FROM THE OBJECTIVES OF THE SENIOR MAJOR PROGRAM IN SURGERY:
"To provide the student with the opportunity, through a library search or quality improvement project, a patient chart review and/or laboratory investigation, to complete a scholarly project, assemble and prepare the data in the form of a scientific article acceptable for publication in a professional journal and to present this research at a scientific seminar."
The abstracts included in this booklet have been prepared by the Surgery Senior Major students of the Class of 2015. The papers will be presented at a seminar on Thursday, May 7, 2015 in Austin Auditorium, UVM Medical Center Campus. This will be followed by an Awards Banquet in the Hoehl Gallery at 12:30pm in the Health Science Research Facility. We urge you to attend these presentations and lend your support to their efforts. The presentations will be judged by a committee and awards for outstanding scientific projects will be announced at a reception and luncheon that afternoon in honor of the Surgery Senior Majors.

7:30AM   INTRODUCTION – PETER ZVARA, MD, PhD, Associate Professor of Surgery  
          Seminar Coordinator

7:35AM   Validation of a Modified Extended FAST (mEFAST) Protocol for Use in  
          Resource Limited Settings - Kovi Bessoff

7:50AM   Characterizing the United States Cancer Patient Experience through  
          Social Media: A National pattern-matched Twitter analysis of cancer-patient sentiments - William Crannell

8:05AM   Insurance Coverage and Elective Surgery in the Treatment of  
          Diverticulitis - David Mealiea

8:20AM   Elite Ski Racing Injury Epidemiologic Literature Review - Griffin Biedron

8:35AM   Vital Sign Aberrations are Rare following Laparoscopic Bowel Resection  
          and Indicate an Anastomotic Leak - Ryan Hendrix

8:50AM   Weight Loss Counseling in Association with Endometrial Biopsies: A  
          Survey of Practitioners and Patients - Colleen Kerrigan

9:05AM   Complications Rates in Typhoid Patients Following Ileal Perforation  
          Repair and Omental Patch Reinforcement - Elizabeth Landell
9:20AM  Factors Predicting Positive Head CT Findings and Early Discharge Home in Pediatric Trauma Patients - Jessica Lane

9:35AM  Patients who undergo Percutaneous Drainage of Diverticular Abscess Do Not All Require Subsequent Elective Resection - Jessica Louie

9:50am-10:05am  INTERMISSION  (Fifteen Minute Intermission)

10:20AM  Assessment of Change in Detection of Patients at High Risk of Genetic Cancer Syndromes based on Family History of symptoms Index through the use of Patient History Questionnaire in Primary Care Practitioners Offices - Jessica Simon

10:35AM  Easily Missed? Posterior Shoulder Dislocations - Nicole Meredyth

10:50AM  The Role of Solitary Pancreas Transplantation in the Management of Type 1 Diabetes - Adam Paine

11:05am  The Value of Preoperative Testing in Patients Undergoing Bariatric Surgery - Kathryn Schlosser

11:20am  Tumor Location Predicts TME Quality - Marissa Mendez

11:35am  Pre-Emptive Analgesia in Ano-Rectal Surgery (PEAARS) - Justin Van Backer
VALIDATION OF A MODIFIED EXTENDED FAST (mEFAST) PROTOCOL FOR USE IN RESOURCE LIMITED SETTINGS
Author: Kovi Bessoff
Advisors: Kristen DeStigter, MD; Jesse Moore, MD; Mary Streeter, MS

ABSTRACT

Introduction: Traumatic injury is a leading cause of morbidity and mortality throughout the world, and its management is often challenging. When performed by an experienced provider, the extended focused assessment with sonography in trauma (eFAST) is highly sensitive for the detection of thoracic and abdominal injury. Its low cost and good safety profile makes it ideal for use in resource poor settings where access to cross-sectional imaging and highly trained personnel is limited. In order to maximize the utility of eFAST in these settings, we developed a protocol to standardize the collection of ultrasound images based on external anatomic land marks (modified eFAST; mEFAST) and transmit them to experienced radiologists for interpretation in near-real time. The purpose of this study is to correlate findings between diagnostic imaging and mEFAST performed by non-physicians.

Methods: Non-physicians trained in the mEFAST protocol performed scans on patients who underwent diagnostic imaging during their normal course of care. The cine loops were compressed and transmitted to board certified radiologists who interpreted the images. Images were evaluated based on the radiologists’ confidence in their ability to visualize the structures and potential spaces utilizing a 5 point modified Likert scale which was used to generate a mean quality assessment (MQA) score, as well as correlation of findings with diagnostic imaging.

