



**Dayton Area
Graduate Medical Education
Community**

**Virginia C. Wood
Resident Research
Forum**

**April 23, 2015
5:00-7:00 p.m.**

**Top of the Market Banquet Center
32 Webster Street, Dayton, Ohio**

DAGMEC
Dayton Area
Graduate Medical Education
Community



Welcome

The Dayton Area Graduate Medical Education Community is pleased to sponsor the Virginia C. Wood Resident Research Forum.

This forum is planned to:

- Provide trainees an opportunity to present their research/scholarly work in poster format and to receive feedback on their activities
- Expand medical education experiences through scholarly interactions with physicians, scientists, residents and students
- Stimulate potential research collaboration

Thank you for supporting these research efforts.

Steven Burdette, M.D.

Chair, DAGMEC Virginia C. Wood Resident Research Forum

Dayton Area Graduate Medical Education Community (DAGMEC)

DAGMEC is a collaborative alliance of nine institutions. The community supports over 600 residents and fellows in allopathic, osteopathic, and dental programs. Its purpose is to improve the system of training interns, residents and fellows by providing a collaborative environment and structure for the member institutions to share information. The DAGMEC administrative office is located at the Wright State University Boonshoft School of Medicine.

Member Institutions:

- Dayton Children's Hospital
- Good Samaritan Hospital
- Grandview Hospital
- Kettering Medical Center
- Miami Valley Hospital
- USAF School of Aerospace Medicine
- Veterans Affairs Medical Center
- Wright Patterson AFB Medical Center
- Wright State University Boonshoft School of Medicine

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Title: A Rare Cause of Odynophagia in a Healthy Adult

Author/Affiliation: Umber Ahmad DO; Mustafa Musleh MD; Salma Akram MD/ Wright State University Boonshoft School of Medicine Department of Internal Medicine, Department of Gastroenterology.

Introduction: Esophagitis is fairly common and often caused by noninfectious etiologies, such as gastroesophageal reflux disease. Infectious etiologies are very rare including Candida, Herpes Simplex Virus (HSV), and Cytomegalovirus (CMV). These esophageal infections are strongly associated with an immunosuppressed host and HSV esophagitis is exceedingly rare in the immunocompetent population. We present a case of a healthy male diagnosed with HSV esophagitis, with no evidence of immunosuppression.

Case description: A previously healthy 31 year old African American male presented with an 8 day history of severe chest pain, odynophagia, and dysphagia. Three days prior to developing symptoms, he reported fever, chills, arthralgia, and myalgia. He had taken ibuprofen for 6 days without symptomatic relief. He had no significant past medical or surgical history. He reports to be monogamous with single female partner and no history of sexually transmitted disease. On admission, patient was febrile with a temperature at 101.7 F and noted to have tachycardia. There were no oral or pharyngeal lesions on exam. He had White Blood cell count of 4.3 t/cmm, otherwise his complete blood count and comprehensive metabolic panel were unremarkable. Serology for CMV, HSV I, HSVII, and HIV were all negative. Upper gastrointestinal endoscopy demonstrated severe ulcerative esophagitis with circumferential ulceration in the distal esophagus. Proximal to this lesion were multiple small 2-4 mm well-circumscribed ulcerations with volcano-like appearance. Esophageal biopsy revealed acute esophagitis, intra-nuclear inclusions, and ground glass nucleated giant cells, consistent with herpes simplex virus. A 10 day course of oral acyclovir was promptly initiated, with complete resolution of symptoms at the end of treatment.

Discussion: HSV is a double stranded DNA virus which causes infection of mucocutaneous surfaces and central nervous system but can also affect visceral organs. Rarely, single organ can be infected of which esophagus is the most common. HSV esophagitis in the immunocompetent patient has a classic presentation. Similar to this case, the individual is often a young male, under forty years old, with acute symptoms of odynophagia, fever, and substernal chest pain. Patients may present with or without weight loss, dysphagia, orolabial herpetic lesions, and prodrome of flu-like symptoms. The patient in this case had distal esophageal involvement with typical volcano-like lesions noted on upper endoscopy. Other features consistent with HSV include punched out lesions or coalesced lesions with cobblestone appearance. Esophageal involvement is often in the distal and mid-esophagus, but may involve the entire esophagus. Biopsy of esophageal ulcer edge with histopathology and viral culture is required to confirm diagnosis, since HSV serology can be negative. HSV esophagitis is expected to resolve over two weeks without treatment in an immunocompetent host. However, systemic antiviral treatment is recommended and should be started promptly. They are thought to reduce severity and duration of symptoms, as well as prevent complications including esophageal perforation and gastrointestinal bleeding. A high index of clinical suspicion is key to diagnosis, followed by prompt endoscopy.

Title: Recurrent pancreatitis and upper gastrointestinal hemorrhage in a patient with left gastric artery pseudoaneurysm.

Author/Affiliation: Asghar Ali, Srivats Madhavan, Pallavi Rao.

Wright State University, Department of Internal Medicine and Gastroenterology

Introduction: Intermittent gastrointestinal bleeding from rupture of a pancreatic pseudoaneurysm (PSA) into the pancreatic duct is a rare complication of acute or chronic pancreatitis with a reported rate of 4-10% of all cases of pancreatitis. Diagnosis is usually made using CT abdomen with IV contrast. Angiography is the gold standard for exact localization of the site and for IR guided embolization of PSA. We present a case of recurrent alcoholic pancreatitis and recurrent upper gastrointestinal bleeding in a patient with pancreatic pseudocyst and left gastric artery PSA.

Case Description: A 36 year old male presented with acute onset epigastric abdominal pain, nausea, vomiting and melena. A review of his chart revealed at least two admissions in regional hospitals for similar presentation with significant upper gastrointestinal hemorrhage and acute pancreatitis without an identifiable source of bleeding. He has a known cyst of the pancreas which had been evaluated by EUS and consistent with a hemorrhagic pseudocyst. He was orthostatic. Examination revealed epigastric tenderness, diminished bowel sounds, and pale conjunctiva. There were no stigmata of chronic liver failure, no Grey Turner's sign, or Cullen's sign. Labs showed hemoglobin of 3.4 g/dl, and elevated lipase of 262 u/L (upper limit of lab normal 60 u/L). The rest of the lab tests including electrolytes and liver function tests were normal. The patient resuscitated with IV fluids, and transfused 4 units of packed RBCs. He was started on a pantoprazole drip after a bolus was administered. Urgent EGD revealed a normal esophagus and stomach. The ampullary region appeared a little prominent and there was a spot of heme at the papilla. Subsequently, CT abdomen with IV contrast showed evidence of a 4.2 x 4.1 cm pancreatic pseudocyst with a partially thrombosed left gastric artery pseudoaneurysm traversing the cyst. Abdominal angiography was performed and confirmed the presence of the pseudoaneurysm with hemorrhage into the pseudocyst. He underwent successful IR guided embolization and gel foam injection to the RGA and LGA to control the hemorrhage. Repeat mesenteric angiography four days later failed to identify any further source of bleeding.

Discussion: PSA formation is a rare complication resulting from erosion of nearby vessels by pancreatic enzymes. The splenic vein is the most frequently involved, followed by gastroduodenal, pancreaticoduodenal and hepatic arteries. With ruptures, bleeding into the intestines, pancreatic duct, or peritoneal cavity may occur. Intrasplenic and subcapsular hematoma formation, splenic rupture, and infarction have also been reported. Historically, without appropriate treatment mortality had been as high as 90%. Even with early diagnosis and treatment the mortality can be as high as 15-50%. EGD could be unremarkable or may reveal hemorrhage from the ampulla of Vater. Dynamic contrast abdominal CT scan can delineate the location of the bleeding pseudoaneurysm and other pancreatitis associated complications. Arterial embolization is increasingly being used in the management of bleeding pseudoaneurysm. It may be successful in more than 90% of cases for control of hemorrhage. Rebleeding rates are unclear and have ranged from 10-50%. Patients with unsuccessful arterial embolization should undergo surgery to achieve hemostasis.

Title: Group Review of Video Recordings of Resident-Patient Encounters

Author/Affiliation: Angela Amato, D.O., Paul Hershberger, Ph.D., Wright State University Boonshoft School of Medicine, Department of Family Medicine

Introduction: The review of video recordings of resident-patient encounters is a time-honored method used in the instruction and development of interpersonal and interviewing skills in family medicine residency programs. This technique has been used to provide an ongoing assessment that includes indirect observation of trainees' clinical skills. How such reviews are conducted varies widely among programs. Our program currently uses a within-class group review format, which includes several faculty members. When developing this format, it was understood that this would be anxiety-provoking for some residents, but expected that educational value of the process would more than offset the anxiety

Methods: All residents from the target class are recorded within 2 weeks prior to review. Residency class members, along with core faculty members, meet and review each resident-patient encounter. Prior to the review, the resident is invited to give a brief introduction to the encounter. After the review, the resident is first to offer observations and comments and the faculty and fellow residents follow with observations. At the conclusion of session, each resident completes a 9 question survey with Likert scale responses. The data is analyzed using Qualtrics.

Discussion: Evaluation of group review of resident-patient encounters suggests that while the format is anxiety-provoking for some residents, the educational value of the process more than offsets the anxiety. This format gives the opportunity for each resident to reflect on their own interviewing encounter as well as observe others' interviewing techniques and styles. It has also been a forum for residents to provide support following emotional interviews. Furthermore, evaluation data suggest that the format serves a team-building function, along with enhancement of trust among residents and faculty.

READ MORE T.O.D.A.Y. (To Our Dayton Area Youth)

Tynese Anderson, M.D., Lisa Collier Kellar, M.D., M.S.C.E., Wright State University Family Medicine Residency, Department of Family Medicine

Background: Research shows that interventions by a patient's primary care physician that start in infancy, such as encouraging consistent shared book reading, promote increased language development and literacy. However, there is little research on effective interventions by primary care physicians to help young school-aged children (6-10 years) who are at risk for poor literacy and/or over-all poor school performance. A pilot study was conducted to examine the practicality of investigating such brief interventions in the setting of an outpatient primary care office visit.

Methods: A chart review was performed and a convenience sample was obtained of 50 caregiver-child pairs with children 6-10 years old who had been seen for a well-child visit or sports physical in our primary care office in the past year. Visits were screened for documentation regarding reading skills or school performance. Of those with documented potential concerns, the child's caregiver was surveyed by phone to assess caregiver interest in participating in a trial of a brief literacy intervention, administered in the setting of a primary care office visit, and on willingness to participate in follow-up contact. Data was collected on responses. Those who expressed interest in an intervention in participation in follow-up contact were offered a commercially available reading workbook, age appropriate for their child, with the suggestion that they work with their child to complete one page daily from the workbook. Follow-up, phone calls were made three to four months later to caregivers who accepted the workbook.

Results: 50 caregiver-child pairs were identified via initial chart review. Of these 37 (74%) had documentation of school performance or reading ability. 13 (26%) were identified as at-risk patients. These 13 caregivers were contacted via phone and surveyed as to potential willingness to participating in a study as described. Five (10%) of the caregivers expressed interest and received the reading skills workbook. After three to four months, attempts were made to contact these five caregiver-child pairs. Only two were able to be contacted using any of the phone numbers or addresses in the patient chart, as most phone numbers had changed. A third pair was eventually contacted, and they explained that they had had to relocate during that period. Of the two participants, post participation surveys were conducted. Caregivers found the reading workbook to be helpful in terms of improving child's reading ability, confidence while reading aloud, and readiness for standardized testing. Caregivers conveyed that they felt more empowered to help their child with reading, as a result of this study.

Discussion: In this pilot study that examined the practicality of investigating the effectiveness of a simple office intervention to help young, school-aged children who are at risk for low literacy, several issues were uncovered that will need to be addressed in a larger study. First, school performance and reading abilities are inconsistently documented in the medical record. Next, many caregivers do not express interest in an office-based intervention. Perhaps most significant is the mobility of this population and the difficulty in maintaining contact. In addition to exposing a potential difficulty with the proposed study, this issue is of interest, as instability in the lives of these at-risk children may directly impact their literacy and general school performance, and may merit investigation in and of itself.

Title: Impella 2.5: time for a moratorium?

Author/Affiliation: Rey Francisco Arcenas, M.D., Analkumar Parikh, M.D., Himad Khattak, M.D., Pargol Samani, M.D., Brian P. Schwartz, M.D., F.A.C.C., F.S.C.A.I., Harvey S. Hahn, M.D., F.A.C.C., Cardiovascular Fellowship Program, Kettering Medical Center

Introduction: Cardiogenic shock (CS) is a state of end-organ hypoperfusion arising from persistent hypotension secondary to various cardiac conditions, most commonly acute myocardial infarction (AMI). Historically, the overall in-hospital mortality rate for patients with AMI complicated by CS was 78% which is exceedingly higher than 13.5% among patients who did not have CS. In the current era, CS in a patient with AMI still portends a poor prognosis, with a mortality rate of 51-76% despite the use of advanced hemodynamic support devices such as the Impella 2.5. The Impella 2.5 is commonly utilized for hemodynamic stabilization during percutaneous coronary intervention. It is a miniaturized catheter-mounted micro-axial flow pump that directly unloads blood from the left ventricle in a non-pulsatile manner after being placed across the aortic valve. Compared to an intra-aortic balloon pump, it does not rely on the patient's native rhythm, and it augments cardiac output (CO) by 2.5 liters per minute even among those with severely compromised myocardial contractility. A newer version, the Impella CP (cardiac power) can increase CO by 4 liters per minute.

Methods and Results: We describe our experience with the Impella device at Kettering Medical Center (KMC), a large community teaching hospital. Data from 25 consecutive patients who received the Impella at KMC from May 2011 to January 2014 were reviewed. Fourteen of these patients had CS due to AMI, of whom 10 received the Impella 2.5 and 4 received the Impella CP. The primary end-point was 30-day mortality. Independent predictors of 30-day mortality were evaluated including: the effect of the type of AMI (ST elevation myocardial infarction vs. non-ST elevation myocardial infarction), left ventricular ejection fraction (<30% vs. ≥30%), need for cardiopulmonary resuscitation, and timing of initiation of hemodynamic support (before or after cardiac catheterization). The overall mortality was 71% with all deaths occurring within five days of the Impella placement. Multivariate analysis did not show any significant difference in the 30-day mortality based on the independent predictors. In univariate analysis, mortality was three times higher in patients who received the Impella prior to cardiac catheterization compared with those who received it after.

Discussion: The efficacy of the Impella 2.5 in decreasing mortality during a high risk PCI is well documented in various studies, but not in the setting of CS from AMI. The real world 30-day mortality rate in patients with CS in the setting of AMI remains high despite utilization of the Impella 2.5. Previously published data and our own experience call into question the utility of the Impella 2.5 device in improving the prognosis of patients with CS after an AMI. The lack of efficacy is most likely a reflection of its inherent limitation to improve CO by only 2.5 liters per minute and its use as a last-resort among patients with poor hemodynamic profile and greater imminent risk of death. As such, the impact of Impella 2.5 on survival is limited, and the search for alternative strategies should continue.

Title: Obsessive Compulsive Disorder, Attention Deficit Hyperactivity Disorder, and Childhood Epilepsy: a shared neurobiology?

Author/Affiliation: Matthew J. Baker, D.O., Wright State University, Department of Psychiatry, Child and Adolescent Psychiatry Fellowship Program

Introduction: This case study discusses a 6-year-old male with Obsessive Compulsive Disorder (OCD) who was later diagnosed with epilepsy. Onset of seizure activity correlated with developing impairing symptoms of Attention Deficit Hyperactivity Disorder (ADHD) as well. The sequence of symptom presentation points to the possibility of a shared neurobiology between these three conditions.

Case Description: The patient is a 6-year-old male who presented to an outpatient psychiatry clinic for the treatment of OCD. He was found responsive to pharmacotherapy with clomipramine and displayed stability for approximately one year before exhibiting symptoms of a seizure disorder. He was diagnosed with benign childhood epilepsy with centrotemporal spikes; the emergence of this disorder coincided with worsening of his OCD symptoms and emergence of ADHD symptoms as well. Despite improvement in seizure frequency with medication, he continued to show worsened symptoms of OCD and ADHD. He experienced greater impairment in his functioning at school, particularly in reading and attention. He also had difficulty completing tasks at home, but eventually responded to a combination of fluoxetine, methylphenidate ER, and oxcarbazepam for treatment of OCD, ADHD, and epilepsy, respectively.

Discussion: The comorbidity between OCD and ADHD is a well-characterized phenomenon. In fact, the two disorders have been thought to share a common etiology/neurobiological basis. Imaging studies have found structural changes in the basal ganglia and prefrontal cortex and abnormal activation in front-striatal circuitry. Family studies have demonstrated an increased risk for OCD in relatives affected by ADHD. The risk for OCD appears to be significantly elevated in relatives of OCD and ADHD probands suggesting cosegregation of these disorders. Both of these conditions have also been independently found at elevated rates in children with epilepsy. Children with ADHD appear to have an increased association with benign childhood epilepsy with centrotemporal spikes. OCD has also been found to be associated with epilepsy, most commonly with temporal lobe epilepsy. This appears to be the first case study to explore the co-occurrence of these three disorders and supports the idea of a shared neurobiology between OCD, ADHD, and childhood epilepsy. This relates to the National Institute of Mental Health Research Domain Criteria project, which aims to identify shared neurobiological characteristics that underlie different mental health disorders for the purpose of improving future classification.

Comparison between Appropriateness of Exercise EKG and Stress Myocardial Perfusion Imaging based on 2013 Multimodality Appropriate Use Criteria

Authors: Ashish Mahajan, MD Susan Bal, MD Harvey Hahn, MD

Kettering Medical Center, Dayton, OH

Introduction: The American College of Cardiology recently published 2013 multimodality Appropriate Use Criteria (AUC) for the Detection and Risk Assessment of Stable Ischemic Heart Disease. The criteria presents potential diagnostic tests for common indications using a side-by-side rating system. Exercise EKG is a commonly used non-invasive test with excellent negative predictive value for coronary artery disease. The 2013 multimodality AUC for the first time defined appropriate use of exercise EKG.

Objective: The objective of our study was to evaluate appropriateness of exercise EKG in patients who underwent Stress Myocardial Perfusion Imaging (MPI) for a “Rarely Appropriate” indication.

Methods: A total of 403 patients who underwent stress MPI at our institute were included in the study. Each stress MPI was classified into “Appropriate,” “May be Appropriate” or “Rarely Appropriate” based on 2013 Multimodality AUC. The exercise EKG AUC was then applied to the same cohort of patients. For patients who underwent Stress MPI for “Rarely Appropriate” indications, appropriateness of Exercise EKG was evaluated.

Results: The mean age of the study population was 62.23±14 years (47.89% males). Out of 403 stress MPI studies, 24.31% were “Rarely Appropriate” based on 2013 multimodality AUC for stress radionuclide imaging. Among these “Rarely Appropriate” stress MPI studies, exercise EKG was noted to be “Appropriate” in 69.38 %. The most common indication for “Rarely Appropriate” stress MPI was “Evaluation of symptomatic patients with low pre-test probability of CAD with interpretable EKG and ability to exercise” (Indication 1 of AUC) accounting for 51.69% of the “Rarely Appropriate” studies. Per 2013 multimodality AUC, exercise EKG was appropriate in all these symptomatic low risk patients.

Conclusion: Exercise EKG may appropriately be used as a viable option patients with Rarely Appropriate indications for stress MPI, majority of which comprises of symptomatic low risk patients with ability to exercise and no baseline EKG abnormalities. This may potentially aid in reduction of healthcare cost as well as ionizing radiation burden from unnecessary stress Myoperfusion imaging studies in this low risk patient population.

Title: Robot Assisted Strassman Metroplasty To Treat Patients With Outflow Tract Mullerian Anomalies And Chronic Pelvic Pain

Author/Affiliation: Eric Behrman, M.D; Bala Bhagavath, M.D; Bijan W. Salari, B.S.; Wendy Vitek, M.D; Sheela Barhan, M.D; Jerome L. Yaklic, M.D; and Steven R. Lindheim, M.D. Wright State University Boonshoft School of Medicine Department of OBGYN

Introduction: The Strassman metroplasty, originally described for infertility and obstetric indications, fell out of favor due to concerns regarding complications of abdominal metroplasty. Recently, metroplasty has also been reported for gynecologic indications including chronic pelvic pain, adenomatoid tumors, and gestational trophoblastic tumors using an open abdominal and laparoscopic approach. We report a step-by-step Strassman and Modified Strassman metroplasty utilizing a robotic approach to optimize good surgical principles.

Case Description: We describe two patients with non-communicating uterine horns who underwent a metroplasty for outflow obstruction, chronic pelvic pain (CPP) and mullerian anomalies using robot assisted laparoscopy. Patient 1 was a 16 year old G0 African American female with a history of dysmenorrhea and CPP refractory to medical ovarian suppression. Patient 2 was a 21 year old G0 Caucasian female who was admitted through the emergency department for severe dysmenorrhea. Her past surgical history was significant for a left salpingo-oophorectomy for a ruptured ovarian cyst and lysis of adhesions for pelvic pain. Both revealed hematometra on pelvic imaging. Our video demonstrates management of these patients including: 1) Pre-operative evaluation using pelvic ultrasound and MRI to best assess for pelvic and renal collecting system pathology; 2) Intraoperative management including a) Operative hysteroscopy for the non-communicating uterine horn and b) Robot assisted laparoscopic Strassman Metroplasty for the bicornuate uteri and a Modified Strassman Metroplasty for the septate uteri where specific attention is paid to re-approximation of the uterine horns with care to avoid the endometrial cavity; and 3) Post-operative management including consideration to placement of an intrauterine catheter to reduce the risk of Asherman's syndrome; HSG; and/or pelvic ultrasound to assess for re-accumulation of hematometra.

Discussion: In patients with non-communicating uterine horn anomalies and gynecologic indications including CPP, and severe dysmenorrhea, Strassman and Modified Strassman metroplasty can be considered. A robot assisted laparoscopic approach is a viable alternative to conventional open abdominal metroplasty for mullerian anomalies as it optimizes outcomes providing excellent tissue re-approximation, facilitates laparoscopic suturing, and enables the surgeon to construct a drainage pathway to relieve pelvic pain.

Title: Prediction of Disease Severity Among Emergency Department Patients with Abdominal Pain

Author/Affiliation: Catherine A. Marco, MD, FACEP, Christopher Fagan, Dennis Mann, MD, PhD, Jason R. Pickett, MD, James Olson, PhD, Catherine Eggers, William Trautman, April Arnold, Sara Birdsong, MD. Affiliated with Wright State University Emergency Medicine Residency program.

Introduction: Abdominal pain is one of the most common chief complaints among Emergency Department (ED) patients, accounting for 6% of ED visits annually. Abdominal pain can be a symptom of pathophysiologic processes ranging from benign to life-threatening. Emergency physicians use many clinical and diagnostic features to diagnose and initiate treatment for patients with abdominal pain. The purpose of this study was to measure self-reported degree of hunger among ED patients with abdominal pain, and to identify any association between self-reported hunger and severity of disease.

Case Description: Methods: This study was a verbally administered patient survey conducted at the Miami Valley Hospital (MVH) Emergency Department, an urban hospital ED with an annual patient census of 90,000. This study was approved by the Wright State University Institutional Review Board (IRB) and MVH Human Investigation and Research Committee (HIRC). Eligible patients included a convenience sample of all ED patients age 18 and over who were not in distress, could communicate, spoke English, and consented to participate. By verbally administered survey, the following data were collected: day of the week, age, gender, ethnicity, mode of arrival, insurance status, triage pain score, hunger score, and hours since last meal. By electronic medical record review, the following data were collected: ED diagnosis, ED disposition, and final diagnosis. **Results:** The study protocol was completed on 304 patients. Age of participants ranged from 18-90 with a mean of 40 years. The majority of patients were female (71%) and caucasian (67%). The median triage pain score was 8/10. Most (72%) patients were discharged from the ED. The most commonly reported final diagnosis categories were abdominal pain (32.7%), gynecological diagnoses (15.8%), and genitourinary diagnoses (14.5%). Hunger score was collected using a self reported 0-10 scale. The median hunger score was 2 with a mode of 0. There were no significant differences among diagnosis categories with respect to hunger score (Kruskal Wallis p-value=0.27). African American patients had a significantly higher hunger score compared to Caucasian patients, with median scores of 5 and 2, respectively (Mann Whitney Wilcoxon p-value<0.001). Hunger score and age were inversely correlated (Spearman correlation coefficient -.15, p-value 0.01). There was no significant difference in hunger scores with respect to gender (p-value=0.68), insurance status (p-value=0.76), pain score, ED disposition ((Mann Whitney Wilcoxon two-tailed p-value=0.46), or final diagnosis (Kruskal Wallis p-value=0.27).

