC with those available at Level I and Level II designated Trauma Centers to assess the potential effect on regional surge capacity.

**Results:** In preparation for the landfall of Hurricane Rita in 2005, a rural 100 bed implemented an emergency action plan which included expedited discharge planning and placement for 37 of the 57 inpatients present at that time. Subsequently 55 patients were evaluated and admitted over a 22 hour period. This included 31 prisoners in the custody of the Texas Department of Corrections from the University of Texas Medical Branch at Galveston. Combined with the 24 non-prisoner new admissions, the hospital census increased suddenly to 75% of its licensed bed capacity; and 100% of its functional capacity.

The Piney Woods RAC includes 1 Level I and 1 Level II Trauma Center with a combined capacity of 111 ICU beds and 732 licensed beds. There are also 3 Level III, 11 Level IV, and 7 non designated hospitals, with a combined capacity of 128 ICU beds and 1958 total licensed beds. When the latter 21 hospitals are included into the total resource pool, the ICU bed capacity and total bed capacity are increased by 116% and 267% respectively.

**Conclusion:** Small and medium size rural hospitals have the potential to significantly increase surge capacity for ICU and total inpatient beds and should be considered a valuable resource in disaster management planning. Although functional bed capacity may be less than licensed bed capacity, diversion of available health care workers and other resources to the rural environment may help distribute the burden of disaster relief. Failure to consider rural resources may increase the risk of larger and urban hospitals becoming overwhelmed during disaster relief efforts.

### *Poster 48*

## **Malignant Potential in Intraductal Papillary Mucinous Neoplasm (IPMN): Why Observe?**

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**Background:** IPMNs are well established as lesions with an evolving natural history and treatment options include surgery. IPMNs when present as cystic lesions may still bear a malignant tumor which may go undetected, even with endoscopic ultrasound (EUS). Various studies have cited factors which may suggest a slow progression and warrant observation of IPMN. IPMN are sub typed based on their location as main duct type, branch duct type and mixed type. There are conflicting studies as to which subtype suggests slow progression. The purpose of this study was to look at the incidence of IPMN, presence of malignancy in IPMN and incidence of its subtypes based on location, in our cohort of patients that underwent pancreaticoduodenectomy (PD).

**Methods:** A retrospective chart review of 122 patients that underwent a pancreaticoduodenectomy from September 2005 to August 2008 at a Non University tertiary training center was performed. Preoperative workup included EUS with FNA and ERCP. The demographic parameters and outcome of this group was studied.

**Results:** After a pancreaticoduodenectomy, twenty two patients (18%) were diagnosed with IPMN located in the pancreatic head. Seven patients had IPMN of main duct type, 4 had branch type and 11 had a mixed type. The incidence of cancer with IPMNs was 18 % (4 patients), of which, 2 had the main duct type and two had the mixed duct type. Two patients had a preoperative diagnosis of established. Two of the patients with malignancy were preoperatively jaundiced (50%), while only one (6%) was jaundiced in the nonmalignant group.

Overall four patients underwent a total Pancreatectomy for papillary features on frozen section at the resection margin, of which one was from the malignant group.

**Conclusion:** IPMN is an entity that needs to be managed with a PD. The incidence of malignancy with IPMN was 18% in our series. IPMNs of the pancreatic head should be managed with low threshold for resection irrespective of their type or location even with a negative cytology.

*Poster 47*

**Margin Status with a Standardized Protocol for the Sectioning of Pancreaticoduodenectomy Specimens**

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**Background:** Margin positivity is associated with poor prognosis in periampullary cancer. Every effort should be made by the surgeon to attain a margin negative status. Ensuring microscopic margin negativity is however challenging due to anatomical limitations and proximity to major vessels. Various centers have reported on their experience with a standardized protocol for the sectioning of PD specimens. We report our experience and the impact on Superior mesenteric margin (SMA) status.

**Methods:** Medical records of Patients who underwent pancreaticoduodenectomy (PD) by a single surgeon between September 2005 to August 2008 were retrospectively reviewed. Pathologic data including tumor type, and margin status was collected. After the resection of the specimen, the circumferential soft tissue margins and surfaces were stained according to a fixed color protocol. The superior mesenteric artery margin was specifically inked.

**Results:** 78 PDs were performed for periampullary carcinoma. 32% (25) patients with periampullary carcinoma had positive margins. Positive margins were more frequent with carcinoma of the pancreatic head. Of the patients with positive margins 21 patients had a diagnosis of carcinoma of the head of pancreas, 3 had duodenal carcinoma and 1 had carcinoma of the Ampulla of Vater. Overall 13/25 patients had a positive SMA margin, 12 of whom had a carcinoma of the pancreatic head. SMA positivity in the first two years was associated with a one and two year survival of 70% and 0% respectively which portends a poor outcome.

**Conclusion:** The use of a standardized inking and sampling protocol of resected PD specimens which includes specifically inking the SMA margin leads to a high incidence of margin positivity. The use of a standardized protocol, including specifically inking the SMA margin should be routinely performed on PD specimens.

*Presentation 11*

**Use of Transcranial Doppler in Patients with Severe Traumatic Brain Injury**

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**Objective:** Secondary ischemic insults after severe traumatic brain injury (TBI) is correlated with poor outcome. Transcranial Doppler sonography (TCD) permits a non-invasive measurement of cerebral blood flow. The purpose of this study is to determine the usefulness of TCD in patients with severe TBI.

**Method:** TCD were performed on 33 patients with severe TBI, defined as a Glasgow Coma Scale of 8 or less on admission. All patients were on mechanical ventilation and received mannitol. TCD were performed on hospital days 1, 2, 3 and 7. Hypoperfusion was defined by having two out three of the following: mean velocity of the middle cerebral artery less than 35 cm/sec, diastolic velocity of the middle cerebral artery less than 20 cm/sec and a pulsatility index greater than 1.4. Vasospasm was defined by the following: mean velocity of the middle cerebral artery greater than 120 cm/sec and/or a Landegaarde index greater than 3.

**Results:** Seventeen patients (52%) had normal measurements. Six were discharged home, 9 were discharged to a long term care facility and 2 died. Both of these patients were comatose and their families requested withdraw of care. Seven patients (21%) had hypoperfusion and all 7 progressed to brain death. Nine patients (27%) had vasospasm. The vasospasm was detected on hospital day one in 1 patient, hospital day 2 in 3 patients, hospital day 3 in 3 patients and hospital day 7 in 2 patients. Nimodipine was administered to three patients and all 3 were discharged to a long term care facility. In 6 patients, nimodipine was not given. Three of these patients progressed to brain death and 3 patients were discharged to a long term care facility.

**Conclusion:** Patients with normal measurements may be expected to survive. Patients with hypoperfusion have a poor prognosis. In patients with vasospasm, the use of nimodipine should be considered however further studies are needed to determine safety and efficacy. TCD may be useful in determining early prognosis. Further studies are also needed to determine if TCD can improve outcome in patients with severe TBI.

## Presentation 12

### The Role of Resident Fatigue on Sentinel Events in a Community Hospital

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**Background:** Resident work hour regulations continue to be a source of considerable controversy. On July 1st, 2003 the Accreditation Council for Graduate Medical Education (ACGME) implemented and began to enforce an 80-hour resident work week in response to concerns that overly-fatigued residents led to substandard patient care. A large volume of existing evidence links fatigue with impaired human performance; however, this has not consistently translated into similar impairment in the clinical arena. Most studies to date document no improvements in patient safety since the 80-hour work week took effect. There is now talk of establishing a 56-hour work week. This is concerning on several levels: Will residents receive adequate training despite these new time constraints? And, do increased patient hand-offs and decreased continuity of care offset the benefits garnished from a well-rested resident? Before radical changes are made to current resident work hours, clinical data supporting a direct relationship between resident fatigue and compromised patient safety must be demonstrated.

A sentinel event is an unexpected occurrence involving death or serious physical or psychological injury, or the risk thereof. Sentinel events are one way to track major medical errors that are potentially avoidable. Root cause analysis of these events can help determine if resident fatigue plays a causative role in medical errors.

**Methods:** We performed a retrospective review of all sentinel events at our institution occurring from January 2004 to July 2008. A root cause analysis was completed for each sentinel event over this time period. A review of these analyses was done to determine what role, if any, resident fatigue played in each sentinel event. The Joint Commission (JC) national databank of sentinel events from 1995 to 2007 was also retrospectively reviewed. **Results:** There were 110 sentinel events at our institution during this period. Root cause analysis of this data showed that physician fatigue was not a contributing factor in any of these events. From 1995 to 2007, 4,817 sentinel events were listed in the JC's national databank. The JC has not performed a root cause analysis of recorded sentinel events since 2004.

**Conclusions:** A decision to implement a 56 hour resident work week will have major consequences on resident education. A review of sentinel events at our institution did not identify resident fatigue as a causative factor for any event occurring from 2004 to 2008. Clinical data supporting a direct relationship between resident fatigue and compromised patient safety must be demonstrated before work hour changes are made. More research assessing the impact of resident fatigue on patient care must be done. The Joint Commission should consider monitoring the role resident fatigue has on sentinel events.

## Poster 46

### Reducing ICU Admissions in Higher ASA Class Patients After Pancreaticoduodenectomy: Impact of a Team Based Approach

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**Background:** Perioperative outcome of a pancreaticoduodenectomy (PD) may be impacted by several factors, such as co-morbidities, operative technique, and postoperative care. The purpose of this study is to evaluate whether the development of a dedicated multidisciplinary team can increase direct admission to the floor and reduce the ICU admission after PD.

**Methods:** Medical records of 122 patients, who underwent PD by a single surgeon between September 2005 to August 2008 at a high volume non-university tertiary training center (NUTTC), were analyzed. The records were reviewed with respect to number of patients who were transferred to the floor directly, bypassing the ICU. During the first year 45 PD were performed and this data was compared with the 31 PD cases performed during the second year and 46 cases in the third year. The multidisciplinary team consists of a gastroenterologist, surgeon, hepatobiliary fellow, general surgery residents, ICU nursing staff, operating room team, and a surgery floor nursing staff. Standardized algorithms and a dedicated floor nursing staff were developed during this time period.

**Results:** A total of 122 patients underwent PD. The total of 55 (45%) patients transferred directly to the floor managed by a dedicated team, without being admitted to the ICU. The yearly distribution of patients was 10(22%), 16(52%), 29(63%) in years I, II and III respectively. Hence the ICU admission rate has sequentially dropped from 78% in Year I to 48% in year II and 37% in year III. Overall 12 % of these patients were ASA class II, 75 % were ASA class III, and 13% were ASA class IV respectively. Every subsequent year a higher number of patients of ASA III (Year I-25%, Year II-60%, Year III-75%) and ASA IV (Year-I 0, Year II 33%, Year III-70%) were transferred to the floor directly when compared to the previous year.

**Conclusions:** This study demonstrates that a multidisciplinary team can be developed in a NUTTC for patients with pancreatic disease. This process results in improved perioperative outcomes. This outcome can be achieved with decreased use of the ICU if a dedicated floor nursing team is developed, even in patients with significant comorbidities and poor ASA status. This will translate to decreased hospital charges, earlier mobilization, and a more streamlined pathway for patients after PD.