Results: The study was approved by the University of Vermont Institutional Review Board, and a workflow was developed to facilitate patient identification. A pilot study demonstrated MQA scores> 3.5 for all views.

Conclusions: The current workflow and scanning protocol yield high quality ultrasound images that can be used to further assess the scanning and data handling protocols.
Characterizing the United States Cancer Patient Experience through Social Media: A National pattern-matched Twitter analysis of cancer-patient sentiments

W. Christian Crannell¹
Eric Clark MSc¹ PhD-candidate, Jesse Moore MD¹, Ted James MD¹,², Chris Jones PhD¹
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2. UVM Cancer Center

ABSTRACT

Background: Twitter has been recognized as an important source of organic sentiment and opinion, and investigators have increasingly utilized Twitter to better understand the patient experience in the healthcare realm. This study aimed to: 1. Characterize the content of tweets authored by United States cancer patients for respective cancer diagnoses; and 2. Use patient tweets to compute the average sentiment of cancer patients for each cancer diagnosis.

Methods: A large sample of English tweets from March 2014 through December 2014 with imbedded location coordinates were obtained from Twitter’s streaming API. Using regular expression software, pattern matching was performed on the data set to remove unrelated tweets and to also filter the tweets by cancer diagnosis. For each cancer-specific tweetset, individual patients were extracted and the content of the tweet was categorized.

Results: The most frequently tweeted cancers were: breast (n=15421, 11% of total cancer tweets), lung (2928, 2.0%), prostate (1036, 0.7%) and colorectal (773, 0.5%). Extracted patient tweets revealed that patients most often expressed thoughts pertaining to treatment course (n=73, 26%), diagnosis (65, 23%), and then surgery/biopsy (42, 15%). Computed sentiment values for each cancer diagnosis revealed variation among cancer types, with higher average sentiment values for thyroid (6.1625), breast (6.1485) and lymphoma (6.0977) cancers, and lower average sentiment values for pancreatic (5.8766), lung (5.8733) and kidney (5.8464) cancers.

Conclusions: The study findings confirm that patients are expressing themselves openly on social media about their illness and that unique cancer diagnoses are correlated with varying degrees of happiness. Twitter can be employed as a tool to identify patient needs and as a means to gauge the cancer patient experience.
Insurance Coverage and Elective Surgery in the treatment of Diverticulitis
Dave Mealiea, MS-IV

Advisors: Jesse Moore, MD and Neil Hyman, MD

ABSTRACT

Background. There is an abundance of evidence in the literature documenting differences in surgical care and outcomes based on a patient’s insurance coverage. However there is a comparative lack of understanding regarding the specific drivers of these differences and their relative significance. The use of elective surgery in the treatment of diverticulitis is a decision that is based on a variety of factors, including patient preferences as well as surgeon-patient communication. In this way, its proportional use across different patient populations offers an ideal opportunity to gain insight into some of the patient- and provider-specific drivers of disparities in surgical care. The aim of this study was to determine whether being underinsured is associated with lower proportions of elective bowel resection for patients with diverticulitis within a single healthcare institution.

Methods. Adult patients admitted to The University of Vermont Medical Center with a primary diagnosis of diverticulitis between 2007 and 2013 were included in the study. Patients were grouped into underinsured (self-pay and Medicaid) and fully insured (Medicare and private insurance) groups, and data including patient characteristics, comorbidities, type of care received, length of stay, and in-hospital mortality were collected from electronic records. Logistic regression modelling was used to characterize the association between insurance and management type while accounting for patient characteristics and comorbidities.

Results. 569 patients were admitted with a primary diagnosis of diverticulitis during the study period, with 566 meeting the inclusion criteria. Of these, 72 (12.7%) were classified as underinsured, with the remaining 494 (87.3%) being classified as insured. Insured patients were 3.74 times more likely to receive elective resection than underinsured patients (p < .001), even after adjusting for comorbid status and age. Insured patients had significantly higher comorbidity scores. There was no difference in length of hospital stay or in-hospital mortality between the two groups.