Discussion: ED patients with abdominal pain report a wide variety of hunger scores. African American race was associated with higher hunger scores. There was no significant difference in hunger scores with respect to gender, insurance status, pain score, ED disposition, or final diagnosis. The value of self-reported hunger scores among ED patients with abdominal pain is limited.

Title: Do Not Resuscitate Order Among Trauma Patients

Author/Affiliation: Scarlett Michael, Catherine Marco, Jamie Bleyer, Alina Post/Wright State University Emergency Medicine Residency

Introduction: Do Not Resuscitate (DNR) orders are commonly instituted in the trauma intensive care unit for patients with severe injuries or shock. Previous studies have demonstrated variable prevalence of DNR orders among hospitalized trauma patients.

Case Description: This study was conducted to identify the prevalence and type of DNR orders among trauma patients, and to identify associations of DNR orders with injury severity, length of stay, and whether CPR was performed in cases of cardiac arrest.

Discussion: Medical records were reviewed retrospectively for 263 trauma patients at Miami Valley Hospital in 2014 with a DNR order. Data regarding age, demographics, model of arrival in ED, triage vitals, injury mechanism, co-morbid medical conditions, types of advanced directives, institution of DNR order, ED diagnosis, ED disposition, final diagnosis, and final outcome was recorded for each patient. Among 3394 trauma patients in 2014, 263 (8%) patients had a DNR order. Most DNR orders in this patient population were instituted during the hospitalization (N = 176; 7%). Eligible participants were 43% male and 57% female. The mean age was 76 (range 16 to 90+). The most common mechanisms of injury included fall (N =214; 81.4%) and motor vehicle collision (N =16 6.1%). Most patients arrived by ambulance (N =189; 71.9%), or helicopter (N =68; 25.9%). The most common types of advance directives included DNR order (N =224; 85.2%), living will (N =124; 47.2%), and durable power of healthcare attorney (N =126; 47.9%). Most patients were admitted to the hospital (N =261; 99.2%). A minority of patients died during hospitalization (N =100; 38.0%). Among patients who were deceased, 14 (14.0%) had CPR performed. Patients whose DNR was previously written were significantly older than patients with DNR instituted during inpatient hospitalization (median age 85 years vs. 80 years, respectively, p=0.001, Mann Whitney Wilcoxon two-tailed test). Death was more common among patients who had a DNR order instituted during the inpatient hospitalization (49.4% (87 of 176), compared to 14.9% (13 of 87) of patients whose DRN was previously written (p-value<0.001, Chi square). Among trauma patients with DNR orders, most DNR orders were instituted during the hospital admission. Most deceased patients with DNR orders did not have CPR performed during the hospital stay.

Title: Combined Serotonin and Anticholinergic Syndrome

Author/Affiliation: Rachel Bokelman, Department of Psychiatry, Wright State University, Samer Mohandes, Department of Internal Medicine, Wright State University, Roberto J. Colon Department of Internal Medicine, Wright State University

Introduction: Serotonin syndrome and anticholinergic syndrome are adverse effects of psychotropic medications that can afflict patients during the course of intentional or unintentional use. In combination, these two syndromes can cause severe medical problems with contradicting treatments. While cyproheptadine can be used to manage serotonin syndrome, this medication is associated with anticholinergic effects, further complicating the treatment of a mixed toxicology syndrome. We present a case of a patient with symptoms of both serotonin syndrome and anticholinergic syndrome successfully treated with cyproheptadine.

Case Description: A 56 year-old Caucasian female with a history of anxiety and depression was admitted to the hospital with confusion and tremulousness. The patient had ingested unknown quantities hydroxyzine, zolpidem, diphenhydramine, ibuprofen, fluoxetine and venlafaxine, in an attempt to “get some rest”. On presentation, she had tremors, halting speech, dry mouth, and flushed face. Within hours, she developed progressive decline with worsening confusion as well upper and lower extremity tremors. She exhibited autonomic instability with sinus tachycardia, hypertension, and diaphoresis. Neuromuscular hyperactivity with rigidity in all extremities, coarse tremor, and choreiform movements of elbows and wrists also developed. Hyperreflexia of patellar and Achilles tendons with prolonged clonus in the lower extremities were noted. In addition, extrapyramidal symptoms of frequent lip-smacking, tongue twisting, and repetitive motion, developed. Dry mucous membranes, altered mental status, mydriasis, and urinary retention typical of the anticholinergic syndrome were further noted. We diagnosed a mixed severe serotonin syndrome and anticholinergic syndrome. She received benzodiazepines to treat the serotonergic symptoms, but her condition continued to decline. Cyproheptadine was given due to the worsening serotonin syndrome leading to daily clinical improvement. She did not exhibit any progression of anticholinergic symptoms and was subsequently transferred to the inpatient psychiatric unit for further care.

Discussion: Drug overdoses with multiple substances can cause multiple different conditions with contradicting treatments. This case highlights the dilemma encountered in treating serotonin syndrome with associated anticholinergic syndrome. Although she was initially managed only with sedation and observation due to the concern for worsening anticholinergic symptoms from cyproheptadine, her clinical deterioration led to the administration of this medication with subsequent clinical improvement. Our case demonstrates the potential benefit of cyproheptadine administration in mixed serotonin and anticholinergic syndrome. Due to the concern for possible worsening of anticholinergic symptoms, risks and benefits should be individually considered in patients with severe symptoms.

Title: Here Chickie, Chickie: Chikungunya has Arrived

Author/Affiliation: Katelyn Booher DO, Jack Bernstein MD, Maryann Bernstein. Wright State University, Infectious Disease.

Introduction: Chikungunya is a mosquito-borne disease caused by chikungunya virus (CHIKV). CHIKV causes a febrile illness with associated severe arthralgias and sometimes rash, and has recently rapidly spread from the Eastern to the Western hemisphere. We present two cases of presumed chikungunya involving fever, arthralgias, and rash.

Case Description: Case 1. A 62-year-old Caucasian woman was scuba diving in rural Indonesia in March, 2013. She transited Bali and Seoul, Korea on the way home to Ohio, USA. She noted a mosquito bite assumed to be gotten while eating at an ocean-side restaurant in Bali. Approximately 96 hours after leaving Bali, she developed a fever to 103°F, a debilitating headache, and severe myalgias. Seventy-two hours later, she developed a diffuse maculopapular rash, followed by severe joint pain in her knees, ankles and in her hands with associated joint swelling. The rash and fever slowly abated after seven days, although the joint pain persisted for one year. **Case 2.** A 50-year old male of African descent residing in Dominica, an island in the eastern Caribbean, reported the acute onset of diffuse body aches most prominent in the knees, elbows, and chest, and oral temperature to 106°F. Subsequently, a rash, described as raised individual welts, developed on his right arm. One month later, significant edema remained in the proximal and distal interphalangeal joints of the index and middle finger of the patient's left hand.

Discussion: These patients' symptoms and courses are consistent with CHIKV, including incubation period between 3-7 days, sudden onset high fever, and persistent myalgias and polyarthralgias. CHIKV is a viral disease initially identified in Africa during an outbreak in Tanzania in the early 1950s, and had since been confined to Africa and Asia until recently when it appeared, and rapidly spread, throughout the Caribbean. Since December 2013, CHIKV has affected more than 580,000 people in the Caribbean, with eleven laboratory-confirmed cases of CHIKV acquired via local transmission in Florida as well. *Aedes aegypti* and *Ae. albopictus* are the responsible vectors for CHIKV transmission. Both species of *Aedes* are distributed widely in the United States, however, and the role of *Ae. albopictus* in viral transmission in more temperate areas remains to be seen. The name chikungunya translates to "that which bends up" or "to be contorted". Clinical features include an incubation period of approximately 3-7 days, sudden onset of high fever, headache, back pain, myalgia, and polyarthralgias. Arthralgia is often symmetrical, severe in some cases, and targets phalanges, ankles, and wrists, though large joints can be affected. Rash has been reported in approximately 50% of cases, and typically appears shortly after fever onset. Acute symptoms of chikungunya often subside within 7-10 days, though some patients develop prolonged symptoms such as incapacitating joint pain, tenosynovitis, or edematous polyarthritis of the digits lasting several weeks to months. Long-term follow up studies have demonstrated that up to 64% of patients with CHIKV infection reported joint stiffness and/or pain >1 year following initial infection. Treatment remains supportive, and vaccination research is ongoing. Global awareness and prevention of this disease are imperative given the early but ongoing invasion into the Americas, including the continental United States.

Title: Alveolar Rhabdomyosarcoma: Rare Presentation in an Adult Case

Author/Affiliation: Ali Bukhari, M.D.¹, Claire Christian, Logan Parrott, M.D.², Wright State University Boonshoft School of Medicine, ¹Department of Internal Medicine, ²Department of Psychiatry

Introduction: Alveolar rhabdomyosarcoma (ARMS), while common in children, is a remarkably rare tumor in adults >45 years of age. We present a case of a 54-year-old male who presented to our facility with a paranasal sinus mass that was determined to be an alveolar rhabdomyosarcoma.

Case Description: A 54-year-old male presented with left-sided facial pain and swelling for 2-3 months following a reported viral illness with complaints of sinus pain, congestion, and headache. The patient also complained of progressive shortness of breath, dark nasal discharge, and hematemesis. Physical exam revealed left palatal enlargement without erythema or exudate, bilateral cervical lymphadenopathy, and mildly diminished grip strength in the left hand. Imaging demonstrated an extensive nasopharyngeal, nasal cavity, and ethmoid sinus mass with obstruction of eustachian tube and frontal sinus. The mass extended into the anterior cranial fossa as well as the orbit, deviating the medial rectus muscle. Tissue was obtained by lymph node core needle biopsy, and pathology was consistent with ARMS. The patient underwent surgical removal of the skull base sarcoma in addition to extensive local dissection. Post-operative PET/CT showed persistent local disease prompting adjuvant chemoradiation consisting of vincristine, actinomycin-d, and cyclophosphamide.

Discussion: Soft tissue sarcomas comprise <1% of all adult malignancies, and rhabdomyosarcoma (RMS) account for only 3% of all soft tissue sarcomas in adults. This is in striking comparison to RMS in children and adolescents where they compromise 2-3.5% of all malignancies. While RMS is a mesenchymal-derived sarcoma characterized by skeletal muscle differentiation, there are histological variances between childhood and adult RMS. Children and adolescents are more likely to have the embryonal and alveolar subtypes while the pleomorphic subtype and unspecified variants are seen more commonly in adult patients. Yasuda et al reported 4 cases of ARMS in the head and neck region of older adults with varying presentations and confirmed these diagnoses with demonstration of PAX-FOX01 fusion gene expression. Barr et al reported that most ARMS have gene fusions involving the PAX and FOX families. However, whether this translates to clinical relevance in the future remains to be determined. This case shows the importance of including RMS in the differential diagnosis for suspected head and neck cancer irrespective of patient age. Proper histologic examination and immunophenotypic workup, including staining for myogenin, can help differentiate ARMS from more common head and neck tumors in the adult population.

Title: Just an average ankle sprain?

Author/Affiliation: Burkam, B. MD, Buck, D. MD, Quinn, T. MD. / Kettering Sports Medicine and Wright State Emergency Medicine.

Introduction: According to recent epidemiologic data, ankle ligament sprains are the most common injury over all sports, accounting for 15% of all reported injuries. These injuries rarely require surgical stabilization; however 10-20% of these injuries can elicit secondary instability and eventually require ligament reconstruction.

Case Description: Case History: S.R. is a 16-year-old male high school football player with history of recurrent right inversion ankle sprains, who presents to discuss re-injury of right ankle. He reports a recent inversion ankle sprain during football practice, followed a week later by an instability episode causing a fall at school. Patient states he has sprained his right ankle every football season for the past 4-5 years. He has attempted rehabilitation with his school athletic trainer and tried using a lace up ankle brace unsuccessfully. He denies previous history of fracture, other notable joint injuries, or pertinent past medical history.

Physical Examination: Inspection of the ankle reveals moderate swelling on lateral right ankle. He is tender to palpation over CF and ATF ligaments. Range of Motion is normal for dorsiflexion, plantar flexion, inversion, and eversion. Muscle strength testing is 5/5 with dorsiflexion, plantar flexion, anterior tibial, posterior tibial, gastrosoleus, and Peroneal muscle. Anterior drawer test is positive. Talar tilt test is positive. There is no erythema, laceration, or ecchymosis notable. He is neurovascularly intact and able to bear weight, but antalgic gait is notable.

Discussion: Differential Diagnosis: ATFL, CFL, or AITFL sprain / rupture, syndesmotic injury, distal fibula fracture, maisonneuve fracture, osteochondral defect of talus, tarsal coalition, osteosarcoma, osteomyelitis. **Tests and Results:** Xray Ankle: Findings - No acute fracture, bony abnormality, or malalignment noted. Normal talar dome alignment and spacing. MRI Ankle: Findings - High-grade sprain anterior talofibular ligament with a full-thickness tear. Intermediate to high-grade sprain calcaneofibular ligament. Peroneal tenosynovitis without tear. Bone marrow edema seen within the cuboid, consistent with bone contusion. **Final Diagnosis:** Chronic ankle instability with ATFL rupture, CF sprain, cuboid contusion. **Treatment:** Open Brostrom Procedure for ATFL reconstruction with Arthrex Internal Brace Augmentation. **Outcome:** Successful ATFL reconstruction **Return to Activity / Follow up:** Patient currently completing rehabilitation. He reports significant improvement in stability and strength of ankle.

Title: Hyperplastic Gastric Polyp- An Unusual cause of Hematemesis

Author/Affiliation: Chen, Patrick PGY1, Agrawal, Sangeeta MD/ Wright State University Internal Medicine Residency

Introduction: Gastric hyperplastic polyps (HPPs) are commonly asymptomatic, but in rare instances they present with epigastric pain, chronic blood loss, or gastric outlet obstruction. *Helicobacter pylori* (*H. pylori*) is a known risk factor for HPP. As western society has become more cognizant of *H. pylori* diagnosis and treatment, this has led to decreasing levels of HPP. HPP is now the second most common gastric polyp in the United States, after fundic gland polyps (FGP).

Case Description: A 42-year-old male with history of alcohol abuse and acid reflux presented to emergency department with hematemesis. Home medications was notable for omeprazole. Examination was remarkable for tachycardia, with a normal abdominal and rectal examination. Laboratory studies were significant for a hemoglobin (hgb) of 9.0 mg/dl and potassium 3.2 meq/L. An esophagogastroduodenoscopy (EGD) performed 3 months earlier had revealed a 2 cm ulcerated pedunculated gastric polyp that was removed, and multiple additional friable polyps. Hgb levels remained stable without any requirements for a blood transfusion and therefore no repeat EGD was done during this admission. The patient was readmitted 8 months later with complaints of fatigue and found to have hemoglobin of 6 mg/dl. EGD was performed which revealed fifteen large friable ulcerated pedunculated gastric polyps ranging from 1 to 5 cm in size. Pathology report found multiple hyperplastic polyps with surface ulceration. Patient was discharged in stable condition. No testing for *H. pylori* was done on either admission, but was tested in 2008 and 2011, which were both negative.

Discussion: Autopsy suggests that the prevalence of gastric polyps is 0.4% in the general population. Gastric polyps greater than 0.5 cm vaguely mimic malignant tumors and should be removed due to increased risk for chronic anemia and obstruction. There is an increased risk of malignancy associated with polyps greater than 2 cm. HPP is associated with atrophic gastritis and gastric atrophy as the hypothesized pathogenesis is due to exaggerated regeneration to mucosal injury. HPP has a strong association with *H. pylori* and tends to resolve after eradication of *H. pylori* in 40-71% of treated patients.

Occult GI bleeding and iron deficiency anemia are uncommon complications in patients with large HPP. Our case was of an adult with multiple HPP who presented with hematemesis. We found only 3 case reports of acute GI bleed from HPP on PubMed. Notably our patient was not on any anticoagulation or antiplatelet medications and had no history of *H. pylori* infection. Our patient was on PPI treatment, but this is a known risk factor for FGP but not for HPP.

A multicenter prospective trial was done in 2010 to study the effects of PPIs on HPPs in which 191 patients were started on PPI therapy and then followed up with EGDs after 2 years. The study found a significant correlation between development of HPP and elevated serum gastrin levels after initiating PPIs. Thus, physicians should become aware of large HPP as a rare etiology for acute GI bleed and its association with *H. pylori*. As more research is performed on HPP, other atypical risk factors may become validated.

Sustainable Improvements in Immunization Rates for Seniors: A Local and Community-Wide Effort

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Purpose: To improve influenza and pneumococcal immunization rates in pts age >65 in our office practice and in our community by implementing effective system changes in our office and by developing relationships with community organizations that would allow us to educate community members about adult vaccines.

Methods: The study was operationalized in two parts:

1. Office Initiative: Strategies were implemented in our office to improve immunization rates among our senior patients. These new protocols improved identified of unimmunized patients and increased efficiency in both educating them about vaccinations and in administering the vaccinations. The processes included improved resident-nursing communication protocols (improved pre-office huddles, color-coding patient lists, improved charting protocols, etc.), as well as waiting area & patient room handouts/posters. In addition, team incentives were established and awarded.
2. Community Implementation: Initial contacts with community organizations were facilitated by a university organization that promotes relationships between our sponsoring university and community groups. Based on feedback from meetings with community organizations and churches, we developed educational presentations, handouts, and other information about adult immunizations and used these at community events. Effectiveness of the educational sessions and printed information was examined through pre/post questionnaires. Follow-up with these organizations assessed the effectiveness of our efforts.

Results: Office: Senior influenza vaccination rate for this flu season at the time this abstract was written was 59.18%. This is a 26.7% increase from last year. Pneumococcal vaccination rate was 82.41%, an increase of a few percentage points. A refrigeration failure that resulted in vaccine loss during several key weeks affected our ability to give many of our patients needed vaccinations. We expect improvement to result in future years from changes made. Community: Presentations were made at 10 community events, with contact made to 600+ individuals. Pre/post surveys show an approximately 20% increase in knowledge about vaccines. Presentation feedback has been positive. Many of the participants indicated a commitment to obtain needed vaccines following participation in community outreach presentations.

Discussion: Strategies to increase senior immunization rates in our office have been successful to date. We have increased or maintained the rate of flu and pneumococcal vaccines, respectively, and would likely have increased rates of both even further if we had not suffered the refrigeration loss. Plans are in place to continue these efforts into the coming years. Our community outreach programs have been successful in increasing understanding of the importance of adult vaccination and have resulted in many commitments to obtain the vaccinations. Further, positive relationships with community organizations have been developed that will provide an avenue for future community outreach by our residents that will assist with improving the health of our community.

Project supported by a grant from the AAFP foundation.

Title: Spinal Epidural Abscess and Osteomyelitis: Acute Presentation in a Patient with Injection Drug Use

Author/Affiliation: Steven Colonna and Robert Nichols – Wright State University
Emergency Medicine Residents

Introduction: The annual incidence of spinal epidural abscess (SEA) ranges from 2.5-3 cases per 10,000 admissions, but this is a stark increase over the last 30 years as the incidence used to be less than 1 case per 10,000 admissions. This is attributed to the increase in both injection drug use and the increase of invasive medical spine procedures. SEAs are more common in the lumbar spine followed by thoracic then lumbar. Half of all cases are due to hematogenous seeding, which is why injection drug use is so commonly implicated. The overall best predictor of outcome is the patient's neurological status at time of presentation, and treatment generally requires rapid surgical intervention.

Case Description: 44 yo homeless male with history of extensive injecting drug use presented to the Emergency Department with one week of worsening midline low back pain. The patient stated he had used, on average, 1 gram of heroin daily and admitted to also injecting cocaine under his skin. He was seen in the ED one-week prior and discharged home with a steroid burst for sciatica. He had frequent visits to the ED in the past with drug related cutaneous abscesses requiring incision and drainage. On exam the patient appeared disheveled and with necrotic foul smelling cellulitis to both lower extremities below the knee with exposed lesions down to the subcutaneous tissue. He had severe lumbar spine pain radiating down his legs. He denied bowel or bladder dysfunction. Neurologic testing was difficult, as patient could not tolerate moving his legs. Laboratory evaluation revealed mild leukocytosis (10.2) and anemia (Hgb 6.9). MRI showed osteomyelitis of L3 with adjacent epidural abscess (1x2x2.7cm) and extension of the infection into the psoas muscles. There was moderate to severe central canal narrowing at this level. In the ED, he was transfused two units of blood, given 1g of vancomycin IV, and pain control required frequent doses of ketamine as narcotics were ineffective. He was transferred to neurosurgery care at an outside hospital where he had a prolonged 38-day stay in the ICU. While there he was found to also have osteomyelitis and a SEA in his cervical spine on subsequent imaging and required multiple surgeries to drain the infections and decompress his spine. He also required debridement and skin grafting of his legs. Patient was able to recover although he required a walker and extensive rehabilitation.

Discussion: Back pain is a common chief complaint. SEA is a rare occurrence and it can sometimes be difficult to determine appropriate emergent imaging since there are no consistent exam findings that are diagnostic for the disease. Decision to image is usually based on risk factors and important findings on history and exam. For this patient it was the history of injecting drug use and extensive cellulitis. While in the ED the patient never once complained of cellulitis, which emphasizes the importance of a complete physical examination. Pain control in the patient proved exceedingly difficult. High doses of hydromorphone (4mg) had no effect, possibly due to tolerance. Ketamine in analgesic doses proved highly effective but did require fairly rapid re-dosing as the pain relief was short lived. Lastly, this case demonstrated how important early, rapid surgical intervention is. This patient had disseminated osteomyelitis and SEAs at multiple spinal levels and although he had a long, complicated hospital course he was able to recover and be discharged home.

Title: A Rare Case of Pseudo-Meig's Syndrome Caused by Uterine Leiomyomata Presenting with Ruptured Leiomyoma, Hemothorax and Hemorrhagic Shock

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Introduction: This case is a presentation of benign uterine leiomyomata with two acute complications usually associated with malignant neoplasms. Pseudo-Meigs' syndrome is defined as pleural effusion and ascites in the setting of a pelvic mass other than an ovarian fibroma. Additionally, rupture of a benign mass is usually associated with a malignant mass that outgrows its blood supply, and very rarely with a uterine leiomyoma.

Case Description: A 56 year old female presented to the Emergency Department with a pre-syncope episode while driving, preceded immediately by acute onset of sharp abdominal pain. She had not had proper follow up with a medical provider for approximately ten years, but reported overall good health. She reported a history of uterine fibroids and an umbilical hernia repair. Because of the acute onset of her symptoms, an immediate CT scan was done to investigate for possible abdominal aortic aneurysm. CT scan revealed a large heterogenous pelvic mass associated with the uterus and surrounding intraperitoneal hematoma. Active blood extravasation was noted from the mass as well. There was fluid demonstrated around the liver and spleen. Additionally, there was a large right sided pleural effusion without any signs of chest trauma. Due to signs of intra-abdominal hemorrhage and class IV shock on presentation, she was taken to the operating room for exploratory laparotomy. There was concern for gynecologic malignancy, so she was consented for total hysterectomy, bilateral salpingoophorectomy, possible staging, hernia repair, and thoracentesis to improve intraoperative respiration. Intraoperative findings revealed a benign uterine leiomyoma that had ruptured and caused hemorrhage. The pleural effusion and copious amounts of peritoneal fluid present in conjunction with a large pelvic mass represent pseudo-Meigs' syndrome.

