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1. The Advent of Smartphone Use in Medicine-What Are the Pros and Cons of Smartphone Camera Use?

On The Cover: February 24, 1947 Woman's Medical College of Pennsylvania required students to have two chest x-rays per year. Dr. Miriam Bell, director of student health services, is reading the results of student council president Margaret McClean's chest x-ray, also pictured. Image supplied by courtesy of Drexel University College of Medicine Legacy Center Archives.
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Editorial Policy

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DEAN'S RECOGNITION

Congratulations to Dr, Amori for the 10th edition of the *DrexelMed Journal*. Each year, we are proud to present the scholarly activity of the residents and fellows at Drexel University College of Medicine and our affiliate GME sites. The research and academic missions of the University are critical to producing the next generation of physicians.

My personal appreciation to the many residents represented in this journal and to those of you in training who have ongoing scholarly activities. At Drexel, academic inquiry through research and innovation is part of our basic mission. We hope throughout your training programs and your professional careers that you continue your endeavors to move medicine forward.

Daniel V. Schidlow, MD
Annenberg Dean and Senior Vice President, Medical Affairs
Drexel University College of Medicine

EDITOR'S COMMENTS

It is a pleasure to present the tenth edition of the *DrexelMed Journal*. Each year, the submissions represent the broad spectrum of scholarly work produced by the resident and fellows. The house staff of Drexel University College of Medicine at Hahnemann University Hospital and our affiliate staff are a diverse group, and the submissions reflect this. In this edition, we had submissions from staff in internal medicine and subspecialties, emergency medicine, surgery, anesthesiology, family practice, psychiatry, obstetrics and gynecology, and neurology. As always, we appreciate the work of our house staff and their mentors, and are very proud to showcase the diversity of clinical activity and research experiences.

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ABSTRACTS- CLINICAL

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1. Cardiogenic Shock in Stress Induced Cardiomyopathy

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Case: A 46 year old female presented with chest pain that started at work after an argument. Her systolic blood pressure was in the 150s, pulse in the 120s. She had elevated cardiac troponins and her electrocardiogram showed antero-medial leads ST elevations. She underwent percutaneous coronary intervention with venogram which revealed clean coronaries and bulging left ventricular (LV) apex with a hypercontractile base. Echocardiography revealed ejection fraction of 10-15% with severe global LV and apical akinesis. She became dyspneic, had low oxygen saturation, was acidotic, and was intubated. Her blood pressure dropped to the 80s and she was started on pressure support with medications and subsequently intra-aortic balloon pump (IABP). Her chest x-ray showed bilateral pulmonary congestion and was started on diuretics. She subsequently improved over two days, was weaned off pressors and IABP, and was extubated. Repeat echocardiography showed mild improvement, she was put on a life vest and discharged home on appropriate heart failure medications.

Discussion: Stress induced cardiomyopathy (SIC) causes about 2% of acute coronary syndromes (1)(2). Postulated pathogenic mechanisms include catecholamine excess, multi-vessel coronary artery spasm and micro-vascular dysfunction (3)(4). In-hospital mortality is approximately 2% if uncomplicated (1)(5). Our patient went into acute life threatening respiratory failure from cardiogenic shock requiring intubation and intensive care, observed in only about 10% of cases (5). A high index of suspicion, early identification and prompt management of this potentially fatal complication with rapid progression is critical, especially in patients with LV outflow tract obstruction.

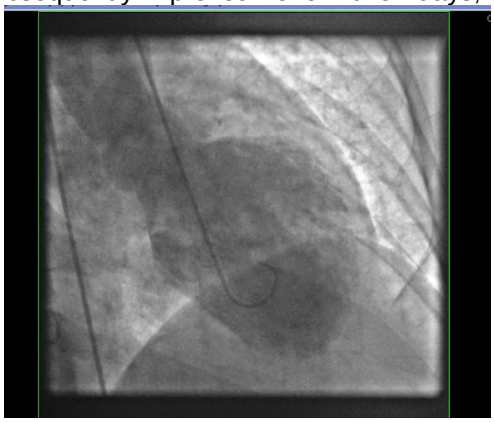

FIG 1 Left ventricular apical ballooning

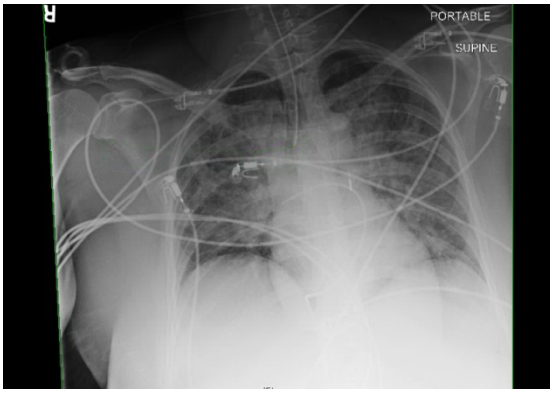

FIG 2. Pulmonary congestion on chest xray

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2. Cardiac Arrest Resulting From Heparin-induced Thrombocytopenia Due to Right Internal Mammary Artery - Coronary Artery Bypass Graft Failure

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Introduction: Heparin-induced thrombocytopenia (HIT) is mediated by antibodies to complexes of heparin and platelet factor 4 following heparin administrations leading to platelet activation and a pro-thrombotic state (1)(4). Heparin is administered to patients undergoing Coronary Artery bypass graft (CABG) surgery, half of which develop antibodies (4). However HIT occurs in only about 3%, with a high rate of postoperative thromboembolic events.

Case: 69 year old male presents after a successful resuscitation of ventricular fibrillation cardiac arrest. He was discharged a day prior on Xarelto after CABG surgery with a Right Internal Mammary Artery (RIMA) placed to the Right Coronary Artery (RCA), complicated by pulmonary embolism. Electrocardiogram showed new inferior ST elevation. Echocardiography revealed inferior hypokinesis and severe right ventricular systolic dysfunctin. Decision was made not to perform invasive procedures. His platelet count was noted to be dropping from 239,000 on previous admission to 90,000. HIT Antibody and Serotonin Release Assay were positive. Argatroban was started, then subsequently Warfarin. His condition slowly improved and his platelet count eventually normalized.

Discussion: HIT is associated with mostly venous and rarely arterial thrombotic events (2). We did not find any case report of RIMA occlusion from HIT, although a few exist on Saphenous Vein Graft occlusions (3)(4). Routine use of heparin for ACS and CABG procedures has made HIT more common (1). Agents that provide adequate anticoagulation without pro-thrombotic effect during and after surgery should be identified and studied. This becomes even more relevant when patients affected by HIT require heart surgery (5).

Ref.
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3. Coronary Artery Disease as a Blessing in Disguise

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The incidence of coronary anomalies in patients undergoing coronary angiography varies from 0.64% to 1.3%. Right coronary artery originating from the left sinus is a very rare event with an incidence of 0.019% - 0.49% on angiography1. A 59-year-old male presented to the hospital with three episodes of intermittent left-sided exertional chest pain typical for angina. He had

a history of hypertension, hyperlipidemia and a family history of premature coronary artery disease. Physical examination including vitals was unremarkable. Electrocardiogram showed normal sinus rhythm without ischemic changes. First cardiac troponin was less than 0.1; and peaked to 0.33. The patient underwent immediate coronary angiography which revealed an anomalous origin of right coronary artery from left coronary sinus along with multi-vessel disease (80% RCA, 95% proximal left anterior descending artery and 90% diagonal artery stenosis) and underwent uneventful Coronary Artery Bypass Graft (CABG). Studies have shown that people with anomalous origin of RCA are at increased risk of sudden cardiac death particularly if anomalous vessel courses between the aorta and pulmonary artery2. Our patient is a perfect example of this. Greater effort for early detection and surgical repair of these lesions is warranted. He was fortunate to have triple vessel disease unrelated to this and was incidentally diagnosed to have this abnormality and was successfully treated with CABG.

Ref.

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4. Rapidly Enlarging Neck Mass in a Patient with Thyroiditis

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**Monmouth Medical Center: Department of Medicine

Primary thyroid lymphomas (PTL) are rare neoplasms which account for less than 5% of thyroid malignant tumors and less than 2% of extra nodal lymphomas [1]. It is an aggressive extranodal non Hodgkin lymphoma which is mostly of B cell lineage [2]. This is a 69-year-old male with past medical history significant for hashimotos thyroiditis, hypertension, hyperlipidemia and gastro-esophageal reflux disease. He presented to his primary care physician with hoarseness of voice and cough. Later his symptoms progressed to dysphagia and intermittent upper airway obstruction. He denied any B symptoms including weight loss, fever and night sweats. A CAT scan of the neck showed 11cm x 8.6 cm neck mass up to the level of hyoid bone extending down to the sternal notch. It was decided to do an emergent open surgical excision. Diagnosis of primary thyroid lymphoma of germinal center type by Hans criteria (CD10/BCL6 positive, MUM1 negative) was made. CMYC and BCL2 FISH cytogenetic studies were negative. A bone marrow aspiration showed no marrow involvement. Although PTL is a rare malignancy, awareness of the disease is key for early diagnosis and treatment. The disease has a 4:1 female predominance [3], unlike in this case. Most common presentation remains rapidly enlarging goiter leading to compression symptoms. It remains crucial to keep a high suspicion for PTL especially in patients with Hashimoto thyroiditis, as the compression symptoms can prove to be life threatening. If the disease is localized, it is associated with good prognosis when managed with radiation and chemotherapy.

Ref.

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5. Elderly Woman Presenting with DKA as a Manifestation of LADA

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**Monmouth Medical Center: Department of Medicine

Several forms of diabetes are described including type I diabetes mellitus (DM), type II DM, latent autoimmune diabetes of adults (LADA), maturity onset diabetes of young (MODY) and slowly progressive insulin dependent diabetes mellitus (SPIDDM). LADA shares genetic features of type 1 and type 2 diabetes (1). It is thought that 2-12% of adult diabetes is attributable to LADA, the age of diagnosis is from 15 to 70 years (2-4). Diabetic ketoacidosis (DKA) is unusual since beta cell destruction is slow (5). This is a case of 75 year old white female who presented to the emergency department with a 10 day history of progressive dyspnea and fatigue. Her past medical history included Hashimoto thyroiditis, hyperlipidemia and depression. The blood workup showed blood glucose of 394 mg/dL, arterial blood gas pH of 7.05, beta hydroxy-butyrate of 101 mg/dL, bicarbonate of 6 mEq/L. She was admitted to ICU and managed as a case of DKA. She was diagnosed with LADA, based on low C peptide level and strongly positive finding of GAD autoantibodies. Patients with LADA experience higher comorbidity with other autoimmune diseases, especially of the thyroid (6-9). What makes this case unusual is that LADA is usually found earlier than type 2 diabetes, with the "adult" age range defined typically as 15 to 30 years and extending further to 70 years (6). Our patient presented at a much later age and with a manifestation of DKA, which is rare for LADA as compared to mild hyperglycemia.