Conclusions. As shown previously for a variety of illnesses, patients that are underinsured receive different surgical care than their insured counterparts. We found that patients treated at a single institution for diverticulitis were significantly less likely to receive elective bowel resection if they were uninsured or covered under Medicaid. Given the patient and provider characteristics that influence the decision to pursue elective resection for diverticulitis, resolving disparities in this area will likely require interventions that address both the gaps that exist in robust insurance coverage as well as the socioeconomic factors that influence the receipt of health care.
ELITE SKI RACING INJURY EPIDEMIOLOGIC LITERATURE REVIEW
Author: GRIFFIN M. BIEDRON, MS-4 University of Vermont College of Medicine
Advisor: Dr. Lisle, UVM Orthopedics Department

ABSTRACT

Introduction:
While several studies have methodically identified skiing injuries among recreational skiers, there has not been an exhaustive literature review of the epidemiology of skiing injuries among elite competitive ski racers. While many factors including skier technique and strategy, equipment, speed and course setting, visibility and snow conditions among other factors contribute to ski racer injuries, our goal is to identify the location, epidemiology and mechanism of specific injuries in this population (1). It is our hope that we will provide a foundation of knowledge to those whose work will improve training and other conditions in order to decrease the risk of injury to elite ski racers.

Method:
An exhaustive literature review was completed that included studies focused on injury mechanism, injury description, injury epidemiology or safety factors of ski racing over the last twenty-nine years (1986- Feb 2013). A search of ‘competitive ski injuries’ in PubMed initially yielded a series of 30 articles that were later screened to 19 after certain exclusion criteria were considered. These criteria excluded studies that did not focus on injuries of elite ski racers and injuries that failed to sideline athletes for at least a week. We concentrated our review to identifying specific location, types and rates of skiing related injuries, injury differences in men and women and injury epidemiology of elite ski racers.

Results:
Injuries involving tibia/fibula fractures (26% of all elite ski racing injuries), non-ACL ligamentous structures of the knee (21.1%), hand/finger fractures (13%, range 11-15%), ACL ruptures (11.8%, range 7.4-13%), radial/ulnar fractures (5%), concussions (3.75%, range 1-6.5%), collar bone fractures (3%), humeral fractures (3%), glenohumeral dislocations (1.6%), and abdominal cavity (1.6%) were documented and statistically measured among the 19 articles included in this literature review.

Conclusions:
While there has been slight improvement in ski racing safety since the 1970’s, it is clear that much room for improvement remains (9). While there has been a decrease in ankle and torsional injuries of the lower leg since the 1970’s, ligamentous injuries to the knee has risen 2.5 times (9). Skier training and technique, strategy, equipment, speed and course settings are all factors that could be improved to reduce the likelihood of injury.
Vital Sign Aberrations are Rare following Laparoscopic Bowel Resection and Indicate an Anastomotic Leak

Author: Ryan J. Hendrix, MS-IV
Advisors: Neil Hyman, MD, FACS, Edward Borrazzo, MD, FACS
Collaborators: Turner Osler, MD, FACS & Larson Erb, MD, PGY-III

ABSTRACT

Background: Anastomotic leak is a serious but uncommon complication of gastrointestinal surgery. Early diagnosis remains difficult as patients often fail to present with overt symptomatology. We have previously shown that abnormal vital signs as defined by the ACCP’s criteria are ubiquitous after bowel resection with anastomosis and therefore of limited value in detecting post-operative leak. Given the less invasive nature of laparoscopy and its diminished impact on the body’s physiologic response, we sought to challenge these findings specifically in laparoscopy. We hypothesized that vital signs would be less abnormal after laparoscopic operations than after open procedures, and as a result, vital signs would be more predictive of leak following laparoscopic procedures.

Study Design: A retrospective case series evaluating consecutive patients undergoing bowel resection with anastomosis at a tertiary-care academic medical center from July 2009 to June 2014 was performed. Inclusion criteria was restricted to laparoscopic cases and identified by CPT code that included resection of small bowel or colon with anastomosis. A total of 170,642 vital sign values (HR, RR, Tmax, SBPmin) and 4,868 WBC count values were abstracted from the electronic medical record representing the complete post-operative course of the entire patient cohort. Patients who developed an anastomotic leak as defined by findings at reoperation or on radiographic imaging were compared to those with uncomplicated clinical courses.

Results: A total of 1,059 patients underwent bowel resection during the study period (777 open and 282 laparoscopic). In the laparoscopic group, there were 20 anastomotic leaks (7.1%). Average vital signs and WBC count were significantly different between uncomplicated cases and those developing an anastomotic leak most notably on postoperative day #3: Tmax (p < .001), pulse (p < .0001), SBPmin (p < .006), respirations (p < .001), and WBC count (p < .057).