Injury increasingly rapid and accurate, especially in cases of solid parenchymal organ injury that follows blunt abdominal trauma. Nonetheless, this valuable method of diagnosis can be confounded when anatomical variances are encountered in the setting of concomitant associated injuries.

### *Presentation 13*

## **Maintaining Proficiency Following FLS Training: 1-Year Analysis of Skill Retention for Surgery Residents**

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**Introduction:** The Fundamentals of Laparoscopic Surgery (FLS) program has been extensively validated. The purpose of this study was to determine performance retention after completion of a previously reported proficiency-based FLS skills curriculum and the impact of subsequent interval training.

**Methods:** Surgery residents (PGY 1-5, n=91) were enrolled in an IRB-approved protocol. All participants initially underwent proficiency-based training during a 2-month period on all 5 FLS tasks according to a previously published curriculum, which included orientation, pre-test, self-training with video review, and post-test. In the subsequent academic year, available residents (PGY 2-5, n=44) were enrolled in a follow-up curriculum focusing on the two most complex tasks (Suturing with Extracorporeal (Task 4) and Intracorporeal (Task 5) Knot-tying). The follow-up curriculum included a retention test on both tasks, followed by mandatory re-training to proficiency if the proficiency levels were not achieved. Retention tests and re-training were scheduled 6-8 months (Retention 1) and 11-14 months (Retention 2) after initial training. All tests included 1 repetition of each task under direct proctor supervision and were scored using standard FLS time and error-based metrics. Comparisons were by repeated measures ANOVA with Bonferroni corrections; mean  $\pm$  s.d. reported.

**Results:** Of the 44 available residents, 42(95%) completed the follow-up curriculum. All 42 (100%) achieved proficiency during re-training and/or at retention testing. Retention 1 and 2 tests were at 6.5  $\pm$  1.0 and 12.5  $\pm$  1.3 months after initial training, respectively. For Task 4, re-training was required for 54% of trainees (2.3  $\pm$  3.3 repetitions to re-achieve proficiency) after Retention 1 testing and for 21% (0.90  $\pm$  2.2 repetitions) after Retention 2 testing. For Task 5, re-training was required for 90% of trainees (16.1  $\pm$  9.1 repetitions) after Retention 1 testing and for 36% (0.7  $\pm$  1.1 repetitions) after Retention 2 testing. Performance scores for both tasks are shown below. For both tasks, scores significantly improved after initial training. For Task 4, scores at Retention 1 and 2 testing were not significantly different from post-test. For Task 5, Retention 1 scores were significantly lower than post-test but Retention 2 scores were not. Compared to post-test performance, skill retention was 86% and 96% for Task 4 and 87% and 96% for Task 5 at Retention 1 and 2, respectively.

**Conclusions:** A modest decrement in performance was detected at 6.5-months following FLS proficiency-based training, which was statistically significant for the more complex exercise (Task 5). A small amount of additional structured practice reinforces skill acquisition such that skill loss is minimized at 12.5 months. In addition to clinical experience, trainees may benefit from ongoing FLS simulator training to optimally maintain proficiency.

	Pre-test	Post-test	Retention 1	Retention 2
Task 4	180.0 $\pm$ 90.7	298.2 $\pm$ 70.5	256.0 $\pm$ 88.8	288.1 $\pm$ 59.4
Task 5	297.8 $\pm$ 105.2	491.2 $\pm$ 34.2	427.4 $\pm$ 34.2	478.6 $\pm$ 35.6

#### Presentation 14

### Pediatric Surgeon or Gynecologist: Does Surgical Specialty Impact Management of Ovarian Masses?

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**Introduction:** To assess if surgeon specialty impacts surgical outcomes, we evaluate a spectrum of ovarian pathology in children and adolescents, treated by disparate specialties, PS and GYN. Young females with lower abdominal mass or pain are treated by either specialty depending on the hospital at which they present. At a free-standing children's hospital, emergent evaluation and care is primarily provided by PS; however if a pediatric patient presents to a general hospital, often GYN will manage the patient. Can surgeon specialty influence the use of laparoscopy (LAP) or ovarian salvage rates (OSR)?

**Methods:** After IRB approval, ICD-9 codes and pathology databases were used to identify patients aged 8 to 19 yrs requiring surgical exploration for ovarian lesion at a free-standing children's hospital and a large metropolitan county hospital over 10yrs. Admit notes, radiology, operative notes, pathology and discharge notes were reviewed.

**Results:** 336 patients identified age 8 to 19 yrs; 214 pts (mean age 13.5yr, SEM  $\pm$  0.167, 64%) treated by PS and 122 pts (16.58yr  $\pm$  0.22, 36%) treated by GYN ( $p < 0.0001$ ). PS treated 93% pts at the children's hospital, whereas GYN managed 7% at the children's hospital, and all those at the county hospital. Only GYN managed pregnant pts ( $n=34$ , 10%), and 38% intervention at time of cesarean section. Both subsets had similar spectrum of underlying etiologies: benign and malignant neoplasms, and torsion. Malignancy rates were equivalent (10%). PS treated a higher incidence of torsion (28% vs. 16%,  $p=0.025$ ). PS used LAP more frequently than GYN (47% vs. 24%,  $p < 0.0001$ ), even when controlling for those treated at the time of cesarean section, necessitating open surgery ( $p=0.0012$ ). Both specialties demonstrated improved OSR with LAP (PS Odds Ratio 6.29, Gyn 5.58). Despite more frequent use of LAP by PS, OSR were better with GYN (56% vs. 48%,  $p=0.12$ ). There was no association between the odds of ovarian salvage and surgeon specialty ( $p = 0.23$ ). In cases of torsion, PS had a similar OSR (17% vs. 15%) with markedly less median time to the OR at 6h 5m (30m to 4d) vs. 13h 25m (1h 15m to 15 d) for GYN ( $p=0.074$ ). In malignant masses, PS had 100% complete resections compared to 82% by GYN.

**Conclusion:** Both specialties manage high volume of children with ovarian pathology. The significantly greater use of LAP by PS may play a role in expedited diagnosis and definitive care. PS demonstrated two-fold expedited time to intervention. Resultant OSR in torsion were similar in both groups, but trended in favor of GYN for all masses. The concern for undertreating or upstaging an underlying malignancy may have impacted PS with slower implementation of ovarian salvage. Despite substantial difference in degree of dedicated time training for gynecologic issues and particularly benign conditions, both specialties employ comparable techniques in the management of ovarian masses in the pediatric population.

## Posters for Display Only

#### Poster 45

### Misleading CT Scan Finding Following Blunt Abdominal Trauma in a Case with Congenital Cleft Spleen – Rreport of a Case

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**Introduction:** Splenic injury is a common finding in cases with blunt abdominal trauma (40-55%). We present an unusual case of CT diagnosed splenic fracture following blunt abdominal trauma which subsequently revealed a congenital cleft spleen.

**Case Report:** A 50 year old male presented with a history of blunt abdominal trauma and while being treated for traumatic lumbar spondylolysis was found to have a deteriorating sensorium along with a falling BP. A contrast enhanced CT scan confirmed the ultrasound findings of a splenic fracture along with a perisplenic collection.

All the blood results were normal except for borderline low Hemoglobin. A deteriorating sensorium and a BP drop to 50 mm of Hg necessitated urgent resuscitative measures and an emergent laparotomy. At laparotomy the spleen was found to be normal (s with a large congenital fissure on the antero-lateral surface with no evidence of any perisplenic or subcapsular hematoma. There was no evidence on the surface of the splenic capsule to suggest an infarct as a cause of the CT findings. The patient subsequently recovered with continuing conservative management.

**Pathology and Discussion:** The CT scan was subsequently repeated and also reviewed by 2 radiologists independent of the previous findings and CT evidence to suggest splenic fracture was confirmed..

Literature reveals a huge plethora of evidence in favor of CT scan for the diagnosis of splenic injuries with a very low false positive rate. Most reported series infact concentrate on missed cases rather than overdiagnosis. Moreover most nontherapeutic celiotomies confirm the type and degree of splenic trauma documented on the CT scan. Free fluid on CT scan in suspected cases is a harbinger of significant pathology<sup>1</sup>. Sonography may be used as an initial screening test in such cases, but CT scan by far is the best investigation to date as it supposedly also helps to differentiate other rarer causes like infarction, abscess or even congenital fissures, clefts etc.

Infarction may show up as a wedge shaped defect with a lack of flow on color flow imaging. A normal flow however does not exclude an infarct because an embolus may lyse subsequently restoring flow.<sup>2</sup> A CT scan is known to confirm a suspected splenic infarct in all cases<sup>3</sup>. In recent years stress has been placed on the complementary roles of DPL and CT in Cases with blunt abdominal trauma and how it can decrease the rate of non-therapeutic laparotomies. It has no significant increase in missed injuries and allows to identify candidates for Non-operative management of solid organ injury<sup>4</sup>

The spiral computed tomography (CT) scan has made the diagnosis of traumatic

## Bedside Placement of Subcutaneous Local Anesthetic Catheters (OnQ Pump) to Treat Pain Associated with Traumatic Rib Fractures

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**Background:** Rib fractures, a common injury in the trauma population are associated with significant morbidity and mortality, especially in the elderly. Impaired pulmonary hygiene due to pain is thought to be the cause of pneumonia and other complications. Therefore treatment efforts are directed at improving patients' pain control.

**Methods:** An OnQ pump was placed at bedside under local anesthesia in 6 patients with traumatic rib fractures. The technique of insertion and administration of local anesthesia is discussed, and the outcome of the initial 6 patients is presented.

**Results:** The OnQ pump was placed successfully at bedside without complications. However several patients required concomitant oral and intravenous narcotic analgesics for adequate pain control.

**Conclusion:** The OnQ pump for pain control is a potential adjunct in patients with rib fractures. Our pilot study indicates that bedside placement is feasible, however larger studies are required to address the efficacy of the technique.

## Office-Based Outpatient Endovascular Therapy: A New Paradigm

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**Introduction:** The purpose of this study is to present a new paradigm of office-based endovascular procedures. Furthermore, we demonstrate the safety and efficacy of performing these procedures in an office setting.

**Methods:** We conducted a retrospective review of all procedures performed in our endovascular suite over 1.5 years.

**Results:** Between April 13, 2007 and October 31, 2008, we performed 305 endovascular procedures in our outpatient office angio-suite. This represents 23.9% of total patients who underwent procedures in the hospital and office. There were 145 (47.5%) men and 160 (52.5%) women. The age range was 20 to 89 with an average age of 61.8 years. Risk factors included arrhythmia in 13 (4.3%), coronary artery disease in 61 (20.0%), congestive heart failure in 19 (6.2%), diabetes in 123 (40.3%), 44 (14.4%) patients on hemodialysis, hyperlipidemia in 42 (13.8%), hypertension in 219 (71.8%), chronic obstructive pulmonary disease in 25 (8.1%), history of myocardial infarction in 44 (14.4%), history of TIA/CVA in 32 (10.5%), smoking history in 124 (40.7%), and pacemakers in 10 (3.3%). ASA classifications were I (n=5; 1.6%), II (n=94; 30.8%), III (n=153; 50.2%), and IV (n=40; 13.1%), with anesthesia not used in 13 (4.3%) patients.