Discussion: This case study represents two exceedingly rare complications of uterine leiomyoma: pseudo-Meigs' syndrome and possibility of intra-abdominal bleeding due to a ruptured leiomyoma. Both of these entities are more frequently found with malignant pelvic neoplasms. Although very rare, this case study may be used as a subtle reminder that benign conditions may still cause significant sequelae if not addressed.

Title: Lessons Learned from Emory Hospital's Ebola Response and Their Application to Dayton-Area Emergency Departments

Author/Affiliation: Russell Day, M.D.; Wright State University Boonshoft School of Medicine, Department of Emergency Medicine

Introduction: In the fall of 2014, Ebola emerged as one of the leading public health threats facing the U.S. health care system. Given the increasingly mobile population worldwide, emergency departments small and large began to prepare for the possibility of facing patients that might have Ebola or had contact with patients exposed to Ebola. A small ad-hoc task force of residents was created to help educate the emergency department residents on treating these patients.

Case Description: The ad hoc resident group mentioned above prepared information regarding epidemiology, treatment, the Emory hospital's experience with an Ebola patient, and PPE utilization. The author of this abstract's portion of the presentation comprised the "lessons learned" by Emory after their successful treatment of an Ebola patient and lack of secondary exposure as opposed to the "Dallas experience" where a hospital and its ED were not prepared to treat possible Ebola patients.

Discussion: The Emergency Department plays a critical role as the sole admitting and screening service for the majority of acutely ill patients that enter the hospital. The lessons learned from Emory and Dallas are directly applicable and can help improve patient outcomes and staff safety. Emory Hospital applied appropriate PPE doffing/donning procedures, isolation of patients, isolation of patient waste/lab specimens/other potential biohazards, and had crucial staff education that was lacking in Dallas. Utilizing their education and lessons learned materials helped Emergency Medicine residents gain a greater understanding of how to protect themselves while improving patient care of potentially Ebola-exposed patients.

Secondary Hemophagocytic Lymphohistiocytosis and Disseminated Histoplasmosis: A Case Report

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Background: Hemophagocytic lymphohistiocytosis (HLH) is a rare lethal syndrome of excessive immune system activation and dysregulation that has a primary and secondary form. HLH has an incidence of about 1.2 cases per 1 million people per year and 42% mortality in adults. Primary HLH typically affects children and infants with a known genetic defect. Less is known about secondary HLH, which is not readily associated with a genetic defect and is typically seen in a much broader age range. Multiple infectious, rheumatologic, and malignant etiologies have been identified as possible “triggers” for secondary HLH.

Clinical Case: A 60-year-old male with a history of rheumatoid arthritis on methotrexate, leflunomide, and infliximab presented with a mild cough, shortness of breath, and abdominal pain for 2 weeks. On initial presentation, the patient’s vitals were within normal limits and had only mild RUQ pain on palpation. On Day 3, the patient developed a fever that was unresponsive to broad-spectrum antibiotics for 1 week. He then developed a diffuse maculopapular rash, flank ecchymosis. He began experiencing watery diarrhea and respiratory failure requiring intubation. Laboratory findings revealed pancytopenia, hypertriglyceridemia, hypofibrinogenemia, ferritin of 85,000, elevated IL-2 receptor alpha, elevated AST, ALT, Alk phos, and Tbili, and coagulation abnormalities. CT scan of abdomen showed hepatosplenomegaly and right sided interstitial pneumonia. Bone marrow biopsy was significant for hemophagocytosis and histoplasmosis. Patient fulfilled 7 of 8 diagnostic criteria for HLH. The patient was initially treated with etoposide, IVIG, and high dose steroids for suspected HLH. He was treated with amphotericin B once disseminated histoplasmosis was identified on bone marrow. The patient responded well and gradually improved over the course of his month-long hospitalization.

Discussion: Only a few cases of secondary HLH associated with disseminated histoplasmosis have been reported. Secondary HLH is a diagnostic and therapeutic challenge because of its rarity and overlap with other disorders (e.g. sepsis). The diagnostic criteria used for secondary HLH is based on research of primary HLH which consists of signs and symptoms that are nonspecific like fever, splenomegaly, pancytopenia.

There are no definitive guidelines for the diagnosis and treatment of secondary HLH. Currently, the underlying cause is the primary focus of treatment in patients with secondary HLH. However, there is controversy about the prudence of additional treatment modalities if the patient does not adequately respond including steroids, etoposide, and IVIG. Failure to diagnose and treat early has a high mortality.

Title: Medication reconciliation and readmissions: A concurrent review at Miami Valley Hospital

Author/Affiliation: Andrea Dillon, MD, MPH, Wright State University Boonshoft School of Medicine, Department of Family Medicine
Steve Swedlund, MD and Larry Lawhorn, MD Wright State University Boonshoft School of Medicine, Department of Geriatrics

Introduction: Readmissions to the hospital have become a huge topic of interest since reimbursement changes by CMS. There are many factors that influence readmission rates. One factor is medication reconciliation. Patients often have medications changed made while admitted to the hospital. Patients are not always adherent to these medications changes upon discharge for a variety of reasons. This may influence early readmission after initial discharge. To investigate this further, we interviewed patients who had been readmitted to the hospital about their medications in-between hospitalizations.

Methods: We interviewed a total of 12 patients admitted to Miami Valley Hospital over a 2 week period in September 2014. Patients were identified by their readmission within 30 days after discharge with a diagnosis of CHF, COPD, AMI, pneumonia, or elective hip or knee replacement. Medication lists at the time of initial discharge and at readmission were compared. The patients were interviewed about adherence to the discharge medication, perceived side effects of medications, and any additional changed made in their medications while out of the hospital. Medications were verified with pharmacies, primary care physician offices, and ECFs when necessary.

Results: Of the 12 patients that were interviewed for this project, all were found to have discrepancies between their medications at readmission and the medications that they were taking at home. Two patients reported adverse drug events from new medications started at the initial admission, which contributed to their readmission to the hospital.

Discussion: In this pilot quality improvement study of medication reconciliation at hospital discharge, significant discrepancies were found between discharge medications and the medications the patient was actually taking at readmission. Overall there seems to be a great need for improvement in the medication reconciliation process. Interventions in this area may lead to decreased readmissions. This is an area the bears intense study.s

Title: A Case of Idiopathic Retroperitoneal Fibrosis Associated with Sjogren's Syndrome
Author/Affiliation: Nicole Droz, MD; Stephanie Mathew, DO, WSU Internal Medicine

Introduction: Retroperitoneal fibrosis (RF) is an uncommon disease characterized by chronic inflammation and fibrosis in the retroperitoneum. Fibrosis is often extensive and can encompass the ureters or other abdominal organs. RF is commonly associated with IgG4 related disease, but is rarely seen with Sjogren's syndrome (SS). The following describes a case of a patient who initially presented with idiopathic retroperitoneal fibrosis (IRF) and was later diagnosed with SS.

Case Description: A 52 year old African American female, with a past medical history of alopecia, type II diabetes mellitus and essential hypertension presented to primary care clinic complaining of left lower quadrant abdominal pain. She was treated with antibiotics for suspected diverticulitis. Her symptoms failed to improve after a 10-day course of antibiotics. A CT scan of the abdomen was obtained revealing a 3.4 x 2.6 cm retroperitoneal mass at the level of the aortic bifurcation obstructing the left ureter. Additionally, two sub-centimeter lung nodules were noted. These findings were concerning for a malignant process. Laparotomy was performed with extensive debulking, rectosigmoid resection, total abdominal hysterectomy and bilateral salpingo-oophorectomy. Tumor markers were within normal limits and pathologic examination was consistent with IRF with negative staining for IgG4. Autoimmune panel performed at that time revealed ANA titers of 1:40 with positive SSA and SSB antibodies. Although suggestive of possible SS, titers were low and the patient did not exhibit any other features of the disease such as xerostomia or xerophthalmia. The patient was monitored clinically every three months and via radiographs every six months for evidence of recurrence. Initially, patient remained asymptomatic and had no recurrence of her disease. Two years later, she developed dyspnea, cough, and xerostomia. Repeat ANA titer was 1:320 with positive SSA antibodies. CT scan of the chest revealed new ground glass opacities consistent with interstitial lung disease. Labial gland biopsy confirmed diagnosis of SS. IgG4 staining was again negative. She was treated with mycophenylate mofetil with improvement in symptoms.

Discussion: RF is often associated with IgG4 related disease or other autoimmune disorders. There has been only one other case of IRF associated with SS. Because patients present with non-specific symptoms such as abdominal, flank or back pain, there is often a delay in diagnosis resulting in progressive disease including ureteral obstruction and hydronephrosis. Diagnosis is confirmed with CT or MRI. Biopsy is often needed to exclude other causes of RF such as infection or malignancy. Advanced disease resulting in organ dysfunction should be treated surgically. Medical therapy with prednisone or steroid sparing agents such as azathioprine, mycophenylate mofetil, and methotrexate can also be effective. During treatment, patients should be monitored clinically and with laboratory studies (ESR, CRP and creatinine) every 1-2 months. Imaging modalities such as CT, MRI or PET scan should be repeated every 2-6 months to monitor for progression of disease and response to treatment. Frequency and duration of surveillance following treatment has yet to be defined. Although IRF is an uncommon disease, it should be considered in patients presenting with abdominal or flank pain, especially in patients with concomitant autoimmune disorders. Early recognition of disease can prevent end organ damage and as more cases are diagnosed, its relationship to SS may be elucidated leading to further advances in treatment and surveillance.

Title: Graves' Ophthalmopathy, Myxedema and Thyroid Acropachy Three Decades After Radioiodine Ablation

Daniel Flood, M.D., Thomas Koroscil, M.D., Wright State University Boonshoft School of Medicine, Wright Patterson Air Force Base Medical Center.

Introduction: Graves' disease is the most common form of hyperthyroidism in the United States and can lead to extrathyroidal manifestations such as ophthalmopathy, pretibial myxedema and thyroid acropachy. While Graves' ophthalmopathy is not particularly uncommon, myxedema and thyroid acropachy are much more rare, and generally always present after orbital involvement has already occurred. We present an unusual case of a patient who developed myxedema and thyroid acropachy, followed by ophthalmopathy three decades after successful radioiodine ablation for Graves' disease.

Case Description: A 63 year old caucasian female with a history of Graves' disease who underwent radioiodine ablation 30 years ago, presented with one year of lower extremity rash, two months of stiffness in the hands, and one month of double vision. The patient has been followed by dermatology for the past year for her rash. She received a punch biopsy, confirming myxedema, and has been treated with intradermal steroid injections with minimal improvement. She has noted stiffness in her fingers bilaterally for two months, followed by double vision for the past one month. She was referred to ophthalmology and received an orbital CT demonstrating mild thickening of the extraocular muscles, consistent with Graves' ophthalmopathy. She was subsequently started on oral prednisone. Upon presentation to endocrinology clinic, she had bilateral, painful, nonpitting plaques along the dorsum of the toes and feet as well as anterior shin. She had bilateral, asymmetric interphalangeal edema without significant clubbing. She had mild proptosis without significant exophthalmos or periorbital edema. Lab work demonstrated a normal TSH and Free T4 with L-Thyroxine 100 mcg daily, and negative ESR, ANA and rheumatoid factor. Her Thyroid Stimulating Immunoglobulins (TSI) and Thyrotropin Binding Inhibiting Immunoglobulins (TBII) were strongly positive. Thyroid US was negative for residual thyroid tissue. No imaging studies of the hands have been performed at this time. Patient was given a three month prednisone taper starting at 60mg daily with significant improvement in her pretibial myxedema.

Discussion: Graves' ophthalmopathy, pretibial myxedema (PM), and acropachy are all extrathyroidal manifestations of Graves' disease. In general, thyroid dysfunction develops first, followed by ophthalmopathy, myxedema, and lastly, acropachy. Graves' ophthalmopathy is the most common, and occurs in 20-40% of patients. PM is found in up to 4.3% of patient's with Graves' disease, and generally presents 1 to 2 years after diagnosis. It is very rare to develop PM without ophthalmopathy. Thyroid acropachy is the least common manifestation and occurs only in those with PM, with about 20% of those with PM developing acropachy. It generally develops 2 to 3 years after diagnosis of Graves' disease. This case is unique not only because of the development of symptoms 3 decades after radioiodine ablation, but also the development of PM and acropachy prior to her ophthalmopathy. It is unclear why some develop PM, while others do not. One theory is that those with PM are genetically predisposed to stimulate glycosaminoglycan production at faster rates. The pathogenesis of acropachy is also unknown, however like PM, is a marker of severe disease. Management of PM is generally with topical steroids, however intradermal injections and systemic steroids have been used. There is no specific treatment for thyroid acropachy.

Title: Treatment of Charcot Elbow with Arthrocutaneous Fistula in a Patient with Syringomelia

Author/Affiliation: MT Groover, HB Bamberger. Grandview Medical Center Department of Orthopedics, Dayton, OH

Introduction: Charcot joint is a progressive form of degenerative arthritis associated with an underlying neurologic disorder such as tabes dorsalis, diabetic neuropathy, or syringomelia. Loss of sensation and proprioception to the involved joint results in severe erosion of the articular surface and may lead to severe deformation, instability, and frequently ulnar or radial neuropathy. Previous case reports have addressed management of the neuropathic symptoms, but offer little with regards to treatment of chronic elbow dislocation with associated violation of the soft tissue envelope. We present a case of a forty seven year old male with Charcot elbow with arthrocutaneous fistula due to syringomelia and that was successfully treated with arthrodesis. To our knowledge only a single case of syrinx related Charcot elbow arthrodesis has been reported. This is the first description of treatment of soft tissue complications in Charcot elbow.

Case Description: Surgical objective was to provide stability of the ulnohumeral articulation through arthrodesis in a functional position with internal fixation using a plate and screws to relieve tension on the soft tissue envelope and promote healing of a draining arthrocutaneous fistula. This procedure was performed following an initial irrigation and debridement with excision of the arthrocutaneous fistula tract and ulnar nerve transposition. The posterior approach to the elbow allowed accurate reduction of the ulnohumeral articulation, decortication of the bone ends, and olecranon excision to allow application of a pre-bent 90 degree 4.5 mm locking compression plate. After application of the plate, radial head impingement in pronation/supination was identified. The radial head was excised and the forearm was placed in a neutral position. The fusion site was augmented with autologous bone graft from the excised olecranon and radial head along with two pieces of bone substitute (Infuse). A portion of the humeral medial epicondyle was excised prior to skin closure to relieve tension on the soft tissue envelope. Clinical and radiographic follow-up revealed evidence of arthrodesis at 10 weeks postoperatively. The soft tissue envelope healed adequately without recurrence of the arthrocutaneous fistula. He does not weight bear on the affected extremity, but due to fusion in a functional position, uses the extremity as an assist. Removal of internal fixation is planned to prevent excessive stress shielding at the arthrodesis site and reduce the risk of periprosthetic fracture.

Discussion: This case demonstrates the use of elbow arthrodesis with a plate and screw construct for treatment of chronic ulnohumeral dislocation with violation of the soft tissue envelope, in a patient with Charcot elbow secondary to syringomyelia. This is evidenced by improved soft tissue coverage and resolution of the arthrocutaneous fistula. Previous case reports have described management of Charcot elbow with physical therapy and functional splinting with only a single case report of arthrodesis. To our knowledge, this is the first report of soft tissue envelope restoration in a Charcot elbow with arthrodesis.

A Complicated, Uncomplicated Parapneumonic Effusion

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Introduction: Parapneumonic effusions (PPEs) have an incidence of about 1 million cases per year in the United States. Although PPE is a relatively common diagnosis, presentations can vary. We present a case of a sterile parapneumonic effusion that required video-assisted thoracoscopic surgery (VATs) decortication due to large loculations.

Case Description: A 52 year old male with only past medical history of gout presented with symptoms of pleuritic chest pain, fever, and nonproductive cough. He was seen in the emergency department on February 23 and treated with amoxicillin/clavulanic acid for community acquired pneumonia. At that time, a chest xray showed only a small, left basilar opacity. When he arrived to the emergency room on February 28, chest CT was obtained, which showed a large, loculated, left sided effusion, which occupied over half of the hemithorax. He was admitted to the resident medicine team and thoracentesis was performed, removing 1.5L of clear, yellow fluid. Fluid analysis revealed an exudative effusion, with pH 7.4, glucose 73, with a negative gram stain and culture. The patient was treated with levofloxacin 750mg for total of four weeks. Cardiothoracic surgery was consulted and patient underwent VATs decortication. Patient had a good outcome and was discharged home in stable condition on March 10.

Discussion: This case illustrates an unusual presentation of a parapneumonic effusion. First, when the patient initially presented with pneumonia symptoms, there was no effusion seen on his chest xray. He was treated as an outpatient with amoxicillin/clavulanic acid, only to return one week later with pleuritic chest pain and fever. Even after treatment, he developed a large effusion. Secondly, by pleural fluid criteria, the parapneumonic effusion could be classified as “uncomplicated” (Clinical Infectious Diseases, 2007). However, according to the American College of Chest Physicians’ ABC criteria for assessing risk of poor outcome with parapneumonic effusion, the patient was at a moderate risk of having a poor outcome (CHEST, 2000). The patient’s classification was A₂B₀C₀. Ultimately, the decision was made to treat aggressively with VATs decortication, and patient did well.

Title: Eosinophilic Gastroenteritis Presenting as Gastric Pneumatosis

Authors/Affiliation: Nyla Hazratjee, MBBS, Drew Triplett, DO, Sangeeta Agarwal, MBBS

Introduction: Eosinophilic inflammation of the gastrointestinal tract is a rare disease (22 to 28 per 100,000 persons) that can present with a varying presentation. Generally, patients present with abdominal pain, vomiting, or diarrhea. We present a case of a patient with eosinophilic gastroenteritis who presented with gastric pneumatosis.

Case report: A 76 year old male with history of colectomy for intestinal pneumatosis 4 months previously who presented to the hospital with acute worsening of abdominal pain, nausea and vomiting of a few days duration. He was noted to have diffuse abdominal tenderness on exam. A CT (computed tomography) study of the abdomen demonstrated new gastric pneumatosis along with portal venous gas shadows that were not seen on CT study nine days earlier. Conservative management was pursued and subsequent EGD (esophagoduodenoscopy) performed 3 days later was suggestive of ischemic gastritis of gastric fundus and body. It was initially thought that chronic mesenteric ischemia was the likely cause of these findings and the patient was treated conservatively. Biopsies from both the duodenum and gastric biopsies showed increased eosinophils in the lamina propria. Staining for H. Pylori was negative. Repeated ova and parasite studies were negative. Upon chart review it was noted that the colectomy pathology report showed increased eosinophils with the submucosa, muscularis propria, and serosa consistent with eosinophilic colitis. Peripheral eosinophilia of serum at 6.8% was also noted. The patient was treated with intravenous methylprednisolone 100mg for 7 days. He was tolerating a full diet and was transitioned to oral prednisone. After initiation of steroids he improved and was tolerating a full diet and was discharged to the extended care geriatrics unit.

Discussion: Eosinophilic gastroenteritis is an eosinophilic inflammation of the gastrointestinal tract can have a varied presentation, which depends on the location and depth of the eosinophilic infiltration. Most patients will have some combination of abdominal pain, vomiting or diarrhea¹. We present a case of eosinophilic gastroenteritis complicated by intestinal wall pneumatosis and later gastric pneumatosis. It is thought that underlying eosinophilic gastroenteritis propagated the majority of this patient's clinical course. Pneumatosis has been described previously in one child with eosinophilic colitis². Gastric pneumatosis was found in four black and white lemurs in association with eosinophilic gastroenteritis³. We believe this is a rare case of eosinophilic gastroenteritis presenting as intestinal pneumatosis.

Title: Intrahepatic Lithiasis in a Westerner

Authors/Affiliation: Nyla Hazratjee, MBBS¹, Drew Triplett, DO², Christopher Barde, MD¹, Wright State University Boonshoft School of Medicine, Department of Gastroenterology, Department of Internal Medicine

Introduction: Intrahepatic lithiasis, defined as calculi proximal to the confluence of the right and left hepatic ducts, is a common entity in Asian populations, but rare in Americans. We present this rare case of intrahepatic lithiasis to demonstrate the clinical challenges in diagnosing this condition in western populations.

Case Presentation: A 40 year old caucasian male who presented multiple times over a period of greater than ten years for recurrent abdominal pain. He initially underwent cholecystectomy at the age of 20 for symptomatic cholelithiasis. A few years later he presented with symptoms mimicking his prior symptoms and had his first ERCP which showed common bile duct dilatation and intrahepatic duct dilatation. He was treated by stone removal and biliary duct stenting which improved his symptoms. He subsequently represented with abdominal pain, nausea and vomiting. Repeat ERCP showed common bile duct dilatation and a large obstructing stone of the left hepatic duct. After electrohydraulic lithotripsy dozens of non-faceted, pearly white stones were released from the left lobe of the liver. Over the years, he continued to have occurrences of hepatolithiasis with obstruction of the distal common bile duct and cholangitis. He was treated by ERCP with a fully covered metal stent placed in the common bile duct to allow unimpeded passage of the stones. The patient continues to have occasional episodes of cholangitis from stent occlusion where only a few stones have been observed. But a large number of stones are still visible intrahepatically and a future treatment to be considered is a hepatic resection.

Discussion: Intrahepatic lithiasis is a rare cause of cholangitis like symptoms in a non-oriental person. Often intrahepatic lithiasis is an asymptomatic process, with some patients becoming symptomatic over a period of years. The most common symptoms of presentation are cholangitis, abdominal pain, or jaundice. The etiology of these stones is most often pigmented stones, and it is theorized that most stones in Western persons are of gall bladder etiology while parasitical or bacterial infections are most commonly found in Asian patients. . However, with small numbers of western patients being studied multiple etiologies are possible. A genetic link to an acidic glycoprotein, osteopontin, seems to be involved with hepatolithiasis, but more studies are needed to classify the exact link. Biliary sepsis, intrahepatic abscess and cholangiocarcinoma are all potential complications. Conservative treatment options in mild cases are reasonable, more severe cases may require endoscopic or surgical intervention. This case highlights intrahepatic lithiasis as a rare cause of biliary stones and cholangitis like symptoms in a western person.

Title: Teenager Too Sick for School, or Just Full of Hot Air?

Author/Affiliation: Ashley Hotz, MD; Nicole Droz, MD; Ryan Munyon, MD

Introduction: Chest pain represents the second-most common complaint for Emergency Department patients, representing more than 5 million visits a year. The differential diagnosis for chest pain is very broad, but practitioners should include spontaneous pneumomediastinum (SPM) in young patients with a history of asthma, drug use or pregnancy, as SPM is associated with significant morbidity and mortality. We present a case of SPM in a healthy young male.

Case Description: A 17 year old male with no significant past medical history presented to the emergency department with complaints of chest pain. The pain started abruptly six hours prior to presentation when eating a slice of pizza. The chest pain was described as retrosternal, sharp with radiation to his neck. He reported the pain was worsened with swallowing and associated with subjective dyspnea. He denied any tobacco or illicit substance use. On admission, vital signs were normal, including respiratory rate. Physical exam revealed crepitus on palpation of chest wall, but the rest of his physical exam including cardiac and pulmonary exam was unremarkable. Laboratory results including complete blood count, basic metabolic panel and urine drug screen were within normal limits. Chest x-ray revealed linear lucencies in superior mediastinum that were suggestive of pneumomediastinum. No pneumothorax was observed. A CT of the chest confirmed the diagnosis of pneumomediastinum with cephalad extension of air into the retropharyngeal soft tissues. The patient was admitted to the hospital for observation. Esophogram was performed which did not reveal any evidence of esophageal perforation. He was treated symptomatically with analgesics and close monitoring of his respiratory status. The patient remained clinically stable and was discharged home on hospital day two. On follow up chest x-ray two weeks later, the SPM had resolved.