Conclusions: Because vital signs and leukocytosis are less commonly abnormal following laparoscopic procedures, these clinical markers are more reliable indicators of anastomotic leak.
Weight loss counseling in association with endometrial biopsies: A survey of practitioners and patients

Brooke Schlappe, MD, Colleen B. Kerrigan, Elise Everett, MD

ABSTRACT

Objective: To determine frequency and effectiveness of weight loss counseling surrounding endometrial biopsies. As well as determine female patient preferences regarding counseling and if patients would be interested in participating in an intensive weight loss program if available.

Methods: Two surveys were administered to two populations; FAHC Women’s Health Care providers and FAHC Women’s Health Care patients with a BMI ≥30 who had either respectively administered or received an endometrial biopsy between January 1, 2010 to December 31, 2012. The providers and patients were identified through the Women’s Health Care billing department and patient charts were reviewed to identify those patients with a BMI >30. Physicians were e-mailed an anonymous survey through an online survey tool, patients were mailed a survey with a stamped and addressed return envelope.

Results: 48 provider surveys sent, 24 completed. 347 patient surveys sent, 78 responses, 21 returned (unable to deliver). 87.2% of patients who completed the survey indicated they had not been told that uterine cancer and obesity were connected at the time of their biopsy. 24.4% of patients surveyed reported that they were counseled to lose weight by their provider. 8.3% and 54.2% of providers surveyed stated that they respectively “Always” or “Most of the time” counsel obese patients in their offices.

Conclusions: There was an observed discrepancy between providers reporting counseling and patients reporting receiving counseling. Interest exists on both provider and patient sides for intensive lifestyle modification program, though most patients are unwilling to pay for it. Most patients would prefer to see a model of their disease process, while most providers verbally describe the process.
COMPLICATION RATES IN TYPHOID PATIENTS FOLLOWING ILEAL PERFORATION REPAIR AND OMENTAL PATCH REINFORCEMENT

Elizabeth Landell, John Lawrence, MD

ABSTRACT

Introduction: Serious post-operative complications seen in typhoid patients undergoing primary repair of ileal perforation include non-healing of the intestinal repair, fecal fistula formation, peritonitis, and death. Local reinforcement of ileal repairs with an omental patch has been attempted, but a comprehensive literature review and assessment of patient outcomes had not been done.

Methods: A literature review with attention to number and type of post-operative complications was conducted. The specific use of an omental patch in ileal repair reinforcement was also evaluated. Our 6 patients with typhoid-associated ileal perforation were also reviewed for post-operative complications.

Results: The literature review revealed 32 articles discussing the repair of ileal perforation in typhoid infection. Of these articles, one was a prospective randomized-control trial that demonstrated the superiority of omental reinforcement over primary repair alone in terms of serious post-operative complications. Of our 6 patients with typhoid-associated ileal perforation, all underwent primary repair and omental reinforcement. Two patients required re-operation, one for a second perforation and the other for adhesiolysis. No breakdown of ileal repairs was observed in a 7-21 day follow up period.

Conclusion: The use of omental patch reinforcement of ileal perforations in typhoid patients may decrease the rate of serious post-operative complications, including wound dehiscence and fecal-fistula formation.
Factors predicting positive head CT findings and early discharge home in pediatric trauma patients

Jessica Lane MS4
Advisor: Susan R. Durham MD, MS

ABSTRACT

Introduction: There is significant discussion in the literature regarding the use of head CT in pediatric patients with mTBI due to risks of radiation exposure. However, with serious mechanism of trauma, use of CT is left to clinician judgment. This study will look at two branch points in mTBI decision trees (age, GCS) and whether they are predictive of positive head CT findings in pediatric trauma patients, and if these factors influence likelihood of intervention, length of hospitalization and disposition.

Methods: The UVMMC Trauma database was queried for patients younger than 15 who presented between 2009 and 2014. Head CT findings in the database are recorded simply as positive or negative. Results from outside hospitals and were used when no scan was performed at UVMMC. A subgroup of patients was identified who were discharged to home within 1 day of admission despite positive CT findings, and these patients were compared with those patients with LOS >1 day or disposition other than home.