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6. Vasoplegia During Pulmonary Thromboendarterectomy in Patient on Remodulin for Chronic Thromboembolic Pulmonary Hypertension

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Introduction: Remodulin is a bridge to pulmonary endarterectomy (PEA) in patients with chronic thromboembolic pulmonary hypertension (CTEPH). We present a case of intraoperative vasoplegia in a patient on Remodulin preoperatively.
Case: A 50 yo female with idiopathic pulmonary emboli and CTEPH presented for PEA. Remodulin infusion was discontinued upon arrival to the OR. Systolic pressures were 90-100 and decreased to 70-80 post-induction before we started an epinephrine drip. During CPB, the patient's MAPs were 30-60 despite max doses of phenylephrine. Because of the vasoplegia, the patient was started on Epinephrine, Levophed, Dopamine and Vasopressin drips with systolic pressures of 60-80. There was no major blood loss and her

hemoglobin was stable with only 250cc from cell saver.

Discussion: CTEPH is marked by thromboembolism and constriction of non-occluded pulmonary vessels secondary to decreased prostacyclin. Remodulin decreases pulmonary vascular resistance, increases cardiac output, and improves survival in these patients.(1)Because Remodulin is a direct vasodilator, hypotension is a known complication.(2) Despite discontinuing Remodulin before surgery, there was a refractory intraoperative hypotension. Since the elimination half-life of Remodulin is 4 hours and symptoms of PAH do not occur until 3-4 hours after discontinuation, we recommend discontinuing the medication 4 hours before surgery to avoid vasoplegia while maximizing the treatment of PAH.(2)In studies using continuous IV prostacyclin perioperatively, no significant hypotension was encountered. Prostacyclin affords greater titratability due to its short half life of a few minutes.(3) Therefore, it may be appropriate to transition patients on Remodulin therapy to a shorter acting agent before surgery.

Ref.
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7. Chylothorax: Central Venous Catheter Associated Complication

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**Abington Memorial Hospital: Department of Medicine, Division of Pulmonology
***Abington Memorial Hospital: Department of Medicine, Division of Internal Medicine

Introduction: Central Venous Catheters are known to cause complications depending upon their site of insertion(1). Below is a very interesting case of central venous catheter associated complication in which timely diagnosis and prompt intervention resulted in full recovery of the underlying condition.

Case: A 74 year old female was admitted to the hospital for evaluation of shortness of breath, left upper extremity swelling and change in mental status. Patient had end stage renal disease and was on hemodialysis through a temporary left internal jugular venous permacath and premature left arm arteriovenous fistula. Change in mental status was attributed to hypoxia and hypotension. CT scan of the chest showed a large left sided pleural effusion. A left chest tube was placed which drained 1300 cc of milky colored turbid fluid with triglyceride content of 1157 mg/dL consistent with chylothorax. Left upper extremity arterial and venous studies were negative for thromboembolic disease. Work-up for chylothorax included malignancy and trauma which was negative. Her left IJ permcath was removed since it was thought to be occluding the opening of the thoracic duct at the origin of the left brachiocephalic trunk. Two days after removal of the central venous catheter (CVC), the chest tube output was reduced and swelling in the left upper extremity was resolved.

Discussion: Chylothorax is an uncommon cause of unilateral pleural effusion(2). Etiologies include injury to the thoracic duct or malignancies. In this clinical vignette obstruction resulting in congestion of the lymphatics by CVC can present with chylothorax and lymphedema.

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8. Leukocytosis: Chase the Source

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Streptococcus Lutetiensis (S. lutetiensis) is a very rare cause of infective endocarditis (IE). There are very few case reports and case series. A 59 year-old-female with a history of chronic atrial fibrillation on warfarin and remote bioprosthetic mitral valve presented to the clinic with 3 days of progressive exertional dyspnea and bilateral pedal edema. She was afebrile and tachycardiac and had unchanged grade III/VI holo-systolic murmur. She was treated as congestive heart failure with diuretics and she did not improve. She was subsequently sent to the emergency where was found to have leukocytosis with WBC 15.4 K and 4% bands and subsequently her blood cultures were sent. She had a dramatic course in the hospital including multifocal acute ischemic intracranial infarctions, mitral valve leaflet vegetation and positive blood cultures for S. Lutetiensis. She received appropriate treatment with antibiotics and valve replacement. Follow up colonoscopy revealed tubular adenomas in descending colon. S. Lutetiensis is a rare cause of fatal infective endocarditis in humans, infrequently associated with biliary tract infections and gastrointestinal cancers. Diagnosis can be challenging in afebrile cases presenting with heart failure. Physicians should be vigilant for infective endocarditis in these settings as leukocytosis could be the only clue to diagnosing infective endocarditis as in our patient.

Ref.
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ABSTRACTS- RESEARCH

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1. Underutilization of SBP Prophylaxis: A retrospective analysis of antibiotic use for SBP prevention in cirrhotics

Mitchell Kang, DO*, Christie Mannino, MD**, Anshul Dutta, MD*, Andres Riera, MD***, Vishal Patel, MD***, Santiago Munoz, MD***, Kenneth Rothstein, MD***
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***Drexel University College of Medicine: Department of Medicine, Division of Gastroenterologyand Hepatology

Objectives: Spontaneous bacterial peritonitis (SBP) is the most common infection amongst cirrhotics, occurring in 10%-30% of hospitalized patients with an in-hospital mortality rate of 20% (1,3). The objective was to evaluate which cirrhotics diagnosed with SBP should have been on prophylactic treatment prior to diagnosis. **Methods**: Medical records of 73 patients with cirrhosis diagnosed with SBP were obtained. Data was compiled including medications (specifically SBP prophylactic antibiotics), initial lab studies including serum sodium, creatinine, blood urea nitrogen (BUN), total bilirubin, and Child-Pugh score (CPT). Indications for SBP prophylactic treatment were defined based on the 2012 AASLD guidelines (2): 1) History of SBP, 2) Presenting with an upper gastrointestinal bleed, 3) initial biochemical lab studies including ascitic fluid protein <1.5 g/dL with impaired renal function (creatinine >=1.2, BUN >=25 or serum sodium <=130) or liver failure (CPT >=9 and bilirubin >=3), or 4) ascitic fluid protein <1.5 g/dL.
Results: Data was analyzed via SPSS. 32.8% of those with an indication for prophylaxis did not receive it. The most common indication warranting SBP prophylaxis was biochemical (47.5%); then a history of SBP (32.8%), upper GI bleed (14.8%), and low ascitic fluid protein (4.9%). The most commonly missed subgroup were those with a low ascitic protein, who were on antibiotics one-third of the time.
Discussion: Our study showed over 30% of patients with indications for SBP prophylaxis did not receive antibiotics. Increased recognition of prophylaxis guidelines is of paramount importance to prevent infections, thereby

reducing mortality in such a critically ill population.

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2. Heroin Overdose: An epidemiological analysis from 1997 to 2013 in The United States

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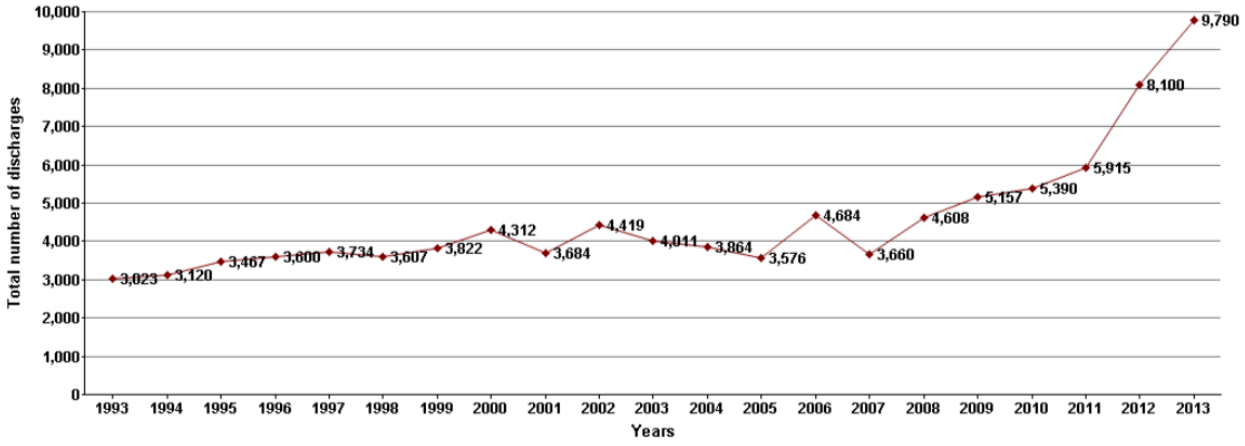
*Monmouth Medical Center: Internal Medicine
**Monmouth Medical Center: Department of Medicine

Objective: In 2013, an estimated 4.8 million people in USA had used heroin at some point in their lives.[1] The yearly mortality rate of heroin users ranges between 1 to 3%.[2] The aim of this study was to evaluate the trends in inpatient discharge rates, demographics, length of stay, and associated cost related to heroin overdose from 1997 to 2013.
Methods: We analyzed data from the National Inpatient Sample Database(NIS) for all patients in which heroin overdose(ICD-9:965.01) was the principal diagnosis from 1997 to 2013. Spearman's coefficient was utilized for statistical analysis, which was computed using SASv9.3.
Results: During 1997 to 2013, the number of hospital discharges with the primary diagnosis of heroin overdose had increased from 3734 to 9790(rho=0.71980,p=0.0011)(Figure-1) and the in-hospital deaths have increased from 192 to 520(rho=0.56530,p=0.0180). While the length of stay had not significantly changed(rho=-0.32353,p=0.2052), the mean charge per hospital discharge had increased from $16,135(adjusted for inflation) to $32,232(rho=0.96078,p<.0001). The majority of the admissions have occurred at metropolitan hospitals with a gender bias towards males between the ages of 18-to-44 years.
Discussion: There has been a significant increase of patients who have been discharged from the hospital with a diagnosis of heroin overdose, as well as an increase in cost of hospitalization and mortality. Multiple reasons could explain this recent heroin epidemic including increased use of prescription opioids for chronic pain, a cheaper alternative, easy availability and recent increase in state mandated regulation of opioid medications[3] Numerous interventions are being evaluated to help decrease this.



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3. Retrospective Review of Chest Pain Rule Out Admissions: Ability to Discharge in a Timely Manner

Valerie Drabina-Dombrowski, DO*, Devinder Singh, MD*, Peter Stempniewicz, MD*, Jameal Hoosain, MD*, Kevin D'Mello, MD**
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Introduction: Chest pain accounts for 5.5 million ED visits annually, and 10-15% are diagnosed with acute myocardial infarction. Patients admitted with chest pain undergo systematic evaluation including serial EKGs and measurements of cardiac troponins. Observation status recently came into favor due to lower costs versus inpatient admissions (1). **Methods**: Over 4 weeks, data from 74 patients admitted for chest pain as observation status were reviewed for intrinsic inefficiencies affecting discharge capabilities. Goal length of stay was 24 hours or less. A patient was defined as dischargeable when work-up yielded a third negative troponin resulting between 7AM and 8PM. Time range was based on pharmacy hours, availability of social services and transportation. Average length of stay and ability of discharge were compared. Need for additional testing during hospitalization was reviewed.