We performed 65 (21.3%) diagnostic angiograms, 73 (23.9%) angioplasties, 48 (15.7%) angioplasties with stent placements, 85 (27.9%) radiofrequency ablations, and 34 (11.1%) other procedures (biopsy, sclerotherapy, central line insertion and removal, stab phlebectomy). All vascular procedures were performed under local anesthesia with anesthesia standby. The planned procedure was completed in 303 (99.2%) patients. There were 5 (1.6%) complications (3 intra-op, 2 post-op), 3 of which required hospital admission. 30-day mortality was 2 (0.66%), both unrelated to the procedure.

**Conclusion:** With proper technique and patient selection, endovascular procedures including diagnostic angiogram, angioplasty, and stent placements can be done safely and effectively in an outpatient office setting with minimal risks.

### Presentation 16

## The Effect of Endovenous Laser Ablation on Restless Legs Syndrome

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**Introduction:** Restless Legs Syndrome (RLS) is a poorly understood group of about twenty separate disorders in which patients experience intense, unpleasant “sensations” in their legs and compelling urges to move the legs in an effort to relieve the sensations. The vile sensations are triggered by sitting or lying down to relax. They wax in the evening or nighttime and wane in the morning. They are temporarily improved by moving the legs.

The sensations and unrelenting urges to move effectively prevent relaxation and sleep onset. Insomnia and the sequelae of chronic sleep deprivation soon follow. RLS affects 5-15% of Americans, making it one of the most common causes of insomnia.

The “Father of RLS”, K.A. Ekblom, proposed venous disease to be one of the sources of RLS in 1944. The association between venous disease and RLS has since remained largely unexplored. This study examines the effect of using endovenous laser ablation (EVLA) to correct superficial venous insufficiency (SVI) in patients with concurrent RLS and duplex-proven SVI.

**Methods:** Thirty-three patients with moderate to very severe RLS (as defined by the 2003 National Institute of Health RLS criteria) and duplex-proven SVI completed an international RLS rating scale questionnaire (IRLS) to objectively rate the severity of their symptoms from 0 (mild) to 40 (very severe). They underwent duplex examination to evaluate the lower extremity venous system for abnormalities including SVI.

The patients were separated into non-operative and operative cohorts. The operative cohort underwent EVLA of refluxing superficial axial veins using the CoolTouch CTEV 1320 nm laser and ultrasound-guided sclerotherapy of the associated varicose veins with foamed sodium tetradecyl sulphate (STS). All patients then completed a follow-up IRLS questionnaire six weeks later. Baseline and follow-up IRLS scores of the two cohorts were compared.

**Results:** Operative correction of the SVI decreased the mean IRLS score by 21.4 points from 26.9 to 5.5, corresponding to an average of 80% improvement in symptoms. A total of 89% of patients enjoyed a decrease in their score of 15 points. Fifty-three percent of patients had a follow-up score of  $\leq 5$ , indicating their symptoms had been largely alleviated and 31% had a follow-up score of zero, indicating a complete relief of RLS symptoms. The non-operative control cohort experienced no significant change in symptom severity.

### Oral Poster 39

## Role of Nongenomic Estrogen Receptor Signaling in Breast Cancer

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**Introduction:** In addition to their classical functions in the nucleus as transcription factors, estrogen receptors (ER) are capable of mediating nongenomic signaling. It is unknown whether nongenomic or genomic ER actions promotes breast cancer tumor growth. Estrogen dendrimer conjugate (EDC) consists of an inert dendrimer to which 20 estradiol (E2) molecules are stably linked. Due to its size and charge, EDC is excluded from the nucleus. In this study, we determined if EDC selectively activates nongenomic ER signaling in mice. Using EDC, we then determined if nongenomic ER signaling alters breast cancer tumor growth.

**Methods:** To evaluate genomic ER function, transgenic mice ubiquitously expressing an estrogen-response-element (ERE)-luciferase reporter were ovariectomized and treated continuously with vehicle, E2, dendrimer alone or EDC. At 24 and 48h, they were injected with luciferin, and photon recordings were performed by live imaging. To study breast cancer tumors, MCF-7 cell xenograft tumors were established in ovariectomized SCID NOD mice treated with E2 for 28d. The role of nongenomic ER signaling in established tumors was then determined in 4 groups during an ensuing 21d study period: continuation of E2, switch to EDC, or switch to vehicle or dendrimer controls. Additional studies were done testing the impact of dendrimer vs. EDC given in addition to E2 after tumor establishment for 21d. Tumor measurements were taken biweekly, and tumor and uterine weights were recorded at harvest.

**Results:** E2-treated ERE-Luc reporter mice showed marked luciferase activity at 24h in liver that declined at 48h. In contrast, no luciferase activity was detected with EDC. Regarding tumor growth, E2 caused an increase in tumor weight vs. vehicle ( $269 \pm 27$  vs.  $117 \pm 18$  mg, respectively, mean  $\pm$  SEM,  $p < 0.05$ ). In contrast, EDC did not cause an increase in tumor size vs. dendrimer ( $103 \pm 9$  vs.  $119 \pm 12$  mg, respectively). Uterine to body weight ratio was also increased with E2 vs. vehicle ( $0.009 \pm 0.001$  vs.  $0.004 \pm 0.001$ ,  $p < 0.05$ ), but not with EDC vs. dendrimer ( $0.003 \pm 0.004$  vs.  $0.004 \pm 0.003$ ). During the continuation of E2 treatment, EDC vs. dendrimer yielded similar tumor weights ( $377 \pm 36$  vs.  $343 \pm 72$ ). However, the uterine to body weight ratio tended to be less with E2+EDC than E2+dendrimer ( $0.0054 \pm 0.0005$  vs.  $0.0070 \pm 0.00052$ ,  $p = 0.073$ ).

**Conclusion:** EDC does not stimulate nuclear ER action in vivo, and nongenomic ER signaling is insufficient to promote breast cancer growth. In addition, nongenomic ER actions do not alter classical nuclear ER function in breast cancer. In the uterus, nongenomic ER signaling is insufficient to invoke a growth response. However, nongenomic ER signaling in uterus may inhibit the growth response to nuclear receptor-mediated processes. Thus, EDC provides a new tool capable of segregating nongenomic from genomic ER functions in vivo, and breast cancer and uterine responses to E2 are primarily mediated by nuclear ER actions.

## Metabolic Benefits of Perfusion Preservation in Canine Hearts Stored for Short Intervals

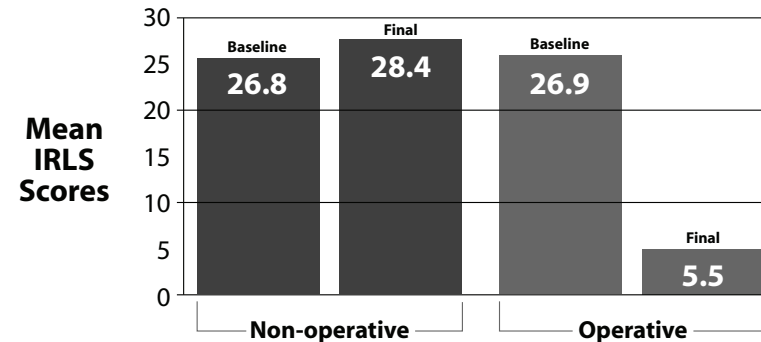
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**Introduction:** Current methods of preservation for heart transplantation limit safe storage intervals to approximately 6 hours. Recently, investigators have tested continuous perfusion devices in an attempt to improve ischemic tolerance and extend the duration of preservation. This study was designed to test a continuous perfusion strategy for cardiac preservation in a large animal model over a clinically relevant storage interval.

**Methods:** Hearts from adult dogs were instrumented with sonomicrometry crystals and a left ventricular (LV) micromanometer-tipped catheter. A range of filling conditions was created by vena caval occlusion and LV function was quantified by the preload-recrutable stroke work (PRSW) relationship. Hearts were arrested with Celsior solution supplemented with 5 mM glucose, removed, and randomized to storage in this modified Celsior solution in an ice chest (n=6) or placement in a device (LifeCradle, Organ Transport Systems) providing continuous perfusion of the identical solution at 10ml/100g/min (n=4). All hearts were stored for 4 hours. At end-storage, samples of left atrium were frozen and later extracted and analyzed by magnetic resonance spectroscopy (MRS). Hearts were then transplanted into recipient dogs, separated from cardiopulmonary bypass, and reperfused for 6 hours, with function measured hourly. At end-experiment, LV tissue water content was determined, and serum CK-MB levels were measured.

**Results:** LV function was similar at baseline in both the perfused and statically stored organs (PRSW:  $48.3 \pm 6.3$  vs  $51.0 \pm 1.9$  mmHg, mean  $\pm$  SEM, respectively;  $p=0.86$ ). As expected, LV functional recovery was excellent in both groups after 6 hours of reperfusion ( $46.1 \pm 6.8$  vs  $39.6 \pm 10.8$  mmHg;  $p=0.66$ ), although there appeared to be a slight trend towards improved function in the continuously perfused hearts over the entire 6-hour reperfusion interval ( $p=0.13$ , repeated measures ANOVA). Serum CK-MB levels after 6 hours of reperfusion were similar ( $11.2 \pm 6.1$  vs  $10.2 \pm 3.9$  ng/ml,  $p=0.89$ ) in the perfused and statically preserved organs respectively. Despite continuous perfusion during storage, LV water content was not increased in the perfusion preservation group when compared to routine storage ( $78.8 \pm 0.3\%$  vs  $78.3 \pm 0.2\%$ ;  $p=0.24$ ). However, MRS of tissue collected at the end of the storage interval revealed significantly elevated tissue lactate levels in the routinely stored organs (expressed as lactate to alanine ratio;  $0.6 \pm 0.4$  vs  $4.0 \pm 0.5$ ;  $p<0.01$ ).

**Conclusions:** Both methods of preservation lead to good early graft function after 4 hours of protected ischemia. However, continuous perfusion of donor hearts stored for transplantation nearly eliminates tissue lactate accumulation without increasing myocardial edema. This finding may imply maintenance of oxidative metabolism and/or washout of products of anaerobic metabolism during storage.



**Conclusion:** EVLA of refluxing axial veins with the CTEV 1320 nm laser and foamed STS sclerotherapy of associated varicosities alleviates RLS symptoms in patients with SVI and moderate to very severe RLS. This is the first study in the world to show that RLS symptoms can be definitively treated via operative intervention, rather than merely managed with chronic drug therapy. SVI should be ruled-out in all patients with RLS before initiation or continuation of drug therapy.

*Presentation 17*

**Surgery Remains the Most Effective Treatment for Paget-Schroetter Syndrome: 50 Years Experience**

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**Objective:** Significant improvements were made in the diagnosis and management of Paget-Schroetter Syndrome (PSS) (thrombosis of the axillary-subclavian vein) over 50 years as evidenced in the evaluation of 665 patients.