Results: The data collected covered 232 pediatric trauma patients who had head CTs performed, and 125 of these were read as positive. Patients with positive scans were younger (5.9 years vs 7.8 years, p=0.0049) and had lower GCS recorded in the ED (12.9 vs 14.1, p=0.017) when compared with patient with negative scans. Neurosurgical intervention was too rare an outcome to power statistical analysis. For patients with positive CT findings, early favorable discharge was associated with younger age (4.8 years vs 6.8 years, p=0.03) and higher GCS (14.7 vs. 11.7, p<0.0001).

Conclusions: Depressed GCS on ED survey is correlated with positive head CT findings and worse disposition in this cohort of patients and remains an important tool in the triage of pediatric trauma patients. Younger age is associated with positive head CT findings, but also with better disposition within that group. This may represent that younger patients are more likely to have imaging findings that are less clinically significant.
Patients who undergo percutaneous drainage of diverticular abscess do not all require subsequent elective resection.

Authors: Jessica Louie, MS IV, James Hebert, MD, Turner Osler, MD and Neil H. Hyman, MD, Advisors: Neil H. Hyman, MD, James Hebert, MD,

Abstract

Background: The management of complicated diverticulitis is evolving towards more conservative and minimally invasive strategies (2). Currently, the best initial conservative approach to a Hinchey Stage II diverticulitis is a CT scan-guided percutaneous abscess drainage followed by elective sigmoidectomy with primary anastomosis (3). Because recurrent diverticulitis has been reported in up to 30-40% of patients who recover from an episode of diverticular abscess, elective resection has been traditionally recommended. The aim of this study was to further deduce whether these patients can be adequately managed with percutaneous drainage, without subsequent surgery. A secondary aim of this study was to determine parameters that are predictors for the need for subsequent resection after initial percutaneous drainage of diverticular abscess.

Study design: Retrospective chart review of all adult patients admitted through to the University of Vermont Medical Center, the teaching hospital of the University of Vermont College of Medicine, from January 1, 1996 through December 31, 2013 with a diagnosis of acute sigmoid diverticulitis who underwent percutaneous drainage of diverticular abscesses during the index hospitalization. Specific patient demographics including age, sex, BMI, history of lower abdominal surgeries and hysterectomies, previous admission for diverticulitis, ASA classification, admission heart rate, temperature, white blood cell count, number of catheter drainages, length of catheter placement, formation of fistula to colon, urinary system or reproductive system, whether the patient ended up having surgery and whether the surgeon performing the surgery was a colorectal surgeon or not were collected. Abscess-specific parameters were also collected, including: maximum size of abscess and whether the abscess was a complicated abscess. The parameters collected were statistically analyzed to determine whether any parameters could help identify patients who likely fail conservative management.

Results: 147 patients underwent percutaneous drainage of diverticular abscess during the study period and met inclusion criteria for our study. 74 patients (50.34%) ultimately required surgery after index drainage, while 73 patients (49.66%) were able to be managed without surgery after index drainage. The parameters found to be significant predictors of failure of conservative management of diverticular abscess with percutaneous drainage were gender (66% females in the surgery group vs. 34% in the non-surgery group, p=0.002), history of pelvic surgery (40.54% in surgery group vs. 26.39%, p=0.063), maximum size of abscess (6.15 cm in surgery group vs. 6.96 cm, p =0.064), persistent fistula to colon (56.76% in surgery group vs. 25%, p=0.00), reproductive tract or urinary tract, number of catheter drainages (35.14% in surgery group vs. 8.33%, p =0.00), and admission heart rate (average 95.8 bpm vs. 89.58, p=0.067). There was no significant difference in age, BMI, ASA, length of catheter drainage, WBC count, temperature, previous admissions for management of acute diverticulitis, history of hysterectomy, complicated abscess, readmission for medical management of diverticular abscess or multiple catheter episodes.

Conclusion: Management of acute diverticular abscess with percutaneous drainage without subsequent resection is an acceptable course of treatment of acute diverticulitis in the appropriate patient population. ~Fifty percent of patients included in this study were able to be managed without subsequent surgery. Of those patients, 19.4% of patients continued to be surgery free after two episodes of percutaneous drainage. Factors found to be significant predictors of failure of conservative management of diverticular abscess with percutaneous drainage were female gender, history of pelvic surgery, smaller size of abscess at initial drainage procedure, persistent fistula to colon, reproductive tract or urinary tract, increase in number of catheter drainages and higher heart rate upon admission.