Results: Data showed that 48 of 74 patients fell into the dischargeable category. There were 32 (67%) of 48 discharged within goal. Of the 16 patients (33%) who were dischargeable but had length of stay beyond goal, 5 (31%) had additional testing. It was noted that of the 32 patients deemed dischargeable and discharged at the goal length of stay, 1 had additional testing. Testing included CTA chest, stress test and catheterization. Time to discharge after third negative troponin was 14.14 +/- 5.13 hours. **Conclusion:** Although additional testing appears relatable to length of stay, it did not completely account for chest pain rule-out patients' increased length of stay. Socio-economic barriers and availability of weekend testing modalities are potential supplementary evaluation criteria.

Ref.
CHEST PAIN CENTERS - MOVING TOWARD PROACTIVE ACUTE CORONARY CARE
http://www.scpcp.org/webdocs/cpc-MOVING-TOWARD.pdf

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4. Post-Operative Mortality in Cirrhotics has Decreased Over the Past Decade: MELD Score as Currently Used Overestimates Post-Operative Mortality

Ankit Amin, MD*, Ronak Modi, MD**, Andres Riera, MD**, Vishal Patel, MD**, Santiago Munoz, MD**, Kenneth Rothstein, MD**
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Objective: The MELD score was originally developed to predict survival in patients undergoing TIPS. Aim of our study was to **Methods**: Preoperative MELD score of 368 cirrhotic patients undergoing major surgery between 2007-2014 were reviewed. Included patients had histologic or radiologic evidence of cirrhosis. Laparoscopic surgeries were excluded. Follow up was censored at the last known date of follow-up, liver transplantation, or death. Our results were then compared to Mayo Clinic use of MELD for pre-operative mortality investigate the utility of the previously reported relationship between MELD score and postoperative mortality. assessment.

Results: Our median age was 58 years (n=368) vs. 63 years (n=768) in Mayo study. Our median MELD was 7 vs 8 in Mayo Study. In our population, the Kaplan Meier curve estimated a mortality of 4.6%, 10.1% and 17.1 % at 30-days, 90-days and 1-year, respectively (Figure 1). At almost all ranges of MELD scores our patients had lower mortality than predicted by the Mayo

Clinic MELD score (Table 1). **Discussion**: While higher MELD scores remain a significant predictor in assessing postoperative mortality in cirrhosis, they tend to overestimate the mortality rate at 7 days, 30 days, 90 days and 1 year at almost all MELD score ranges. Difference may be due to differences in study population, surgical technique advancements, severity of surgeries and improvement in pre- and post-operative care. Future studies can involve inserting individual patient data into Mayo Clinic Postoperative Risk in Cirrhotics calculator, which also utilizes Age and ASA class.

Table 1: Relationship Between MELD score and Percent Mortality (%). O = Our Study (2007-2014); M = Mayo Study (1980-1990; 1994-2004)

MELD Score	7 Day		30 Day		90 Day		1 year	
	O	M	O	M	O	M	O	M
1-7	0.0	1.9	1.4	5.7	2.9	9.7	7.5	19.2
8-11	2.2	3.3	4.8	10.3	10.1	17.7	13.8	28.9
12-15	0.0	7.7	0.0	25.4	17.8	32.3	23.0	45.0
16-20	0.0	14.6	15.7	44.0	28.4	55.8	38.0	70.5
21-25	15.0	23.0	15.0	53.8	28.0	66.7	39.2	84.6
26+	30.0	30.0	30.0	90.0	30.0	90.0	50.0	100.0

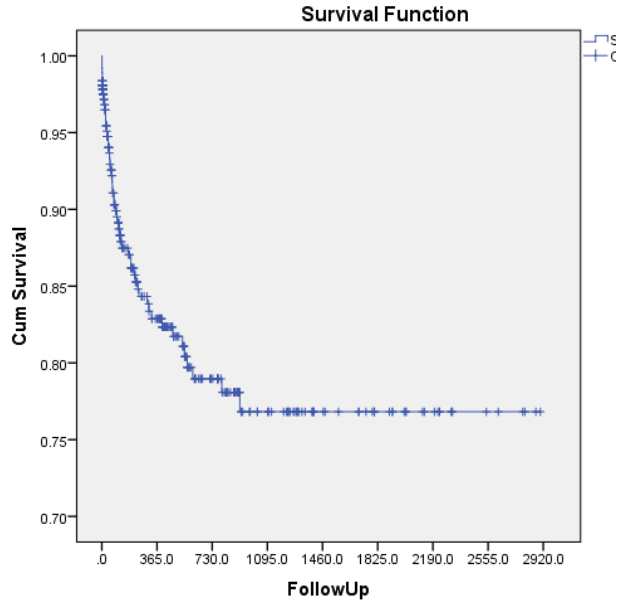

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Figure 1 (Left): Kaplan-Meier curve estimating mortality post-operatively.
Cumulative Survival (Percent) and Follow-up (Days)

5. Evaluation of Factors Affecting Timely Discharges: A Retrospective Review of Observation Patients Admitted with Chest Pain

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Background: Chest pain accounts for approximately 6 million ED visits in the United States yearly. Standard of care includes a systematic evaluation including EKGs and serial cardiac troponins. While chest pain can be stratified using physical exam and history alone, troponins help us increase the sensitivity and specificity. Admissions with observation status have recently come into favor as studies have shown them to be more cost effective compared to full admissions. Given the use of observational status, efficiency is important in order to make sure patients are evaluated and discharged in a timely manner, with delays in care resulting in prolonged stays and increased cost. **Methods**: Over one month, we collected data from 75 patients admitted for chest pain under observation in order to see if intrinsic inefficiencies were affecting our hospital's discharge capabilities. We compared the average length of stay with the time it took to collect and measure the troponins. Our facility uses the AccuTnI+3 troponin I assay, measured every 8 hours for three sets. **Results**: Data showed that average time between troponins was 7.22 ± 2.1 hours. Average length of stay in our database was 28.18 ± 8.79 hours. Using linear regression analysis we were able to extrapolate that there is no statistically significant linear correlation between average time between troponins and length of stay. **Conclusion**: Patients admitted under observational status with chest pain, were discharged in a timely manner, and there was no correlation between increased average time between troponin, and increased length of stay.

Ref.

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6. Appropriate use of Fresh Frozen Plasma Transfusion in Patients with Warfarin Induced Coagulopathy in a Community Hospital Setting

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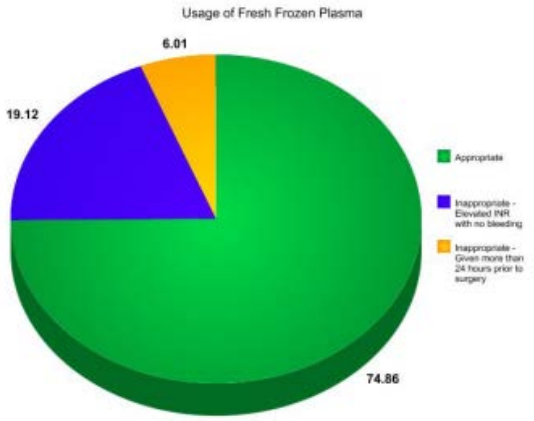
Objectives: Warfarin has been extensively utilized in patients for purpose of anti-coagulation. Its therapeutic effect is monitored indirectly by measuring the patient's international normalized ratio(INR). Fresh frozen plasma(FFP) is the accepted treatment for supra therapeutic INR under emergent conditions, which are standardized via guidelines [1,2,3]. The goal of this study is to determine the percentage of wastage and to identify a trend in which FFP was inappropriately expended. **Methods:** Blood bank records were used to identify patients who received FFP from July 1st, 2014 to June 1st, 2015. Those treated for warfarin-induced coagulopathy and preprocedural elevated INR were then identified. The recorded indications were then compared with the accepted standardized guidelines. **Results:** Out of 729 charts review, 183 patients were identified as being utilized in warfarin-induced coagulopathy. Out of which, 74.86%(137) were classified as appropriate and 25.13%(46) were classified as inappropriate [Figure 1]. Among the 46 charts in the inappropriate category, 76.08%(35) received FFP for treating an elevated INR value with no bleeding and 23.91%(11) received FFP as a reversal agent for an invasive procedure prior to 24 hours. The average cost per unit of FFP is about $1000 and based on our findings at least $46000 were wasted. **Discussion:** Our study highlights the inappropriate use of FFP in a community-hospital-setting. It emphasizes the need for stricter adherence to guidelines and

indications for FFP by educating clinicians via methods such as implementing an alert or check/bundle system in the Electronic medical record system. Hence improving value based quality healthcare



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7. IDENTIFYING GAPS IN HOSPITAL DISCHARGE DOCUMENTATION TO IMPLEMENT A STANDARDIZED DISCHARGE PROCESS

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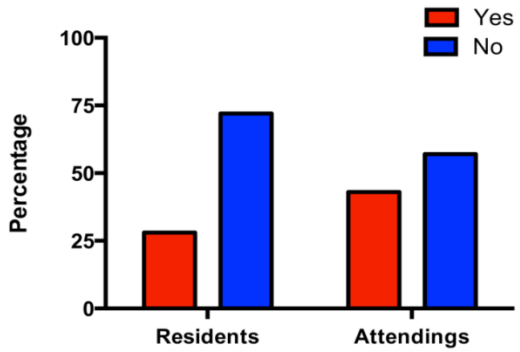
**Drexel University College of Medicine: Department of Family, Community and Preventive Medicine

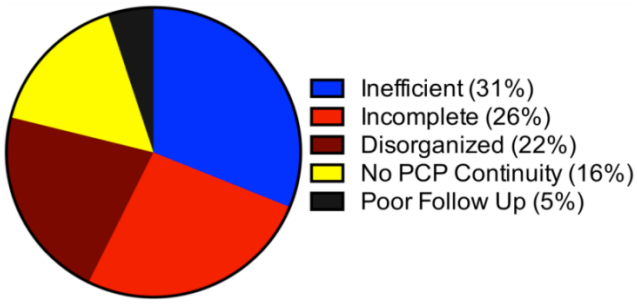
Introduction: Project RED (Re-Engineered Discharge) is a discharge checklist developed at Boston University shown to reduce adverse events associated with the discharge process. Created by Brian Jack, M.D., Project RED implements a checklist: reconcile medications, reconcile discharge plan with national guidelines, make follow-up appointments, follow up on outstanding tests, arrange post-discharge services, create a written discharge plan, inform patient what to do if problem arises, educate patient, assess patient understanding, send discharge summary to primary care physician, and reinforce the discharge plan via telephone. **Methods**: Using an exploratory sequential mixed methods design, Drexel Family Medicine residents and Attending Physicians were surveyed regarding the current discharge process at Hahnemann Hospital. **Results**: The majority of interns report they spend up to 30 minutes on the discharge process. 72% of all residents feel that the process does not meet the goals set by Project RED (Figure1). 72% of residents and 100% of Attendings believe incorporating the discharge template will facilitate dictations. The majority of residents cited that the current discharge summary is redundant, disorganized and incomplete (Figure 2). All residents and attendings feel that incorporating a validated checklist will improve patient care.

Fig 1



Conclusions: The family medicine clinicians are unsatisfied with our discharge process. Based on this information, we have incorporated a discharge template based on the validated Project RED checklist. A follow up study will assess the effectiveness of this change. Future studies could determine if implementing this template will decrease adverse events and readmissions and improve patient care.