**Methods-Results:** Initially 36 patients were treated with elevation of the arm and anticoagulants. Only 16 of those patients improved (44%). Subsequently, thrombolysis followed by oral anticoagulants in 42 patients resulted in 25 patients improving (60%). After recognizing that underlying pathophysiology resulted from an abnormal insertion of the costo-clavicular ligament on the first rib and hypertrophy of the scalenus anticus muscle, 587 patients were subsequently managed by thrombolytic therapy followed by prompt transaxillary resection of the first rib. These patients have been followed from one to 32 years (average 7.2 years). 564 patients (96%) improved. The 23 who did not improve significantly had a prolonged interval from thrombosis to surgical therapy (over one year). Still one of the most frequently mismanaged syndromes, the concentric constriction of the vein from external compression on venography, is often misinterpreted by the interventional radiologist or cardiologist. They dilate it with a percutaneous venous balloon angioplasty (PVA), similar to an intraluminal arterial lesion, and because it always recoils, many insert a stent. 47 patients treated with PVA and stents for PSS have been evaluated and all have occluded in the short term, making further management difficult. Vein bypass grafts fail because of low venous pressure.

**Conclusion:** The ideal management of PSS is thrombolysis and prompt transaxillary 1st rib resection.

*Oral Poster 37*

**The Utility of F-18 Fluorodeoxyglucose Positron Emission Tomography/Computed Tomography Fusion Imaging in the Patients Presenting with Primary Breast Cancer**

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**Introduction:** F-18 fluorodeoxyglucose positron emission tomography/computed tomography fusion imaging (FDG-PET/CT) is emerging as a new diagnostic tool for patients with primary breast cancer. Recent studies have suggested a correlation between high uptake of FDG and aggressive tumor biology. The objective of this study was to identify the rationale for the FDG-PET/CT scan and to compare uptake of FDG within the primary lesion to prognostic parameters for breast cancer.

**Methods:** The charts of 28 patients evaluated with FDG-PET/CT during workup of primary breast cancer were retrospectively reviewed. Data including tumor size, nodal status, estrogen receptor/progesterone status (ER/PR), HER2/neu status and FDG-PET/CT results including maximum standardized uptake values (SUV) of the primary lesion were obtained. SUV levels were compared with prognostic parameters for breast cancer.

**Results:** Twenty-seven of the 28 patients evaluated with FDG-PET/CT confirmed a primary lesion within the breast with positive FDG uptake. Mean overall SUV of primary breast lesions was 6.4. Patients with tumors greater than 2 cm in size had higher mean SUV levels than patients with tumors less than 2 cm (mean SUV 9.9 versus 2.9, respectively). ER/PR negative breast cancers displayed higher mean SUV levels compared to ER/PR positive cancers (mean SUV of 10.1 versus 3.1, respectively). HER2/neu receptor positive patients had mean SUV levels of 8.6 versus 5.9 for HER2/neu negative patients. Forty-six percent of patients displayed axillary node uptake of FDG. Seventy percent of patients with either a positive sentinel lymph node biopsy or disease within axillary lymph nodes showed evidence of nodal disease on FDG-PET/CT.

**Conclusion:** FDG-PET/CT could be a useful adjunct in select patients with primary breast lesions during metastatic evaluation. In addition, higher SUV levels of primary breast lesions may correlate with poor prognostic parameters of breast cancer.

## Impact of Clinical and Diagnostic Characteristics on a Surgical Approach to Retroperitoneal Mass Lesions

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**Introduction:** Retroperitoneal mass (RPM) lesions can reflect a wide spectrum of malignant and nonmalignant disease processes, although soft tissue sarcomas represent the most common etiology. For this reason, any uniformly applicable treatment algorithm remains challenging.

**Methods:** We reviewed clinical records of all consecutive patients presenting over one single year to a surgical oncology academic practice in order to document clinical factors and imaging findings, and to assess their impact on operative decisions and outcomes.

**Results:** Twenty patients presented with specific management questions for a RPM. There were 13 women (65%) and 7 men (35%), with a median age of 49 years (range: 27 to 79). The most common symptoms were weight loss (n=8), pain (n=7), and fatigue (n=6); 30% of patients were asymptomatic. All patients underwent computed tomography; additional imaging was obtained in 11. The median RPM diameter was 11.9 cm (3 to 23). Biopsies were obtained in 13 cases, of which 62% were diagnostic. Resectability was judged as simple in 3, complex in 15, and not given in 2. A palpable mass correlated positively (p=0.03), patient fatigue negatively with resectability (p=0.05); an isolated, non-diffuse process, but not vascular or other visceral involvement, was the only imaging finding predictive of resection (p=0.03). Fourteen patients were to undergo operative treatment (six after preoperative induction therapy), and 12 have completed their procedure to date (resection=11, bypass=1). The median length of stay (LOS) was 7 days (4-38), and three patients developed a complication (25%). LOS but not OR time or blood loss was correlated with a cancer diagnosis (p=0.04). The margin status included 7 R0, 1 R1, and 3 R2 resections; it was not predicted by clinical or imaging findings, but correlated with blood loss (p=0.01) and OR length (p=0.02). Final diagnoses included 14 malignant RPMs (sarcomas=6, colon cancer recurrence=2, adrenocortical cancer=1, follicular dendritic cell tumor=1, others=4), and 6 benign lesions (adrenal pseudocyst=1, adrenal TB=1, vascular malformation=1, myolipoma=1, giant lipoma=1, unknown=1). Malignancy was not predicted by preoperative imaging findings. Follow-up status (i.e. freedom of disease) correlated with preoperative assessment of resectability (p=0.04).

**Conclusions:** Even in this limited clinical experience over a short time period, a wide variety of RPM diagnoses was encountered. Complex operative interventions are frequently necessary, and surgical judgment exceeds easily defined or measurable clinicopathologic and imaging parameters regarding resectability and treatment course prediction. In lieu of a rigid algorithm, optimal management appears to crucially involve surgical prediction of resectability, operative complexity, likelihood of benign disease, availability and efficacy of preoperative therapy, and systemic cancer progression risks, within a multidisciplinary setting.

## Endoscopic Treatment of Early Esophageal Cancer

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**Introduction:** Esophageal mucosal resection (EMR) and endoscopic mucosal ablation (EMA), including photodynamic therapy, radio frequency ablation, cryotherapy, and argon laser ablation, are potential treatments for early esophageal cancer. This report reviews our experience with endoscopic therapy for early esophageal cancer.

**Methods:** This is an IRB approved retrospective review of patients with esophageal cancer treated with EMR and EMA from Sept. 1999 to Aug. 2007 by a single practitioner and follow-up of at least one year. Disease is assessed by serial endoscopy and biopsy every 3 months.

**Results:** Nineteen patient charts were recovered and reviewed. One patient died of congestive heart failure before follow-up endoscopy. Two patients with T1b adenocarcinoma (AdCA) were referred for surgery. Of the remaining 16 patients, 15 had T1a AdCA and one had T1b squamous cell carcinoma (SCCA). Eight of sixteen had ASA 3. The average age adjusted Charlson Comorbidity Index score was 6.6 (range 2-10). Fifteen of fifteen (100%) T1a AdCA patients were cleared of cancer after 36 endoscopic sessions (20 EMR and 16 EMA). One went to surgery after EMR for poorly differentiated cancer and had no residual cancer on surgical pathology. The other 14 had follow-up of 12-109 months (median 32). One of these died from cerebral vascular accident during follow-up. Three (20%) T1a AdCA patients had recurrence of HGD after endoscopic therapy at follow up of 19, 86, and 109 months. One patient with T1b SCCA pt, who had prior advanced esophageal cancer treated with chemotherapy and radiation in 1989, was down-staged to diffuse high grade squamous dysplasia after 3 EMR and 2 EMA with 10 month follow-up. He refuses surgery. Eleven patients (61%) had 12 complications. Nine strictures required 44 dilations. Two bleeds occurred at the time of EMR and were controlled endoscopically. These did not require hospitalization or blood transfusion. One patient had an infected pleural effusion after dilation therapy that may have been related to steroid injection treated with decortication.

**Conclusion:** This report provides strong justification for consideration of endoscopic treatment for early esophageal cancer (T1a).

### Esophageal Mucosal Resection Versus Simple Biopsy for Dysplasia

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**Introduction:** Endoscopic four-quadrant forceps biopsy of esophageal dysplasia can be inaccurate due to sampling of <1% of the esophageal mucosa. Esophageal mucosal resection (EMR) may be a more accurate diagnostic tool due to larger and deeper sample sizes.

**Methods:** IRB approved review of a Barrett’s registry database of esophageal neoplasia. The patients were seen from Jan. 2003 to Sept. 2008 although care may predate this time period.

**Results:** One hundred eight patients were referred for endoscopic therapy of esophageal dysplasia. Sixty-nine patients had follow-up biopsies or surgery after their first EMR with a median follow-up of 10.5 months (range 1-86). The final diagnosis is adjudicated by follow-up with EMR, forceps biopsies, or surgery. Seven patient’s initial EMR had a more severely dysplastic pathology on follow-up. Five of these were inadequate resections; three due to patient intolerance requiring early termination, one due to bleeding not allowing further biopsy, and one due to mucosa not suctioning normally. Despite these five inadequate resections, EMR has an accuracy of 92%. EMR with adequate biopsy has 98% accuracy. Seven patients went to surgery and surgical pathology had equally or less severe dysplasia than the EMR diagnoses.

Outside Diagnosis	First EMR	Final diagnosis with more severe pathology
13 LGD	4 no dysplasia	0
	3 LGD	0
	6 HGD	0
56 HGD	8 no dysplasia	1 HGD
	11 LGD	4 HGD
	26 HGD	2 Cancer
	11 Cancer	N/A

**Conclusions:** EMR is a powerful diagnostic tool for esophageal dysplasia and has 98% accuracy but needs to be repeated in 6% of cases for various reasons. The final diagnosis with EMR showed down staging (4/13) or upstaging 6/13 in patients diagnosed with LGD by simple biopsy. EMR showed down staging (19/56) or upstaging (11/56) in patients diagnosed with HGD by simple biopsy.

## Oral Poster Session Abstracts

### Should Age be a Factor for Level 1 Trauma Activation?

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**Background:** Elderly trauma patients have a higher incidence of medical co-morbidities when compared to their younger cohorts. Currently, the minimally accepted criteria established by the Committee on Trauma (COT) for the highest level of trauma activation (level I) does not include age as a factor. Should patients older than the age of 60 with polytrauma and/or a significant mechanism of injury be considered as part of the criteria for level I activation? Would these patients benefit from a higher level of activation?

**Methods:** A retrospective review of all level II trauma patients admitted to a Level II trauma center between July 1, 2006 and June, 30, 2008 was performed. Factors taken into consideration include: associated co-morbidities, mortality rate, transfusion requirements and injury severity score (ISS).