Keywords: diverticular abscess, percutaneous drainage, Hartmann Procedure, Resection and Primary Anastomosis, Resection and ileostomy, acute diverticulitis
ASSESSMENT OF CHANGE IN DETECTION OF PATIENTS AT HIGH RISK OF GENETIC CANCER SYNDROMES BASED ON FAMILY HISTORY OF SYMPTOMS INDEX THROUGH THE USE OF PATIENT HISTORY QUESTIONNAIRE IN PRIMARY CARE PRACTITIONERS OFFICE

Author: Jessica Simon
Faculty Mentor: Dr. Michelle Sowden, Dr. Elise Everett

ABSTRACT

Introduction: It has been demonstrated that although guidelines exist to screen for genetic cancer syndromes in the outpatient setting, many primary care practitioners do not routinely ask these important questions in their offices throughout Vermont. This led us to believe that a number of high risk women and men in this state were not being appropriately screened by history or symptoms in order to be referred to genetic counseling. The aim of this study is to evaluate the utility and effectiveness of a patient questionnaire in a primary care offices to identify those with an increased risk for ovarian, breast, or colon cancer either due to family history or a positive symptoms index (for ovarian cancer only).

Methods: After obtaining approval from the IRB and Vermont Cancer Center, male and female patients scheduled for visits in select primary care providers were identified upon arrival to their doctor’s visit. They were handed a patient history questionnaire to assess familial relationships and any history of cancer. Data on type of cancer, age at diagnosis, and age at death or current age was collected. For women, a second symptoms index questionnaire was also given to assess presence or absence of six key symptoms identified as early warning signs of ovarian cancer. The data collected from the questionnaires was compared to the pre-existing date in the patient’s electronic medical record through evaluation of visit notes.

Results: 80 patients were surveyed (24 men, 56 women, average age 51.4 years). While the results of the questionnaire and the electronic medical record correlated highly in regards to personal cancer history, for every other familial relationship, a standardized tool for collecting data allowed us to gather more information about cancer history. While the survey allowed us to document presence or absence of cancer in 100% of questions, presence of cancer was only documented in 42-77% of charts for first degree relatives, and 0-77% of charts for second degree relatives. For no familial relationship, did the EMR document secondary details (type of cancer, age at diagnosis, age at death/current age) for all cases identified. The symptoms index, distributed to 50 women, was answered in 100% of cases by our survey, while 0% of existing charts had a record of asking the 6 recommended screening questions.

Conclusions: Without a standardized tool for collecting family cancer history, primary care practitioners are not gathering data that effectively screens patients for genetic cancer syndromes or symptoms which might identify women at risk for ovarian cancer. Our Biologic Family History tool and Symptoms Index given together as a standardized screening tool is able to collect more data about cancer history in terms of cases identified, types of cancer, age at diagnosis, and age at death or current age. With this information available in the electronic medical record, primary care physicians will be better able to refer patients for genetic testing and further evaluation or workup.
EASILY MISSED? POSTERIOR SHOULDER DISLOCATIONS

Author: Nicole Meredyth, MS-IV, Dr. Robert Jacobs, MD
Advisor: Dr. James Michelson, MD

ABSTRACT

Introduction: The glenohumeral joint is the most commonly dislocated joint in the body, with posterior shoulder dislocation (PSD) representing approximately 2-4% of all shoulder dislocations. The diagnosis of a posterior shoulder dislocation is frequently missed on initial clinical presentation with delayed diagnosis occurring in up to 50-79% of patients. The purpose of this study was to review why these injuries are missed, what the long term consequences of misdiagnosis are, and how providers can avoid missing these injuries in the future.

Methods: A comprehensive literature review was performed in PubMed. The advanced search criteria included “Shoulder” in the Title, and “posterior” “dislocation” and “misdiagnosis” in All Fields. Articles were selected based on their discussion of the frequency of misdiagnosis, reasons for misdiagnosis, how PSDs should be diagnosed and their medical and surgical management.