Fig. 2



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Forester, AJ, Murff, HJ, Peterson, JF, et al., "The incidence and
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8. Life after residency: Past, present, and future of surgical practice

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**Easton Hospital: Department of Surgery

Background: The state of the general surgery workforce has been an ongoing topic of discussion. The demand exceeds supply. Geographically, general surgeons are not evenly distributed, compromising access to care. Private practice is almost extinct. A review of the general surgery workforce, geographic distribution, and practice patterns in the United States (US) are discussed.
Methods: PubMed, American Medical Association Physician Masterfiles, Association of American Medical Colleges Physician Specialty Data Books, American College of Surgeons Health Policy Research Institute (ACS HPRI) data, Dartmouth Atlas of Health Care and Merritt-Hawkins Physician Surveys were reviewed.
Results: The percent of general surgeons has declined from 24% (1981) to 18% (2006). The general surgeon to population ratio declined 41% in US counties, most markedly in rural counties. Physicians employed by hospital have increased from 11% (2004) to 70% (2014). Residents tend to enter into employed contracts to get way from dealing with start-up costs, insurance coverage issues, and malpractice premiums.
Conclusion: United States general population growth is expected to far outnumber the production of general surgeons capable of providing care. Many counties in the US will go without access to care. Majority of graduates are specializing and become employed. General surgeons remain one of the top 10 recruited. It is important for residents to be aware of potential opportunities and struggles they might encounter after graduation.

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9. Effect of Trial of Labor after Cesarean Delivery on Postpartum Sterilization

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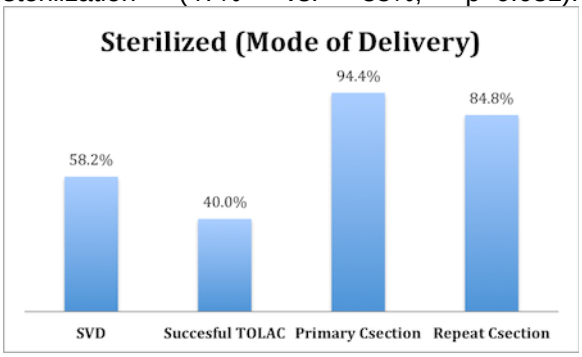
*Drexel University College of Medicine: Obstetrics and Gynecology
**Drexel University College of Medicine: Department of Obstetrics and Gynecology

Introduction: Improving access to Postpartum Sterilization (PPS) and Trial of Labor after Cesarean delivery (TOLAC) are both stated goals of ACOG. Cesarean delivery is known to increase odds of receiving PPS. Opting for TOLAC may significantly reduce the likelihood of patients receiving their desired procedure.
Methods: Record review of patients that signed a Medicaid sterilization consent form (MA31) between 08/2012-12/2013 at a single site was performed. Information on patient demographics and antenatal care was analyzed for impact on PPS.
Results: 170 patients were included for analysis, of which 108 (64%) received PPS. Medicaid insurance accounted for 90% of patients and invalid MA31 forms were a barrier to PPS (OR 0.13, 95% CI 0.04-0.4). No statistically significant differences in age, ethnicity, gravidity, parity, body mass index (BMI) or prenatal care visits were found between the sterilized and non-sterilized group. Vaginal delivery (n=112) was associated with lower rate of sterilization when compared to cesarean delivery (53% vs. 84%, p<0.001). Attempting a TOLAC (n=15) as opposed to a repeat cesarean (n=24) was associated with a successful vaginal delivery rate of 80% and a decreased rate of sterilization (47% vs. 83%, p=0.031).



Conclusion: TOLAC was noted to significantly lower rate of PPS. For a low socioeconomic status population with reduced access to interval sterilization, the risks of non-sterilization may outweigh benefits of TOLAC. Patients with a history of cesarean desiring PPS warrant additional counseling prior to attempting a trial of labor.

Ref.
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Nikki Zite, Sara Wulellner et al. "Failure to obtain desired postpartum sterilization: risk and predictors" Obstet Gynecol 2005; 105(4):794-9.

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10. Medicaid Policy on Sterilization; Do women agree?

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**Drexel University College of Medicine: Department of Obstetrics and Gynecology

Objectives: This study investigated correlations between age, race, socioeconomic status, contraceptive preference and attitude towards the 30-day federally mandated waiting period for Medicaid patients to obtain permanent sterilization.

Methods: This was a prospective survey of female patients >18yo at the Drexel Women's Care Center or Drexel Ob/Gyn office. Demographic data, sterilization history, current birth control method, and opinion regarding sterilization policy were collected. Data were analyzed using chi squared and Anova analysis with Strata 12 software. **Results**: The majority of respondents were <40yo (91.6%) and Black (67.2%) with a household income <50K (85.4%). Over 50% had Medicaid. There was no statistical difference between those who advocate against a 30-day waiting period (53%) and those who support it (47%). Only 8.6% of respondents had a sterilization procedure and 54% regret it (all <30yo). There was no correlation between signing the MA-31 form and risk of regret or successful sterilization. Six percent of respondents who desired sterilization did not get it and the majority did not support a waiting period. Over half of these patients had a positive pregnancy test since their last delivery. **Discussion**: Demographics do not seem to influence respondent opinion regarding the sterilization policy. This policy does not seem to reduce regret. While not statistically significant, Black women tend to think the policy should be extended to all vs Asian women who think it should not. Given policy target population and split opinion, policy ought to be maintained until more convincing data is available. This study is underpowered.

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11. CRITERIA FOR URINARY TRACT INFECTIONS IN PATIENTS WITH INTERSTITIAL CYSTITIS

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Background: Urinary tract infections (UTIs) are one of the known causes of a flare in symptoms for patients with Interstitial Cystitis (IC). We **Methods**: This is a retrospective chart review at a single tertiary care institute in Philadelphia, Pennsylvania. Electronic medical records were reviewed for the diagnosis of IC/PBS, by ICD-9 code, between June 2014 and July 2015. Patients were evaluated at their baseline visit and subsequent visits to assess symptoms and urine culture results. Statistical analysis included student t-test and Chi-Square. **Results**: A total of 140 met inclusion criteria. The bacteria found in the cultures coincide with the most common causes of UTI. Urine cultures with <100,000 CFU/ml were found in 108 (77%) hypothesize that lower colony counts of bacteriuria can cause acute symptoms in patients with IC and may warrant treatment. patients. The most commonly reported growth was <25,000 CFU/ml (48%) and 73% of those patients had symptoms. Sixty-eight patients were seen within 6 months of their baseline visit. Antibiotics were given to 47 (69%) of those patients, and 31 (66%) of those treated showed improvement. Of the 17 (25%) patients that were not treated, 12 (71%) had improved symptoms (p=0.4).
Discussion: This study found that women with IC who have bacteriuria with <100,000 CFU/ml, have no statistically significant difference in symptoms between those given antibiotics, and

those who were not. Colony counts of <100,000/ml are higher in women with IC (77%), than the general population (33%). Treatment of lower colony counts may ameliorate the flare in symptoms.

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ARTICLES

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1. Encouraging Dialogue About the Risks and Benefits of Anti-coagulation in Atrial Fibrillation Patients Followed in a Primary Care Clinic.

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Keywords: Electronic Health Records System, Atrial Fibrillation, Discussion, Bleeding Risk, Anticoagulation.

Introduction Atrial fibrillation is a common cause of ischemic stroke, increasing stroke risk five-fold across all age groups (1,2). Anticoagulation with warfarin has been shown to lower the ischemic stroke risk by more than half from 47 to 20 strokes per 1000 patient years in the general Medicare population without increasing the risk of hemorrhagic stroke (3). However, less than half of patients with known atrial fibrillation presenting with their first ischemic stroke are taking anticoagulants, and of those only a quarter are therapeutically anticoagulated(4). Fears of falling, bleeding and poor patient adherence are commonly cited reasons to withhold anticoagulation from atrial fibrillation patients (5). Without consideration of objective risk measures, these concerns may overrate exposing patients to unnecessary stroke risk. The CHADS2 scale is a validated instrument used to predict stroke risk in atrial fibrillation patients (6) (table 1), and higher values correlate with anticoagulant use (7).

The Outpatient Bleeding Risk Index (OBRI) is a validated model used to predict bleeding risk in anticoagulated outpatients (8). Encouraging physicians to calculate these scales on their atrial fibrillation outpatients would make them aware of objective comparative risk benefit data, and perhaps encourage more open dialogue about anticoagulant and stroke prevention in this population. A previous study at our hospital has shown low rates of anticoagulation amongst hospitalized transient ischemic attack patients with atrial fibrillation (9). In this study, we used physician education and an automatic reminder in the electronic health record (EHR) at our hospital's associated out-patient center to remind physicians to document CHADS2 and OBRI to see if this would increase anticoagulant use.

Methods: In this quasi-experimental we identified 52 atrial fibrillation patients seen in our federally qualified health center over a 6 month pilot period. Institutional Review Board Approval was obtained. Charts were reviewed for documentation of CHADS2 or OPBRI scale and anticoagulant prescription. After that we gave a lecture to all medical residents (N=36)

emphasizing the importance of anticoagulation for stroke prevention. We also instituted an automated alert in the clinic's EHR system to remind physicians to document CHAD2 and OPBRI and consider anticoagulation whenever the atrial fibrillation diagnosis code was used. 29 of those 52 patients had a follow-up visit during the subsequent 6-month study period, and all of those charts were re-reviewed.

Results: At the time of the initial review 10 of 52 patients (19%) had CHADS2 score documented, none had an OPBRI score documented, and 33/52 (63%) were anti coagulated. Twenty-nine of those 52 patients were seen for a follow-up visit during the 6-month post intervention evaluation period. Eighteen of 29 (62%) had documented CHADS2(P<.001), 18/29(62%) had documented OPBRI scores (p<0.001), and 22/29 (75%) were on the appropriate anticoagulation (p=0.25) (Figure 1).

Discussion: We found that a simple education session and use of an automated EHR reminder significantly increased documentation of CHADS2 and OPBRI scales, which allows physicians to objectify the comparative risks and benefits of anticoagulation in atrial fibrillation patients and encourage more frank discussion with patients. Indeed, there was a trend towards increased anticoagulant use after institution of these measures, but our numbers are small and this did not reach statistical significance. Obviously a larger group and a much longer observation period would be needed to demonstrate a reduced stroke risk. However, the results from this small study are encouraging.

CHADS2 Score	Points
Congestive heart Failure	1
Hypertension	1
Age>75	1
Diabetes Mellitus	1
Stroke	2
Therapeutic recommendation based on total score:	0 Aspirin 1 Consider aspirin or oral anticoagulation 2 or more oral anticoagulation

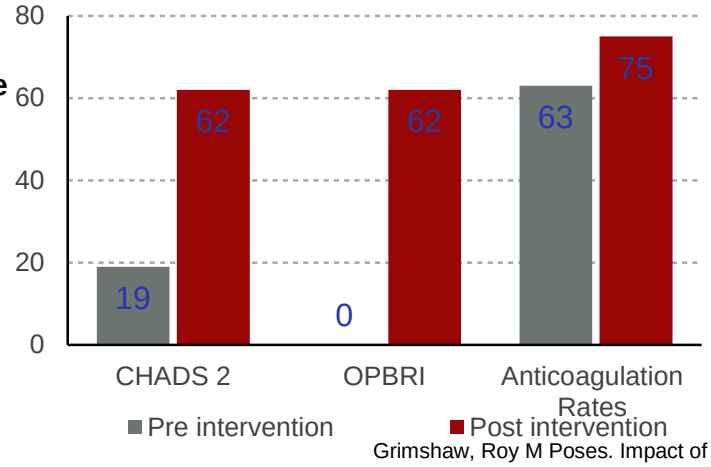
Table 1: CHADS2 score quantifying stroke risk for atrial fibrillation, and therapeutic recommendation based on score [6,7]

Outpatient Bleeding Risk Index	Points
Age>65	1
History of GI bleed	1
History of Stroke	1
Recent Myocardial Infarction, Diabetes Mellitus, Chronic Kidney Disease, Severe Anemia*	1
Total score	Bleeding Risk: 0 Low risk 1-2 Intermediate risk 3 or more High risk.