Discussion: SPM occurs after alveolar rupture. Air then travels along vascular sheaths towards the mediastinum, an area of relatively lower pressure. SPM is associated with other conditions such as childbirth, asthma or illicit drug use. The most common symptoms at the time of diagnosis include chest pain, dyspnea and dysphagia. Because these are non-specific, a high degree of suspicion is needed for diagnosis. Chest x-ray is often used for diagnosis but can result in a high number of false negative results. CT scan remains the gold standard for diagnosis. Further diagnostic evaluation with esophogram is only needed if patients exhibit high risk features such as age greater than forty, a history of vomiting, abdominal tenderness, leukocytosis or CT findings of pleural effusion, atelectasis, pneumopericardium or pneumoperitoneum. Treatment of SPM is supportive with bed rest, oxygen and analgesics; antibiotics are not needed. Potentially life-threatening complications such as pneumothorax or tension pneumomediastinum occur in 6-11% of patients and should be treated surgically. If complications are absent, patients will resorb the mediastinal air in two to four days. No long-term follow up is needed and the recurrence rate is low. SPM is an important consideration for young patients presenting with chest pain. Missing this diagnosis can lead to significant morbidity or even death.

Title: Cutaneous Drug Eruption Associated with All FDA Approved Inhaled Muscarinic Antagonists.

Abdulfatah Issak,* Perry Nystrom⁺

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Introduction: Cutaneous drug related eruptions are uncommon with inhaled medications. We report a case of cutaneous drug reaction to all FDA approved inhaled muscarinic antagonists and a causality assessment of the probable relationship.

Case: A 62 year old male with severe COPD used Albuterol/Ipratropium MDI for one year prior to once daily Tiotropium and twice daily long acting beta-agonist/inhaled corticosteroid (LABA/ICS). He did not tolerate twice daily low dose Theophylline. His breathing was improved with short acting beta-agonist (SABA), LABA/ICS, and long acting muscarinic antagonist (LAMA); he had no difficulty with ADL's, and he maintained a reasonably active lifestyle with supplemental oxygen 2LPM during exertion. For several years, he experienced an intermittent mild erythematous and pruritic rash over the trunk and upper extremities which responded to topical hydrocortisone cream. When the rash became intensely pruritic maculopapular, Dermatology obtained a 4mm punch skin biopsy from the forearm. The specimen showed dermal edema, interstitial and perivascular inflammatory cells and eosinophils consistent with drug reaction. A medication inventory implicated Tiotropium as a possible cause. The rash resolved 14 days after stopping Tiotropium; exertional dyspnea increased. He was not rechallenged with Tiotropium, but Ipratropium MDI was prescribed q6h/QID. Within 72 hours, the rash returned. Ipratropium was discontinued, and the rash resolved within 5 days. The patient was not rechallenged with Albuterol/Ipratropium MDI (Combivent). Twice daily Acclidinium was started, exertional dyspnea decreased, but the pruritic rash returned after 3 weeks, then resolved with drug discontinuation. Finally, Umeclidinium/Vilanterol (U/V) was started, LABA/ICS discontinued, and the rash returned after 10 days of use; the rash resolved after discontinuing U/V and resuming LABA/ICS. An inhaled placebo was not utilized as a method of attributing the rash to inhaled anticholinergic therapy. Currently, the patient is maintained on Albuterol and Budesonide/Formoterol MDI's, however, exertional dyspnea limits his ADL. He no longer has the pruritic skin rash, and he has been referred for allergy testing.

Discussion: Skin rash is uncommon with inhaled muscarinic antagonists (Tiotropium <4%; others <1%). Whether the patient has a drug allergy or reacts to excipients of the inhaled formula has yet to be determined. Because a non-serious delayed type hypersensitivity adverse reaction was suspected, the patient was rechallenged with other anticholinergic inhalers for dyspnea relief and clinical causality assessment. This is the first case report of skin rash with all FDA approved inhaled muscarinic antagonists, and it exemplifies adverse reaction pharmacovigilance with chronic or new pharmacotherapy.

Title: Extramedullary Involvement of Sigmoid Colon with Acute Lymphocytic Leukemia (ALL).

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Introduction: Extramedullary involvement of sigmoid colon with ALL is relatively rare occurring in less than 20% of cases. Gastrointestinal involvement by leukemia ranges from 5.7% to 13% and can be as high as 20% in cases of ALL ². Leukemic infiltration into multiple organs late in the course of the disease is generally observed. However, leukemic infiltration into sigmoid colon is relatively rare. Cornes and colleagues evaluated almost 15,000 autopsies and identified 264 cases of leukemic involvement of gastrointestinal tract. The stomach, ileum, and proximal colon were cited as the most commonly involved sites, where as the duodenum and distal colon were less commonly affected ². We report a case of ALL with sigmoid infiltration in a patient evaluated for profuse diarrhea.

Case Report: 61 year old male with recurrent Philadelphia Chromosome-positive (Ph⁺) ALL was being treated with Imatinib + doxorubicin (DOX), vincristine (VCR), and dexamethasone (Hyper-CVAD) that alternated with high-dose methotrexate (MTX) and cytarabine (Ara-C) and completed 8 sessions of chemotherapy. The patient's course of treatment was complicated by chronic osteomyelitis of the spine secondary to E. coli for which he was initially treated with Amoxicillin/Clavulanate. He then developed sepsis and acute diarrhea with alteration in antibiotics to include vancomycin and Piperacillin/Tazobactam. Clostridium difficile (C. difficile) toxin was identified and the antimicrobials were changed to metronidazole and cefuroxime PO. The diarrhea persisted and oral vancomycin was started. The patient continued to have voluminous non bloody diarrhea despite treatment and repeat C. difficile toxin test being negative. A flexible sigmoidoscopy was performed which revealed a 1 cm pedunculated sigmoid polyp which was biopsied. Random sigmoid colon biopsies were also obtained. On pathology, the sigmoid colon polyp biopsy was found to be a tubular adenoma with high-grade dysplasia. The random sigmoid colon biopsies showed a few small foci of mild, nonspecific active colitis. In these areas, atypical mononuclear cells were noted. An immunohistochemical stain for CD34 highlighted a few cells in these areas suggestive of infiltration from the patient's ALL. With continued ALL treatment, in addition to Imodium BID, patient's diarrhea improved significantly, <4 episodes/day, but has not resolved.

Discussion:

Diarrhea secondary to leukemic infiltration of the colon can be the first presenting symptom of leukemia¹ or it can be a complication of a patient with known leukemia, as it was described here. While chemotherapy with ARA-C is associated with gastro enteric complications, such as abdominal pain, diarrhea and melena, this patient had no such characteristics except diarrhea^{4,5}. Finding on the immunohistochemical stain also minimized such consideration. Cases of leukemic infiltration into the colon have increased in number likely from improved diagnostic methods and better survival in leukemia patients¹. This case highlights the importance of high index of suspicion for gastrointestinal infiltration of leukemia in patients presenting with unusual symptoms.

Title: Hyponatremia; How Low Can You Go?

Author: Andrea Kaelin, M.D. Wright State University Emergency Medicine Residency

Introduction: Hyponatremia is a known cause of varied levels of altered mental status presenting to the Emergency Department; from confusion to seizures to coma. Our case describes a patient presenting to the ED with significant hyponatremia presenting with stroke like-symptoms

Case Description: A 49 year old Caucasian male with a history of alcoholism, tobacco use, CABG with aortic valve replacement, HTN, and CHF presented to the facility with his family members reporting concerns for altered mental status and left facial droop. The patient's family reports he was found on his hands and knees rummaging in a closet in the middle of the night, babbling incoherently at times, 2 hours prior to arrival. There was no reported trauma, seizure, travel, ill contacts, or illicit substances. On exam, he was arousable to alert and oriented to self, place, and time though speaking with slurred speech, left facial droop, and generalized weakness. Vital signs were as follows: Temp 97.3F, HR 66, RR 18, BP 180/82, and SpO2 94% RA with no reported pain. After evaluation, STAT CT of the Head was ordered in addition to labs, EKG, and CXR. Differential diagnosis focused on CVA, hypoxia, intoxication or withdrawal syndrome for this patient though electrolyte abnormalities were included in the evaluation process. Imaging studies were unremarkable as were his EKG, troponin, glucose, coagulation studies, ammonia, salicylate, acetaminophen, and alcohol levels. Urine drug study was positive for benzodiazepines and THC. CK was elevated at 447. BMP resulted with a **sodium of 93**, Cl of 54, and K of 3, verified on repeated testing. The patient continued arousable but oriented x3 while in the ED and received 500mL of 0.9% Saline and then was placed on 250mL per hour of 0.9% saline while awaiting admission for management of profound hyponatremia, later attributed to beer potomania. Hypertonic 3% saline bolus was not indicated in the emergency department management of this clinically and hemodynamically stable patient, however, was located to the bedside in the event of observed change in mental status or seizure activity.

Discussion: Evaluation for hypoglycemia is key for any patient presenting with altered mental status as it and hypoxia are both rapidly correctable cause for symptoms. Severe hyponatremia, however, is not immediately identifiable by exam, history, or standard point of care testing; nor is it immediately rectifiable in the Emergency Department setting. In this patient's case, with the clinical presentation of focal neurological deficit, he was being considered for thrombolytic therapy for treatment of a stroke at the time lab called to report his results. The identification of this patient's underlying etiology took a minimum of 45 minutes to run in the lab without iSTAT capability in the Emergency Department. In order to employ iSTAT electrolyte testing, if available, the providers must suspect electrolytes as the leading cause for this patient's symptoms. Critical management of this and similar patients presenting with altered mental status is in identifying profound electrolyte abnormalities such as hyponatremia, and then initiating further evaluation with serum and urine osmolality studies and ultimately working to elicit the inciting cause. Treatment of the hyponatremia in the ED is largely supportive care, as recommendations against rapid correction of serum sodium unless in the case of seizure or profound coma. Our patient, arousable to alert and talking, clearly arrived at his record low sodium gradually over time and warranted similar gradual restoration of his electrolyte balance during his subsequent 8 day admission with ultimate discharge to home.

Title: A rare cause of a transudative pleural effusion

Author/Affiliation: Devin Kelly, D.O, David Geottman, M.D., Bipin Sarodia, M.D., Wright State University Boonshoft School of Medicine

Introduction: Pleural effusions are a commonly encountered problem in patients presenting with dyspnea. Effusions can be transudative or exudative, and can occur in the setting of heart failure, cirrhosis, pneumonia, pancreatitis, and malignancy. We describe a case of transudative pleural effusion caused by malposition of an indwelling port-a-cath type catheter.

Case Description: A 50 year old female with recently diagnosed invasive ductal breast carcinoma status post mastectomy presented to the emergency room for back pain and shortness of breath after receiving chemotherapy earlier in the day. The patient had a similar experience 21 days earlier while undergoing her first chemotherapy infusion; her symptoms of shortness of breath and pain lasted 2 weeks after her prior infusion. Initial exam revealed an afebrile Caucasian female with a blood pressure of 135/81 mmHg, pulse rate 92 beats/min, and respiration rate of 20 breaths/min. She had absent breath sounds and dullness to percussion over the right hemithorax. Chest X-ray in the emergency room demonstrated a large right sided effusion with near complete white out of the hemithorax. CT PE protocol demonstrated a large right pleural effusion with near complete atelectasis of the right lung, and no evidence of PE. The patient was admitted for a large symptomatic right-sided pleural effusion. Once admitted to the hospital, she underwent a bedside thoracentesis. 1.2L of clear fluid was removed and the patient felt some improvement in her dyspnea and pain. The fluid studies demonstrated a transudative effusion with a pleural LDH of 22 U/L, protein of 0.2 gm/dL, and white blood cell count of 16 mm³. Fluid sodium was 144 meq/L and fluid chloride was 125 meq/L. On re-evaluation of the CT chest, it was noted that the catheter did not enter or travel within the right jugular or SVC, and it terminated in the pleural space.

Discussion: The patient presented with her second occurrence of acute dyspnea over the past month, and both of these occurrences started during chemotherapy infusion of docetaxel and cyclophosphamide. It is important to note that the patient was afebrile, had no rash, and was not hypotensive, which makes anaphylaxis reaction less likely. The gross appearance of the fluid returned on the thoracentesis was atypical, as it was as clear as saline, without blood or the typical straw color. We were expecting a malignant effusion with a grossly different appearance of the fluid. This was one of the most important factors that led us to review the imaging another time. On careful re-inspection of the CT chest, it was discovered that the previously placed right jugular Infuse-a-Port-type central vascular line was in an extravascular location with its tip located within the right thoracic pleural space. On literature review we found described cases of central venous catheters placed into the pleural space with infusion of various medications, but we have not found such cases described for Infuse-a-Port-type central vascular line. This case reinforces the importance reevaluating a clinical situation when results do not match your clinical suspicion. After discovery of the port catheter location, the patient underwent placement of a pigtail catheter with further removal of all remaining pleural fluid. The right jugular port was then removed and replaced. The patient ultimately developed a repeat pleural effusion with exudative characteristics from pleuritis caused by the previously infused chemotherapy agents. She gradually improved with repeat thoracentesis, but still has a small remaining effusion on her most recent CT scan.

Title: Nonunion of a femoral neck fracture secondary to osteomyelitis from *Corynebacterium* Group G and *Dermabacter hominis*.

Author/Affiliation: Devin Kelly, D.O., Robert Holmes D.O., Wright State University
Boonshoft School of Medicine

Introduction: CDC Coryneform (*Corynebacterium*) group G and *Dermabacter hominis* are rare human pathogens, typically pathogenic in immunosuppressed patients. Both CDC Coryneform Group G and *D. hominis* are classified among the *Corynebacterium* and can be found as part of normal skin flora. *C. jeikum* and *C. urealyticum* are the clinically significant members of CDC Coryneform group G. Both of these isolates have been found to be resistant to multiple drugs such as penicillins, clindamycin, and erythromycin. CDC Coryneform group G have been isolated in infections involving the skin, endocardium, bloodstream, and prosthetic joints. *D. hominis* was first identified as a potential pathogen in 1994, and has been described in cases of peritonitis, bacteremia, and infections of skin and soft tissue. Both CDC Coryneform Group G and *D. hominis* now are recognized as causative agents in clinical infections, with the number and type of infections becoming more numerous. *C. jeikum* has been identified in skeletal infectious previously, but *D. hominis* has not.

Case Description: Twelve months prior to presentation at the Infectious Disease Clinic, a 65-year-old female presented to the Orthopedic Surgery Clinic for three weeks of right thigh pain. Hip radiographs demonstrated a new subtrochanteric stress fracture. The patient had a history of rheumatoid arthritis and was being treated with adalimumab and prednisone at the time of the fracture. The patient underwent right femoral intramedullary nailing through the fracture and completed rehabilitation. In the time leading up to her presentation to the infectious disease clinic, the patient had ongoing radiographic evidence of nonunion. Six months after her original procedure, the patient underwent hardware removal and nonunion take down with bone grafting of the right subtrochanteric femur. Fourteen weeks after the second procedure, the patient was having increased pain and radiographic evidence of nonunion with failure of hardware and evidence of progressive deformity. She underwent revision, in which a new rod was placed, and deep tissue cultures revealed *D. hominis* and CDC Coryneform Group G. Infectious Disease service diagnosed chronic osteomyelitis, and the patient responded well to outpatient vancomycin parenteral therapy for four weeks, followed by oral linezolid for three weeks. Adalimumab was held during antimicrobial treatment; prednisone was continued at 5 mg daily. The patient successfully completed her course of therapy with good clinical results and normalization of inflammatory markers.

Discussion: Our patient experienced several surgical interventions at the site of her hip fracture, any one of which entailed risk of infectious complications. Unusual infections may occur opportunistically in moderately immune suppressed patients. Our review of the English medical literature has uncovered few published reports of CDC Coryneform Group G skeletal or orthopedic device-related infections, and none due to *D. hominis*. Further, awareness of the potential pathogenicity of these agents is important to all physicians that treat immunosuppressed patients, including those with bone and joint infections.

Using a Simple Intervention to Reduce Obesity in a Community Primary Care Office
Zia Khan, M.D., M.P.H., Reena Enaker, M.D., Lisa Collier Kellar, M.D., M.S.C.E., Wright
State Family Medicine Residency Program

Background: Obesity has become an epidemic in the US.^{1,1} this is especially true among underserved populations. The Family Physician has a responsibility to intervene where possible with his/her pts. There is a great need for brief interventions that are effective in the setting of an office visit not otherwise focused on this issue.

Methods: In an effort to help residents learn skills to help their patients make better life choices in dealing with their obesity, the Wright State Family Medicine residency implemented a simple intervention that involves the use of “portion control” plates and cups, with a suggested script for a brief counseling intervention in the office. While this intervention had been available to residents for some time, we hypothesized that residents were not utilizing the intervention effectively, and that improved training would improve the implementation and effectiveness of the intervention. Residents were surveyed on their thoughts and attitudes towards the effectiveness of this intervention. They were then exposed to training on improved utilization of the intervention. After an observation period, the residents were surveyed again, and results evaluated.

Results: Initial survey results showed that over 50% of the residents were not aware of the availability of the intervention supplies or suggested brief counseling script. Most were positive in regards to use of the suggested intervention, and stated that they would use the intervention in the future. After the training session and observation period, a repeat survey showed that the majority of the residents were now both aware of the availability of the intervention and reported using it with their patients. In addition, most of the residents felt that it was having a positive impact on at least a few of their patients, and indicated that they would continue using the intervention into the future.

Discussion: A brief intervention that involves making available portion control plates and cups in the office, along with a suggested script for a brief counseling intervention is well received by Family Medicine Residents and is able to be implemented in brief patient encounters. The methodology should be further investigated for its efficacy in this setting.

Title: Prednisone as Therapy for Subconjunctival Hemorrhage in Exacerbation of Mixed Connective Tissue Disease

Author/Affiliation: Sarah Khan, M.D., Justin Peterson, M.D., Huma Ansari, M.D., Wright State University, Department of Internal Medicine

Introduction: Mixed connective tissue disease (MCTD) is an autoimmune syndrome known to affect virtually every organ system. In the setting of an acute exacerbation of MCTD, central nervous system (CNS) manifestations are present in approximately 20% of cases, and ophthalmic manifestations are exceedingly rare. We describe a unique case in which timely use of high-dose steroids led to rapid resolution of bilateral subconjunctival hemorrhage when present as a feature of MCTD exacerbation.

Case Description: A 60-year-old Caucasian male with a past medical history of MCTD presented with a three day history of low grade fever, chills, diffuse palpable purpura, and bilateral subconjunctival hemorrhages. On presentation, the patient was afebrile and hemodynamically stable. Palpable purpura were evident in the periorbital region, forehead, abdomen, back, and bilateral upper and lower extremities. Neurologic examination yielded intact visual fields and 20/20 visual acuity. Examination of the eye showed bilateral subconjunctival hemorrhages which involved the greater part of the sclera up to the level of the iris (Image 1). Fundoscopic exam yielded normal red reflex, normal cup to disc ratio with sharp margins of the disc. No exudates or hemorrhages were evident in either fundus background. Laboratory studies on admission revealed WBC of 4.3, INR of 0.9, platelet count of 305, ESR of 46, and CRP of 1.5. The patient was promptly provided 150mg intravenous methylprednisolone. The day after admission purpura were non-palpable and bilateral subconjunctival hemorrhages significantly receded to the lateral most aspect of the sclera (Image 2). The patient was discharged home in medically stable condition with a two month prednisone taper. Follow up in clinic three weeks after discharge yielded no further evidence of purpura or subconjunctival hemorrhage.

Discussion: Mixed connective tissue disease is an overlap syndrome that is associated with high levels of anti-U1 RNP antibodies and features of other autoimmune diseases such as systemic lupus erythematosus, scleroderma, polymyositis, dermatomyositis and rheumatoid arthritis. Consensus on the treatment of MCTD is almost as lacking as the trial-based evidence that supports it. Therapies are based on organ systems affected, and often include corticosteroids, antimalarials, methotrexate, and cytotoxics (such as cyclophosphamide). While MCTD is known to affect virtually every organ system, CNS manifestations are uncommon. When present, manifestations include headaches, aseptic meningitis, trigeminal neuralgias, and sensineural hearing loss. A single case report of retinal vasculitis and vitreal hemorrhage was reported in 2005, suggesting that ophthalmic manifestations are rare and may be vascular in origin. This case represents a rare ophthalmologic manifestation of a disease which is, in some aspects, poorly understood. Although optimal treatments are unknown, this case underscores the fact that ophthalmic manifestations of MCTD responds well to steroid therapy and may be first line unless contraindicated. Therefore, the application of high-dose prednisone can be considered in patients who present with subconjunctival hemorrhage as a presenting feature in MCTD flare.

Title: More a raspberry than a sea anemone!

Author/ Affiliation: FNU Kirti, MD, Kettering Medical Center: Internal Medicine Residency Program

Other Authors: Douglas Pugar, DO, Michelle R Noel, DO, Thomas J Merle, MD, Peter J Lewis, DO.

Introduction: Papillary fibroelastoma (PFE) is an extremely rare benign cardiac tumor that usually arises from the valvular endocardium. PFE can cause thromboembolism or mechanical interference with valvular function, so surgical therapy is indicated when the patient has symptoms. We present a rare case of PFE causing multiple embolic strokes and its successful resection.

Case Description: 75 year old female with h/o Hyperlipidemia, Hypertension, Diabetes mellitus type II, CVA (cerebral infarction) 06/2012 and CAD s/p PCI-RCA 12/2013 presented to us with dizziness and diplopia for 2 days without motor weakness or sensory changes. MRI showed multiple subtle punctate acute cortical infarcts within the left cerebellum, left occipital lobe, and right frontal lobe superimposed on areas of infarction and interval worsening of encephalomalacia within the right occipital parietal lobe and multiple lacunar type infarcts within the bilateral cerebelli and thalami. Echocardiogram revealed a 0.6 x 0.8-cm echogenic structure with a stalk attached to P1 scallop on the mitral valve with features compatible with a papillary fibroelastoma. Transesophageal echocardiography showed the characteristic stippled appearance with shimmer of the peripheral edge and echo lucency within the tumor. In preparation for surgery, patient underwent cardiac catheterization and was found to have severe disease involving the proximal LAD. She underwent resection of the papillary fibro-elastoma (resembling a raspberry) sitting on the mitral valve, repair of the mitral valve with CG Band, coronary artery bypass grafts x 1 and debridement of posterior leaflet of mitral valve. Histological examination confirmed the diagnosis. The patient's post operative course was unremarkable. Following resection, there is no recurrence of the tumor and no recurrence of TIA/Stroke in the short follow up period of few months.

Discussion:

PFE typically arises from the valvular endocardium and it most often affects the aortic valve (52%), followed by the mitral valve (16%), tricuspid valve (6%), and pulmonary valve (2%). Many authors have described them to look like a raspberry or a sea anemone due to the presence of characteristic erythematous fleshy multiple tissue fronds on the tumor with a stalk. The etiology of PFE is still controversial. Although benign in nature, but the associated high risk of ischemic or embolic complications and other life-threatening complications such as myocardial infarction, valvular dysfunction, pulmonary embolism and even cardiac arrest necessitates surgical resection. Many authors believe that patients with asymptomatic nonmobile tumors can be followed up carefully by periodic clinical evaluation and echocardiography, undergoing surgical intervention only when symptoms develop or the tumor becomes mobile. Resection of these tumors might lead to mitral regurgitation and heart failure therefore, valvular repair or replacement may be required, which was done in our case as well. Their infrequent occurrence makes each case interesting enough to report in order to improve its early diagnosis and management. In conclusion, we described a rare case of papillary fibroelastoma resembling a raspberry, causing multiple embolic strokes in a 75 year old lady, necessitating surgical resection and mitral valve repair with no post operative complications. Patient

Title: Paraneoplastic hypercalcemia secondary to cholangiocarcinoma presenting as constipation

Author/Affiliation: Elise Kwizera M.D., Matt Koroscil M.D., Colleen Begley B.A., Padmini Krishnamurthy M.D.

