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Northwest Ohio

Osteopathic Academy Poster Competition and Exhibition

Competitor

Abstracts

OHIO OSTEOPATHIC ASSOCIATION

CORE CENTERS FOR OSTEOPATHIC RESEARCH AND EDUCATION

OHIO UNIVERSITY Heritage College of Osteopathic Medicine

BIOMEDICAL/CLINICAL

B1 **Title:** **Pre-procedure Subject Management by the Physician Performing Embryo Transfer May Affect Pregnancy Rate**

Author: **Joel Hallam, DO (PGY 4)**
Affiliation: **Mercy St. Vincent Medical Center, Toledo, Ohio**

Objective: To evaluate the association of physician impact performing embryo transfer with implantation and pregnancy rates in oocyte recipient cycles. **Design:** Retrospective study. **Materials and Methods:** Data in this study were obtained from our established oocyte donation program (< 35 years old:yo) during January 1, 2010 -December 31, 2013. The recipients who were older than 35yo and received more than 2 embryos per transfer were excluded from the study. All cycles (n=224) were initiated in our facility by four different physicians. Only physician 1 and 2 used a pre-procedure subject management with a mock transfer & hysterosonogram and a dilation & curettage hysteroscopy if needed. The tested parameters listed below in Table1. Following embryo transfer, pregnancy and implantation outcomes were verified by + βhCG test and ultrasound, respectively. Data were analysed using nonparametric Kruskal- Wallis independent t-test and Mann-Whitney with Chi Square. P-value < .05 was considered statistically significant. **Results:** Results showed that the pregnancy rate was significantly different ($p < .05$); however, the implantation rate did not differ among four groups ($p > .05$). Since age of the patients and the number of embryos transferred per cycle were similar within four groups ($p > .05$), the physicians' pre-procedure subject management technique could be tested. **Conclusions:** According to the results of this study, pre-procedure subject management by the physician performing embryo transfer may affect pregnancy, but not implantation rates in recipient cycles. Further randomized controlled studies may be needed to conclude a direct relationship between physician's transfer technique and pregnancy outcome.

B2 **Title:** **Difficulty of Total Hip Arthroplasty Following Open Reduction and Internal Fixation of Acetabular Fractures**

Authors: **Adam A. Madsen, DO[1] (PGY 5); Fernando Serna, MD, MPH[1,2]; Sean A. Sutphen, DO[1]; Ben C. Taylor, MD[1]; Sanjay Mehta MD[1]**
Affiliations: **1-Doctors Hospital and Grant Medical Center; 2-Mayo Clinic Health System, Eau Claire, Wisconsin**

The incidence of post traumatic arthrosis after acetabular fractures is high and leads to the need for secondary total hip arthroplasty (THA). These cases of conversion arthroplasty are technically much more challenging that routine primary THA. The goal of our study was to evaluate the difficulty of secondary THA as compared to primary THA performed by the same surgeon. We retrospectively identified 30 patients who underwent secondary THA after open reduction and internal fixation (ORIF) of an acetabulum fracture and a comparison group of 20 patients who had undergone primary THA for degenerative joint disease. Demographic data was similar between groups. Hardware removal was deemed necessary in 21 patients (70%). Allograft was needed for bone defects in 33% of secondary, but none of the primary THA's. Operative time (217.4 min vs. 113.7 min, $p < .01$) and estimated blood loss (875.8 ml vs. 365 ml, $p < .01$) were significantly greater in the secondary THA group. Early post-operative complications where higher in the secondary THA group, including: four intraoperative fractures, two with positive intraoperative cultures, seven that needed a return to the operating room, two readmissions, and one with symptomatic heterotopic ossification. Total hip arthroplasty after acetabular fracture open reduction and internal fixation is a more complex procedure due to more difficult exposure, need for removal of hardware, management of bone deficiency requiring graft placement, and the use of cages and revision components. Patients need to be informed as to their increased risk of complications when compared to primary total hip arthroplasty.