Table 2: Outpatient Bleeding Risk Index Scale [8]

**Anemia is defined as hematocrit level < 30%, and renal impairment is defined as serum creatinine level > 1.5 mg per dL (133 μmol per L).*

Graph: comparing the CHAD2, OPBRI and anticoagulation rates pre and post intervention



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2. Evaluation of Adherence with Inhaled Antibiotic Regimens and Outcomes in Adults with Cystic Fibrosis

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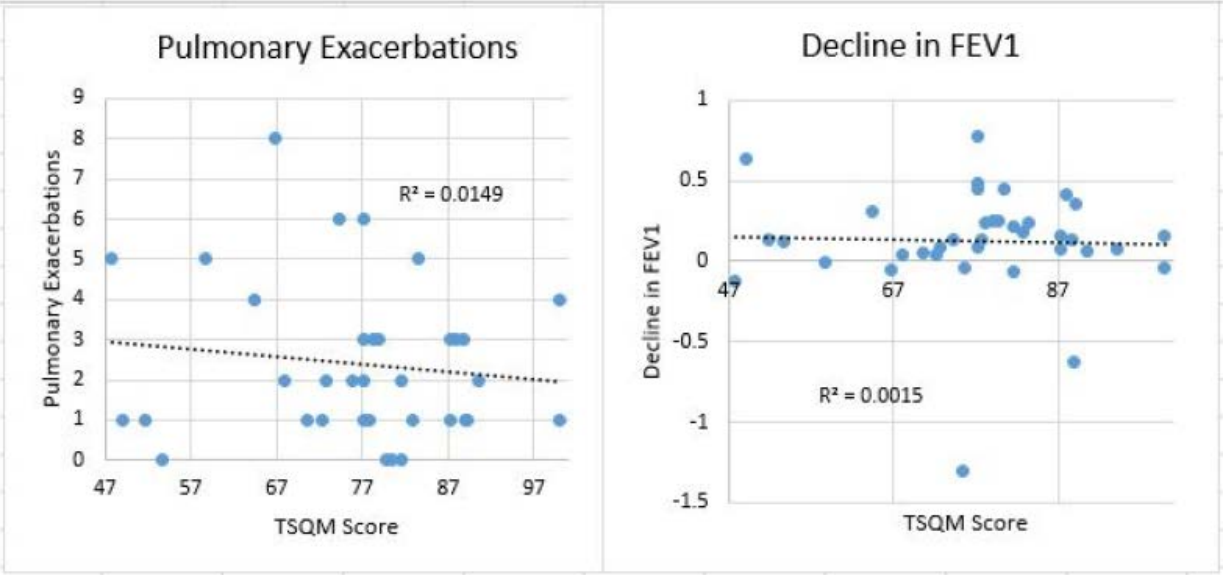
Background: Cystic Fibrosis (CF) is a disease with many complex treatment regimens with varying levels of patient adherence and satisfaction to therapy. Inhaled antibiotics were first FDA approved in 1997 with TOBI (inhaled Tobramycin) followed by Aztreonam a few years later. Other inhaled antibiotics used off label include Colistin and Vancomycin. These new inhaled antibiotics target therapy directly at the antibiotic regimens and number of pulmonary exacerbations and declines in FEV1 has not lung while minimizing systemic adverse reactions and side effects (1). Although inhaled antibiotics have revolutionized CF treatment, helping many patients to live beyond age 50, adherence is still reported to be as low as 30% in prior studies (2). Studies which help clinicians to understand and address barriers to adherence are lacking and the relation between satisfaction and adherence with inhaled been extensively studied. There is great interest in issues with adherence in the CF

population, with the CF foundation making it a priority at the national level. Data supporting this effort is important to have given the amount of resources being committed. Our hypothesis is that patients who have poor satisfaction and adherence with inhaled antibiotics will have a higher number of CF Pulmonary Exacerbations as well as greater declines in FEV1 levels.

Methods and Data Collection: IRB approval was obtained prior to beginning research. After obtaining informed consent we administered the Treatment Satisfaction Questionnaire with Medicine (TSQM) survey to adult patients who were using inhaled antibiotics at the Drexel University College of Medicine Cystic Fibrosis Clinic.

Age in Years, Mean (SD)	33.84 (±11.52)
BMI (Weight (kg)/Height^2 (m))	22.17 (±3.85)
Male	63%
Homozygous F508del	36%
Baseline FEV1	1.96 L (±0.83)
FEV1 Beginning of Study Period	2.03 L (±0.88)
FEV1 End of Study Period	2.05 L (±0.96)
Colonized with Pseudomonas	92%
CF Related Diabetes	24%
Pancreatic Insufficiency	84%
Type of Inhaled Antibiotics:	
TOBI Inhalation Powder	38.5%
Nebulized Tobramycin	27.1%
Colistin	10.7%
Aztreonam	23.7%
Alternate Month Dosing	100%
Years Using Inhaled Antibiotics	4.6 (±2.08)
Pulmonary Exacerbations During Study Period (July 2013-March 2015)	2.21 (±1.93)
TSQM Score:	
Medication Side Effects	87.42 (±20.17)
Medication Effectiveness	66.63 (±16.44)
Medication Convenience	69.45 (±20.59)
Global Satisfaction	74.34 (±13.97)
Self Reported Adherence to Medications (1-10)	8.03 (±1.65)
Self Reported Doses Missed per Month	5.03 (±6.64)

Table
The TSQM is a well validated tool to measure patient satisfaction with medications. We also asked patients to report their level of adherence on a scale of 1-10 with 1 being non-adherent at all and 10 being completely adherent. We then looked at Port CF, a database of patients with CF, and collected data regarding the rate of pulmonary exacerbations (defined as need for use of IV or oral antibiotics) as well as declines in FEV1 for these patients during the 7 month study period. The above data as well as other baseline characteristics of study participants can be seen in Table 1.



Data Analysis: Data on 38 patients has been collected and analyzed. A scatter plot (Figure 1) was created and R values of 0.12 (p=0.23) and 0.04 (p=0.41) were calculated by correlating TSQM scores with rates pulmonary exacerbations and declines in FEV1 respectively.

Discussion: The results reveal a poor correlation between inhaled antibiotic satisfaction and lung health among adult CF patients. This unexpected finding is likely because lung health in CF patients is influenced by a wide array of factors from socioeconomic status, genetics and behavior as well as adherence with chest physical therapy and other medications. Future data analysis with increased numbers may reveal if a relationship between lung health and inhaled antibiotic habits exist. This may help clinicians to understand the best strategies to aid in helping CF patients live the longest and healthiest lives possible.

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3. A Case of Kaposi Sarcoma

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Case Introduction

A 47 year-old Hispanic male with a past medical history of human-immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS), toxoplasmosis of the central nervous system, and depression presented to the emergency department with a chief complaint of diffuse right leg pain. The patient was originally diagnosed with HIV roughly fifteen years prior. He originally contracted HIV via intravenous drug use and he admitted to sharing needles as recently as earlier on the day of admission.

The patient noted that the leg pain was accompanied by right lower extremity swelling and multiple small, non-pruritic purple, raised lesions. These symptoms emerged four months prior, immediately following his hospitalization and diagnosis of toxoplasmosis of the central nervous system at another local hospital. He had associated symptoms of bilateral headache, and chills with subjective fevers but since he was homeless, he did not own a thermometer and had no documented fever. During his outside hospitalization, he was diagnosed with toxoplasmosis and discharged home on treatment with sulfadiazine/pyrimethamine. He believed his leg pain and lesions would resolve with the treatment and as such he did not seek further medical care. Of particular importance, he admitted to early discontinuation of the antibiotics. However, over the ensuing months, the leg pain, swelling, and lesions became worse to the point where he came to our emergency department unable to walk. The patient noted that his infectious disease doctor was at a third local hospital and he had not seen this specialist or taken HAART therapy for a number of years.

On physical exam, the patient was afebrile with vitals within normal limits. He was noted to be in moderate discomfort with pinpoint pupils and a respiratory rate of 16, not labored or diminished. The most significant physical exam finding was dozens of nodular lesions on his right lower extremity that were malodorous. Many of the lesions were blisters that expressed a clear yellow or serosanguinous discharge. The lesions were violaceous to black, warm, and tender to touch. His right lower extremity had 3+ edema (see figure 1). Four lesions were noted around the patient's left knee. Comprehensive metabolic panel was non-contributory and his complete blood count showed a normocytic anemia and thrombocytopenia..

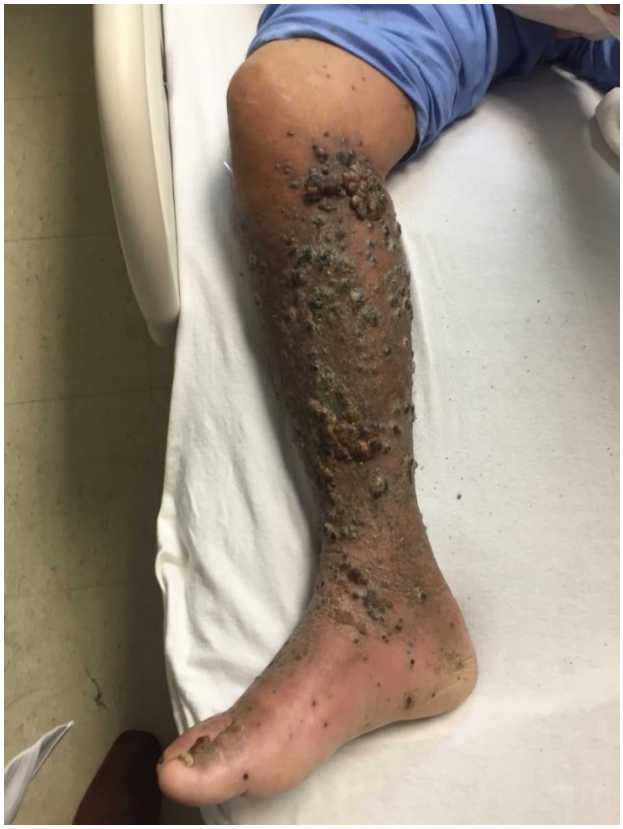

Image: Violaceous to black nodular lesions and blisters with associated edema

His hemoglobin was 10.5, hematocrit 31.6, and platelets 136. X-rays of the lower extremities revealed no fracture, dislocation, or subcutaneous gas. Since the patient had a history of recent CNS toxoplasmosis with incomplete treatment duration and new-onset of headaches with chills, head CT was ordered, which ultimately showed persistent toxoplasmosis infection. Other studies ordered on admission included 2 blood cultures, CD4 count with viral load, human herpesvirus 8 (HHV-8) PCR, bartonella DNA PCR, CMV, PCR, cryptococcal smear and culture, and quantiferon gold testing for tuberculosis.