Introduction: Humoral hypercalcemia of malignancy (HHM) is a common cause of hypercalcemia in cancer patients and occurs via elevation in parathyroid hormone-related peptide (PTHrP), yet has rarely been reported in cholangiocarcinoma. We report a case of cholangiocarcinoma presenting with constipation secondary to HHM.

Case Description: A 65-year-old Caucasian male with a significant smoking history presented with constipation. Vital signs were stable and physical examination exhibited firm hepatomegaly. Serum calcium and ionized calcium were elevated to 13.7 mg/dL and 1.75 mmol/L. PTH was suppressed to <2.5 pg/mL, and 25-hydroxyvitamin D and 1,25-dihydroxyvitamin D were within normal limits. CT abdomen showed innumerable hypodense lesions throughout the liver and spleen, as well as capsular retraction of the liver. Ca 19-9 was elevated at 51.6 U/mL (0-35 U/mL), but other tumor markers unremarkable. PTHrP was elevated to 6.6 pmol/L (0-2.0 pmol/L). An ultrasound-guided liver biopsy was performed and pathology was consistent with cholangiocarcinoma. The hypercalcemia was treated successfully with intravenous fluids and zoledronic acid.

Discussion: Hypercalcemia is a common complication of malignancy and may occur via osteolytic metastases, 1,25-dihydroxyvitamin D production, ectopic secretion of authentic PTH, or elevation of PTHrP. HHM is common in squamous cell and breast cancers. We report a rare case of cholangiocarcinoma causing paraneoplastic hypercalcemia in a Caucasian male.

Is replacement of Primary prevention Implantable Cardioverter-Defibrillators (ICD) imperative?

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Background: More than 100,000 Implantable Cardioverter Defibrillators (ICD) are implanted in United States annually. Of these, 25% are generator replacements due to depleted battery life. Replacement of primary prevention ICDs has been a matter of debate.

Objective: To determine what proportion of patients with primary prevention ICDs still meet guideline based indications at the time of elective generator replacement.

Methods: Patients between 18-89 years age who underwent replacement of primary prevention ICDs at elective generator replacement indicator over a 3-year period at Kettering Medical Center were included in the study. Patients with any other indication for generator change such as upgrade to a dual chamber or cardiac resynchronization therapy (CRT), lead malfunction, pacemaker dependent were excluded. Left ventricular ejection fraction (LVEF \leq 35%) or appropriate ICD shock were considered indications for ICD replacement.

Results: In our study population (n=201), 49 (25%) patients did not meet guideline-based indications for ICD replacement based on improvement in LVEF to \geq 40% and no appropriate ICD shock. An additional 48 (24%) patients did not undergo reassessment of their LVEF within 6 months of ICD replacement. Patients with LVEF $<$ 30% at the time of initial ICD implantation were more likely to need replacement as compared to those with LVEF between 30-35%. (Odds ratio 0.6;p $<$ 0.01).

Conclusion: There is a need for reevaluation of continued requirement of primary prevention ICD at the time of elective generator replacement since a significant proportion of patients may not continue to meet guideline-based indications. More appropriate use of guideline-based elective generator replacement may potentially reduce healthcare cost burden and procedure-related complications.

Title: Stroke legislation impacts distribution of certified stroke centers in the United States

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Introduction: The Joint Commission (JC) began certifying primary stroke centers (PSC) in 2003 to improve the stroke system of care. Several states passed legislation to designate PSCs and regulate emergent stroke triage. The number of PSCs have increased dramatically over the past decade in the U.S. We aimed to understand the factors affecting PSC distribution in the U.S, especially the impact of state stroke legislation.

Methods: PSCs certified by national organization or state until December 2013 were searched from available databases. The proportion of PSC among short-term general hospitals in each state was calculated and factors affecting its distribution were analyzed.

Results: By the end of 2013, the proportion of PSC varied from 4% to 100% among the 50 states and District of Columbia. The 18 states with stroke legislation had higher PSC percentages (median 43%, range 13-100%) than the remaining states (median 13%, range 4-75%, $p < 0.001$). Multivariate logistic regression showed that state stroke legislation, urbanization, and larger hospital size independently increased the likelihood of a hospital to be stroke certified. Comparing to states with the lowest GDP (1st quintile), the hospitals in those states of higher GDP were more likely to be PSC certified in univariate analysis, but not in multivariate analysis after adjusting for stroke legislation, urbanization and census region. From 2009 to 2013, states with stroke legislation had greater increase of PSC percentages compared to the states without legislation (median increase of PSC percentage 16% vs 6%, $p = 0.0067$). Among the 1505 stroke centers, 74% were certified by the Joint Commission, 20% by state, and 6% by other organizations. Stroke centers certified only by state were smaller in size by hospital bed count compared to those certified by the JC (median 204 vs 300 beds, IQR 117-339 vs 202-436 beds, $p < 0.001$).

Discussion: State stroke legislation significantly increased the number of certified stroke centers in the United States, potentially improving accessibility of standardized care for patients with acute ischemic stroke.

Title: PURULENT PERICARDITIS IN AN IMMUNOCOMPETENT PATIENT

Author/Affiliation: Ricky Mehta, PGY-1, Department of Internal Medicine, Kettering Medical Center; Allison Houston, PGY-1, Department of Emergency Medicine, Wright State University

Introduction: Pericarditis is an infection of the pericardial space and can be defined as purulent when it is characterized by gross pus in the pericardium. In this rare case, purulent pericarditis was caused by *Escherichia coli*. The original site of infection was unknown, making the management and treatment of this patient's disease extremely difficult. This case is notable because there have been only a few documented cases of *E. coli* purulent pericarditis described worldwide.

Case Description: A 66-year-old immunocompetent Caucasian female presented with chest pain and was admitted for acute coronary syndrome rule out. No pertinent physical exam findings were noted. EKG and troponins were unremarkable on admission. An echocardiogram was performed the following morning that showed a small to moderate amount of pericardial effusion. After recurrent episodes of chest pain and with the development of shortness of breath, a repeat EKG and echocardiogram were obtained with ST elevations noted in the inferior leads and a moderate amount of pericardial effusion but without tamponade, respectively. Patient underwent pericardial window with drainage and removal of thick, green-yellow fluid attached to the myocardium. Biopsies and cultures were obtained intraoperatively. Pericardial cultures and urine cultures grew *Escherichia coli*, while blood cultures, sputum cultures, acid-fast bacilli, ANA, and anti-CCP were negative. Along with drainage of the pericardial fluid, the patient was started on ESBL coverage with Ertapenem. Unfortunately, the patient's condition began to deteriorate and did not improve. Ultimately, the patient died. The cause of death was felt to be a direct complication from the pericarditis. A full body autopsy report was obtained but no identifiable source of infection could be determined.

Discussion: The management and treatment of a patient with purulent pericarditis growing *Escherichia coli* has not been extensively studied due to the rarity of the condition. It has been documented in only a few case reports involving neonates of AIDS patients but not in an immunocompetent patient. An identifiable cause of purulent pericarditis usually involves chronic renal failure, recent thoracic surgery, or malignancy. This patient's infectious cause most likely developed from a hematogenous route even with blood cultures remaining negative. Most causes from bacteremia stem from *Staphylococcus aureus* and *Streptococcus pneumoniae*, with *Escherichia coli* being extremely rare. Even with the appropriate studies and analysis, along with the organism specific antibiotic and pericardial drainage, the outcome for this patient was poor. Due to high morbidity and significant mortality associated with this disease, further investigation into infection sources, management and treatment are warranted.

Title: Examination of the Expression of YPEL3 and its Role in Tamoxifen Resistance in ER+ Breast Tumors.

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Introduction: YPEL3, a novel senescence-associated gene, was shown to be repressed by estrogen in ER+ mammary tumor cells and required for tamoxifen-induced cellular senescence (Tuttle, *et al.*, 2012). Forty percent of women with ER+ breast cancers are resistant to tamoxifen chemoprevention and go on to develop additional breast cancer despite treatment with tamoxifen. It is unclear if YPEL3 is playing an important role in tamoxifen resistance in patients with ER+ breast cancer.

Methods: Human breast tumor tissue was obtained from fourteen consenting patients (IRB #5282). Expression of YPEL3 RNA was analyzed using ViewRNA in-situ hybridization on FFPE slides prepared after surgical resection of the patient's breast mass. YPEL3 RNA level in women with ER+ breast tumors was compared to the expression level in women with ER+ breast tumors who were previously treated with tamoxifen.

Discussion: This is the first study to successfully demonstrate YPEL3 expression at the tissue level. Women with ER+ breast tumors and prior tamoxifen exposure maintained moderate levels of YPEL3 expression in subsequent breast tumors, suggesting that downregulation of YPEL3 expression is not a mechanism for tamoxifen resistance. Mutations of YPEL3 or alternative pathways of YPEL3 regulation are other attractive models for tamoxifen resistance that remain to be studied. Additionally, expression of YPEL3 in ER+ breast tumors compared to normal patient matched tissue is currently under investigation.

Title: Hepatic Inflammatory Pseudotumor in a Patient with Primary Sclerosing Cholangitis Masquerading as Cholangiocarcinoma

Author/Affiliation: Adills S. Moosa DO/ Wright State University, Department of Internal Medicine; Mustafa Musleh MD/ Wright State University, Department of Gastroenterology; Padmini Krishnamurthy MD/ Wright State University, Department of Gastroenterology.

Introduction: Inflammatory pseudotumor (IPT) of the liver is an infrequent but benign lesion that often mimics malignancy. We report a rare case of a large hepatic IPT masquerading as an intrahepatic cholangiocarcinoma in a patient with primary sclerosing cholangitis (PSC).

Case description: A 71 year old Caucasian male with 8 years history of PSC, presented to the gastroenterology clinic for follow-up visit. He was asymptomatic, and except for mild non-tender hepatomegaly, his physical exam was unremarkable. Routine laboratory workup revealed abnormal liver chemistry including elevated alkaline phosphatase (431 IU/L), ALT (129 IU/L), AST (111 IU/L), total bilirubin (2.9 mg/dL), and direct bilirubin (1.3 mg/dL). Carbohydrate antigen 19-9 (CA 19-9) was elevated at 93.9 U/mL, and C-reactive protein was also elevated at 12.4 mg/L. Magnetic resonance imaging (MRI) of abdomen demonstrated a large well-circumscribed, bilobed mass measuring 14.3 x 7.1 x 9.4 cm in the caudate and right lobe of liver which had not been present on prior imaging studies. The liver mass was hyperintense on T1-weighted images and hypointense on T2 weighted images, MRI findings highly suspicious for malignancy. Percutaneous CT guided liver biopsy of the mass revealed extensive lymphoplasmacytic inflammatory infiltrate and significant fibrosis, with no evidence of malignancy. Follow-up MRI of abdomen 3 months later showed stable size & appearance of mass, and the diagnosis of hepatic IPT secondary to PSC was made.

Discussion: Inflammatory pseudotumor is a benign lesion characterized by inflammatory infiltrates and areas of fibrosis that can be mistaken for malignancy. While the most common site of involvement is the lungs, IPT can occur at many other sites but are considered a rare occurrence in the liver. First described by Baker and Pack in 1953, only several hundred cases of hepatic IPT have documented in medical literature. When they develop in the liver, IPT usually arise as a solitary solid tumor most commonly in the right hepatic lobe. The exact pathogenesis remains unknown, but it has been suggested that radiation, chemotherapy, and infectious etiologies may play a role in development. It has been suggested that inflammatory disorders may also play a role in development, as hepatic IPT often occur in the setting of chronic biliary disease like PSC and IgG4 sclerosing cholangitis. Even in previously reported IPT cases in patients without PSC, histology showed significant destructive sclerosing cholangitis mimicking PSC suggesting a relationship between both disorders. Hepatic IPT have been associated with nonspecific symptoms such as jaundice, abdominal pain, fever, and weight loss as well as nonspecific laboratory abnormalities including elevations in ESR, CRP, leukocyte count, bilirubin, AST, Alkaline phosphatase, anemia, and thrombocytopenia. While imaging modalities can identify IPT, hepatic IPT can be difficult to distinguish from malignancy on imaging studies alone; tumors markers can be useful to exclude malignancy but may also be elevated like in our patient. In such circumstances, biopsy with histologic analysis may be warranted to help confirm diagnosis. While surgical resection is an option, expectant management with follow-up imaging has been increasingly utilized as spontaneous regression and/or reduction of size have been reported.

Title: Deadly Drugs: The Realities of Flecainide Toxicity

Author/Affiliation: Valerie Moren, M.D., Wright State University Boonshoft School of Medicine, Department of Emergency Medicine

Introduction: Flecainide is a class I C antiarrhythmic used to treat cardiac dysrhythmias such as atrial fibrillation and atrial flutter. The mechanism of action is blockade of cardiac sodium channels, thus slowing the upstroke of the cardiac action potential. An overdose of flecainide can be life threatening and potentially deadly. We will explore a case of intentional flecainide overdose to understand its toxic effect and clinical management.

Case Description: A 35-year-old Caucasian male with past medical history of depression and hypertension presented to the ED 4 hours after an intentional overdose with his father's flecainide. In a moment of despair and hopelessness he took an estimated 2000 mg of flecainide and passed out, with the intention to never wake up. When he did wake up 4 hours later, he called EMS for help. EMS providers found his BP to be 60/40 and his ECG showed a widened QRS complex and prolonged QT interval. Despite boluses of IVF, his blood pressure did not improve. Poison control was contacted and gave recommendations for sodium bicarbonate, magnesium, and intravenous intralipid therapy but despite initiation of these treatment measures, the patient's BP and heart rate continued to drop and he became unresponsive. Shortly after his intubation, he developed Torsades de Pointes, intractable seizures, and CODED multiple times. When stabilized enough for ICU transfer, the patient received a temporary pacemaker, intraaortic balloon pump, and continued medical management to help combat the toxic effects of flecainide. Despite aggressive treatment measures, the patient died less than 24 hours after initial overdose.

Discussion: Flecainide is a rare but potentially deadly overdose without a specific antidote. A sodium channel blocking medication, flecainide decreased conduction through the heart with its greatest effect on the His-Purkinje system. While used for its antiarrhythmic properties, it can be arrhythmogenic, as the case above describes. Other potential adverse effects of flecainide include negative inotropy, prolonged PR interval, widened QRS complex, and worsened congestive heart failure. Treatment of toxicity is focused on reversing the sodium channel effects both in the heart and CNS, improving perfusion, and preventing deadly arrhythmias. Sodium bicarbonate and magnesium are used to decreased QRS width and prevent Torsades de Pointes, while intralipid therapy has been shown to be beneficial for patients in refractory shock. Benzodiazepines are the mainstay of treatment for CNS effects and phenytoin has sodium blocking effects that will worsen the clinical picture. If medical management is not enough to reverse the effects of the drug, intra-aortic balloon pumps have been shown to improve perfusion as a temporizing measure, until the drug is excreted. The management of a flecainide toxicity is a multi-specialty effort and even with quick identification and a team, morbidity and mortality may be significant.

Title: Pre-Syncope and Palpitations In A Healthy Female with Ashman's Phenomenon

Author/Affiliation: Thomas Murphy MD; Ameesh Vora MD; Ryan Munyon MD, Wright State University Boonshoft School of Medicine, Department of Internal Medicine

Introduction: Cardiac tachyarrhythmias are a distinct group of conditions that a wide spectrum of clinicians must evaluate and treat. Determining the cause of wide QRS complex tachycardia, especially between a supraventricular tachyarrhythmia (SVT) with aberrancy and ventricular tachycardia (VT) can be a difficult task. The recognition of specific electrocardiogram (EKG) patterns, such as Ashman's Phenomenon in which the conductance of a physiological aberrancy to the ventricle is precipitated by the irregularity of the QRS cycle length, can provide diagnostic clarity to the origin of pathology.

Case Description: A forty-five year old female marathon runner without significant past medical history presented with multiple episodes of pre-syncope and palpitations. Her symptoms began six days prior with no specific trigger and appeared to occur more frequently at rest. Each episode varied from minutes to an hour in duration and would occur sporadically throughout the day. She endorsed an irregular pulse and palpitations but denied chest pain, dyspnea, nausea, vomiting, diaphoresis, or loss of consciousness during the episodes. Physical exam was normal. An episode was captured on EKG during the initial assessment in the Emergency Department. The EKG revealed atrial tachycardia with aberrancy in a pattern consistent with Ashman's phenomenon. She was admitted to the inpatient unit and monitored via telemetry. All lab values were within normal limits. CT scan of her chest with contrast failed to reveal any significant pulmonary embolism nor calcification of coronary arteries. She was initially placed on diltiazem to provide rate control in addition to symptomatic relief but continued to have symptomatic episodes. An exercise stress test was obtained, which did not reveal any ischemia via myocardial perfusion imaging. Cardiology was consulted and she was transitioned to flecainide. Her symptoms resolved and telemetry demonstrated no further events of tachycardia.

Discussion: The Ashman's Phenomenon is seen when a long RR interval is followed by a short RR interval. A relationship is found between the refractory period of the bundle of His and the heart rate. As a heart rate slows, the refractory period increases. If a short RR interval follows a long RR interval, the signal terminating the cycle can be conducted as an aberrancy. In many cases, such as in Singla et al case report, a single ectopic or "Ashman" beat may be observed. However, the perpetuation of the aberrancy into a series of wide QRS complexes portraying a morphology resembling non-sustained ventricular tachycardia is also possible as described in a case report by Harrigan et al. Chenevert and Lewis published a case report and study review describing the difficulty of differentiating SVT with aberrancy from NSVT in a clinical setting. They concluded that the majority of misdiagnoses in practice involve failure to identify VT which has the potential to lead to significant additional morbidity. Thus, clinicians should initially treat NSVT as ventricular in origin. In such cases, further evaluation for ischemic disease or structural pathology of the heart should be undertaken before medical management.

Title: A rare case of acute abdomen secondary to omental infarction mimicking acute ascending colitis

Author/Affiliation: Mustafa Musleh, MD/Wright State University department of Gastroenterology; Salma Akram MD/Wright State University, department of Gastroenterology.

Introduction: Omental infarction is a very rare cause of acute abdominal pain that is often misdiagnosed pre-operatively. We report a rare case of acute abdominal pain secondary to omental infarction that presented resembling acute colitis.

Case Description: A 23 year old Caucasian male present to the Emergency Department with severe sharp, right sided abdominal pain of 2 days duration. Pain was associated with nausea and 2 episodes of non-bloody emesis. He had diarrhea for 2 days prior to the onset of pain. On exam he was afebrile, and his vital signs were normal. His bowel sounds were hypoactive, and abdomen was tender to palpation with guarding and rebound tenderness mainly in the right mid abdomen. Cardiopulmonary exam was unremarkable. Initial labs revealed normal complete blood count and comprehensive chemistry panel. C-reactive protein (CRP) was 116 mg/dl [0-8 mg/dl]. CT abdomen initially showed thickening of the right lateral conal soft tissue extending from the tip of the liver inferiorly adjacent to the ascending colon. He was suspected to have colitis, and was admitted to the hospital. On hospital day 2 he had a colonoscopy and ileoscopy which showed mild peri-appendiceal orifice erythema but otherwise study was normal. Patient's pain continued to worsen with increasing abdominal tenderness. He was started on empiric antibiotics and a repeat CT of the abdomen with contrast was done on hospital day 3 which showed worsening inflammatory stranding in the right colic gutter. He underwent a diagnostic laparoscopy which showed an inflammatory omental mass for which partial omentectomy was performed. Pathology evaluation confirmed acute and chronic inflammation and necrosis consistent with omental infarction. Patient had an unremarkable post-operative course, his symptoms started to improve, and he was discharged on the post-operative day 3 in a good condition.

Discussion: Omental infarction is a very rare cause of acute abdominal pain that can mimic multiple other pathologies that often requires surgery. It is usually caused by torsion of the greater omentum which compromises blood supply leading to inflammation and necrosis. Omental torsion can be secondary to underlying abdominal pathologies including tumors, cysts, hernia sac, and adhesions. Primary torsion though is more common, and usually occurs in the right abdomen. Predisposing factors include obesity, trauma and hyperperistalsis. Omental infarction can be clinically indistinguishable from acute appendicitis, also less likely it can mimic cholecystitis, right sided diverticulitis and rarely colitis. CT abdomen can often suggest the diagnosis by showing a heterogenous fat density with surrounding fat stranding and inflammatory changes with minimal or no bowel wall thickening. Although CT can be accurate, it often fail to exclude other causes that usually require surgery. In our patient symptoms were not classic for appendicitis or cholecystitis, and initial imaging suggested ascending colitis. Worsening abdominal exam and CT findings were concerning, and as appendicitis and cholecystitis were not completely ruled out surgery was indicated to make diagnosis. Omental infarction usually follows a benign course and on rare occasions complications such as omental abscess have been reported. Conservative management should be adequate in the majority of the cases, however, most of the reported cases indicate that surgical intervention is often necessary to establish diagnosis..

Title: A Rare Case of Isolated Granulomatous Non-caseating Pancreatitis Mimicking Malignancy

Author/Affiliation: Mustafa Musleh MD¹; Drew Triplett DO²; Salma Akram MD¹/ Wright State University, Department of Gastroenterology¹, Department of internal medicine²

Introduction: We describe a rare case of isolated granulomatous pancreatitis in a patient that occurred years after complicated cholecystectomy in the absence of any systemic granulomatous inflammatory condition like tuberculosis, syphilis, sarcoidosis or Crohn's disease

Case description: : A 71-year-old male presented with 5-month history of progressively worsening left-sided upper abdominal pain associated with 30 pounds weight loss. Past medical history was significant for laparoscopic cholecystectomy complicated by a bile leak and treated by endoscopic retrograde cholangiopancreatography (ERCP) with biliary stent placement 5 years ago. Patient was afebrile on admission and physical examination was remarkable for left sided abdominal tenderness. Initial laboratory work-up revealed WBC 10.9 t/cmm, Hgb 10.5 g/dL, amylase 740 u/L, lipase 382 u/L, AST 190 IU/L, ALT 285 IU/L, alkaline phosphatase 672 IU/L, total bilirubin 6.7 mg/dL, direct bilirubin 4.2 mg/dL. Contrast CT scan of abdomen revealed a complex, multicystic, lobulated, pancreatic mass, measuring about 5 x 5.5 cm with ill-defined periphery. Portal vein was almost occluded by the mass, the superior mesenteric artery appeared to be engulfed and narrowed by the mass. Imaging findings were highly suspicious for advanced pancreatic malignancy. Serum CA 19-9 and CEA antigen were normal. Endoscopic ultrasound revealed a 5 x 5.7 cm hypoechoic, cystic mass with thick septations and anechoic areas in head and neck region of the pancreas. Fine needle aspiration (FNA) biopsy of the mass showed acute and chronic granulomatous inflammation, many cocci and focal clusters of bacteria. Special acid-fast bacilli (AFB) and gomori methenamine silver (GMS) stains were negative, and polymerase chain reaction assay and cell block were negative for tuberculosis and malignancy. ACE level was normal and test for HIV and syphilis were negative. An ERCP was performed which showed distal common bile duct stricture with smooth regular margins. CBD brushings were negative for any malignant cells. A CBD stent was placed and liver enzymes normalized over the next weeks. Repeat EUS 6 weeks later showed significant reduction in size of the mass. Repeat FNA showed acute and chronic inflammatory cells and rare epithelioid granulomas. MRI study 4 months later showed complete resolution of mass.