B3 **Title:** **Incidence of Dysphagia after Odontoid Screw Fixation of Type II Odontoid Fracture in the Elderly**

Authors: **Saurabh Sharma, MS (OMS I); Rudy Marciano, DO; Kailash Narayan, MD**
Affiliation: **Department of Neurosurgery and Department of Trauma, OhioHealth Grant Medical Center, Columbus, Ohio**

Type II odontoid fractures account for approximately 8-9% of all cervical spine fractures in the elderly. The Anterior odnotoid screw fixation is one of the standard surgical treatments but carries dysphagia as one of the key post-operative complications. The goal of the research was to conduct a retrospective study regarding the frequency and morbidity of post-operative dysphagia in elderly patients with odontoid screw fixation and to useful data to the controversy about the best surgical approach to fixation. A case series design was used to study a population of 43 elderly patients (>65 years) who underwent odontoid screw fixation between January 2009 to January 2014 at both Level I and Level II trauma centers. Their medical records were analyzed to monitor the incidence of post-operative dysphagia, length of stay, discharge disposition, and frequency of PEG tube or nasogastric tube placement. The results showed a statistically significant difference between rates of pre-op dysphagia and the post-operative dysphagia ($p< 0.0001$, McNamara's test), with the mean length of stay post-operatively being 7.54 days. For each added year of age, the risk of post-op dysphagia increases by 16%. The results also showed age to be a statically significant predictor of post-op dysphagia ($p= 0.0043$, chi square test). Our retrospective study illustrates that dysphagia is a very common complication after odontoid screw fixation and has a significant effect on a patient's post-operative course. This information should contribute to the difficult technical decision on which surgical approach and procedure is best for each individual patient.

B4 **Title:** **Primary versus Conversion Total Hip Arthroplasty: Differences that Affect Clinical Performance Measurements and Reimbursement**

Authors: **Matthew R. Webb (OMS II)[1]; Alison K. Klika, MS[2]; Wael K. Barsoum, MD[2]; Carlos A. Higuera, MD[2]**
Affiliations: **[1]Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; [2]Cleveland Clinic Department of Orthopaedic Surgery, Cleveland, Ohio**

Introduction: Universal classification codes often fail to convey essential clinical discrepancies that can lead to inaccurate performance measurements and insufficient reimbursements that burden the healthcare system. Although conversion total hip arthroplasty (cTHA) is a more complex procedure than primary THA (pTHA), current ICD-9 and ICD-10 codes classify both procedures under ICD-CM 81.51. Objectives: The purpose of this study is to confirm clinical differences between primary and conversion THA and to compare the costs among the inpatient episode of care for each procedure. **Methods:** This retrospective study compared demographic data, operative notes, and cost data between 1574 pTHA and 41 cTHA cases from 2009 to 2013. **Results:** The results confirmed that cTHA is a more complex and costly procedure than pTHA. Intraoperative blood transfusion was required in 51.22% (21/41) of cTHA and 7.56% (119/1574) of pTHA cases (P <0.001). The average operative time for cTHA was 210.5 ±29.4 minutes versus 128.8 ±18.9 minutes for pTHA (P <0.001). The median length of stay pTHA was 5 days [3, 5.5] versus 3 days for cTHA [3, 4] (P <0.001). The average direct cost of a cTHA was $18,409.50 ±6,730.04 compared to $12,913.40 ±4,829.29 for pTHA (P <0.001). Indirect costs averaged $9,679.34 ±3,096.41 for cTHA and $6,542.15 ±2,672.45 for pTHA (P <0.001). The combined total charges for each cTHA averaged $98,895.46 ±31,506.30 and $69,004.55 ±20,205.50 for each pTHA. **Conclusion:** The clinical and cost disparities between cTHA and pTHA confirm that separate coding classifications for each procedure are needed to ensure accurate performance measurements and cost effective reimbursement.

B5 **Title:** **The Impact of Preexisting Opioid Use on Injury Mechanism, Type, and Outcome**

Authors: **William Wilson (OMS II)[1]; Urmil Pandya, MD, FACS[2]; M. Shay O'Mara, MD, MBA, FACS[2]; Judy Opalek, PhD[2]**
Affiliations: **[1]Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio; [2]OhioHealth Grant Medical Center**