**Results:** During this 2-year period, 1,028 patients who presented as a level 2 trauma activation were admitted to our institution. Eighty-eight percent were younger than 60 years old, and 12% were older than 60. We found a 2-fold increase in the requirement for blood transfusions in the older (age > 60) population. Additionally, the patients older than 60 demonstrated a 4-fold increase in morbidity and an 18-fold increase in mortality, when compared to the patients under the age of 60. This occurred despite no significant difference in mean ISS.

Age	Mean ISS	% Morbidity	% Mortality	% Transfusion
< 60	9.4	4.2	0.3	9.8
> 60	11.9	17.5	5.6	21.4

**Conclusion:** Our analysis shows that the patients older than the age of 60 have an increased risk for morbidity and mortality. Age > 60 should be a criterion for the highest level of trauma activation for patients with polytrauma and/or a significant mechanism of injury.

## Minimally Invasive Approach to Proximal Subclavian Artery Pseudoaneurysm

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**Introduction:** Iatrogenic pseudoaneurysm is a known and potentially serious complication of central venous vascular access (CVVA) procedures. Incidence of this complication related to CVVA ranges from 0.4% to 9.9%. Multiple reports describe iatrogenic arterial injury with subsequent pseudoaneurysm formation in the carotid, brachial and subclavian arteries. Ultrasound-guided percutaneous thrombin injection (UPTI) is a relatively new method first described in 1986. Though successful treatment of femoral or brachial artery pseudoaneurysms using UPTI have been described in larger patient series, reports of UPTI treatment of subclavian artery pseudoaneurysms are rare. Herein we describe a minimally invasive, successful treatment of an iatrogenic subclavian artery pseudoaneurysm using ultrasound-guided percutaneous thrombin injection.

**Case Report:** A 38 year-old gentleman, with history of lupus and renal failure, presented with facial swelling after CVVA for hemodialysis access. Duplex ultrasound revealed a 3.5cm x 2.6cm x 3cm right subclavian pseudoaneurysm. Angiography confirmed its location adjacent to the thyrocervical trunk and right vertebral artery. Due to its location and the patient's coagulopathy the aneurysm was approached with a spinal needle using real-time ultrasound guidance. Thrombin was injected in the aneurysm's center until echogenic thrombus filled the pseudoaneurysm and occluded the neck. Duplex evaluation confirmed patency of subclavian and carotid arteries, and distal pulses remained normal. Subsequent repeat duplex exam confirmed occlusion of the pseudoaneurysm and patency of subclavian and carotid arteries.

**Discussion:** Treatments for pseudoaneurysms include ultrasound-guided compression, percutaneous thrombin injection, coil embolization, endovascular stenting and open surgical repair. Subclavian artery compression is challenging at best due to depth of the artery and interference of an overlying clavicle. Endovascular exclusion with covered stents risks occlusion of the adjacent vertebral artery orifice. Surgical repair has been the most common treatment, with its concomitant cost, patient discomfort and the morbidity associated with thoracotomy. Several studies have compared thrombin injection with UPTI, and all series showed higher success rates (93-100%) and significantly shorter procedure times for thrombin injection. Ultrasound-guided percutaneous thrombin injection offers a minimally invasive alternative to other treatments.

**Conclusion:** Ultrasound-guided percutaneous thrombin injection (UPTI) is an effective method for treating femoral and brachial artery pseudoaneurysms. UPTI in our patient exemplifies its additional usefulness in treatment of a subclavian pseudoaneurysm in high-risk patients. Though cost-effective when compared with endovascular or surgical treatments, the long-term safety and durability of this technique has yet to be affirmed by a large, prospective randomized trial.

## Safety of Minimally Invasive Esophagectomy in Malignancy

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**Introduction:** Minimally invasive surgery has been applied in a number of ways to esophagectomy. Newer techniques have improved patient outcomes while maintaining oncological principles, however, mortality still exists. Most series have reported mortality rates ranging from 2% to 14%, however the debate as to which is the ideal approach, still exists. The aim of this study was to document the safety and efficacy of minimally invasive esophagectomy (MIE) in achieving equitable perioperative outcome and resectional status in patients with significant comorbidities and a high Charlson score.

**Methods:** MIE in the form of combined thoracoscopic and laparoscopic technique, performed cooperatively by two surgeons between September 2005 and August 2008 were retrospectively reviewed. The Charlson comorbidity score was assigned to each patient and parameters as age, comorbidities, symptoms, and need for preoperative stenting were collected. The Charlson comorbidity score is used for evaluating prognosis based on age and comorbid conditions. It indicates increased cumulative mortality with each increased level of the comorbidity index, attributable to comorbid disease. Intraoperative data including estimated blood loss, operative time, need for intraoperative blood transfusions, and American Society of Anesthesiologists (ASA) class were collected. Postoperative data including length of hospital stay, need for postoperative blood transfusions, morbidities, and 30-day mortality were evaluated.

**Results:** Thirty one (31) patients underwent MIE for esophageal malignancies, 71% for adenocarcinomas, 19% for squamous carcinomas, and 10% for high-grade dysplasia with Barrett's. Mean age at presentation was 66 years. Comorbidities were documented in 81% of the study group, with 55% being ASA class III and 39% as ASA class IV. The mean Charlson age-adjusted comorbidity score was 5.29. Most patients (58%) presented with dysphagia. 58% patients had received preoperative chemoradiotherapy. The mean operating time was 296 minutes. Mean blood loss was 310 mL. The mean intraoperative transfusion rate was 22%. Two patients (6%) required conversion to open celiotomy. Delayed gastric emptying was the most common complication in the postoperative period, and was seen in 19% of patients. Three patients (8%) required a reoperation for wound complications. There was no mortality reported in the series.

**Conclusions:** Minimally invasive esophagectomy can be performed with results that meet and exceed reported benchmarks in terms of perioperative outcome and resectional status. This technique helps achieve low mortality and hence better safety. With this approach, esophageal malignancies can be treated more aggressively even in the presence of significant comorbidities and high comorbidity scores. The surgical technique needs to be standardized to achieve this outcome. It is a team-based approach, as factors beyond the surgical technique affect the outcome of surgery.

### *Presentation 31*

## **Tumor Harvesting for Vaccine Development: Predictors of Optimal Outcome**

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**Objective:** As our interest in the field of oncologic immunology continues to grow, knowledge of the principles of tumor harvesting becomes increasingly important. To date, the correlation between the patient's peri-operative variables and harvested tumor characteristics has not been studied. Our objective is to report findings regarding patient characteristics and technical aspects of tumor harvest that are predictive of successful tumor vaccine generation.

**Methods:** Twenty-one patients diagnosed with Stage IV neoplasm were enrolled in Phase I anti-tumor vaccine trial and underwent an operation at our institution from September 2007 to August 2008. Acquired tumor samples were separated from fibrous and fatty tissues, weighed, minced and immersed into an antibiotic solution. The tumor was then transfected with genetic sequences for GM-CSF and TGF-B2 by electroporation at 12 and 24 hours post-operatively, followed by radiation and separation into aliquots of 500,000 or  $1.5 \times 10^7$  cells for low and high doses, respectively. Medical records and diagnostic images of the patients were reviewed to characterize types of neoplasm and to estimate pre-operative tumor burden, resected amounts, and the remaining tumor.

**Results:** There were 21 patients (12 male, 9 female) with metastatic disease of the brain (2 patients), lung (8), liver (6), peritoneum (5), bowel/rectum (2), and skin/chest wall (4). Pre-operative imaging estimated tumor volume from 2 to ? cm<sup>3</sup>. The primary sources of neoplasm included lung (6), breast (4), liver (2), colorectal (3), melanoma (3), and others (3). Near complete surgical de-bulking was achieved in 5 patients, with R0 resection in 1? patients. Tumor samples for vaccination varied from 5 to 49.0g (mean 20.0g).

Vaccine production was successful in 13 patients (62%). Four samples (19%) were contaminated by skin or bowel flora. Six patients had insufficient samples. We found that successful vaccine was obtained from the samples varying from 13.5 to 50g (mean 25.0g),  $p=0.026$ . Solid organ, lymph node, and omental samples were associated with successful outcome, while large pre-operative tumor burden did not.

**Conclusion:** Our experience represents the beginning of a new era in surgical debulking and harvest for vaccine delivery and postulates questions varying from patient selection to the surgeon's task in the operating room. This investigation indicates that the predictors of successful harvest include the amount of harvested tumor, tissue type, and ensured sterility with potential exclusion of bowel and skin tumors.

### *Mini Talk 26*

## **A Nationwide Review of the Association between Cervical Spine Injuries, Head Injuries, and Facial Fractures**

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**Background:** Several small studies have investigated the relationship between facial fractures, c-spine injuries and head injuries with varying results. Determining this correlation at a national level would be the first step in updating the trauma imaging protocol. The purpose of this study was to review the incidence of facial fractures, c-spine injuries, and head injuries at trauma centers across the United States.

**Methods:** The design was a retrospective chart review of International Classification of Disease Nine diagnosis and procedure codes from the National Trauma Data Bank between the years 2002 and 2006. This included data on over 1.3 million traumas.

**Results:** The incidence of facial fracture was 13.5% in patients with a c-spine injury, 21.7% in patients with a head injury and 24.0% of patients with combined c-spine and head trauma. Head injuries were found in 40.2% of patients with a c-spine injury, 67.9% of patients with a facial fracture and 71.5% of patients with combined c-spine injury and facial fracture. C-spine injuries were reported in 6.7% of facial fractures, 7.0% of head injuries and 7.8% of patients with a combined facial fracture and head injury.

**Conclusion:** This is the largest review in history documenting these associations. Pending cost-benefit analysis, the current trauma imaging protocol may be challenged.

## Modified Single Incision Laparoscopic Surgery for Interval Appendectomy in a Young Child: A Case Report

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**Background:** Single Incision Laparoscopic Surgery (SILS) is an emerging area of minimally invasive surgery. Operative techniques are similar to laparoscopy, although close proximity limits instrument range of motion. SILS approach results in a perceived scarless abdomen postop, with incision within the umbilicus. In an infant or toddler, where incisions may appear small on the torso, the scar grows in proportion with the child and may be more apparent later in life. Previously, a case series described the feasibility of a modified SILS approach for appendectomy in the pediatric population (6-16 yrs). We describe modified SILS interval appendectomy in a 3 year old male (15.3 kg) to demonstrate applicability of this approach in children with limited abdominal domain.

**Methods:** A chart review was performed on a patient who underwent a modified SILS appendectomy at our free-standing children's hospital.