Discussion: Granulomatous pancreatitis is very rare, representing a very small percentage of all cases of pancreatitis. Syphilis, tuberculosis, Crohn's disease and sarcoidosis have all been reported as systemic diseases that can cause granulomas of the pancreas. Radiologic findings may implicate a malignant or inflammatory process, thus leading the clinician to further diagnostic testing to determine the etiology of the mass appearing lesion. Bile leak after laparoscopic cholecystectomy is uncommon but can occur in 0.3–2.7% of patients. The most common cause for a benign bile duct stricture is trauma to the bile duct during a laparoscopic cholecystectomy for gallstone disease. Patients with bile duct injury after a laparoscopic cholecystectomy can present with the injury soon after the cholecystectomy or many weeks to months after the injury. This case represents a rare late sequel of complicated cholecystectomy with bile leak resulting in a local epithelioid granulomatous reaction. A distal CBD stricture later lead to the formation of a reservoir that acted as a cesspool for microorganisms resulting in pancreatic and peri-duodenal abscess. Prior history of biliary surgery should be considered in the evaluation of complex pancreatic cystic lesion.

Title: Esophageal Adenocarcinoma Masquerading as a Hyperplastic Polyps

Author/Affiliation: Mustafa Musleh MD; Salma Akram M.D / Wright State University, Department of Gastroenterology.

Introduction: Hyperplastic polyps in the esophagus is a benign reactive lesion that results usually from chronic acid reflux. We report a case with the rare occurrence of hyperplastic polypoid lesions in the background of Barrett's esophagus in associated with underlying invasive adenocarcinoma of the esophagogastric junction (EGJ).

Case Description: A 65 year old Caucasian male presented with dysphagia to solids and liquids associated with 10 pounds weight loss of one month duration. He reported a long history of heartburn controlled with daily omeprazole. Exam was unremarkable except for a body mass index of 37. Lab studies showed mild anemia with hemoglobin of 12.5 gm/dl. Esophagogastroduodenoscopy (EGD) revealed a diffuse, polypoid, circumferential growth involving the distal 14 cm of the esophagus extending to the gastric cardia. Histological exam revealed glandular mucosa with elongated hyperplastic foveolar epithelium and cystic changes, consistent with hyperplastic polyp. A repeat EGD was performed and tissue specimen collected with cold snare technique, as well as multiple 4 quadrant biopsies every 1 cm, however, histology again revealed hyperplastic polyps in the background of intestinal metaplasia without dysplasia. Endoscopic ultrasonography (EUS) showed that the growth was limited to the mucosal layer with an intact muscularis propria. EUS fine needle biopsies only showed few atypical glandular cells. A positron emission test (PET) scan showed moderately increased uptake in the mid to distal esophagus with no other positive areas. Patient was referred to thoracic surgery and underwent esophagectomy with proximal gastrectomy. Esophago-gastric continuity could not be achieved, thus a left sided esophageal spit fistula was created. Surgical specimen showed moderately differentiated adenocarcinoma with tumor invasion through muscularis propria in to the serosal fat at the EGJ. Metastatic disease was noted in multiple lymph nodes and disease was determined to be stage IIIb tumor (T3N2). The post-operative course was long but he recovered well in three weeks and subsequently was started on adjuvant chemoradiotherapy.

Discussion: Epithelial polypoid lesions of the esophagus and EGJ are uncommon. Most of these lesions reportedly occur at the EGJ (67%) followed by distal esophagus (30%). Among these lesions, hyperplastic polyps are quite rare and usually occur in the setting of long-standing gastro esophageal reflux disease. Association of the hyperplastic polyps and Barrett's esophagus is infrequent. In the largest reported case series by Abraham et al., among 27 patients with hyperplastic esophageal and EGJ polyps, about 15% cases had concomitant Barrett's esophagus. None of these patients had concurrent or subsequent development of high grade dysplasia or esophageal adenocarcinoma. There have been only two cases reported of hyperplastic polyps at EGJ where subsequent endoscopic mucosal resection showed foci of high grade dysplasia and adenocarcinoma, there was no Barrett's esophagus identified in either of the case. Our case is unique due to the presence of long segment Barrett's esophagus with concomitant circumferential, villiform polypoid growth where multiple repeat mucosal biopsies showed reactive changes. Due to the diffuse extensive nature of the lesion it was not amenable to safe endoscopic resection and thus the patient underwent definitive surgical resection which revealed an invasive adenocarcinoma of the EGJ. This case highlights the extremely rare occurrence of the hyperplastic polyps in the setting of Barrett's esophagus and invasive adenocarcinoma of the EGJ. It also underscores the fact that malignancy in this setting should always be suspected even when mucosal biopsies are negative.

Title: Prognostic significance of anti-Saccharomyces cerevisiae antibody (ASCA) in southwestern Ohio veteran IBD population.

Author/Affiliation: Mustafa Musleh¹, MD; Drew Triplett, DO²; Huma Ansari, MD²; UMBER Ahmad, DO²; Ronald J. Markert, PhD²; Salma Akram, MD¹/ Wright State University Boonshoft School of Medicine, Department of Gastroenterology¹, Department of Internal Medicine².

Introduction: Inflammatory Bowel Disease (IBD) is a term that includes two heterogeneous intestinal disorders: Crohn's disease (CD) and ulcerative colitis (UC). CD and UC both are characterized with different serology markers, anti-Saccharomyces cerevisiae antibody (ASCA) is more common in CD and perinuclear anti-neutrophil cytoplasmic antibody (pANCA) is more prevalent in UC patients with some overlap, and both serum markers are not very sensitive or specific. Positivity of immune markers may be associated with different disease phenotype and different prognosis. The aim of the study is to describe characteristics of our cohort of veteran patients with IBD and to analyze the effect serology positivity and disease course, severity and prognosis.

Material and Methods: This was a retrospective study of Veterans diagnosed with inflammatory bowel disease seen at Dayton VA medical center between January 2004 and June 2011. Patients who underwent testing for (ASCA), (pANCA) were included in the study. Patients included had at least a 24 month follow up periods following the serology test results. Relevant demographic and clinical data was obtained from electronic chart review.

Results: : Ninety five IBD (60 CD and 35 UC) patients who had ASCA and/or pANCA serology results available were included in the study. Overall 88 (57 CD and 31 UC) patients were tested for ASCA 39% were positive. Total 80 (49 CD and 31 UC) were tested for pANCA and 15% were positive. Among patients with CD ASCA and pANCA were positive in 48% and 10%.of the patients respectively. Both ASCA and pANCA were positive in 23% each of the UC patients. Average age at IBD diagnosis in ASCA positive patients was 33 years (SD = 14 years) compared to 44 years (SD = 17 years) in those who were ASCA negative (P = 0.002). IBD patients with ASCA positive serology were less likely to have hypertension (21% vs. 54%, P= 0.03) and hyperlipidemia (29% vs. 53% P=0.02) compared to those who were ASCA negative. There was no difference in steroids use in IBD patients with ASCA positive serology compared to those who were ASCA negative (68% vs. 61% P=0.65). ASCA positive patients were more likely to require anti-TNF and/or immunosuppressive therapy compared to ASCA negative patients (65% vs. 39% P=0.03). CD patients with ASCA positive serology were more likely to have small bowel resection (48% vs. 21 % P=0.048).

Conclusion: Veteran IBD population with ASCA positive serology are more likely to have earlier disease onset, more aggressive disease requiring escalation of medical therapy and more frequent bowel surgeries. ASCA serology is widely available and can be used as a simple prognostic tool in veteran IBD patients.

Title: Efficacy of Hip Ultrasound in the Diagnosis of Gluteus Medius and Minimus Pathology

Author/Affiliation: Meghan Musser D.O., Sharal Mall D.O. Grandview Medical Center

Introduction: Lateral hip pain is a common clinical entity with a wide range of underlying pathologic etiologies. Gluteus minimus and medius tendinosis and/or tears have emerged as one of the likely causes. Classically MRI has been utilized in the diagnosis, but ultrasound is both cost effective and efficacious in the diagnosis

Objective: Demonstrate the efficacy and accuracy of ultrasound in the diagnosis of gluteus medius and minimus tears with correlation of intra-operative findings.

Methodology: A total of 214 patient records were reviewed over 3 years with correlation of ultrasound and intra-operative findings. The ultrasounds were performed by a Musculoskeletal radiologist with evaluation of the integrity of the gluteus medius and minimus tendons.

Results: A total of 87 gluteus medius and minimus tears were diagnosed with concordant intra-operative findings in 36 patients. There were discordant operative findings in four patients and the remaining 47 patients did not undergo surgery. Tendinosis was diagnosed in 77 patients without a tear, as well as in 12 of 32 post-operative patients evaluated for continued pain. There were 7 patients with operative findings of a tear with a previously negative ultrasound.

Discussion: Gluteus medius and minimus pathology are a frequent cause of lateral hip pain. Ultrasound is a cost effective and efficacious imaging modality to aid in the diagnosis abductor muscle pathology.

Title: Two-Level Cervical Disc Replacement with Adjacent Interbody Fusion – A Case Report

Author/Affiliation: Philip Myers, DO, David Propst, DO – Grandview Medical Center
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Introduction: Cervical disc replacement (CDR) has become increasingly recognized as a safe form of treatment for myelopathy and radiculopathy in the face of single level disc herniation. CDR, although rare, has also been described as an effective treatment for multi-level disease with reports of near-normal C-spine mobility and optimal stability. There remains a relative paucity of literature advocating or contesting two-level CDR associated with adjacent fusions. We present a 38 year-old female with a history of failed C5-6 anterior cervical discectomy and fusion (ACDF). Upon evaluation, the patient complained of significant right arm pain/weakness and decreased ability to ambulate. She had radiographic evidence of pseudoarthrosis at the site of her previous ACDF and MRI-confirmed right paracentral disc herniations at C3-4 and C4-5. The patient had failed conservative treatment.

Case Description: The surgical objective for this patient was to halt the progression of her right upper extremity weakness and difficulty with ambulation, decompress the spinal cord at C3-4 and C4-5, and explore/revise the patient's pseudoarthrosis at C5-6. Furthermore, insertion of artificial disc prosthesis at C3-4 and C4-5 was of utmost importance to preserve cervical spine mobility. During the procedure, the patient's pseudoarthrosis was confirmed at C5-C6. The spinal cord was successfully decompressed at C3-4 and C4-5, and CDRs were placed appropriately at these levels. At the patient's two-month postoperative visit, she was experiencing mild pain with swallowing and some residual pain in the C6 nerve distribution. There were no wound healing complications. At four months postoperatively, the patient admitted to a 70% improvement in pre-operative pain level and complained of occasional C7 nerve root symptomatology. She demonstrated restored strength to the right upper extremity. Six months after surgery the patient was opioid-free and displayed a near-normal cervical spine range of motion.

Discussion: This case demonstrates a viable and effective treatment for multi-level cervical spine disease without sacrificing stability. Some propose that CDRs adjacent to fusions are subject to a more challenging biomechanical environment and that it may lead to accelerated wear. No long-term studies have demonstrated increased wear rates of CDRs adjacent to fusions. It is possible that a two-level CDR may offset any theoretical challenge and hastened wear due to the dispersion of forces.

Title: A Case of Nitroglycerin Induced Asystole in a Patient with Chest Pain

Author/Affiliation: Daniel Nassery, D.O, Eugene Kang, M.D., Van Adamson, M.D., Wright State Internal Medicine

Introduction: Nitroglycerin is one of the most commonly used drugs for angina making knowledge of its potentially serious side effects paramount. To date there are only a handful of published cases of nitroglycerin induced bradycardia and asystole in patients with non-cardiac chest pain. Here we present a patient who developed bradycardia and asystole following several administrations of sublingual nitroglycerin in the context of chest pain.

Case Description: A 50 year old male with no significant medical history presented to the ED with chest pain. Vitals and physical exam were unremarkable. D-Dimer, BNP, troponin, CXR and EKG were within normal limits. In the ED he received NTG x 2 for ongoing chest pain. Prior to administration of the third dose of NTG, the patient noted sudden onset of lightheadedness, diaphoresis, and subsequently lost consciousness. His telemetry revealed normal sinus rhythm that progressed to bradycardia and eventually asystole. There were no palpable pulses. Chest compressions were initiated and after 25 seconds the patient achieved return of spontaneous circulation. The patient then underwent a workup with serial cardiac enzymes and EKGs which were stable. An exercise stress test with MPI did not reveal reversible ischemia or perfusion abnormalities. 2D transthoracic echocardiogram revealed normal EF, mild concentric LVH and no regional wall motion abnormalities. A non-contrast CT chest was also unremarkable. The patient's chest pain was later characterized as non-cardiac and remained in good health at subsequent outpatient visits several months later.

Discussion: Chest pain is one of the most common patient presentations encountered in medicine. As a result, the use of nitroglycerin for diagnostic and therapeutic intervention is equally as common. Nitroglycerin induced hypotension, bradycardia, and asystole has been documented in only a handful of case reports in the literature. Traditionally it is found in the setting of ischemia or right ventricular infarction. Although the underlying mechanism is incompletely understood, one theory is based upon the Bezold-Jarisch reflex first described in 1867. This cardio-inhibitory reflex involves the stimulation of unmyelinated afferent vagal fibers innervating myocardium resulting in paradoxical bradycardia, vasodilation, hypotension, and asystole. It is thought that the decrease in myocardial filling as a consequence of NTG administration results in stimulation of these afferent fibers and subsequent enhancement of vagal tone with withdrawal of sympathetic activity. Another potential mechanism involves delayed baroreflex action potentiated by NTG administration in certain predisposed individuals. In one study, individuals found to have delayed baroreflex control that were given nitroglycerin experienced hypotension and bradycardia with one patient progressing to 25 seconds of asystole.

After an extensive work up for cardiac ischemia our patient was found to have non-cardiac chest pain. In the absence of ischemia, it is possible that nitroglycerin use triggered an increase in vagal tone resulting in a progression of bradycardia to syncope and eventually asystole. This case demonstrates a rare yet potentially dangerous consequence of sublingual NTG. Given the widespread use of NTG and potential effects of its use, gaining a better understanding of this serious reaction should be pursued in the future.

Title: I-PASS

Authors/Affiliation: Rashi Patel M.D., Denise Griffith M.D., Wright State University Boonshoft School of Medicine, Family Medicine Residency, Department of Family Medicine

Background: The ACGME requires that residents are providing effective, structured hand-offs in the inpatient setting to ensure both continuity of care and patient safety. Research shows that an effective, high quality hand-off system includes the following components: i) provides accurate and up to date information, ii) is done both verbally and in writing, iii) is concise, without extraneous information, iv) is done face to face, and v) is accomplished in an environment free of distractions. One hand-off system that has been developed utilizing these guidelines is the I-PASS system has been developed and studied in a Pediatric Inpatient setting, and preliminary studies showed a 40% decrease in medical errors. (**I**llness severity, **P**atient Severity, **A**ction list, **S**ituation awareness and contingency planning, **S**ynthesis by receiver.)

Methods: The effectiveness of the I-PASS system was studied in the settings of an urban Family Medicine Residency inpatient service. To fit the needs of this inpatient service, the I-PASS system was modified slightly to include: **I**llness and its severity, **P**atient summary, **A**ction list, **S**ummary, and **S**ynthesis. The system was instituted a few months preceding the beginning of the academic year. Prior to initiating the new system, a six-question survey, of the residents regarding hand-offs was administered. Answers utilized a Richter scale of one to ten. All residents were trained on how to work with the I-PASS after survey administration and prior to incorporation of the I-PASS system. Teachings were conducted periodically during didactics. After the system had been in place a post-implementation survey was administered to all residents at approximately four months and eight months after implementation, using the same questions as were used in the initial survey.

Results: These two survey results were compared to results of pre-implementation survey. After utilizing the I-PASS system for handoffs over the period of eight months, all areas surveyed showed increases. There was a 19.2% increase in overall satisfaction with inpatient hand-offs. In addition, there were smaller, but positive increases in preserving information, communication between residents during hand-off and perceived patient safety.

Title: De-escalation of Empiric Antibiotics: Are We Doing It Right?

Author/Affiliation: Shruti Patel, MD, Devin Kelly, MD, Steven Burdette, MD, Ronald Markert, PhD, Wright State University, Boonshoft School of Medicine, Dayton, Ohio

Background: Antimicrobial stewardship is a multidisciplinary program to optimize antibiotics use in hospital with goal to provide best clinical care for patients while reducing adverse effects, risk of C.Diff infections, emergence of MDR pathogens and health care cost.

Methods: We conducted a quality improvement study under antimicrobial stewardship program in ICUs in a single hospital. We reviewed electronic medical records of patients admitted from January 2014 to July 2014. List was created including patients who received empiric vancomycin/piperacillin-tazobactam (Pip-Tazo) or linezolid /piperacillin-tazobactam during hospitalization. Patients met inclusion criteria if they were started on empiric antibiotics within 24 hours followed by continuation of antibiotics for at least 72 hours.

Results: 150 patients were included in vancomycin/ (Pip/Tazo) group and 128 patients were included linezolid/ (Pip/Tazo) group. Medical critical care team was prescribing both empiric antibiotics equally. Surgical critical care team was prescribing more (65%) linezolid/(Pip/Tazo) compare to (35%) vancomycin/(Pip/Tazo). Average time at initiation of antibiotics was 3.5 days and continued for average 4.5 days. Most common indication to start empiric antibiotics was pneumonia. 37% patients remained on vancomycin/(Pip/Tazo) for 7 days. Renal failure was more common (24%) in vancomycin/(Pip/Tazo) group compare to (15%) in other group. Diarrhea was more common (23.4%) in linezolid/(Pip/Tazo) group compare to (17.3%) in other group. C.diff was diagnosed in 4 patients in vancomycin/(Pip/Tazo) group compare to 5 patients in other group. Linezolid was discontinued in only 3 patients due to thrombocytopenia. 39% patients were on mechanical ventilation when antibiotics were initiated but respiratory cultures were collected in only 24% patients. Cultures were positive in 54% patients in vancomycin/(Pip/Tazo) group and 66% in linezolid/(Pip/Tazo) group. Lactose Fermenter Gram Negative Bacilli were isolated most commonly (37.9%) in vancomycin/ (Pip/Tazo) group and (29.5%) in linezolid/(Pip/Tazo) group . Multi Drug Resistant bacteria were isolated in total 10 patients. Pneumonia was most common discharge diagnosis (56%) in vancomycin/(Pip/Tazo) group and (64%) in linezolid/ (Pip/Tazo) group .

Conclusion: Overuse of antibiotics has led to unwarranted adverse effects, emergence of MDR pathogens and rise in C.diff infection. In our study in ICUs we found that pneumonia was most common indication for initiation of the empiric antibiotics. Guidelines recommend to de-escalate empiric antibiotics as soon as culture results are available. Respiratory cultures can be easily collected especially when patient is on mechanical ventilation. However according the results from our study we are not consistently doing respiratory cultures even in intubated patients being treated for pneumonia. Lack of culture data resulted in failure to de-escalate broad spectrum antibiotics leading to side effects like renal failure and diarrhea, C.diff infections and emerging MDR pathogens. If we improve our practice of getting cultures done reliably and de-escalate antibiotics in timely manners, some of the complications from antibiotics overuse could have been definitely prevented.

Title: Type A Aortic Dissection Precipitated by a Sneeze

Author/Affiliation: Michael C. Pearson, MD, and Ramesh Gupta, MD, Wright State University Boonshoft School of Medicine Department of Emergency Medicine

Introduction: Traditional risk factors for aortic dissection include hypertension, atherosclerosis and cystic medial necrosis. The common pathogenesis involves endothelial damage leading to an intimal tear and dissection. Sudden increased intrathoracic pressure due to exertion, coughing and sneezing has been rarely noted to precipitate an acute aortic dissection, and an underlying process leading to endothelial dysfunction often is present. In a hemodynamically stable patient presenting for chest discomfort after a sneeze, a complete workup to rule out an aortic dissection would not routinely occur, and in this case report dichotomous blood pressures were the tip-off to the life-threatening underlying pathology.

Case Description: A 51-year-old male presented for central chest tightness that began suddenly after sneezing. He reported a history of HIV diagnosed 10 years previously, currently controlled on HAART, and no other medical problems. On arrival, he was noted to be slightly diaphoretic and his R arm blood pressure was 76/42. He was not hypoxic, dyspnic or tachycardic. He was awake and alert, and had an unremarkable physical exam. Despite his hypotension there were no clinical signs or symptoms of shock, and repeat blood pressure was taken in the L arm and found to be 137/57. Ongoing measurements in the R arm remained low. EKG, CXR, CBC, BMP and troponin I were all normal, and a CT of the chest with IV contrast revealed a dissecting thoracoabdominal aortic aneurysm involving the aortic root, innominate, R common carotid and left subclavian arteries without any evidence of occlusion to these vessels. The patient was taken emergently to the OR where the dissection was repaired with an aortic graft. He was discharged to home in good condition after a 5-day hospitalization.

Discussion: A recent review of aortic dissections showed that many are precipitated by some event including physical exertion and emotional stress. Only two prior case reports describe a dissection precipitated by a sneeze. Typically, aortic dissections occur secondary to endothelial damage due to atherosclerosis, chronic hypertension or underlying connective tissue disorders. While the patient reported no history of hypertension or antihypertensive therapy, it is possible that chronic blood pressure elevation played an underlying role in his illness. Additionally, both HIV and HAART have been implicated in raising cardiovascular risk by causing chronic inflammation, endothelial dysfunction and metabolic changes favoring atherosclerosis. It is notable that the surgical pathology report revealed no evidence of atherosclerosis or cystic medial necrosis in this patient. The emergency physician should be aware of the possibility of aortic dissection in patients presenting with chest discomfort precipitated by an event that transiently raises intrathoracic pressure.

Title: Simple Partial Seizures Of The Face In A Patient With A Cavernous Hemangioma, Atrial Fibrillation, and Complex Sleep Apnea

Author/Affiliation: Tom C. Pitts M.D. PGY-2, Wright State Neurology Residency Program

Introduction: The author will describe the case of a young patient with simple partial seizures of the face likely due to a cavernoma, atrial fibrillation and central/obstructive apneic events who improved with Antiepileptic drugs, AV nodal blocking agents and possibly from the addition of Adaptoservo Ventillation (ASV) therapy.

Case Description: : 31 y/o Caucasian Male who, after being found to have a left parenchymal cavernoma, developed EEG-confirmed simple partial left hemi-facial seizures with associated speech arrest occurring up to twelve times daily and lasting up to twenty five minutes per episode. The patient also suffered from Atrial Fibrillation with a rapid ventricular rate which was poorly responsive to Diltiazem and Metoprolol Tartrate. The patient had been non-adherent to his outpatient Levetiracetam prior to admission. During the first forty eight hours of hospitalization, the patient's seizures were poorly controlled with Levetiracetam mono therapy. The patient's seizures remained refractory despite increasing doses of Levetiracetam and the subsequent addition of a Phenytoin loading dose and maintenance therapy. Once the patient demonstrated clinical signs of inter-ictal Cheyne-Stokes respirations (alternating apnea and hyperpnea) and obstructive sleep apnea, the patient was started on adaptive servo ventilation (ASV). ASV is able to address both complex obstructive sleep apnea and central apnea in contrast to BiPAP or CPAP. In conjunction with the previously described anti-epileptic drugs (AEDs) Levetiracetam & Phenytoin, the patient's seizures reduced to twice daily and lasted seconds to 2 minutes. The patient's anatomical seizure distribution was reduced to the left lateral lower lip and no longer involved the entirety of the left-hemi face. The patient's seizures no longer caused speech arrest and within 48 hours of the addition of ASV therapy to the patient's AED therapy, his simple partial seizures had stopped completely. Additionally, the patient's runs of atrial fibrillation associated, rapid ventricular rate decreased in frequency. The patient's attention and concentration, assessed via mini mental status examination, improved when compared to admission and the patient endorsed subjective improvement in his mood. Lastly, Dilantin was able to be successfully withdrawn without further seizure activity and the patient remained seizure free on Levetiracetam mono therapy.