Introduction: Opioid use and its impact on managing trauma patients has yet to be thoroughly studied. This study aims to determine the prevalence of pre-injury opioid use and its influence on outcomes in the trauma population. **Methods:** A retrospective review of all trauma patients visiting a Level I Trauma Center was performed for the 2010 year. Patients who died within 24 hours of presentation and those with incomplete medication data were excluded. Electronic medical record review of H&P documentation and urine drug screenings were used to determine pre-injury opioid status. Pre-existing narcotic use, demographics, injury mechanism & severity, injury type, & outcomes variables were analyzed. **Results:** Overall, 3953 patients met inclusion criteria with 644 (16.3%) patients being positive for pre-injury opioid use. The pre-injury opioid group was older (48 years vs. 41 years) and more likely to be female (37.9% vs. 30.6%). The injury mechanism was more often falls (32.8% vs. 22.0%). Patients on narcotics were more likely to be admitted (82.6% vs. 77.4%) despite having overall lower injury severity. Less severely injured patients (ISS < 15) had a significantly increased length of stay (LOS) (3.7 days vs. 2.9 days) in the narcotics group. Injury types including head, abdominal, & lower extremity/pelvic injuries were predictive of increased LOS in these patients. **Conclusion:** The trauma population has considerable prevalence of pre-injury opioid use. These patients have unique characteristics and causes of injury. Pre-injury opioid use is predictive of increased admission rate & LOS, with ramifications for patient care and costs.

CASE REPORT

C1 **WITHDRAWN**

C2 **WITHDRAWN**

C3 **Title:** **Arthroscopically Assisted Reduction and Internal Fixation of a Displaced Ib Glenoid Fracture**

Authors: **David A. Goss Jr. DO (PGY 2)[1], Freddie Persinger DO (PGY 5)[1], and Nathaniel Long, DO[2]**
Affiliations: **[1]Orthopedic Surgery Residency Program, Doctor's Hospital, Columbus, Ohio; [2]Department of Orthopedic Surgery, Grant Medical Center, Columbus, Ohio**

Introduction: Fractures of the glenoid are rare and account for approximately 10% of all scapular fractures. Traditionally, these fractures have been approached surgically through a large posterior incision. To our knowledge, there are no reported cases in the literature of arthroscopically assisted fixation of a posterior glenoid fracture with screw fixation. **Objective:** We describe a case involving a 62-year old, right-hand dominant male transferred to a level 1 trauma center following a skiing accident in which he sustained a right, Ideberg Ib glenoid fracture. **Methodology:** The patient underwent a diagnostic arthroscopy of his right shoulder with subsequent reduction and internal fixation of his glenoid fracture. **Results:** At the patient's final 3 month follow up appointment, his fracture was well healed, his range of motion was full and he was without pain. **Conclusions:** The traditional surgical approach to this type of fracture requires an extensive incision to gain access to the posterior glenohumeral joint which carries a great deal of morbidity. This case report details the successful use of a minimally invasive approach via arthroscopy for the reduction and internal fixation of an Ideberg Ib glenoid fracture which to date has not been reported in the literature.

C4 **WITHDRAWN**

C5 **WITHDRAWN**

C6 **Title:** **Difficulties in evaluating the pregnant patient with abdominal pain: A complicated case of uterine rupture**
Author: **Alexandra Murray (OMS IV)**
Affiliations: **Ohio University Heritage College of Osteopathic Medicine, Athens, Ohio and Mercy St. Vincent Medical Center, Toledo, OH**

Pregnant patients with abdominal pain present a unique challenge to all physicians who care for them. The clinician needs to consider normal causes of acute abdomen, causes that may be more common due to pregnancy or obstetrical complications, and overall alterations to the anatomy and physiology of a pregnant female. While it is imperative to rule out any life threatening conditions concerning the patient, it is also important to minimize potential harm or radiation to the fetus. Here we describe a 31 year old G_5P_{0224} female at 15 $^{3/7}$ weeks who was pregnant with her third set of natural twins when she developed abdominal pain, nausea, coffee ground emesis, diarrhea, melena, and syncope. She underwent an abdominal magnetic resonance imaging (MRI) while in the Emergency Department and was found to have a large amount of free fluid in the abdomen. Shortly after returning from MRI the patient became hypotensive with a noted hemoglobin drop from 8.0 g/dL to 5.4 g/dL. She was taken for an emergency exploratory laparotomy and was found to have a uterine rupture. This case report demonstrates the need for a high index of suspicion when evaluating pregnant women with abdominal pain. When evaluating the pregnant patient it is important to remember that pregnant women can develop both non-obstetric and obstetric causes of abdominal pain, and these conditions can occur simultaneously.