Results: The PubMed search resulted 49 articles. Of these, 15 were determined to be relevant to the questions at hand. An additional 13 articles were reviewed using the Reference lists from the selected articles, and eventually 19 total articles were utilized for the study. Frequency of PSDs was identified to be 2-4% of all shoulder dislocations, and the annual prevalence of posterior shoulder dislocations was calculated to be between 1.1 and 2 per 100,000. Reasons for this common delay in diagnosis included a mechanism of injury deemed “insufficient” by the provider and/or patient to cause the resultant dislocation, and subtle clinical exam findings. In addition, inadequate initial imaging contributed to the likelihood of missing the diagnosis. Long term consequences included osteoarthritis, avascular necrosis, and increased probability of requiring a shoulder arthroplasty. To properly diagnose PSDs, it was determined that physicians should consider the diagnosis in patients who present after indirect trauma, seizure and electrocution. Complete X-ray imaging of the shoulder with two orthogonal views should be performed, with AP and axillary views as the preferred choices for orthogonal radiographs, but the Velpeau or scapular-Y may act as alternate choices.

Conclusions: Posterior shoulder dislocations are frequently missed in the clinical setting. The presenting history and subtle physical exam findings should prompt consideration for a PSD, and proper imaging should be performed to avoid misdiagnosis and long term consequences.
The role of solitary pancreas transplantation in the management of type I diabetes

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ABSTRACT

Introduction: Pancreas transplantation remains the only long-term curative solution for type I diabetes mellitus (TIDM). The three most commonly performed procedures are the simultaneous pancreas-kidney (SPK), pancreas after kidney (PAK) and the pancreas transplant alone (PTA). As SPK is the most common method of pancreas transplantation, there is a relative abundance of outcomes data supporting its efficacy. PTA outcomes, however, have not been comprehensively analyzed and are confounded by the fact that the majority of these procedures are performed at a few high volume centers. The study reported herein was designed to compare outcomes of PTA and SPK transplants in the context of a low-volume transplant center.

Methods: We performed a retrospective chart review of all patients who received a PTA or SPK transplant at the University of Vermont Medical Center between January 1, 2003 and December 31, 2013. Data collected included pre-operative recipient characteristics, donor characteristics, operative and post-operative details, readmission rates, graft function and patient survival.

Results: Eight PTA and 39 SPK transplants were performed at the University of Vermont Medical Center within the study period. At baseline, SPK recipients had significantly higher creatinine levels and were more likely to be male, have hypertension, and/or coronary artery disease when compared to PTA recipients. All other baseline characteristics analyzed did not vary with significance between SPK and PTA recipients. Donor characteristics did not vary with significance between groups. Post-operative length of stay and one year readmission rates did not vary between groups. Pancreatic graft and patient survival rates were not significantly different between groups (p=0.98 and p=0.67 respectively). Pancreatic graft rejection was observed more frequently among PTA recipients compared to SPK recipients, 25.0% vs. 15.8% respectively (p<0.001).

Conclusions: Although limited in power, the study reported herein suggests that SPK and PTA transplants can be performed at a low-volume pancreas transplant center with similar rates of pancreatic graft and patient survival.
The Value of Preoperative Testing in Patients Undergoing Bariatric Surgery

Author: Kathryn A. Schlosser
Advisor: Wasef Abu-Jaish, MD

ABSTRACT

Introduction:
Before undergoing bariatric surgery, patients undergo a testing regimen intended to reveal absolute and relative contraindications to surgical procedures. However, there is no nationwide standard protocol for pre-operative testing for elective bariatric surgery, and there is minimal examining the role which preoperative testing plays in surgical decisionmaking. The purpose of this study is to examine the influence of preoperative testing on surgical decisionmaking in a single bariatric practice.

Methods:
After IRB approval, we performed a retrospective chart review of patients of a single surgeon who underwent preoperative workup for bariatric surgery. Findings were stratified into relative and absolute contraindications to surgery. Endpoints examined included whether a patient proceeded to surgery, and what surgery was performed (laparoscopic sleeve gastrectomy, Roux-en-Y gastric bypass, hiatal hernia repair or other).

Results:
Between 2009 and 2014, 376 patients underwent preoperative workup for bariatric surgery. Of these patients, 231 (61%) underwent bariatric surgery, 206 (55%) underwent a sleeve gastrectomy, and 19 (5%) had a Roux-en-Y gastric bypass. Logistic univariate models showed that the presence of a relative contraindication to surgery on esophagogastroduodenoscopy (such as metaplasia or polyps) was a negative predictor of a patient undergoing surgery, or if they underwent surgery, of a patient undergoing a laparoscopic sleeve gastrectomy. Multivariate logistic regression showed no other significant predictors of progression to surgery, type of surgery performed, or whether a hiatal hernia repair was performed.