Discussion: The objective of this case is to demonstrate an interesting seizure pattern in the setting of a cavernoma which may or may not have been improved with the recognition of his concomitant obstructive and central apneic events. It is impossible to definitively say that the addition of ASV therapy played a role in the improvement in the patient's seizures or atrial fibrillation but, nonetheless, it is important to draw attention to the often overlooked role that sleep and respiratory aberrancies can play in the management of both Atrial Fibrillation and Seizures. The patient, as stated, was non-adherent to his Keppra regimen as an outpatient and it is possible that restarting this regimen was the only reason why his seizures stopped. It is also possible that the patient's AV nodal blocking agents are to be given the entirety of the credit in the control of his Atrial Fibrillation. It is known, however, that sleep deprivation and induced sleep abnormalities (hyperventilation) can provoke both seizures and cardiac events. The relationship between sleep/respiratory aberrancies, seizure management cardiac events is one that should be further appreciated and explored.

Title: A Case of Thyrotoxicosis in an Elderly Female with a History of Thyroid Radioiodine Ablation Presenting as Visual Hallucinations.

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Introduction: Three percent of patients treated with amiodarone develop thyroid dysfunction in the form of amiodarone-induced thyrotoxicosis (AIT).¹ We report a case of a 85-year-old female with a remote history of radioiodine ablation (RAI) of the thyroid, on replacement thyroxine, and amiodarone for chronic atrial fibrillation, that presented with 4 days of weakness, fatigue and visual hallucinations of one-month duration.

Case Description: An 85 year old female presented with weakness and visual hallucinations at home. The weakness was described as a generalized sense of heaviness. The hallucinations were not distressing to the patient, as she was aware that the images were not real. The patient described seeing unfamiliar people and inanimate objects in her home that she knew were not present. Her family also described delusions and paranoia at home. Her primary care physician began a trial of quetiapine with minimal improvement in symptoms. The patient also experienced cognitive and functional decline over the past year, requiring assistance with medications, finances, shopping, and transportation. Review of systems was positive for insomnia, vertigo and new fine tremor of hands and legs. Past medical history was significant for acquired hypothyroidism due RAI for Graves more than 50 years earlier and atrial fibrillation diagnosed 5 years ago. Medications included diltiazem, digoxin and levothyroxine. However, she had been on amiodarone for 5 months prior to presentation but this was discontinued one month before presentation due to lower extremity edema. Physical exam revealed tachycardia, an irregularly irregular rhythm and trace lower extremity edema. Thyroid stimulating hormone exam was <0.005 (0.40 to 4.00 micro IU/ml) with prior reading of 1.8 five months earlier. Free T4 was 3.44 (0.80-1.80 ng/dL), free T3 was 5.4 (2.30-4.20 pg/dL). A thyroid ultrasound showed an enlarged left lobe of the thyroid, hypervascular without a discrete mass, and an atrophic right lobe. A nuclear medicine thyroid uptake scan revealed minimal uptake of technetium 99m /iodine-131 in the left thyroid lobe. It was felt that patient's presentation was consistent with AIT, likely due to residual thyroid activity in the left lobe. She was started on methimazole and levothyroxine was discontinued. Weakness and visual hallucinations resolved during the course of inpatient stay.

Discussion: Type 1 AIT is an iodine-induced hyperthyroidism, known as the Jod-Basedow effect, which occurs in patients with an abnormal thyroid tissue. Diagnosis of thyrotoxicosis is based on increased free T4 and suppressed TSH levels. In type 1 AIT, an ultrasonogram of the thyroid will show increase in gland size. RAI uptake values are usually low or low-normal on nuclear imaging of the thyroid. AIT is treated with either methimazole or propylthiouracil. New onset psychosis is an uncommon presentation (<1%) of hyperthyroidism that needs to be excluded in all patients. Sudden progression of symptoms in the geriatric population with underlying history of mild cognitive impairment warrants further workup to exclude secondary causes.

Title: Dyspnea in a Patient with a History of Mitral Regurgitation, Caused by a Dynamic Outflow Tract Obstruction in the Setting of Undiagnosed HOCM

Author/Affiliation: Theresa Ratajczak MD, Mukul Chandra MD FACC, Wright State University Department of Internal Medicine

Introduction: Hypertrophic obstructive cardiomyopathy (HOCM) occurs in about 1:500 patients. The disease is usually asymptomatic, however 25% of patients develop left ventricular tract obstruction with angina, presyncope or dyspnea. We report a patient previously diagnosed with mild mitral regurgitation presenting with worsening dyspnea. Workup included 3D echocardiogram, transesophageal echo and cardiac catheterization revealing a normal valvular anatomy but uncovered undiagnosed HOCM causing her symptoms.

Case Description: 59-year-old female with mild mitral regurgitation presented for evaluation of progressive exertional dyspnea. The symptoms began 4 years earlier and progressed to dyspnea and presyncope after walking half a block, or climbing a flight of stairs. The patient endorsed orthopnea with chest pain and palpitations. Two years earlier, she underwent an unremarkable pulmonary workup and a transthoracic echocardiogram that showed mild mitral regurgitation. A stress test (what kind) revealed a small area of anteroapical reversible ischemia with normal ejection fraction. The patient decided to delay cardiac catheterization to monitor symptoms for improvement. Physical exam demonstrated a 5/6 pansystolic murmur over precordium, best heard at the apex. ECG showed left ventricular hypertrophy (LAD or other features?). Transesophageal and 3D echocardiograms revealed the anterior mitral valve leaflet being displaced anteriorly towards the interventricular septum (fig 1) causing a dynamic left ventricular outflow tract obstruction with moderate posterior regurgitation (Fig 2). The intraventricular septum was measured to be 18 mm in thickness. Cardiac catheterization was performed in which Brockenbrough–Braunwald–Morrow sign was elicited (Fig 3), as well as a single vessel coronary artery disease in the proximal LAD (Fig 4). She was referred to surgery and underwent a septal myomectomy with a single vessel CABG. Mitral valve was found to be structurally intact. Pathological review of cardiac tissues revealed myocyte hypertrophy and mild disarray consistent with HOCM. At post-op follow up, her symptoms had resolved and a repeat echocardiogram showed no evidence of mitral regurgitation.

Discussion: HOCM should be suspected in patients presenting with dyspnea, palpitations, chest discomfort, dizziness or syncope, harsh sternal border murmur and family history of sudden cardiac death. Workup includes an ECG, echocardiogram, transesophageal echocardiogram and cardiac catheterization. Dynamic ventricular outflow tract obstruction is caused by the systolic anterior motion of the mitral valve (SAM), as the leaflet is pulled towards the hypertrophied septum creating the Venturi effect. This also results in mitral regurgitation. Obstruction can exist at rest or be elicited with maneuvers decreasing preload, such as valsalva or inotropic agents. Treatment includes avoidance of strenuous activity, beta blocker or if patient is intolerant, calcium channel blockers. Indication for surgery includes refractory symptoms despite maximal medical therapy. In our patient it took a multimodality of images and procedures to uncover and properly diagnose this disease.

To Branch or Not to Branch? Not the Chest X-Ray Artifacts

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Introduction: Chest imaging, especially in the intensive care unit (ICU), may have artifacts which appear as thoracic pathology. Chest roentgenograms (CXR) is still the most common ordered test for diagnosis and monitoring of lung disease¹. This case describes how recognition of imaging artifact prevented additional testing or procedures, specifically bronchoscopy, to differentiate artifact from an airway abnormality which would have required urgent attention.

Case description: A 61 year old male with very severe chronic obstructive pulmonary disease (COPD) was admitted to the ICU with atrial fibrillation, rapid ventricular response, and progressive dyspnea. The arrhythmia was treated with diltiazem bolus and continuous infusion to decrease the heart rate from 154 beat per minute (bpm) to less than 120 bpm. Within 24 hours, an arterial blood gas showed acute respiratory acidosis, pH 7.22, PCO₂ 66, PaO₂ 80, pCO₂ 29. SpO₂ was 96% 4 liter per minute nasal cannula. Facemask bilevel positive airway pressure (BiPAP) 10/4 was initiated with 30% supplemental oxygen. BiPAP was tolerated less than 3 hours as arterial blood gas showed worsening respiratory acidosis, and the patient exhibited increased work of breathing, periodic agitation, and fatigue. Subsequently, his airway was secured uneventfully with an 8.0 endotracheal tube (ETT) using the videolaryngoscope. Post-intubation portable CXR (pCXR) showed hyperaeration, cardiomegaly, and a foreign body in the trachea at the tip of the ETT. The patient's teeth were in fair condition, and there was no apparent dental trauma during intubation. Intubating equipment was checked for loose and missing parts, but all equipment appeared intact. The patient's external chest was examined for objects overlying the chest which might account for the imaging finding. A repeat pCXR was obtained after making sure there were no objects on the patient's chest that may represent artifact. The pilot balloon of the ETT was placed near the left shoulder. The repeat pCXR did not show a foreign body in the trachea at the tip of the ETT or at any location within the tracheobronchial airways, but the same object was now identified over the left shoulder, which represented the coiled spring within the pilot balloon of the ETT.

Discussion: Chest imaging artifacts can cause misdiagnosis. Careful attention to extrathoracic objects such as ICU monitoring and respiratory equipment is critical to obtaining the most useful information from chest imaging. Recognizing imaging artifact from true thoracic pathology may be difficult but can prevent investigations or procedures which may be unnecessary and potentially harmful.

Conclusion: We illustrate how an extrathoracic object, in this case the coiled spring located within the pilot balloon assembly of the ETT, might be diagnosed as an intrathoracic problem by chest imaging. A rational approach to correct diagnosis by attention to detail during imaging and simple confirmatory testing, i.e. repeat pCXR with careful review, can prevent additional evaluations dictated by a misdiagnosis. General knowledge of different monitoring objects and materials can help differentiate artifacts from pathology and prevent unnecessary procedures.^{2,3}

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Title: Sarcoidosis and Pulmonary Embolism, a rare and potentially fatal association.

Author/Affiliation: Karishma Samtani, MD, Sangeeta Srivastava, MD, Wright State University Boonshoft School of Medicine, Department of Internal Medicine

Introduction: In recent years an association between sarcoidosis and pulmonary embolism (PE) has been observed. We report a case of PE as the presenting sign in a 35-year-old male subsequently diagnosed with sarcoidosis. Furthermore we discuss how studying this rare and potentially fatal association of sarcoidosis and PE beyond current literature may change future practices.

Case Description: A 35-year-old African American male with self-reported past medical history significant for asthma presents to the emergency department after two months of worsening shortness of breath and chest pain on inspiration, suspicious for PE. A review of systems was otherwise normal. At the time patient had normal vital signs and unremarkable physical exam. Computed tomography with contrast revealed several mediastinal subcentimeter lymph nodes, extensive bilateral pulmonary emboli, dilated main pulmonary artery, straightening of the interventricular septum, and 2.5 x 1.7 cm adrenal nodule. Therapy for bilateral pulmonary emboli with enoxaparin bridging to warfarin was started and the patient was admitted to the hospital for three days and discharged without complications. Bronchoscopy with biopsy of subcarinal lymph node revealed lymphocytes and collections of epithelioid histocytes, consistent with granulomas, diagnosing this patient with sarcoidosis.

Discussion: Based upon review of current literature, it appears there is an association between sarcoidosis and PE. After observing an increased incidence of PE in patients attending Oxford Sarcoidosis Clinic, a retrospective cohort analysis was done in 2010 by A P Crawshaw et al.¹ This study was done to determine whether the incidence of PE was high in patients with sarcoidosis compared to the normal population. The investigators of this study did conclude that the risk of PE was significantly higher in patients with sarcoidosis. They also concluded that PE should be considered in any patient with sarcoidosis and this study set a platform for further investigation of this association. A study published by Swigris et al.² in 2011 analyzed over 46 million records of US decedents from 1988 to 2007 and found that the risk of PE among the 23,679 people coded with sarcoidosis was more than twofold greater than the risk of PE in the background population, regardless of gender, race, or age. They propose that the association may exist due to inflammation or other biochemical mechanisms leading to procoagulant activity existing in patients with sarcoidosis. Recognized flaws of this study include the inability to account for several confounding factors such as smoking status, oral contraceptive use, heritable hypercoagulable conditions, acute infections and more. The group concluded, "What is driving the risk of PE in sarcoidosis requires further exploration; meanwhile, PE should be strongly considered as a potential explanation for worsening of potentially grave respiratory status in patients with chronic or severe sarcoidosis." Our case report is about a young African American male who presented with acute PE and was found to have stage I sarcoidosis. Although future studies are required to determine the reasons behind this observation, this case highlights the importance of identifying this uncommon but potentially fatal association.

Title: Antihistamine Induced Rhabdomyolysis

Author/Affiliation: Rafael Sancillo, M.D., Drew Triplett, D.O., Jehangir Ansari, M.D., Wright State University Boonshoft School of Medicine, Department of Internal Medicine

Introduction: Over the counter sleep aids are commonly used agents in intentional overdoses. Various complications have been reported in the medical literature. We report a rare case of rhabdomyolysis which resulted from intentional diphenhydramine overdose during a suicide attempt.

Case Description: 35-year-old male with a history of bipolar disorder and hyperlipidemia was brought to the emergency department by his girlfriend after she noticed he was somnolent. He reported taking 32 tablets of diphenhydramine 50mg a few hours prior to presentation. During the interview, he complained of significant muscle aches particularly in his lower back muscles. He was awake and alert during examination with no alarming findings secondary to diphenhydramine intoxication such as dysrhythmias, seizures or hallucinations. Initial laboratory studies revealed a normal renal function, Aspartate Aminotransferase level (AST) of 259 and a normal Alanine Aminotransferase (ALT). Urine drug testing only revealed evidence of cannabinoid use. Serum Creatine Phosphokinase (CPK) was elevated at 9109 IU/L. He was started on intravenous fluids and his CPK level steadily trended downward to normal values over 12 days with gradual improvement in muscle aches. He was subsequently discharged to the psychiatric unit for further treatment of depression and suicidal ideation.

Discussion: Diphenhydramine is not a commonly used drug of abuse, but it has been identified in overdose cases in the clinical setting and death investigations in the medical literature. Primary drug induced rhabdomyolysis is suspected in this case as there was no history of trauma or prolonged unresponsive state. Diphenhydramine is an inverse agonist of CNS histamine receptors, resulting in prominent drowsiness, impairment of cognitive function and psychomotor performance. These were the effects that our patient desired, as he had previously taken higher than label recommended doses of diphenhydramine. Delirium, confusion, hallucinations and seizures have been reported at higher levels of toxicity from diphenhydramine. In conclusion, first generation antihistamines are commonly used over-the-counter medications that can potentially have serious side effects during an overdose. Our case highlights the rare complication of rhabdomyolysis occurring with diphenhydramine overdose and reminds clinicians to evaluate for rhabdomyolysis in patients who present with diphenhydramine overdose.

Title: The Utility of Pituitary Magnetic Resonance Imaging in Men with Secondary Hypogonadism

Author/Affiliation: Cong Santoso, MD; Thomas Koroscil, MD-PhD, FACE, FACP/ Wright State University Boonshoft School of Medicine; Wright-Patterson Air Force Base Medical Center, Dayton, Ohio

Objective

In men with secondary hypogonadism, the utility of routinely obtaining a magnetic resonance imaging (MRI) to exclude hypothalamic-pituitary pathology is not well studied. We performed a retrospective study to evaluate the yield of pituitary MRI in men with secondary hypogonadism. We also determined if there were endocrinologic or hypothalamic-pituitary differences between men with and without metabolic syndrome (MetS) and/or type 2 diabetes (T2DM).

Methods

Eighty-eight men were evaluated in general endocrinology clinic and were included in this study if they had symptoms of hypogonadism as well as laboratory values consistent with secondary hypogonadism. Baseline total testosterone (TT), free testosterone (FT), follicle-stimulating hormone (FSH), luteinizing hormone (LH), and prolactin (PRL) were measured. All men received MRI of hypothalamic-pituitary region. Statistical analysis was performed using Mann-Whitney test for continuous variables and Fisher's exact test for categorical variables.

Results

Of the 88 men, 16 (18%) had abnormal MRI. Adenoma was found in 9 (10%) men, and empty-sella in 7 (8%) men. Men with pituitary adenomas had significantly lower FT levels compared to those with normal MRI (18.7 pg/ml vs. 36.4 pg/ml). Men with empty-sella had significantly higher PRL compared to men with normal MRI (21.4 ng/ml vs. 11.2 ng/ml). Most of the men in the study (80%) had either MetS or T2DM. No endocrinologic differences were found between men with and without MetS or T2DM. In men without MetS or T2DM, 28% were found to have abnormal pituitary MRI, compared to 16% in men with MetS or T2DM, but this difference was not significant.

Discussion

The incidence of pituitary imaging abnormalities found in our study of men with secondary hypogonadism was not greater than the prevalence of pituitary adenomas in the general population, indicating that there is little value to routinely obtain MRI in the evaluation of men with secondary hypogonadism. Lower FT levels were found in men with pituitary adenomas, and higher PRL levels were found in men with empty-sella syndrome. Men without MetS or T2DM had higher, but not significant, incidence of abnormal MRI.

Conclusion

We do not recommend the use of MRI for routine evaluation of all men with secondary hypogonadism. However, MRI is warranted in men with higher PRL or very low FT, both of which are associated with pituitary structural abnormalities.

Complaints of inattention in the college population: Is it ADHD or something else?

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Abstract: Inattention is a common presenting complaint in college counseling centers. Although once thought of as a childhood disorder, recent research indicates evidence of ADHD in a significant number of college students. While it is crucial to correctly identify and treat ADHD, it is equally important to consider that inattention may be the result of myriad other etiologies including depression, anxiety, substance use, or inadequate sleep. Effective interventions for each of these conditions are well established but vary widely in both physiological and psychological effects. Establishing a correct diagnosis is crucial, not only to facilitate student success, but also to avoid misdiagnosis and inappropriate treatment. However, the current body of literature does not indicate the number of college students presenting with inattention who are diagnosed with ADHD versus inattention due to other causes. The authors of this study are in the process of performing a retrospective chart review to determine, in the Wright State University Counseling and Wellness Services Center, how often the presenting complaint of inattention is determined to be due to ADHD versus other mental health or environmental factors. The authors anticipate this study will be a starting point for other centers to analyze similar data and collaborate to establish national trends in order to improve the accuracy of diagnoses in the college population.

Title: Diversity of Hospital Admissions Encountered During Internal Medicine Residency Training

Author/Affiliation: Timothy Sommerville MD (Wright State University Internal Medicine Department) Dean Bricker MD (Wright State University Internal Medicine Department)

Introduction: The breadth of knowledge required to become a proficient internal medicine physician is ever-expanding and makes job preparation intimidating for new interns. However, there are a significant number of common pathologies repeatedly encountered by internists. Few prior studies have quantified and categorized the number and diversity of admissions encountered by internal medicine residents. Our goal was to explore whether a small number of core diagnoses would account for a substantial portion of admissions seen by internal medicine residents.

Methods: The principle admission diagnosis, age, and gender were recorded for each patient admitted to the resident service over a three-month period and across three separate sites covered by the Wright State University Internal Medicine Residency (Wright-Patterson Medical Center, Miami Valley Hospital, and Dayton Veterans Affairs Medical Center). Data was collected prospectively by a single reviewer during morning senior sign-out conference. We analyzed the frequency of diagnoses at each site.

Results: During the three month observation period (84 days), residents performed 407 hospital admissions (average 4.85 admissions per day) resulting in 163 different admission diagnoses. The patient population had a male predominance (282 males vs 117 females) with age range 21 to 97 years (average age 61.5 years). The five most common admission diagnoses were: acute coronary syndrome evaluation (51), pneumonia (28), chronic obstructive pulmonary disease exacerbation (18), congestive heart failure (new diagnosis or exacerbation) (18), and gastrointestinal bleed (including upper, lower, and unknown source) (18). These five diagnoses accounted for 33% of the total admissions (133/407).

Discussion: Internal medicine residents were exposed to a large range of admission diagnoses and age ranges. There are notable commonalities as well as appreciable differences among our clinical sites with regard to frequency of various diagnoses and patient gender distribution. A relatively small number of core diagnoses account for a substantial portion of internal medicine admissions. However, a large variety of diseases are encountered and this may vary among clinical sites. A high-yield curriculum could be developed that focuses on the most common admission diagnoses with the goal of targeted preparation of new interns.

**Title: NOT ALL ST-SEGMENT CHANGES ARE MYOCARDIAL INJURY:
HYPERCALCEMIA-INDUCED ST-SEGMENT ELEVATION**

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Introduction: While other causes of ST-segment elevation on electrocardiogram (EKG) than ischemia have been described, hypercalcemia is an etiology that has been rarely documented.

Case Description: We describe the case of an 83 year old man with coronary artery disease, ischemic cardiomyopathy with left ventricular ejection fraction of 15%, newly diagnosed multiple myeloma and other comorbidities who presented with shortness of breath and increased leg swelling, denying any chest pain. Thorough workup revealed new ST segment elevation in anterior leads (V1-3) and ST segment depression in lateral leads with subsequent labs showing hypercalcemia and negative cardiac enzymes. It was thought that the EKG changes were not indicative of cardiac ischemia and he was treated with fluids, diuretics and zoledronic acid with subsequent resolution of ST segment changes.

Discussion: ST-segment changes mimicking myocardial ischemia must be taken into consideration if physical exam and history do not lend itself towards myocardial injury as unnecessary invasive revascularization procedures have inherent risks. In medical literature, EKG features of hypercalcemia are described as: absent or shortened ST segment, shortened QT segment, and lengthened T wave duration. In addition, there have been approximately 26 reported cases of hypercalcemia leading to ST-elevation, mostly localized to anterior leads (V1-3). The physiologic mechanism of these changes is unknown. Many of these cases note the ST-elevation due to hypercalcemia is likely more common than currently documented in medical literature. Our patient's ST segment changes mimicking myocardial injury on EKG were due to hypercalcemia. Further vigilance is required to determine if this really is a relatively common cause of ST-elevation mimicking ischemia.

Title: Rare case of eosinophilic ascites secondary to subserosal eosinophilic gastroenteritis

Author/Affiliation: Dusty L. Swendson, DO, Irina Overman, MD. Wright State University Internal Medicine

Introduction: Eosinophilic gastroenteritis (EGE) is an uncommon diagnosis first described in 1937 by Kaijser with fewer than 300 published cases and estimated incidence of 1/100,000 which presents with non-specific gastrointestinal complaints that is dependent on location and depth of involvement of eosinophilic infiltration. Other causes of peripheral and intestinal eosinophilia must be excluded such as parasitic infestation, *Helicobacter pylori*, hypereosinophilic syndrome, inflammatory bowel disease, celiac disease, autoimmune disease, connective tissue disease, and medication induced. Subserosal involvement is the rarest of the EGE subtypes at approximately 10% and typically presents with eosinophilic ascites as in the case presented here.

Case Description: A 25-year-old woman with history of untreated hypothyroidism and former heroin abuse presented to the emergency department with abdominal distention, bloating, dysphagia to both solids and liquids, and early satiety for just over one month. She was found to have ascites of unknown etiology and was referred for outpatient evaluation two weeks later during which she complained of repeated bouts of vomiting with hematemesis and was directly admitted for expedited evaluation. She denied history of atopy, recent travel, fever, weight loss, diarrhea. Initial laboratory evaluation revealed peripheral eosinophilia of $3,200/\text{mm}^3$ and ascitic fluid eosinophilia of $12,000/\text{mm}^3$. IgE level was normal at 37 k/UL, ANA <1:40, CRP and ESR were not elevated. CT scan with contrast of chest, abdomen, and pelvis ordered to help exclude neoplastic process and determine areas of gastrointestinal tract involvement. There was moderate wall thickening of the mid to distal esophagus, duodenum, and several loops of small bowel. Ovaries appeared normal no significant lymphadenopathy was noted on imaging. Both strongyloides IgG and stool O&P were negative. Esophagogastroduodenoscopy performed with biopsies of small bowel, stomach, and esophagus which demonstrated active inflammation without significant eosinophilia or dysplasia in all three areas. Immunohistochemical stain for *Helicobacter pylori* was negative. Patient was discharged on 40mg prednisone daily and had resolution of her symptoms prior to two week follow-up. At 12 months peripheral eosinophilia and ascites had not recurred.