**Results:** A 3 yr old initially presented to our free-standing children's hospital with 10 d history of lower abdominal pain, diarrhea and fevers. CT showed perforated appendicitis, and small abscess. Laboratory evaluation noted WBC of 24 with 23% bandemia. He developed septic shock nonrefractory to fluid resuscitation, and was transferred to the PICU with a pressor requirement. Due to perforation with abscess, he was conservatively managed with antibiotics for 4 weeks and interval appendectomy 2 mo from presentation. After full informed consent, we proceeded to the operating room. 1.5cm supraumbilical incision with skin flap was made to provide a larger working fascial area. Three fascial incisions were made to accommodate 5mm ports oriented in a triangular fashion. A 30° 5mm camera was used via middle port. An articulating blunt grasper and dissector were used via lateral ports to dissect the base and fully mobilize appendix. A stab incision was made in the RLQ with direct insertion of a 3mm Babcock into the peritoneal cavity for appendix retraction. Two 5mm ports were removed, and fascial incisions connected to accommodate a 12mm port for the stapling device. After stapling, specimen was placed in endobag, and removed through 12mm port. Fascial wounds were closed with 0 Vicryl, deep tissue with 4-0 Vicryl, and subcutaneous tissue with 4-0 Monocryl. Operative time was 67m. Patient was admitted for 23h obs. At 2 wk and 4 mo follow up, patient is without complaints, with no wound problems or fascial defect detected.

**Conclusion:** We describe the youngest reported SILS appendectomy. With continuing technologic advancements, a wider use of SILS may be possible. With laparoscopic experience in infants and toddlers, the pediatric surgeon is skilled in working with limited range of motion; as a result, SILS approach for other pediatric procedures may be a more natural transition than for other specialties. Further studies are needed to ensure the safety of this approach, both in interval and emergent setting.

## Liver Resection Improves Survival for Non-Metastatic Gallbladder Cancer: A 10 Year Review

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**Introduction:** Gallbladder cancer is a relatively rare cancer in the United States and is often associated with poor prognosis. We reviewed our experience with treating gallbladder cancer and attempted to identify if demographic, tumor, or surgical factors affected survival in our patient population.

**Methods:** We performed a chart review of the cancer registry of 2 large academic hospitals to identify patients with gallbladder cancer. Demographic information, patient and tumor factors, and survival outcomes were collected. We analyzed the patient population for the impact of patient factors and surgical therapy on survival outcome.

**Results:** Our patient database consisted of 68 patients, 52 of which were women (76%). The ethnic distribution was 37% Hispanic, 34% Caucasian, and 21% African/African-American. The median age at diagnosis was 60 years. The stage distribution for the study group was as follows: Stage I 15%, Stage II 24%, Stage III 9%, and Stage IV 35%. Sixty-two percent (n=42) of patients had their gallbladder removed during treatment, with 25 operations starting as laparoscopic cholecystectomy. Liver resection (radical resection) was performed for 26% (n=16) of patients who had resection of the primary tumor (cholecystectomy). Median follow up was 336 days overall and 518 days for survivors. We identified no difference in survival by race or gender. Median survival for the entire population was 13 months. Stage specific median survival (in months) is as follows: Stage I, II (Early stage) 29; Stage III 14, Stage IV 9 (p < 0.01). Grade of the tumor did not affect survival. We did not identify survival differences based on ethnicity or gender. For patients without metastatic disease (stage I-III), liver resection was associated with improved 2-year survival (36% without liver resection, n=16; 76% with liver resection, n = 13; p < 0.05).

**Conclusion:** Our data, collected from 2 large teaching hospitals, showed an overall median survival of approximately one year. This is consistent with other reports demonstrating a poor prognosis associated with gallbladder cancer. We did not identify any difference in survival based on ethnicity, gender, or tumor grade. Surgical treatment, in the form of radical resection, improved survival in patients who did not have distant metastases. These results support the practice of aggressive surgical management for carefully selected patients.

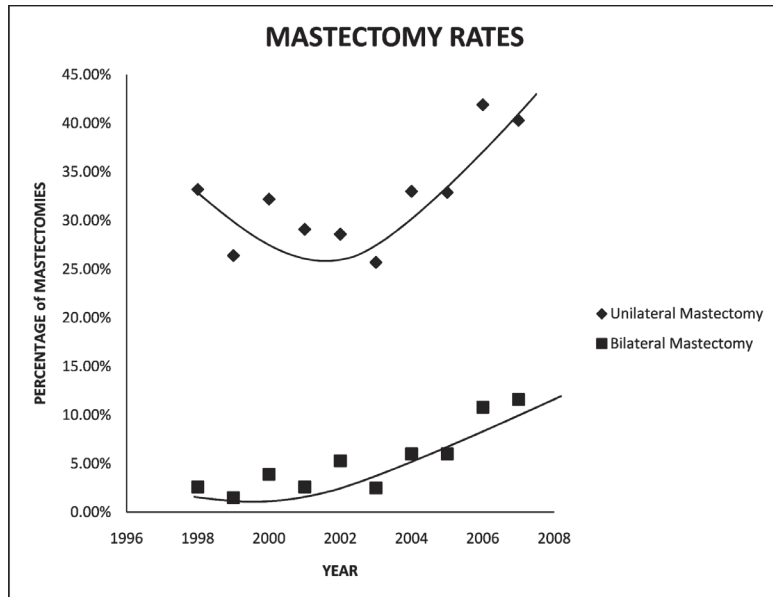
Presentation 33

### Trends in Bilateral Mastectomy Rates for Early Primary Breast Cancer

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**Introduction:** After the publication of the NSABP B-06 trial in 1985, which showed equivalency for partial mastectomy plus radiation as compared to total mastectomy, breast conservation was widely promoted as the preferred primary surgical approach for early stage breast cancer. In fact, breast conservation rates were subsequently used as a quality measure in comparisons of treatment patterns across socio-economic strata and differences in these rates were cited as evidence for disparity in breast cancer treatment. However, several recent studies have suggested that breast conservation rates are declining, even among well educated, affluent populations. The increasing use of preoperative MRI has been cited as one likely cause. Trends in the rate of bilateral mastectomy have not previously been assessed.

**Methods:** Three data sets were combined in order to assess the relationship between rates of bilateral mastectomy, preoperative MRI, and genetic counseling in our breast center population. These included tumor registry data for 3,180 primary breast cancer patients treated between 1997 and 2007, and records of preoperative MRI and genetic counseling in these patients.



**Results:** The unilateral mastectomy rate declined linearly between 1997 and 2003 at a rate of -1.6% per year, but after 2003 it increased linearly at a rate of 3.8% per year. This is consistent with observations previously reported by other investigators. The rate of bilateral mastectomy increased throughout the study period in a biphasic pattern showing

Mini Talk 24

### Carcinoid Within a Meckel's

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**Introduction:** Meckel's diverticulae are an anomaly occurring in two percent of the population and are thought to be benign past childhood age. We report a case of a gastrointestinal bleed in a 59 year old male secondary to a carcinoid tumor nested within a Meckel's diverticulum. Literature review also suggests the natural history of Meckel's is less than benign.

**Methods:** A 59 year old male presented to the emergency department with three episodes of hematochezia in the past twelve hours. Medical history was significant for hypertension and a distant appendectomy. His only medication was hydrochlorothiazide. Physical exam was significant for tachycardia and orthostatic hypotension, the lack of abdominal pain, and bright red blood on rectal. Nasogastric lavage provided bilious return. Initial hematocrit was 21, and transfusion of two units of packed cells was initiated followed by a tagged red blood cell scan, which was positive in the right lower quadrant. Angiography revealed bleeding in the distribution of the ileocolic artery, but embolization was impossible secondary to numerous small bleeding vessels. Bleeding then subsided and the patient was prepped and taken for colonoscopy, which revealed no source of colonic bleeding, but the presence of blood in the distal ileum. 99m Tc-pertechnetate scan was negative for Meckel's. Bleeding resumed and the patient was taken to surgery. On operative examination, a Meckel's diverticulum was found as well as a cirrhotic liver. Liver biopsy and a right hemicolectomy incorporating the distal small bowel to the point of the diverticulum were performed. Pathology revealed liver steatosis as well as a 1.1 cm ulcerated and hemorrhagic well differentiated carcinoid tumor within the tip of the Meckel's diverticulum. Twelve lymph nodes were negative for disease. The patient recovered well, and has had no further gastrointestinal bleeding.

**Results:** The combination of a carcinoid within a Meckel's seems deceptively rare. However, several case reports exist. Two large reviews of carcinoid tumors note this to be an infrequent, but notable occurrence. Modlin identified 174 cases of carcinoid tumors within Meckel's based on a review of 13,715 carcinoid tumors. These tumors were noted to have an 83% five year survival, and 77% of these patients had developed metastasis at time of development of symptoms. 24 cases of carcinoids within Meckel's were identified in 8305 cases based on SEER data. Both studies note the natural history of Meckel's carcinoids closely approximates small bowel carcinoids, being more aggressive than either appendiceal or rectal carcinoids. Moyana suggests that this entity may be even more common, reporting 44 Meckel's diverticula with an 11% rate of concomitant carcinoid tumors.

**Conclusion:** Carcinoid tumors within Meckel's diverticula are an uncommon, but notable occurrence, and should be considered in the differential diagnosis of gastrointestinal bleeding.

## Pancreaticoduodenectomy in the Gastric Bypass Era: A New Technique That Works

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**Introduction:** The surgical management of periampullary lesions, post roux-en y-gastric bypass (RYGB) poses a challenge. We propose a technique of managing the stomach while doing a pancreaticoduodenectomy (PD) in a patient with a previous RYGB.

**Methods:** From September 2005 to August 2008, 3 patients with a previous RYGB underwent pancreaticoduodenectomy with a modified technique. The records were reviewed with respect to preoperative, intraoperative and postoperative data.

**Technique:** After performing a midline laparotomy and confirming resectability of the periampullary mass, the lesser sac is entered and the retrocolic roux-en-y limb and proximal gastric pouch is identified. The distal gastric remnant is mobilized by ligating and dividing the short gastric and left gastric vessels. If there is a concern about injuring the proximal pouch, the distal stomach can be opened and resection directed from within the remnant to preserve the roux limb and pouch. The portal dissection and division of the common bile duct and pancreas is performed as usual. The remnant stomach is further mobilized en bloc with the duodenum and pancreatic head. The rest of the PD and reconstruction is done using the standard technique. As the patient has no remnant stomach and the pouch and roux limb is preserved, there is no need for a new gastrojejunal anastomosis.

**Results:** 2 patients had a carcinoma of the head of pancreas and 1 had an IPMN. Comorbidities were documented in two patients. Neither patient underwent a preoperative endoscopic ultrasound. The patients were ASA class IV, III and III respectively. The operating time was 315, 218 and 284 mins. One patient received intraoperative blood transfusions, while the other received transfusions in the postoperative period. There was no mortality in any of the patients. There was no morbidity seen in any of the patients. None needed a reoperation. The mean length of hospital stay was 6 days.

**Conclusion:** The technique suggests an approach of managing the remnant stomach and preventing delayed gastric emptying which resulted in a decreased length of hospital stay.

an increase of 0.5% per year between 1998 and 2002, but an increase of 2.3% per year after 2003 (a nearly 8-fold increase). Bilateral mastectomy rates among patients undergoing preoperative MRI remained flat throughout the study period (average rate = 17%). However, bilateral mastectomy rates among breast cancer patients attending a genetic counseling session increased at a rate of 4.3% per year after 2003 reaching an absolute rate of 21% in 2007.