Case Consults, Workup, and Treatment Surgery, infectious disease, and dermatology treatment and infectious disease chose to hold off on antiretrovirals. Dermatology suggested biopsy of one of the leg lesions, which came back positive for Kaposi sarcoma. The biopsy corroborated the positive test for HHV-8. Oncology was consulted at this stage and suggested the patient be started on HAART therapy and doxorubicin for treatment of the Kaposi sarcoma. The infectious disease team was reluctant to start HAART therapy on a patient who was non-compliant with follow-up with his infectious diseases specialist, who was non-compliant with his HAART therapy in the past, and who was homeless. Before social services could be set up for the patient, he left the hospital against medical advice.

Discussion With Kaposi sarcoma becoming a less frequent ailment encountered on the wards due to the availability of effective HIV treatment, the specific workup and treatment of Kaposi sarcoma is less commonly encountered. As such, it is important to highlight two aspects of an appropriate workup. First, Kaposi sarcoma must be differentiated from bacillary angiomatosis. Both Kaposi sarcoma and bacillary angiomatosis are predominantly seen in immunocompromised patients; both cause red-to-purple papules on the skin; and both may be accompanied by non-specific symptoms such as fevers, chills, malaise, and anorexia. Bacillary angiomatosis, however, is caused by the gram negative bacteria *Bartonella henselae* and *Bartonella quintana* and is traditionally treated with erythromycin. With common presentations but different treatments, distinguishing between these two pathologies is of upmost importance. Physical exam cannot distinguish between these two entities, so bartonella DNA PCR, HHV-8, and, more importantly, lesion biopsy are required. Second, Kaposi sarcoma is classically thought of as a tumor visualized on the skin. This may lead to the misconception that it is a cutaneous disease only. In fact, Kaposi sarcoma frequently affects the lungs and the gastrointestinal tract. Two screening measures for visceral involvement include the fecal occult blood test and the chest x-ray. Kaposi sarcoma were all consulted. The surgical team decided the leg lesions were too extensive for surgical is seen in the gastrointestinal tract of roughly 40% of patients who are not on HAART therapy and these lesions tend to be hemorrhagic [1, 2]. As such, fecal occult blood testing is suggested as a screening for gastrointestinal involvement of Kaposi sarcoma [3]. If the occult blood test is positive, then further testing, such as colonoscopy or endoscopy, needs to be undertaken. Since Kaposi sarcoma also has a high propensity to metastasize to the lung, chest x-ray is suggested to screen for lung pathology with chest CT and/or bronchoscopy being appropriate tests if the chest x-ray is suggestive of lung involvement [3].

The cornerstone of AIDS-related Kaposi sarcoma treatment is HAART therapy [4]. This is first line therapy for local and systemic disease. In the case presented above, it was recognized that HAART therapy needed to be initiated but we came across a dilemma where we had a patient who was non-compliant with HAART in the past, who did not follow up with an infectious disease specialist, and who lacked the appropriate resources to start HAART. An attempt was made to assist the patient in getting the services he needed, but he left before the services were rendered. However, when the circumstances allow, HAART therapy is a must. Aside from HAART therapy, treatment of Kaposi sarcoma can come from a variety of other venues. Surgery and intralesional chemotherapy can control individual tumorous lesions [5, 6]. Similarly, radiation therapy and various topical therapies can be used to control smaller areas of conglomerated lesions [5, 7]. Frequently, the aforementioned therapies are inadequate for appropriate control of Kaposi sarcoma. The role of chemotherapy in the treatment of Kaposi sarcoma is still debated but two indications are accepted: treatment of advanced stage Kaposi sarcoma and treatment of progressive Kaposi sarcoma despite appropriate antiretroviral therapy [8]. Features that made our patient's Kaposi sarcoma advanced stage included a CD4 cell count < 200 (our patient's CD4 count was 8), tumor-associated edema and ulcerations, "B" symptoms, other HIV-related

illnesses (toxoplasmosis of the CNS), and the extensive nature of the patient's tumor burden. These features come from the AIDS Clinical Trial Group System, which was validated by Krown, Testa, and Huang [9].

Conclusion Kaposi sarcoma is less frequently encountered due to the extensive push to start HIV positive patients on HAART therapy early in their disease. The differential diagnosis and workup, however, are crucial to controling the disease. In addition, visceral involvement can cause disastrous consequences and the appropriate screening tests need to be ordered. Finally, there is still a role for chemotherapy in advanced-stage Kaposi sarcoma.

There are no conflicts of interest for the authors.

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4. To Compress or Not to Compress: Revisiting the Use of Chest Compressions in LVAD Patients

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Purpose: To examine the current use of chest compressions in the ACLS algorithm for patients with LVADs.

Background: Despite the current prevalence of left ventricular assist devices (LVAD) in end stage heart failure patients, there exists no consensus or guidelines in the ACLS algorithm concerning this unique patient population. As such, most institutions have been reliant on in-house anecdotal evidence for guidance. Many centers experience delays in care for coding LVAD patients as house staff are unsure as how to approach these difficult patients. Due to concerns over dislodging or harming the cannula, manufacturers currently do not recommend performing chest compressions in this population. Recent literature however, suggests that the use of chest compressions may not be as harmful as previously thought. This paper looks at the current practice regarding this issue at the major academic hospitals in Philadelphia.

Methods and Results: Extensive literature review as well as surveying of area hospitals was conducted in order to gauge the current climate regarding the use of chest compressions in LVAD patients. The national discordance in this area was reflected in our own city experience, as two major academic hospitals reported currently recommending the use of chest compressions in LVAD patients while two are against the practice.

Discussion/ Conclusion: Chest compressions in LVAD patients remains an area without consensus. Historically the use of compressions in this population has been discouraged. Thoratec's operating manual for the Heartmate II states that "in the event of a cardiac arrest, external chest compressions pose a risk due to

location of the LVAD outflow graft and presence of an apical ventricular anastomosis" and that "clinical judgement should be used" in the decision of whether or not to proceed with compressions3. Concern over damage to the graft conduit, bleeding, and dislodgement of the inflow tract have led many institutions to adopt a conservative 'no compressions' policy in the event of coding these patients. In the past few years however, multiple papers and case reports have come to light suggesting that chest compressions may be safely performed and that concerns of equipment damage may have been overblown. In a recent case series1, eight LVAD patients who received compressions and subsequently died were autopsied. None of these patients were found to have dislodgement or damage to their LVAD inflow cannulas.

The risk of withholding chest compressions in an LVAD patient may outweigh the risk of performing them. In a coding patient with a malfunctioning VAD, cardiac output and organ perfusion is dangerously compromised. Any theoretical risk of bleeding or cannula damage should come secondary to the patient's need for urgent mechanical assistance in the form of compressions. Ultimately however, the question of performing chest compressions may prove to be more than just a yes or no answer. This patient population carries with them a unique set of problems that may not be best served with a simplistic approach. A recent case report of an LVAD patient undergoing cardiac surgery showed that satisfactory cardiac perfusion pressures were able to be maintained with abdominal only compressions2 without the risk of compromising the device. In addition, Thoratec's manual suggests the alternate use of cardiac massage in patients deemed unfit to receive compressions due to immediacy of device implantation. Dynamic, customized plans for compressions that change based on the patient's current clinical condition and that are discussed on each day of hospitalization may be useful in eliminating difficult decision making at the time of a code. Our own institution recently changed the guidelines for chest compressions when coding LVAD patients, with the new hospital protocol to perform chest compressions when an LVAD patient is coding. This has primarily been done in light of the need to unload the right ventricle and the decreased risk of cannula fracture.

The use of chest compressions in coding LVAD patients varies by academic center. In the city of Philadelphia, major academic hospitals are split in terms of recommending for or against the practice. The lack of guidelines in this area can often result in suboptimal patient care. Future retrospective studies comparing the differences in patient outcomes between those centers using chest compressions versus those who are not will be helpful in the creation of a uniform standard of care.

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5. Improving VBAC Counseling and Success Rates: A Retrospective Analysis of Current Practices and the Proposed Usage of Validated Prediction Models as Formal Counseling Tools

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KEYWORDS: Trial of Labor After Cesarean (TOLAC), Vaginal Birth After Cesarean (VBAC), Prenatal Care, Patient Counseling

BACKGROUND Cesarean delivery rates in the United States have increased dramatically over the past few decades. From a rate of just 5% in the 1970s, changes in practice (e.g., the decrease in the numbers of forceps and vaginal breech deliveries and the advent of electronic fetal monitoring) have led to this rise and supporting of the old dictum "once a cesarean, always a cesarean." In 1996, the cesarean delivery rate was 20.7% and a 50+% increase over the past decade has led to the current rate 32.7% (1). Over the same time period, the "old dictum" has been challenged. With research, trials of labor after cesarean (TOLAC) were increasingly offered to those who deemed "good candidates," thus sparking a rise in vaginal birth after cesarean (VBAC) rates. VBAC rates were as high as 28.3% in 1996 (up from 5% in 1985). This promising trend took a hit, however, with increasing numbers of reported maternal/fetal complications and the subsequent escalation of obstetrically-related legal matters to where U.S. VBAC rates were at 8.3% in 2007. Some institutions have stopped offering TOLAC to their patients altogether (2). In 2010, the National Institutes of Health (NIH) issued consensus statements, which support the safety of TOLAC in certain women, with hopes of increasing VBAC rates (despite also acknowledging physician/institutional concerns over liability) (3). VBAC rates *have* fortunately increased from 8.3% in 2007 to 10.6% in 2013, and this is (in part) supported by research that highlights the decreased morbidity and mortality that a woman has after a successful VBAC versus repeat cesarean delivery. For example, women who attempt TOLAC and have a successful VBAC have lower rates of transfusion, unplanned hysterectomy, and ICU admissions than women who elect for repeat cesarean section or who have failed TOLAC resulting in repeat cesarean (4). The American College of Obstetricians and Gynecologists (ACOG) have identified patients with history of one prior low-transverse cesarean delivery as those who should be considered for and counseled on TOLAC/VBAC. However, equally (or more) important to the patient being selected, is how the patient is counseled. The decision to undergo TOLAC should be thoroughly discussed, where the potential risks, benefits, and alternatives are reviewed and details of the discussion are properly documented (2). It is also suggested that counseling should include the identification and addressing of individual patient characteristics, and their potentially-associated risks, that may interfere with their chance for VBAC success. As important as counseling is, Bernstein et. al suggested that patients undergoing TOLAC and those who decline TOLAC and undergo elective repeat cesarean delivery are insufficiently informed on the risks and benefits of TOLAC. This represents a gap in counseling efficacy and furthermore, it suggests (by patient survey) that providers may have a perceived bias towards performing elective repeat cesareans (5). In efforts to improve patient counseling, researchers such as Grobman (2007) (6) and Metz (2013) (7) have developed VBAC success prediction calculators, which take patient demographic and medical data and, through logistic regression algorithms, provide patients with a calculated probability/percentage of having a successful VBAC, and thus, an individualized risk assessment in undergoing TOLAC. The Grobman model (in conjunction with Maternal Fetal Medicine Units, MFMU) has been validated as a counseling tool by researchers in the U.S. (8), Canada (9) and Japan (10), as it was applied to their respective populations. In 2009, Grobman et. al. proposed adding additional variables to their previous model to predict VBAC success including gestational age, blood pressure (presence or absence of pre-eclampsia), whether labor was induced and the admission Bishop score. Predictability of this model was not significantly superior to the original (11).The Metz model, which is internally-validated, provides patients with a numerical (point) value, which corresponds with predicted percentages (as the Grobman model does), but also employs the usage of the admission Bishop score as an additional counseling tool in calculating VBAC success probability. Our institution's VBAC counseling protocols do not currently use these VBAC success prediction models as "official" counseling tools. Though our VBAC success

rate is within (the lower range of) the national average (61.5% versus 60-80% nationwide), we sought out to test these models with our low-income, urban patient population, with the goal of improving not only our counseling practices, but our overall VBAC success rates and maternal/fetal outcomes as well.