C7 **Title:** **Bilateral Patellar Fractures Secondary to Primary Hyperparathyroidism: A Case Report**
Authors: **Brandon Naylor, DO (PGY 1), Sara Madsen, DO**
Affiliations: **Mercy St. Vincent Medical Center, Toledo, Ohio and Henry Ford Hospital, Detroit, Michigan**

We present the case of an otherwise healthy 29 year-old female with bilateral patellar fractures, hypercalcemia, and hyperparathyroidism. Laboratory and imaging modalities demonstrated lytic lesions in both patellae, as well as incidental lytic lesions in the distal femur and middle proximal phalynx of the hand consistent with osteitis fibrosa cystica, or brown tumor. Sestamibi scan supported the diagnosis of primary hyperparathyroidism (PHPT), and surgical excision with pathologic evaluation confirmed the presence of a single parathyroid adenoma. Hyperparathyroid bone disease has an established association with both primary and secondary disease, although relatively rare in the United States. We performed a search of the literature regarding skeletal manifestations and presentations in patients with hyperparathyroidism, particularly about the patella. Additionally, we searched for reports of bilateral patellar fractures, and the projected functional outcomes of treatment. In our research we found a limited number of cases of bilateral patellar fractures, none of which were associated with PHPT. Furthermore, unilateral patella fracture constitutes an extremely small subset of pathologic fractures secondary to PHPT. Treatment and functional outcome varies widely depending on the fracture pattern and patient comorbidities. Due to the poor bone quality of the patellae in this patient orthopedic surgical intervention was deferred.

C8 **Title:** **Contained Rupture of a Gastroduodenal Artery Aneurysm**
Authors: **Christine Ou DO (PGY 4), Mohammad Afridi MD, Gregory Walker MD, Gregory Kasper MD, Marvin Morris MD**
Affiliation: **Mercy St. Vincent Medical Center General Surgery Residency Program, Toledo, Ohio**

Introduction: Gastroduodenal artery aneurysms (GDAA) are rare and comprise a small subset of all visceral artery aneurysms. Clinically, GDAA rupture present with abdominal pain, gastrointestinal bleeds or hemodynamic instability due to rupture. A high clinical suspicion is required as GDAA rupture is associated with a high mortality rate. Risk factors include atherosclerosis, pancreatitis, and ethanol abuse. GDAA are detected, often incidentally, by computed tomography (CT). Therapeutic options include selective angiography with coil embolization or covered stent placement coil and operative ligation. **Case Presentation:** We present a case of a 67 year old female presenting with escalating abdominal pain with transient hypotension. CTA of the abdominal and pelvis showed intraperitoneal hemorrhage at the region of the GDA. A contained rupture of GDAA was diagnosed and patient was repaired with operative ligation after attempted endovascular coiling. **Discussion:** GDAA are a subset of visceral artery aneurysms encompassing only 1.5% of all visceral artery aneurysms. CT is often the diagnostic method of choice in the setting of abdominal pain of unclear etiology. Selective visceral angiography is the gold standard for diagnosis. GDAA that are diagnosed early or in hemodynamically stable patients with rupture are amendable to endovascular repair. In the setting of GDAA rupture and hemodynamic instability, operative repair is warranted. Mortality rates can approach up to 21% in GDAA ruptures indicating the need for high clinical suspicion. **Conclusion:** Ruptured GDAA are rare with potential fatal consequences. Therapeutic options include both operative and endovascular approaches predicted by anatomy and the hemodynamic stability upon presentation.

C9 **Title:** **Iliac Crest Hernia Presenting as a Small Bowel Obstruction**
Authors: **Christine Ou DO (PGY 4), William Sternfeld**
Affiliation: **Mercy St. Vincent Medical Center General Surgery Residency Program, Toledo, Ohio**