**Conclusions:** These data confirm previous reports suggesting that the use of mastectomy for the treatment of early stage breast cancer is increasing. Interestingly, the use of bilateral mastectomy is increasing at a similar rate. Increasing use of preoperative MRI is contributing directly to an increase in the absolute number of mastectomies performed as about 17% of patients undergoing MRI eventually underwent mastectomy regardless of the year of diagnosis. More importantly, however, more women undergoing genetic counseling are opting for bilateral mastectomy. This may be appropriate based on recent data showing excellent protection from second primary cancers and significant improvements in breast reconstruction.

### *Presentation 34*

## **Delayed Primary Breast Reconstruction with Immediate Tissue Expanders in the Irradiated Breast**

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**Objectives:** Women who present with advanced cancers or multiple positive lymph nodes are more likely to require postmastectomy radiation. Delayed breast reconstruction is traditionally used when postmastectomy radiation is anticipated, but this leads to a reduction in the skin envelope and increases the need for large skin paddles. The final aesthetic results are less pleasing due to skin color mismatches and a quilted appearance. Immediate breast reconstruction is more desirable for women undergoing mastectomy. This study examines the use of tissue expanders as a bridge to delayed primary breast reconstruction in patients who require irradiation.

**Method:** A retrospective chart review was performed of all patients from January 1999 to August 2008 who required irradiation and underwent tissue expander placement for immediate reconstruction after modified radical mastectomy. This identified 45 patients who were treated with the following protocol: 1) immediate tissue expander placement at time of mastectomy, 2) tissue expansion during chemotherapy, 3) irradiation with tissue expander fully expanded, and final breast reconstruction with either 4) autogenous tissue and/or permanent implant after irradiation or 5) latissimus flap with tissue expander and subsequent implant exchange after tissue expansion.

**Results:** Forty-four patients had completed their final reconstruction, and one patient is awaiting the final phase of reconstruction. Forty patients had infiltrating ductal carcinoma, and five patients had infiltrating lobular carcinoma. Complications during the first phase of reconstruction included 11 tissue expander contractures, 2 tissue expander infections, 1 leakage of the tissue expander, 1 tissue expander extrusion, and 1 hematoma. For the final reconstruction 25 patients underwent latissimus flap with tissue expander and subsequent implant exchange. Other reconstructions include delayed transverse rectus abdominis myocutaneous (TRAM) flap (5 patients), free TRAM (6 patients), and permanent implants (8 patients). During the final reconstruction phase, complications include 8 implant contractures, 5 seromas, 3 abdominal hernias requiring repair, 1 radiation induced fat necrosis, and 1 implant infection. Preliminary results show patients have satisfactory aesthetic outcomes.

**Conclusions:** The use of tissue expanders, followed by breast radiation, is an evolving technique that is different than historical recommendations. Our data shows that the procedure is safe and leads to acceptable outcomes. This method results in satisfactory aesthetic outcomes and should be considered as a reconstructive option for patients requiring postoperative radiotherapy.

### *Mini Talk 22*

## **Laparoscopic Lateral Roux-en-Y Pancreaticojejunostomy: A Case Series**

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**Background:** Lateral pancreaticojejunostomy (LPJ) is an established surgical procedure for the treatment of chronic pancreatitis in patients with dilated pancreatic ducts. There have been 35 reported cases of laparoscopic LPJ. We report our experience with 3 consecutive laparoscopic pancreaticojejunostomies (lap LPJ).

**Methods:** In a time period of five months, there were three eligible patients with chronic pancreatitis with distal pancreatic duct dilatation. Patients underwent preoperative imaging and subsequent surgery. Operative records and clinic notes were used to record their outcomes.

**Results:** There were three males with ages ranging from 40 to 73 years with the average age of 58.7 years. All were suffering from chronic abdominal pain and two had significant weight loss. Preoperative imaging was assessed by CT scan, ERCP and endoscopic ultrasound in all patients. Ductal occlusion in the head of the pancreas was confirmed as either stone disease (n=1), or focal ductal scarring (n=2). Temporary stenting achieved duct shrinkage and symptomatic improvement in 2 patients. There was no biliary obstruction in any patient. The average pancreatic diameter was 8mm. The operative time averaged 214 minutes. The technique involved intraoperative ultrasound, duct puncture with a spinal needle for confirmation, and longitudinal duct opening from the head, progressing distally for a distance of 6-7 cm. The antecolic roux limb was secured using a single layered running closure. Postoperative diet was started on day 4. All attempted lap LPJs were completed without conversion to open surgery. There were no cases of pancreatic fistula, abscess, or wound complication. The median hospital stay was 7 days. On median follow-up of 6.5 weeks, all patients had complete relief of symptoms.

**Conclusions:** Optimal patient selection for lap LPJ relies on focal pancreatic duct obstruction with distal duct dilation. Technical success of lap LPJ relies on identical principles compared with the open technique. This case series demonstrates the feasibility and effectiveness of the laparoscopic approach for lateral pancreatico-jejunostomy.

### *Mini Talk 21*

## **Transumbilical Laparotomy in Young Children: A Single Surgeon's 5 year Experience.**

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**Background/Purpose:** An open transumbilical approach to a variety of newborn surgical diseases offers the theoretic advantages of improved cosmetics associated with endoscopic surgery and the advantages of therapeutic options noted with the standard open technique. A review of the author's 5 year experience using a transumbilical incision to address a variety of common pediatric surgical conditions was performed to determine the efficacy of this approach.

**Methods:** A retrospective review of the senior author's experience utilizing a transumbilical incision in the treatment of common pediatric surgical conditions was performed.

In all cases, the umbilicus was incised using an Omega-shaped incision oriented in a transverse plane. The fascia was divided around the umbilicus to the extent of the skin incision and was extended superiorly in the midline for additional exposure. The umbilical vein was ligated and the peritoneum entered. The surgical procedure continued in the standard fashion after which, the fascia was reconstructed and the umbilical skin closed subcuticularly. Postoperative complications, outcomes, modifications made to the technique and "lessons learned" were identified.

**Results:** Since 2003, 94 hemodynamically stable children, age newborn to 23 months, have undergone transumbilical laparotomies. Seventy-nine newborns underwent transumbilical laparotomy for the treatment of duodenal atresia/web (n=8), jejunoileal atresia (n=4), malrotation (n=4), uncomplicated meconium ileus (n=3), pyloric stenosis (n=56) and other pathology (n=4). Fifteen older children, ages 1 to 23 months, underwent a transumbilical procedure treating an omphalomesenteric duct remnant (n=4), malrotation (n=3) and intussusception (n=8). No procedures required an additional incision, excluding incisions for ostomy placement, to complete the operation. Complications included wound infection (3), early post-operative fascia dehiscence (1), late post-operative wound hernia (1) and a prolapsing ileostomy (1).

**Conclusions:** These results suggest that transumbilical laparotomy in young children is a safe and effective approach applicable to a variety of surgical diseases. This method might offer superior wound cosmesis, similar to endoscopic surgery but without the additional cost and morbidity, in addition to the benefit gained from exposure characteristic of traditional open approaches.

### *Presentation 41*

## **The Role of Ethnic, Economic, and Insurance Disparities in the Outcome of Patients with Colorectal Adenocarcinoma**

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**Introduction:** Colorectal carcinoma is the third leading cause of cancer death in the United States. Patient race is associated with differences in colorectal cancer survival. Disparities in outcomes may be related to differences in patient ethnicity, patient income, or treating hospital.

**Methods:** We reviewed tumor registry and clinical information systems for all patients with a diagnosis of colorectal adenocarcinoma at two affiliated academic hospital systems. Hospital A is a large county hospital primarily serving an uninsured, low-income population. Hospital B is university-based and serves primarily insured patients. Patient demographics, clinical characteristics, and survival outcome were recorded. Time to cancer treatment was calculated from diagnosis to first resection, or chemotherapy/radiation treatment. Further analysis excluded patients treated emergently or without a pretreatment cancer diagnosis. We examined differences in the timing of initial cancer treatment based on ethnic, economic, insurance, and hospital factors. Differences were analyzed for a relationship survival.

**Results:** Between 2000 and 2008 1184 patients received treatment for colorectal adenocarcinoma. Ethnicity distribution (in %) was: Caucasian 46, African-American or African 35, Hispanic 15, Other 4. Median household income for the study population was \$37,330. Twenty-three percent of patients were uninsured. Medicare/Medicaid was the primary insurance source for 35% of patients. Rectal cancer accounted for 23% of cases. Stage distribution (in % from Stage 1 to 4) was 15, 26, 29, and 30. Median time to treatment in the study population was 18 days among non-emergent patients with a pretreatment cancer diagnosis. Median time to treatment ranged from 16-20 days for each ethnic group with no significant difference between groups. Interval to treatment for insured and uninsured patients did not differ (median, 17-21 d, p=NS). Patients from low-income and higher-income households had similar time to treatment (median, 18 vs. 19 d.). Treatment interval at Hospital A was longer than at Hospital B (median, 21 vs. 17 d, p=.001). Although patients with rectal cancer experienced a longer interval between diagnosis and treatment compared to colon cancer patients (31 vs. 14 d, p<.001), no difference was noted based on stage of disease at presentation. Median followup for all patients was 24 months. Prolonged time to treatment (interval > 18 d) did not negatively impact overall survival when adjusting for stage at diagnosis (median survival, short vs. long interval: Stage I, not reached vs. 87 months; II: NR vs. 63 mos; III: 76 vs. NR; IV: 16 vs.12 mos).

**Conclusions:** Hospital type and rectal cancer location are associated with prolonged interval to treatment. Time to initial treatment for patients with colorectal cancer does not differ based on ethnic, insurance, or economic discrepancy. Prolonged time to treatment is not associated with lower overall survival.

## Presentation 42

### Routine Nasogastric Decompression Is Unnecessary After Pancreatic Resections

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**Introduction:** Many major operative procedures in the upper abdomen are routinely accompanied by nasogastric tube (NGT) decompression intra- and postoperatively, with unproven benefit.

**Methods:** Clinical information of all operative pancreas procedures in a single-surgeon practice were collected prospectively. NGTs were placed routinely intraoperatively throughout the first part of the study interval, and removed based on clinical recovery progress; orogastric tubes (OGTs) were used intraoperatively whenever possible since April 2006, and removed prior to endotracheal extubation. Postoperative outcomes were analyzed between groups.

**Results:** Over 10 years, 189 operations included 138 pancreatoduodenectomies (PD), 39 distal pancreatectomies (DP), 2 total pancreatectomies (TP), and 10 others. The mean age was 65 years, 60% were female, and 73% of patients had cancer. Forty patients (21%) received no NGT, compared to 149 who did; there were no differences between resection types. The median postoperative NGT duration was 1 day (range: 0-79, no group differences), the median length of stay 9 days (4-100, group differences:  $p < 0.0001$ ). The mean proportion of in-hospital time with NGT was 19% (PD: 18.5, DP: 17.5, TP: 35, others: 29;  $p = \text{NS}$ ). NGT reinsertion was necessary in 30 patients (16%), and more common after PD (20%) than after DP (3%,  $p = 0.04$ ). NGT reinsertion needs did not differ between patients after routine NGT and OGT use (17 vs. 13%). The complication rate was 38% (major: 12, minor: 26), with lethal outcomes in 3%. NGTs were reinserted in 73% of major versus 24% of minor complications ( $p < 0.0001$ ). Pyloric preservation (PP) during PD did not affect OGT use (18 vs. 26%), median NGT duration (2 vs. 1 d), or NGT reinsertion rate (21 vs. 19%). Delayed gastric emptying (DGE) was observed in two patients after PPPD (2.9%), and in three patients past classic PD (4.3%).