METHODS & MATERIALS This was a retrospective cohort study that included women who were documented to have had one prior low-transverse cesarean delivery with a subsequent delivery occurring at Hahnemann University Hospital, Philadelphia, PA, between years 2012-2014. The patients included were those who were admitted as undergoing a TOLAC and this data was obtained using the labor and delivery logbook, hospital coding/billing information, and [archived] electronic patient hospital chart reviewing software. The cohort was broken down into two groups: those who had a successful VBAC and those who failed TOLAC, resulting in repeat cesarean. The Drexel University College of Medicine Institutional Review Board approved this study. Demographic and obstetric patient data were extracted from electronic medical records. Specifically, the variables that included in Grobman et.al's prediction model (6): maternal age, pre-pregnancy body mass index (kg/m2), ethnicity, any prior vaginal delivery, prior VBAC and indication of prior cesarean as well as Bishop score on admission to labor and delivery, which (along with the same aforementioned variables) is included in the model developed by Metz et. Al (7). The data from individual patients were entered into both the regression formula for the Grobman model and the point system for the Metz model, therefore receiving two predicted rates for VBAC success. For the Grobman model, predicted rates were categorized into 10 decile groups (i.e., 0-10%, 10-20%, etc.). For the Metz model, predicted rates (as they corresponded to point total/score) served as the individual categories. For each model, analyses were performed comparing predicted VBAC success rates with actual (observed) VBAC success rates (calculated as a proportion, with 95% confidence interval [CI]). P-values were obtained for these analyses, where $p<0.05$ indicates statistical significance. Each model's predictability of VBAC success has been previously validated. Grobman's model was validated both internally and externally across multiple studies and various populations. Metz's model was validated internally with the initial study. Validity for both models was determined using receiver operating characteristic (ROC) curves with area under the curve analyses, both of which had AUC of approximately 0.70. Additional validation analyses, using this study's population, were deemed unnecessary and were thus, not performed. Instead, curves plotting the predicted versus observed success rates against a "best-fit line" were created in order to show concordance between predicted and observed VBAC success rates for each model. These correspond with predicted/observed rates for each decile group of the Grobman model and each point total (arranged in 10 pairs with associated percentage range) for the Metz model. Further analyses were performed to determine whether or not differences in observed VBAC success rates exist among patients with respect to age, BMI, or race. These were performed across both models and included just the cohort of patients who had successful VBACs. The mean observed success rates (%) are measured for BMI (categorized as <=20, 21-29, 30-39, >=40), age (<=20, 21-25, 26-30, 31-35, >35), and race (Black, White, Hispanic, Other). Lastly, the mean VBAC success percentages for both Grobman and Metz models were compared with each other and with our pre-existing VBAC success rate, using standard *Z*-test to rule out any significant differences.

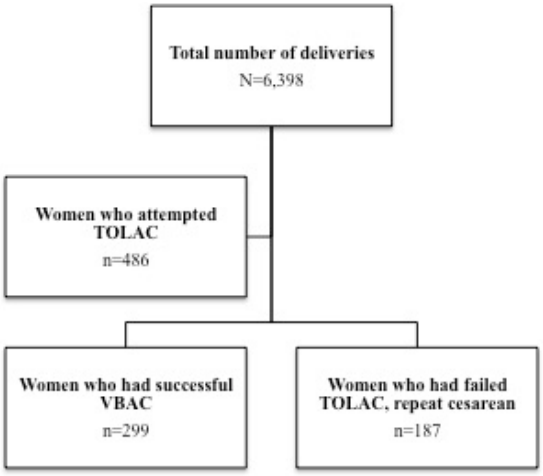

Fig. 1 (Left). Flow of study participants (2012-2014)

RESULTS For the study period of 2012-2014, 487 women were identified as meeting inclusion criteria. Of those 487 women, 299 had a successful VBAC, which corresponds with a 61.5% VBAC success rate for our institution (Figure 1).Patient demographic and obstetrical data (as they pertain to Grobman and Metz VBAC success prediction models) are summarized in Table 1. With respect to the Grobman model, observed VBAC success rates were overall similar to predicted rates as all values fell within the 95% confidence interval for each decile (Table 2, Figure 2). Furthermore, Figure 2 depicts these comparisons with a best-fit line – with slope 9.13, intercept 0. Correlation between observed and predicted VBAC success rates was high, and statistically significant, R2=0.938, p<0.0001. With respect to the best fit, observed values < 35% fell below the line, while values from 35-75% fell above, though not statistically significant as the best fit line also fits within the 95% CI (with exception < 15% predicted success).

With respect to the Metz model, observed VBAC success rates were also overall similar to predicted rates, as all values fell within the 95% confidence interval for each paired point group and corresponding predicted success rate (Table 3, Figure 3). Figure 3 depicts these comparisons with a best-fit line – with slope 9.05, intercept 0.60. Correlation between observed and predicted VBAC success rates was high, and statistically significant, R2=0.935, p<0.0001. With respect to the best fit, observed values from ~ 55-90% fell above, though not statistically significant as the best-fit line also fits within the 95% CI.

Table 1. Demographic and Obstetric Data for Patients Undergoing Trial of Labor after Cesarean, Used for Prediction Models

Variable	
Maternal Age (y)	26.76±5.45
Prepregnancy BMI (kg/m^2)	30.13±7.10
Race/Ethnicity	
Black	292 (60.08)
White	83 (17.08)
Hispanic	63 (12.96)
Other	48 (9.88)
Any prior vaginal delivery	140 (28.80)
Prior VBAC	52 (10.70)
Recurring Indication for Prior Cesarean	158 (32.51)
Average Bishop Score for VBAC	6.8±2.48

BMI = body mass index; VBAC = vaginal birth after cesarean
Data are mean ± standard deviation (age/BMI), # (points for bishop score rest

Results (cont) Regarding patient demographics, there were no statistically significant differences in observed VBAC success rates with respect to age (Grobman – p = 0.54, Metz – p = 0.62) or race (Grobman – p = 0.67, Metz – p = 0.64), however, there was a statistically significant trend in BMI for both models where increasing BMI led to decreased mean predicted success rate (Grobman – p = 0.0133, Metz – p = 0.028). There were no statistically significant differences across models for these (age – p=0.37, race – p=0.40, BMI – p=0.64). Demographic analyses are summarized in Tables 4-6. A Z-test was performed to compare mean observed VBAC success rates between the Grobman and Metz models for those who had a successful VBAC. There was no statistically significant difference between models regarding predictability, (Z=-0.4616, p=0.322), nor were there significant differences when compared with our actual VBAC success rate of 61.5%.

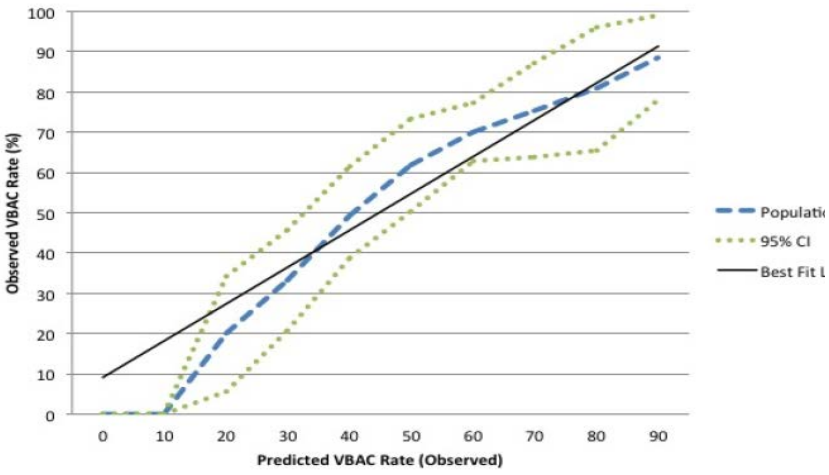

Fig. 2. Population predicted versus observed vaginal birth after cesarean (VBAC) success rates as per Grobman VBAC prediction model. Observed performance of model is represented by blue, *dashed*, line, with 95% confidence interval being represented by two *dotted* lines. Best-fit line is the diagonal, *solid* line.

DISCUSSION The primary objective for this paper was to determine whether or not previously developed and validated VBAC success prediction calculators accurately correlate with *our* population's VBAC success rates and statistics, and if so, to propose/develop a new counseling protocol/checklist for our department that implements these models as official counseling tools. Our institution's current practice includes three counseling sessions – at the first prenatal visit, in the beginning of the third trimester, and upon admission to labor and delivery. At the first session, history and physical is performed and general counseling and inquiry regarding TOLAC/VBAC and patient preferences are performed and documented. At the second session, a more formal discussion of risks and benefits takes place and a preliminary decision is made by the patient and a consent form of intent is signed by both patient and provider. Upon admission to labor and delivery, the same form is signed again, confirming patient understanding of risks, benefits, and alternatives.

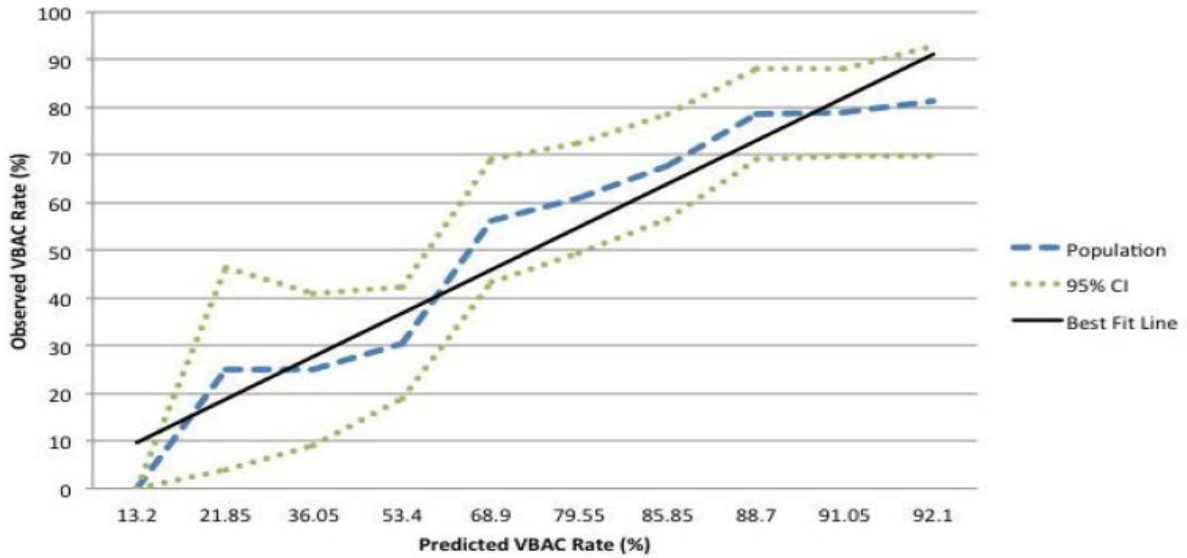

Fig. 3. Population predicted versus observed vaginal birth after cesarean (VBAC) success rates as per Metz VBAC prediction model. Observed performance of model is represented by blue, *dashed*, line, with 95% confidence interval being represented by two *dotted* lines. Best-fit line is the diagonal, *solid* line.