Introduction: Surgical repairs of difficult or nonunion fractures are frequently done with autogenous bone grafts, most commonly from the iliac crest. Complications from this procedure include but are not limited to vessel injury, nerve injury, pelvic instability, herniation, or ileus. **Case Presentation**: A 43 year old female presented with a small bowel obstruction 2 years after an anterior iliac crest graft harvest for an open reduction, internal fixation repair of a right humeral shaft fracture. The patient was taken emergently to the operating room. The right colon had herniated through an opening in the right iliac crest measuring 7 cm by 4 cm. The appendix had adhered to new osseous bone formed post operatively and an appendectomy was also performed. The hernia defect was successfully repaired with polypropylene mesh. **Discussion:** Herniation through the iliac crest graft site is a rare but serious complication with an incidence rate of 5-9%. There is an associated risk of 25% incarceration and 10% risk of strangulation. Patients usually present with symptoms of abdominal distention, tenderness at the site of herniation, palpable soft tissue mass, recurrent abdominal pain, changes in bowel habits, or signs of small bowel obstruction. Risk factors are associated with age, females, obesity, and poor musculature. **Conclusion:** A high index of suspicion for graft site herniation in conjunction with a thorough physical examination is needed for patients who present with symptoms of abdominal pain, flank or hip pain, an ileus, or small bowel obstructions with a past history of iliac crest bone grafting.

C10 **Title:** **Massive retroperitoneal liposarcoma: a case report**
Author: **Daniel Pischl DO**
Affiliation: **Western Reserve Hospital, Cuyahoga Falls, Ohio**

Objectives: Learn the most effective diagnostic imaging modalities for liposarcoma, current recommended treatment, and the role of chemotherapy and radiation. **Background:** Liposarcoma is a neoplasm of mesodermic origin derived from adipose tissue. They are rare representing less than 1% of all malignancies. Liposarcomas represent nearly 40% of all retroperitoneal sarcomas. Retroperitoneal liposarcoma may grow to a large size without symptoms. Approximately 20% of the tumours are > 10 cm in size at the time of diagnosis. **Case Description:** This is a case of a 47 year old male who presented to the ER complaining of left sided abdominal swelling and pain. A CT scan revealed a 23 X 13 X 10 CM retroperitoneal soft tissue mass. Patient was evaluated for metastatic disease and then taken to the OR for resection. The mass was able to be totally excised with microscopically clear margins. Clips were placed intra-operatively for planned radiation treatment to the tumor bed. A CT scan at one year did not show any sign of recurrence and the patient is currently symptom free. **Conclusion:** The treatment of retroperitoneal sarcoma is surgical resection followed by radiation to the tumor bed plus/minus chemotherapy. With proper treatment even patients with massive tumors can return to base line function. Proper workup and treatment strategies give the chance for long term disease free survival. There is still room for ongoing research into the optimal adjunct chemotherapy and radiation modalities.

EXHIBITION

E1 **Title:** **Measuring general surgery residents' communication skills from the patient's perspective using the Communication Assessment Tool® (CAT)**
Authors: **Constance P. Cashen DO, FACOS; Julie M. Stausmire MSN, RN, ACNS-BC; Linda Myerholtz, PhD; Nancy Buderer MS**
Affiliation: **Mercy St. Vincent Medical Center, Toledo, Ohio**

Introduction: The Communication Assessment Tool (CAT) has been used and validated to assess Family and Emergency Medicine resident communication skills from the patient's perspective. However, it has not been previously reported as an outcome measure for general surgery residents. **Objectives:** This study established initial benchmarking data for the CAT as an evaluation tool in an osteopathic general surgery residency program. Quarterly results are used by the program director to provide meaningful feedback and targeted goal setting for residents to demonstrate progressive achievement of interpersonal and communication skills with patients. **Methods:** The 14-item paper version of the CAT (Makoul ©) asks patients to anonymously rate surgery residents on discrete communication skills using a five-point rating scale immediately after the clinical encounter. Results are reported as the percentage of items rated as "excellent" (5) by the patient. The setting is a hospital-affiliated ambulatory urban surgery office staffed by the residency program. Participants are representative of adult patients of both genders across the life span with diverse ethnic backgrounds. They include pre-and-post operative patients, as well as those needing diagnostic testing and follow-up. **Results:** Data have been collected on 17 general surgery residents from a single residency program representing 5 PGY levels and 448 patient encounters since March 2012. The reliability (Cronbach alpha) of the tool for surgery residents was 0.98. The overall mean percentage of items rated as excellent was 70% (SD=42%), median 100%. **Conclusions:** The CAT is a useful tool for measuring one facet of resident communication skills – the patient's perception of the physician-patient encounter. The tool provides a unique and personalized outcome measure for identifying communication strengths and improvement opportunities, allowing residents to receive specific feedback and mentoring by program directors. This study was epublished ahead of print in the Journal of Surgical Education 2014 Aug 16. (Jan 2015 print date).