Discussion: EGE is still a poorly understood disease with a wide variety of presentations. Making the diagnosis requires maintaining a broad differential given the non-specific gastrointestinal complaints. Peripheral eosinophilia is common but not universal and ascites is often not present. In subserosal disease, endoscopic biopsy specimens may be negative unless full thickness biopsies are performed. The large volume of eosinophils in the ascitic fluid is diagnostic for subserosal EGE. There have been no prospective trials to compare therapies for EGE but corticosteroids represent the mainstay of therapy especially for subserosal type which in one study demonstrated a 90% response rate. Other treatments include proton pump inhibitors, antihistamines, mast cell stabilizers, leukotriene inhibitors, or food elimination diet. One study showed relapse rate of 33% of all cases and 60% relapse rate that required treatment with corticosteroids. There is also a higher relapse rate associated with peripheral hypereosinophilia at diagnosis.

Improving Response Time to Patient Requests and Staff Satisfaction in Resident Clinic by Adding Designated Resident to Triage

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Background: Many resident clinics face the problem of delayed response time to patient requests including calls, refills, and paperwork, as well as stressed and unsatisfied staff due to resident scheduling issues or program requirements outside of the clinic. In July 2014, the WSU IM residency instituted a designated resident to answer telephone encounters three half days per week. This duty was incorporated into the resident's ambulatory rotation. The goal of this change was to improve the response times and the satisfaction of the patients and staff.

Methods: After IRB approval, 200 randomized patients from Fiver River Health Centers Ludlow Medical/Surgical were selected for retrospective chart review of telephone encounters from July 1, 2013 through Feb 28, 2015. Upon chart review, the length of time was recorded for any telephone encounter that was initiated by a nurse and addressed by a resident. The review excluded telephone encounters that had no response at the time of the study, were started by residents, or were addressed by an attending physician. Telephone refill requests or paper forms requiring completion were also excluded. The data were analyzed without designated triage resident July 1, 2013 through June 30, 2014 and with designated triage resident July 1, 2014 through February 28, 2015. We analyzed the percentage of telephone encounters addressed within the 72 hour policy, as well as average length of time with outliers greater than 2 weeks excluded. A short voluntary survey was also provided to nurses, medical assistants, and support staff to inquire about staff satisfaction, as well as opportunity to comment on further improvement.

Results: The percent of telephone encounters addressed within 72 hours was statistically unchanged, 74% without the triage resident and 73% with the triage resident; $p = 0.64$ with the Binomial Test. The average length of time excluding outliers also had minimal change showing an improvement of less than 2 hours with the triage resident; $p = 0.89$ with the Independent Samples Mann Whitney Test.

Discussion: Although the length of time for response was relatively unchanged, this may have been confounded by the encounters excluded for the analysis, such as paper forms that cannot be retrospectively time tracked, refill encounters, or encounters that were addressed but not documented correctly. Improvement may have also been limited by inconsistency in scheduling the triage resident or the resident completing work from an outside location. Subjectively, staff report notable improvement. The staff survey did note that 100% of participants reported improved response times. Many stated the benefit was seen with refill encounters, which were excluded from analysis, as well frequent, consistent access by the staff to a physically present resident. Next steps include incorporating a resident on site at least 3 times per week consistently, providing flow sheets and increasing resident education pertaining to correct and consistent responses to addressing encounters. Also, educating triage nurses to send encounters to all residents, not just the primary care physician.

Title: Extreme Fecaloma from Chronic Idiopathic Constipation Requiring Colectomy

Author/Affiliation: Drew Triplett, DO¹, Nyla Hazratjee, MBBS², Mustafa Musleh, MD², Christopher Barde, MD², Wright State University Boonshoft School of Medicine, Department of Internal Medicine¹, Department of Gastroenterology²

Introduction: Constipation, defined as either hard or infrequent bowel movements, is a frequently encountered complaint in both clinic and hospitalized patients. Rarely severe constipation can lead to megacolon requiring urgent surgical intervention. We report an extreme case of rectosigmoid fecal impaction in a young female causing a large abdominal mass “fecaloma” secondary to severe idiopathic constipation requiring surgical resection.

Case Presentation: A 19 year old female who presented to the emergency department for constipation and increasing left sided abdominal pain who was admitted for constipation. She reported severe constipation for 2 months prior to admission, with alternating constipation and diarrhea with recurrent fecal impaction over the last four years with treatment being limited by the patient’s homeless state. On presentation, she was afebrile but tachycardic, with firm mass like abdominal distension. Initial labs showed normal chemistry panel, normal white blood cell count ($6.1\text{K}/\text{mm}^3$), mild anemia ($11.3\text{g}/\text{dL}$) and normal platelets ($212\text{K}/\text{mm}^3$). Abdominal x-ray showed immense stool burden with a severely dilated sigmoid colon (23 cm), with similar findings on Computerized Tomography (CT) scan of the abdomen and pelvis. Laxatives and enemas were administered with minimal stool passage. Endoscopic disimpaction was planned, however, on hospital day 2, she developed intense abdominal pain and tenderness, associated with leukocytosis ($15.5\text{K}/\text{mm}^3$) and tachycardia. She underwent emergent subtotal colectomy for suspected intestinal perforation. Surgical specimen was a grossly distended colon with thinned walls containing impacted fecal matter throughout with proximal colon diameter measuring 15cm and sigmoid colon diameter measuring 30cm. Ganglion cells were identified both within the muscularis propria and in the submucosa throughout the length of the colon. Patient did well post-operatively and was subsequently discharged home.

Discussion: Chronic constipation is a frequently encountered problem affecting a significant portion of the population, which can lead to chronic megacolon, and in turn rarely result in colonic perforation. The most common causes of acquired megacolon are neurologic, metabolic, systemic disorders, and medications. Treatments include colonic disimpaction, cathartics and laxatives, with surgery considered in refractory cases. This rare complication of a common problem underscores the importance of proactive treatment of chronic constipation before emergent and invasive intervention is required.

Title: Pancreaticopleural Fistula as a Complication of Chronic Pancreatitis

Author/Affiliation: Drew Triplett, DO¹, Padmini Krishnamurthy, MD², Wright State University Boonshoft School of Medicine, Department of Internal Medicine¹, Department of Gastroenterology²

Introduction: Chronic pancreatitis and pleural effusions are common conditions encountered by an Internist. We present a case of pancreaticopleural fistula that reminds the clinician to consider a pancreatic source of a new pleural effusion in a patient with known chronic pancreatitis.

Case Presentation: A 64 year old male with a history of chronic alcoholic pancreatitis presented to the emergency department for shortness of breath and left sided chest pain of a few days duration. Chest x-ray showed a new left side pleural effusion. He underwent thoracentesis with removal of 2L of fluid that improved his dyspnea, but his pleural effusion rapidly re-accumulated. The pleural fluid analysis showed an exudate with cell count of 1239/cmm, total protein of 3.5 g/dL, LDH of 340 IU/L, lipase of 10539 U/L and amylase of 16674 U/L. Magnetic resonance cholangiopancreatography (MRCP) revealed a mid-pancreatic duct stricture and possible fistulous tract to the left pleural space. The patient was started on octreotide and placed on total parental nutrition (TPN). He subsequently underwent endoscopic retrograde cholangiopancreatography (ERCP) which showed changes suggestive of chronic pancreatitis and confirmed a mid-pancreatic duct stricture with a fistula arising in the body of the pancreas. A pancreatic sphincterotomy was performed and a pancreatic duct stent was placed. He also underwent video assisted thoracoscopic surgery (VATS) with decortication of the organized left pleural effusion. In spite of this, patient developed health care associated pneumonia complicated by Vancomycin resistant enterococcus (VRE) empyema on the decorticated side. This was treated conservatively with chest tube drainage and antibiotics. He recovered completely over a course of 6 weeks. Following this, serial stenting of the pancreatic duct was performed over a period of 6 months. At the end of 6 months, the pancreatic stent was removed and a pancreatogram showed persistent mid-pancreatic duct stricture without evidence of pancreatic duct leak.

Discussion: Pancreaticopleural fistula is a rare complication of chronic pancreatitis and occurs in about 0.4% of these patients. The most common presenting symptoms are dyspnea and chest pain. Abdominal symptoms are often not present. Pleural effusion is usually left sided. Pleural fluid usually tends to be exudative and amylase or lipase analysis is necessary to make the diagnosis. Imaging such as MRCP or ERCP is required to identify a pancreatic duct disruption and or stricture. Treatment includes medical therapies of limiting pancreatic secretions such as Octreotide, parental nutrition, and supportive care. ERCP with subsequent endotherapy for stricture is often required. Surgery is usually reserved for those cases not responsive to medical or endoscopic therapies. A multi-disciplinary approach including gastroenterology, surgery, radiology and Internists is required in caring for these complicated patients.

Title: Baltic amber teething necklaces: A serious strangulation risk

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Introduction: Baltic amber teething necklaces have become popular among parents seeking a seemingly natural means to ease their child's teething pain. Makers of these products claim that when the amber beads are warmed on the baby's skin that a natural analgesic substance, succinic acid, is released and absorbed into the circulatory system through the skin. This case addresses this safety issue directly after an eighteen-month-old child was found limp and barely breathing due to strangulation from an amber teething necklace.

Case Presentation: Eighteen-month-old boy who had consistently worn an amber teething necklace since 4 months of age who was found limp, unresponsive, and with irregular respirations by his caregiver during a nap. Paramedics found the teething necklace tight around the patient's neck and had to be cut off at the scene. On physical exam the patient was cool to touch with a Glasgow coma score of 7. Petechiae were seen on the patient's neck, face and shoulders with bruising on his neck. Initial vitals showed a temperature of 96.9° F, heart rate of 110 and respirations of 8 times per minute with an oxygen saturation of 81%. He was placed on oxygen and transferred to the local children's hospital. Notable lab results included WBC of 21,300 cells, total creatinine kinase of 485 U/L. Computed tomography scan of the head and skeletal survey x-rays were within normal limits. The patient returned to baseline by the following day, alert and interactive and was discharged home.

Discussion: This case highlights two very important clinical pearls: Teething necklaces can be dangerous and their effectiveness is unproven. This case serves as a factual account of what can happen to a child wearing a teething necklace. Jewelry wearing by infants is dangerous to pediatricians as it presents choking, bruising and asphyxiation hazards. Succinic acid is unproven and the dose absorption from these products is unpredictable. In conclusion, this case demonstrates that amber teething necklaces can cause strangulation and raises awareness that asphyxiation and strangulation can be caused by any jewelry worn around a child's neck. Clinicians should carefully counsel parents and caregivers about managing infants teething pain and the dangers of amber teething necklaces.

Quality of Testosterone Replacement, Prescribing and Monitoring at Veterans Affairs Medical Center

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Introduction: Providers are replacing Testosterone (T) in men due to ill-defined conditions. We noted men in the private sector and at our facility were started on T replacement without recommended labs, screening and appropriate dosing. We sought to enable providers to appropriately identify patients prescribe T safely under current guidelines.

Case Description: We developed a template to educate and assist in prescribing and monitoring of T using the Endocrine Society's guidelines. Retrospectively, one hundred patients receiving T replacement were reviewed (pre-template data) and compared prospectively to nineteen patients thus far, who have started testosterone replacement with the template implemented (post-template data) for quality of prescribing and monitoring. Before template education, we found that only 31% had two separate morning testosterone levels checked prior to initiation of treatment. Serum levels of LH, FSH, and Prolactin were obtained in 3% of patients while a prostate specific antigen was available for 75% within one year prior to treatment. A digital rectal examination (DRE) was completed in 20% prior to therapy. Prior to initiation of therapy, 2% of the patients had a history of prostate cancer. Before initiation of therapy, only 4% had documented discussions regarding voiding difficulties while none of the patients underwent fertility discussion prior to initiation of therapy. Once T replacement was initiated, only 43% were noted to be receiving the correct dose while 48% had T levels reassessed 3 months after initiation. Post-template chart reviews showed substantial improvement from the patients started on testosterone with the template thus far. After template use, 68% of patients had 2 separate AM T levels and 63% had LH, FSH, and Prolactin checked prior to treatment. A PSA level and prostate exam within a year were obtained in 84% and 58% of the patients respectively. Fertility issues and voiding issues were discussed with 100% patients before the T treatment. Correct dosing of T replacement was now noted in 100% of the patients. None of the patients had prostate cancer. Fertility issues and voiding issues were discussed with 100% patients before T treatment. Data to verify appropriate prescribing and monitoring post-T replacement is in progress.

Discussion: Adhering to guidelines is not only essential in correctly identifying men that will benefit from T replacement but also in preventing untoward events. With this template, the quality of prescribing and monitoring was improved in every area and showed 100% correct dosing in T dosage. Further evaluation of cost-savings is underway, which so far has shown promising results. Overall, the use of an educational template can assist primary care providers in accurately treating and monitoring T replacement therapy.

Frequency & Correlation of Risk Factors Associated with Perioperative Complications of Simultaneous Two-Team Bilateral Total Knee Arthroplasty

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Introduction: Total knee arthroplasty (TKA) is a successful surgery with well-established complication rate data, but the morbidity of simultaneous bilateral knee replacement performed by two surgical teams (2-team SBTKA) is relatively less studied and still debated.

Objectives: The purpose of the study was to establish a complication rate for 2-team SBTKA and to identify criteria by which to risk stratify patients with pre-surgical comorbidities.

Methodology: A retrospective chart review of patients undergoing 2-team SBTKA in a 3-year period at a major community hospital was conducted. Patient demographic data, pre-operative risk factors, transfusion rate and discharge disposition were compared between patients having major, minor or no perioperative complications.

Results: Of the 138 patients studied, 8 (5.8%) had major complications and 53 (38.4%) had minor complications. 116 (84.1%) of patients had at least one identifiable pre-operative risk factor. Statistical significance was suggested between the number of pre-operative risk factors and the chance of having a major complication ($p=.003$).

Conclusion: The complication rate of 2-team SBTKA in this study was found to be higher than known unilateral TKA rates, even when normalizing for number of procedures. In contrast to other literature, there was no statistically significant association found between BMI or age and major complication risk. However, the data suggests that the risk of having a major complication from 2-team SBTKA increases with the number of pre-operative risk factors a patient possesses. Further research with larger sample sizes would be needed to elucidate how much the risk of a life-threatening complication increases with each additional pre-operative risk factor.

Post-Traumatic Hallux Rigidus in a Skeletally Immature Female Athlete Secondary to Osteochondral Injury to First Metatarsal Head

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Introduction: Hallux Rigidus is a degenerative condition of the first metatarsal phalangeal joint (MTP) found largely in the elderly. The primary etiology remains unknown but acute trauma and repetitive microtrauma may be contributing factors. Hallux rigidus can be debilitating as it leads to chronic pain, deformity, stiffness, and interferes with activities of daily living. This pathology is especially disabling in the skeletally immature population, where it leads to malformation of the maturing bone and physical activity limitation. The literature offers little in the way of strategies and operative techniques for treatment of these problems in children and adolescents. We present a case report of a fifteen year-old female soccer player who was treated surgically after developing hallux rigidus from osteochondral injury to first metatarsal head. The injury and subsequent rigidus left her with chronic pain, stiffness, and inability to participate in sports.

Case Description: Patient underwent a thorough pre-operative work-up including multiplane radiographs demonstrating bony injury to first metatarsal head with a large dorsal osteophyte and subsequent restricted range of motion. The surgical procedure was performed through a 5-cm dorsal incision over the first MTP joint. Upon exposure it was noted that patient had osteochondral injury to the dorsal 40% of the metatarsal head with head depression and likely malunion of the injury. A dorsal cheilectomy/ostectomy was performed at a 45° angle in a dorsal oblique fashion. In addition, a focal grade 3-4 chondromalacia was noted at the center of the metatarsal head. A microfracture of the area was performed using 0.045 K-wire. Intraoperative exam demonstrated much improved range-of-motion. Patient had uneventful post-operative course. Patient was followed at 2, 6, 12, 24 weeks post surgery. The preoperative MTP joint dorsiflexion was 5° and postoperatively it was 50°. This was maintained throughout the follow-up period. Moreover, range-of-motion (ROM) at follow-up was similar to the non-injured side. Patient returned to sports activity at 6 weeks. At the latest follow-up patient had pain-free ROM and continued sports activity any further sequelae.

Discussion: This case demonstrates the use of a viable surgical option for treatment of pediatric post-traumatic hallux rigidus, evidenced by improved and pain-free foot function. With this technique, short term results show relief of pain, improved ROM and full return to sports. Long term results, especially of microfracture technique remain unknown. Currently, no clear guidelines and techniques exist for treatment of hallux rigidus in children. Controversies exist about when surgical exploration should be considered and when should patient return to sports?

Title: Seeing Double: Psychiatric Disease with Medical Relevance

Author/Affiliation: Nerine Vincent MD, Umber Ahmad DO, Dean Bricker MD/ Wright State University

Introduction: Neuroleptic malignant syndrome (NMS) and Catatonia have similar features and it is often difficult to distinguish these two entities. Among the reported cases, there is debate as to whether these are a continuum of the same disease or overlapping processes. In this case, the patient was initially diagnosed and treated for NMS, but later developed symptoms consistent with Catatonia. Importantly, both diseases are intertwined, prolonged courses are to be expected, and a clinician's awareness can prevent adverse consequences.

Case description: : A 32 year old Caucasian female with history of mental retardation/developmental delay (MRDD) and bipolar disorder was admitted with tachycardia and tachypnea. She was afebrile, hemodynamically stable, and was neurologically intact. Important medications included lithium, fluoxetine, diphenhydramine, lorazepam, clonazepam, haloperidol, loxapine, and fluphenazine. Laboratory studies revealed an anion-gap metabolic acidosis with respiratory alkalosis and leukocytosis of 19 K/mm³. Initial concerns were for sepsis of unclear etiology and she was started on broad spectrum antibiotics. Within 24 hours, she developed diaphoresis, cog-wheel rigidity, autonomic instability, stupor, tremor, and rhabdomyolysis. Therefore NMS and Serotonin Syndrome (SS) were also considered. However, as she did not have clonus and her major medications were antipsychotics, a diagnosis of NMS was favored. Her outpatient antipsychotics and SSRI were held and treatment with benztropine provided initial improvement. Two days after treatment, she became non-verbal, developed dysphagia with prominent drooling, myoclonus, and hyper-reflexia while having intermittent episodes of tachypnea and tachycardia. Despite a thorough investigation, no metabolic etiology was identified. Her symptoms progressed to a state of Catatonia including stupor, negativism, and inappropriate behavioral outbursts. Patient was treated with a scheduled benzodiazepine challenge and progressively improved over several days; however her hospital course was complicated by resultant aspiration pneumonia.

Discussion: Catatonia is a psychomotor disorder presenting with loss of motor function and increased risk for infections including aspiration pneumonia. It has been associated with psychiatric, neurologic, drug-induced, and metabolic etiologies. Conversely, NMS is described as a life-threatening idiosyncratic drug reaction manifested by autonomic instability, muscle rigidity, rhabdomyolysis, hyperpyrexia, and altered mental status. In all syndromes, patients may present with immobility, akinesia, muscle rigidity, mutism, and stupor thus complicating the diagnosis. This patient had features distinct to each condition namely the autonomic instability classic for NMS and behavioral symptoms associated with Catatonia. In addition, postulated mechanisms differ; with catatonia being secondary to down-regulation of the GABA system and NMS having dopaminergic dysfunction. Pervasive developmental disorders are already thought to be associated with NMS and Catatonia. However, this case demonstrates that patients with MRDD may be predisposed to complicated and prolonged recovery courses. Additionally, poor prognostic factors include severity of underlying comorbid psychiatric conditions, younger age of onset, and delay in diagnosis and treatment. Both syndromes can be treated with benzodiazepines and electroconvulsive therapy remains an option for partial or failed response to pharmacological treatment.

Title: Under Pressure: Endoscopic Findings of Portal Hypertension throughout the Gastrointestinal Tract

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Introduction: Portal hypertension is an important sequela of liver cirrhosis that can cause characteristic endoscopic changes throughout the gastrointestinal (GI) tract. We present a case of portal hypertension that illustrates the diffuse reach of this entity and a less common etiology of portal hypertensive hemorrhage.

Case Description: A 62-year-old Caucasian male with a long history of alcohol dependence and iron-deficiency anemia was admitted to the hospital for hypovolemic shock, new-onset ascites, and severe symptomatic anemia with a hemoglobin of 3.6 g/dl, MCV: 65.8. The patient denied melena, hematochezia, hematemesis, and hematuria. He was transfused a total of 5 units of packed red blood cells. Fluid obtained from paracentesis was consistent with ascites from portal hypertension. After stabilization, the patient underwent upper and lower endoscopy. The esophagogastroduodenoscopy (EGD) demonstrated 4 columns of grade 1-2 esophageal varices in addition to gastropathy and duodenopathy with friable mucosa prone to bleeding on contact. The colonoscopy revealed diffuse colitis from rectum to cecum with congested, friable hyperemic mucosa, 2 columns of grade 1-2 rectal varices, and multiple ulcerations, the largest of which measured 5 cm and had a large overlying clot. The patient was started on diuretics, antibiotic prophylaxis for bacterial peritonitis, a proton pump inhibitor, and advised to abstain from alcohol.

Discussion: Our patient's endoscopic findings are consistent with many classic features of portal hypertension seen throughout the GI tract. Esophagogastric varices, the most common complication of portal hypertension and the most frequent cause of hemorrhage, were not likely our patient's major source of bleeding given their low grade and lack of stigmata of recent bleed. While it is probable that several of the other upper GI tract lesions did contribute to our patient's anemia, the major source of bleeding was likely the colon given the large ulcers and presence of overlying clots. Bleeding in the colon is a much less common cause of hemorrhage in portal hypertension and is usually due to colonic varices. Varices found outside the esophagogastric region account for only 1-5% of variceal bleeds. It is important to remember that the effects of portal hypertension can be found throughout the GI tract and all of them are possible sources of the major complication of portal hypertension: hemorrhage. Our patient's findings demonstrate the importance of a complete endoscopic evaluation in the setting of a GI bleed in a patient with portal hypertension.

Title: Warts & All: A Case Study of Verrucous Carcinoma of the Foot

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Program: Wright State University Internal Medicine

Introduction: Verrucous carcinoma is a slow-growing variant of squamous cell carcinoma that can be confused with other lesions with similar appearances. A case of verrucous carcinoma of the foot is presented illustrating the difficulty in diagnosing this entity.

Case Description: A 48-year-old Caucasian male presented to the ambulatory clinic with a 2.5 cm verrucous lesion on the lateral surface of the sole of the right foot of about 10 years duration. He reported trying multiple methods of self-removal, including topical wart removers and “cutting it off”. Due to the size of the lesion, the patient was referred to Podiatry where a biopsy was taken that demonstrated at least squamous cell carcinoma in situ. The patient was then referred to Dermatology where he underwent a Mohs procedure. Pathologic examination demonstrated a histologic pattern consistent with verrucous carcinoma. He underwent a split-thickness skin graft, and the lesion healed well with minimal tenderness on weight bearing 3 months later.

Discussion: Verrucous carcinoma can mimic other conditions, which may lead to a delay in diagnosis. Although verrucous carcinoma is slow growing and rarely metastasizes, it can cause significant local destruction. Our patient’s lesion had been present for about 10 years, during which time it grew significantly larger. This delay in diagnosis led to a more extensive surgery and the need for a follow-up skin graft. It is important to consider verrucous carcinoma in the differential of wart-like lesions to prevent delay of diagnosis that can lead to significant soft tissue or bone destruction.