**Conclusion:** This experience demonstrates that NGTs can be safely avoided in patients undergoing pancreatic resective procedures, since postoperative NGT reinsertion need, DGE rate, total NGT duration and length of stay are not negatively affected. Based on the results, we prefer to place OGTs intraoperatively, and attempt to routinely avoid postoperative nasogastric decompression.

## Mini Talk 20

### Case Report: Minimally Invasive Treatment Of SMA Syndrome After Laparoscopic Roux-Y Gastric Bypass

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**Background:** Superior Mesenteric Artery (SMA) Syndrome is an uncommon but well described entity. The syndrome is caused by compression of the third portion of the duodenum by the superior mesenteric artery and aorta from a loss of retroperitoneal fat in this area.

**Methods:** We present a unique approach to treatment of this problem by performing a laparoscopic minimally invasive duodenojejunostomy.

**Results:** A 21 year old female underwent Roux-en-Y gastric bypass for morbid obesity with a BMI of 52. Her excess body weight lost was over 100% with a BMI of 22 when she began having problems with vague abdominal pain and nausea related to meals. Her failure to thrive eventually led to placement of a gastrostomy tube into the remnant stomach. She began to have postprandial nausea and pain. A CT scan showed dilation of the gastric remnant with a tapering at the third portion of the duodenum suggesting a possible diagnosis of SMA Syndrome. A laparoscopic retrocolic side-to-side loop duodenojejunostomy was performed. Postoperatively, a contrast study was performed through the gastrostomy tube and showed rapid transit through the duodenojejunostomy. The patient was able to resume gastrostomy tube feeds without symptoms. She is doing well now two years after surgery.

**Conclusion:** The diagnosis of SMA Syndrome may be an important and often overlooked etiology of chronic abdominal pain after weight loss surgery. It may be a source of persistent abdominal discomfort in these patients when other sources have been ruled out.

### Mini Talk 19

## Laparoscopic Cholecystectomy Performed After Cholecystostomy Tube Placement

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**Background:** Cholecystostomy tube placement has long been regarded as a useful tool in managing acute cholecystitis in critically ill patients or those patients who are not regarded as operative candidates. Laparoscopic cholecystectomy can be safely performed after cholecystostomy tube placement with an acceptable conversion rate.

**Methods:** A retrospective analysis of all cholecystostomy tube placements was performed at a single. Charts were reviewed for duration of cholecystostomy tubes, surgical intervention, timing for surgical intervention, complications, and patient outcomes.

**Results:** From 2002 to 2007 153 patients underwent cholecystostomy tube placement. There were 81 male and 72 female patients whose average age was 63 (range 19 – 93). Of the 153 overall patients, 72 of these patients had a cholecystectomy performed. The average duration of tube placement was 60 days (range 6-375). Six of the 72 patients had cholecystectomies performed in an open fashion. Laparoscopic removal was attempted in 66 patients with 11 (16.7%) converted to open. Age, gender, and duration of tube drainage were not predictive of conversion.

Of the 81 patients who never underwent cholecystectomy, almost half (n=39) expired with their tube in place. Biliary infection was cleared in most cases. In 29 patients (36%) the tube was removed and most of these patients died of their co morbid disease. The remainder are being followed or lost to follow-up

**Conclusions:** Cholecystostomy tube placement can be a very useful and safe instrument in our armamentarium against acute cholecystitis. For the patients who are operative candidates, our data show that laparoscopic cholecystectomy can be safely performed after initial tube placement with an acceptable conversion rate. Tube removal may be unnecessary in the critically ill patient.

### Presentation 43

## Curative Treatment for Pseudomyxoma Peritonei

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**Introduction:** Pseudomyxoma peritonei of the appendix is rare tumor with a wide spectrum of histologic presentation from the benign Diffuse Peritoneal Adenomucinosis (DPAM) to the malignant Peritoneal Mucinous Carcinomatosis (PMCA). The treatment of choice for these patients regardless of histology is abdominal debulking and intraperitoneal hyperthermic chemotherapy (IPHC) to prevent recurrence and prolong survival.

**Methods:** A prospective analysis of 21 consecutive patients treated with IPHC was performed. All patients had disease confined to the abdomen. Treatment included aggressive tumor debulking followed by an intraperitoneal infusion of Mitomycin C 40 mg over two hours at 42°C. Patients were then classified by tumor histology and post operative resection status using the R staging: R0 = no microscopic disease; R1 = microscopic disease; R2a = minimal tumor, < 5mm; R2b = gross disease, > 5mm < 20mm; R2c = extensive disease, > 20 mm.

**Results:** There were 5 females and 16 males with a median age of 52 years (range 30 – 74). Tumor histology included PMCA (n = 12) and DPAM (n = 9). Nearly all patients underwent a successful debulking (R0 n = 4, R1 n = 8, R2a n = 6) with only 3 patients (14%) having grossly incomplete removal (R2b n = 1, R2c n = 2). The median OR time was 420 minutes (range 240 - 600 minutes), and the median length of stay was 11 days (range 5 - 22 days). Post operative complications included prolonged ileus (n = 14), wound infection (n = 3), bowel leak (n = 0), fistula (n = 1), pancytopenia (n = 1), PE (n=1), and pulmonary complications (n=1). In the DPAM group at a median follow up of 37 months (range 1 - 76 months), 6 (67%) patients are alive with no evidence of disease, 2 (22%) are alive with disease, and 1 (11%) is dead of disease. In the PMCA group at a median follow up of 33 months (range 1 - 79 months), 3 (25%) patients are alive with no evidence of disease, 2 (17%) are alive with disease, and 7 (58%) are dead of disease.

**Conclusion:** Pseudomyxoma peritonei is a difficult tumor to treat secondary to relative protection in the peritoneal cavity from systemic therapy. However, the advent of intraperitoneal chemotherapy combined with debulking can significantly decrease recurrence, prolong survival and may cure a subset of patients with DPAM or PMCA.

## Completely Transvaginal NOTES Cholecystectomy in a Porcine Model Using Novel Endoscopic Instrumentation

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**Introduction:** Transvaginal NOTES Cholecystectomy has been successfully performed but all reports have required laparoscopic assistance. The purpose of this study was to perform completely transvaginal cholecystectomy in a porcine model.

**Methods:** Pigs 1-5 underwent non-survival and Pigs 6-8 underwent 14-day survival procedures. Through a vaginotomy, a 2T gastroscope and an 18mm x 38cm access port were inserted into the peritoneal cavity using a Veress needle-balloon system, a rigid optical obturator, or blunt dissection. A long 5mm rigid grasper inserted transvaginally was used for tissue manipulation. Percutaneous or endoscopic T-tags were used to fixate the gallbladder fundus to the peritoneum for retraction. Dissection was performed using prototype and conventional endoscopic instruments including a straight or articulating hook cautery, snare, maryland dissector, clip applier, grasper, scissors and injection needle. Values are mean  $\pm$  s.d.

**Results:** Operative time was  $207 \pm 43$  minutes, blood loss was  $90 \pm 136$  cc, and bile spillage was minimal. Procedures were terminated in Pig 1 due to liver bleeding and in Pig 5 due to endoscope malfunction. Six procedures (3 non-survival, 3 survival) were completed, with only partial cholecystectomy achieved in Pig 2 but complete cholecystectomies achieved in Pigs 3-4 and 6-8. Percutaneous T-tags were used only in Pig 1; in Pigs 2-8, endoscopic T-tag suturing required substantial operative time for placement (20-80 min) but provided uniformly successful retraction. The articulating endoscopic hook and snare, as well as the non-articulating maryland dissector, proved most useful for dissection. The long transvaginal grasper (Pigs 2-8) and creation of a saline lift (Pigs 3-8) greatly facilitated infundibulum manipulation and dissection, respectively. A second generation endoscopic clip applier with tightly approximating clips (Pigs 6-8) improved artery and duct occlusion. At autopsy, Pigs 1, 4 & 5 had liver and/or cystic artery bleeding; in all other animals there were no complications and all survival animals thrived post-operatively.

**Discussion:** Transvaginal cholecystectomy without laparoscopic assistances is feasible in a porcine model by combining gallbladder suture retraction, a transvaginal rigid grasper, and novel endoscopic instrumentation. Further improvements in these technologies and operative strategies are expected to improve reproducibility and efficiency.

## Mini Talk Abstracts

### Mini Talk 18

## Out With The Old in With The New: A Novel Approach to Treating Pain Associated With Rib Fractures

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**Objective:** Rib fractures continue to be a challenging problem from both a pulmonary and analgesia standpoint. The morbidity and costs associated have been well documented in the literature. As a result, numerous modalities have been used to treat this condition, but none have proven satisfactorily viable and efficacious. The objective of this study was to assess a novel technique for the placement of an elastometric infusion pump (EIP) (Selectaflo On-Q, Lake Forest, CA) to deliver local anesthetic in a continuous manner in the paravertebral space in lieu of multiple rib blocks or an epidural.

**Methods:** This was a prospective nonrandomized study, conducted in the surgical intensive care unit (SICU) of an urban Level II Trauma Center. We evaluated ten consecutive blunt trauma patients with  $\geq 3$  unilateral rib fractures. Mean age was 61 years (22-92), mean ISS was 24 (16-29), and the mean number of rib fractures was 3.8 (3-6). Half (5/10) of the subjects had discernable pulmonary contusion on chest X-Ray upon admission. We then developed a novel technique to place an EIP catheter in the paravertebral space to provide continuous pain relief. We accomplished this by the insertion of two catheters in a parallel fashion in this space extending two levels above and two levels below the level of injury. These catheters were then infused with local anesthetic and the dose was titrated to achieve adequate analgesia for the next 72-96 hours.

**Results:** For each patient, preplacement numeric pain scale (NPS) and incentive spirometry (IS) lung volumes were determined. Sixty minutes following the injection of local anesthetic the NPS and IS were repeated. Overall, the mean NPS significantly improved (preplacement NPS = 9, postplacement NPS = 4) and this was associated with an approximately 100% increase in lung volumes (preplacement IS = 0.50, postplacement IS = 1.1). No patient required mechanical ventilation, and none of the study patients developed a hospital acquired pneumonia. Mean placement time of the paravertebral catheter was approximately 14 minutes and improved significantly as our experience has increased. The catheters remained in place for an average of 76 hours (68-84), and there were no procedural or drug related complications.

**Conclusions:** This data indicates that the placement of an EIP catheter in the paravertebral space is a viable, safe, and potentially efficacious procedure for the amelioration of pain secondary to rib fractures. Additional investigation on a larger scale is needed to verify these findings and to assess the effect on narcotic use, ICU/hospital stay, and overall cost.