Conclusion:
This review indicates that in this surgical practice, preoperative testing has not had statistically significant influence on progression to surgery, or the type of bariatric surgery received by patients. While the power of this study is greatly limited, it may indicate what is clinically suspected: that testing provides reassurance, but little influence on surgical decisionmaking. With these findings in mind, the utility of preoperative tests should be reassessed. In particular, right upper quadrant ultrasound has had no diagnostic yield. Upper gastrointestinal series and esophagogastroduodenoscopy have similar impact, and thus esophagogastroduodenoscopy as the higher yield test, should be used, while upper GI series should be used for symptomatic patients only.
Tumor Location Predicts TME Quality

Authors: Marissa Mendez, Rebecca Wilcox, MD, Peter Callas PhD and Peter Cataldo, MD

ABSTRACT

Purpose: Total mesorectal excision (TME) is the standard of care for patients with resectable rectal cancer. Incomplete mesorectal excisions are associated with increased local recurrence. It is important to audit TME specimen quality in order to ensure proper surgical technique. This is a chart review of patients who have undergone rectal cancer excision, evaluating the following factors with respect to the pathologic quality of TME: tumor height, tumor location, history of radiation therapy, history of prior pelvic surgery, laparoscopic or open surgery.

Methods: A retrospective chart review of patients who underwent rectal cancer excisions from January 2012 to the present was performed. This included operative reports, preoperative evaluation, and synoptic pathology reports. All total mesorectal excisions were performed by 1 of 6 fellowship trained colorectal surgeons at our institution. All specimens were graded independently by pathologist assistants with second opinion by fellowship trained GI pathologist on any case that was not “complete.” Status of circumferential resection margin was documented and completeness of mesorectum was scored as described by grade of complete, nearly complete, or incomplete. Statistical analysis evaluated tumor location, history of pelvic radiation, history of abdominal or pelvic surgery, laparoscopic vs open technique, low anterior resection vs abdominoperineal resection, and tumor height to determine if any were predictive of TME quality. Because of a small sample size, statistical comparisons were done with Fisher’s exact tests.

Results: 57 patient charts were reviewed and one patient was excluded. Out of this cohort of 56 patients, 89% of the mesorectums were complete, 5% were near complete and 5% were incomplete. Tumor location was the only variable which was significantly different among the three groups (p=0.005). Incomplete specimens came from tumors that were located posterior (67%) and lateral (33%). There was no significant difference in TME quality among the three groups when it came to laparoscopic versus open surgery (p=0.62).

Conclusions: Total mesorectal excision is the current standard of care for surgical resection for rectal cancer. The completeness of the TME specimen is predictive of local recurrence and overall survival and therefore, precise surgical technique is paramount. In this present study, tumor location in the lateral or posterior rectum was associated with incomplete total mesorectal excision. This may be due to obscuring the already thin mesorectal envelope in these locations. Notably, laparoscopic versus open surgery had no effect on TME quality. Particular care should be taken when excising lateral and posterior rectal tumors in order to ensure complete TME resection.
Pre-Emptive Analgesia in Ano-Rectal Surgery (PEAARS)

(Justin) Tyler Van Backer, Matthew Jordan, Peter Cataldo, MD
Senior Surgery Major

ABSTRACT

**Introduction:** Significant postoperative pain remains a problem for patients and is a frequently cited reason for delayed discharge following outpatient procedures. Preemptive analgesia involves premedicating patients with a regimen of medications targeting different points in the pain cascade. This is designed to prevent central and peripheral sensitization to pain, also known as “wind up”. This practice has been extensively studied in the orthopedic and gynecologic literature, but not for anorectal procedures. The purpose of this study is to examine the utility of this paradigm for ano-rectal surgery.

**Methods:** We conducted a double-blind, placebo controlled trial evaluating the effectiveness of four medications (1000 mg of acetaminophen, 600 mg of gabapentin, 0.15 mg/kg of ketamine and 8 mg of dexamethasone) given prior to anal fistula repair, treatment of chronic anal fissure, hemorrhoidectomy, and excision of anal condyloma. Endpoints included postoperative pain control, narcotic consumption, and post-operative complications and were evaluated with a numerical rating scale from 0 to 10, a medication diary, and complication checklist, respectively.

**Results:** Thus far, eight patients in the active study medication group and eight patients in the control group have completed the study. The absolute mean pain scale values in the active study medication group were lower than controls until 120 hours post-surgery.

**Discussion:** No conclusions can be drawn at this time. We will be able to further delineate the utility of preemptive analgesia when more patients have completed the study.