What is lacking from these sessions is a true, objective measure of individualized risk and/or predicted success. With this study, an independent patient cohort was used for analysis of two previously developed, validated, and well-studied models that predict one's VBAC success rate. Models developed by Grobman (2007) and Metz (2013) were both found to accurately predict our population's observed VBAC success rates within a 95% confidence interval. Though the intervals were wide in and of themselves, the correlations between observed and predicted VBAC success rates for both models were statistically significant as they pertained to our population. As there were no significant differences between models, it can be suggested that our department can now consider using two models in our counseling sessions (as the Grobman model would pertain more to the initial and third trimester visits and the Metz model can be applied to counseling on labor and delivery). Limitations of this study are that it was a retrospective cohort study and that patients with confounding factors (pre-eclampsia, prematurity, underlying medical conditions, etc.), whose management could vary amongst providers, could have implications on the population studied. Thus, developing exclusion criteria that are more strict could improve results. Future considerations to improve counseling and the informed consent process even further could involve implementing patient surveys, where a patient can be given a questionnaire citing

commonly described VBAC statistics and risk data in order to assess their knowledge and understanding throughout the prenatal course. This traces back to the aforementioned study by Bernstein et. al. which suggested that patients are not as well-informed or understanding of the risks, benefits, and alternatives to TOLAC/VBAC as previously thought. Individualized VBAC risk assessment, help increase patient safety and VBAC success rates, and improve overall maternal/fetal outcomes. In conclusion, this study has shown that VBAC success prediction models can be accurately applied to our patient population, which in turn, can improve our patient counseling protocols and potentially, our overall VBAC percentage and success rates.

Table 2. Grobman Model: Predicted versus Observed Vaginal Birth After Cesarean Success Rates

Grobman Predicted VBAC (%)	Number of TOLAC	Number of VBAC	Observed VBAC (%)	95% CI
0-10	0	0	0.00	n/a
10-20	0	0	0.00	n/a
20-30	30	6	20.00	5.69-34.31
30-40	54	18	33.33	20.76-45.9
40-50	63	31	49.21	36.86-61.56
50-60	68	42	61.76	50.21-73.31
60-70	157	110	70.06	62.90-77.20
70-80	53	40	75.47	63.89-87.05
80-90	26	21	80.77	65.62-95.92
90-100	35	31	88.57	78.03-99.11

VBAC = vaginal birth after cesarean; CI = confidence interval; n/a = not available/applicable

Table 3. Metz Model: Predicted versus Observed Vaginal Birth After Cesarean Success Rates

Metz Score	Corresponding Predicted VBAC Success (%)	Number of TOLAC	Number of VBAC	Observed VBAC (%)	95% CI
4-5	11.7-14.7	0	0	0.00	n/a
6-7	19.0-24.7	16	4	25.00	3.78-46.22
8-9	31.9-40.2	28	7	25.00	8.96-41.04
10-11	49.1-57.7	59	18	30.51	18.75-42.25
12-13	65.6-72.2	57	32	56.14	43.22-68.98
14-15	77.5-81.6	69	42	60.87	49.39-72.41
16-17	84.7-87.0	68	46	67.65	56.48-78.72
18-19	88.6-89.8	70	55	78.57	68.99-88.21
20-21	90.7-91.4	76	60	78.95	69.73-88.07
22-23	91.9-92.3	43	35	81.40	69.77-93.03

VBAC = vaginal birth after cesarean; CI = confidence interval; n/a = not available/applicable

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6. Safety of Left Upper Quadrant Entry During Laparoscopic Surgery in Obese Patients with a History of Prior Abdominal Surgery

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Introduction: A history of prior abdominal surgery can present a challenge to laparoscopic surgeons due to adhesive disease. This happens when omentum, bowel or even bladder adheres to the abdominal wall. Life threatening injuries are rare in laparoscopy but high morbidity can occur if there is vascular or bowel injury, occurring in 0.4 – 0.9 for every 1000 procedures, and bowel injury, 0.5 – 1.8 for every 1000 procedures (1,2). It has been estimated that 50% of vascular complications and a third to one half of bowel injuries occur during entry (2-6). For patients with a history of prior laparoscopic surgery, anterior abdominal wall adhesions are present in 0% to 15% and in prior laparotomy, this rate ranges from 20% to 60% depending on the type of incision (7-9). In obese patients the increased depth of the abdominal wall and increased pre-peritoneal fat can complicate correct placement of trocars or entry needles. The anatomy may be altered, moving the umbilicus caudally in relation to the aortic bifurcation (10). Although the umbilicus is the thinnest portion of the abdominal wall, and entry is easier here, adhesions may be more prevalent at this site. The safest mode of entry in obese patients with prior surgery has not been well-characterized. A variety of entry techniques are described, all of which aim to decrease complications and all of which are dependent on surgeon skill and preference. There is no clear consensus on the optimal technique for entry into the abdomen. Intra-abdominal entry can be performed via a closed or an open technique. A direct trocar insertion with an optical trocar or Veress needle placement is used in

closed technique. Perhaps the most widely used technique to gain entry into the abdomen is inserting a Veress needle through the umbilicus. Pneumoperitoneum is then achieved with insufflation utilizing CO2 gas to a predetermined intra-abdominal pressure. A trocar is then inserted through this site after the Veress needle is removed (11). An alternative to a closed technique is directly inserting a trocar without pneumoperitoneum, using either cutting or dilating trocar. Although less popular among gynecologists, an open technique can be performed to gain entry into the abdomen. This method of insertion, also known as the Hasson technique, involves direct visualization of the layers from the skin to the peritoneum, followed by trocar insertion with the trocar being fixated to the fascia, gas insufflation, and laparoscope insertion. One method of avoiding umbilical and pelvic adhesions is to use the left upper quadrant (LUQ) for primary entry. This was first advocated by Raoul Palmer, who suggested using a Veress needle 3 cm below the left subcostal border in the midclavicular line (12). An advantage of this technique is that it can be used with large pelvic masses or umbilical hernias when entry through the umbilicus is not advantageous. To our knowledge, no prior study has examined the safety of LUQ entry in obese patients with a history of prior abdominal surgery. In this study we aimed to determine if Palmer's point could be utilized in this population.

MATERIALS AND METHODS: Approval from the Institutional Review Board from Drexel University College of Medicine was obtained before the study was undertaken. We included all patients over the age of 18 undergoing laparoscopic gynecologic surgery for benign indications that had at least one prior abdominal surgery between January 2011 and January 2013. Diagnostic laparoscopy and sterilization procedures were excluded. A history and physical was completed for all patients as well as routine laboratory evaluation. The same primary physician performed all surgeries. Entry was obtained in the LUQ under direct visualization with a 5-mm trocar. Pneumoperitoneum was then established and the subsequent ports placed according to discretion of the surgeon based on the surgery being performed and physical exam findings. Prior to placement of the primary trocar, a nasogastric or orogastric tube was placed in the stomach for desufflation. Demographic data was obtained from the charts, including age, body mass index (kg/m2), indication for surgery, procedure, type and number of previous abdominal surgery, adhesions found at time of entry, and operative or post-operative complications. Student's t test and Fisher's exact test were used for analysis where appropriate.

RESULTS There were eighty-two patients identified for study. The ages ranged from 26 to 63 years. Mean age was 44.4 years (SD=8.2). The range of weight was 121 to 335 pounds with a mean of 181.7 (SD=45.0). 36 (58.1%) patients were identified as obese (>= 30 kg/m2) and 46 (56.1%) as non-obese. Of those who were identified as obese, the mean BMI was 35.7 kg/m2 (SD=8.12). There were 8 patients (9.8%) who would classify as morbidly obese (BMI >= 40 kg/m2). Mean age for obese patients was 42.1 years (SD=8.1) and for non-obese patients, 41.2 years (SD=8.2). Most patients had a previous open surgery (n, %; 63, 76.8%), and 34 (41.5%) patients had previous laparoscopy. There were 20 (24.4%) patients who had a history of both laparoscopy and open surgery. Among all patients, 34 (41.5%) had 2 or more prior surgeries.

Table 1

Comparison of obese and non-obese patients

Parameter	BMI > 30 N=36	BMI ≤ 30 N=46	*P*
Age (years)	42.1 (±8.1)	41.2 (±8.2)	.62*
Parity	1.5 (±1.2)	1.4 (±0.95)	.63*
Total abdominal surgeries	--	--	.38**
Cesarean delivery	29 (80.6)	27 (58.7)	--
Laparotomy	9 (25.0)	16 (34.8)	--
Laparoscopy	13 (36.1)	18 (39.1)	--
Adhesions present	16 (44.4)	15 (32.6)	.19**
Location of adhesions	--	--	.56**
Anterior abdominal wall	7 (19.4)	6 (13.0)	--
Other	9 (25.0)	9 (19.6)	--
Entry-related complications	0 (0)	0 (0)	--

Data are presented as mean ± standard deviation and n (%)
Student's t-test
Fisher's exact test

The most common prior laparoscopy was cholecystectomy (n, %; 14, 17.1%), and the most common previous open surgery was cesarean delivery (50, 61.0%), followed by myomectomy (6, 7.3%). A total of 31 (37.8%) patients were noted to have adhesions at the time of surgery. There were no significant differences between obese and non-obese patients for age, parity, number of prior surgeries, presence of adhesions, and location of adhesions (Table 1). Most previous surgeries for obese patients were open (n, %; 19, 52.8%), the most common abdominal surgery being cesarean (n, %; 16, 44.4%). The most common previous laparoscopy for obese patients was cholecystectomy (7, 19.4%). In obese patients, 16 (44.4%) were noted to have adhesions at the time of surgery. In obese patients the most common location for adhesions was vesicouterine (n, %; 10, 27.8). Only one (2.8%)

had adhesions to the umbilicus. For nonobese patients, the majority had a history of both laparoscopic and open surgeries (n, %; 20, 43.5%). The most common prior abdominal surgery was cesarean delivery, (n, %; 16, 34.8%) for nonobese patients, and the most common previous laparoscopy was diagnostic laparoscopy, (n, %; 11, 23.9). Nonobese patients had adhesions noted in 15 (32.6%) patients. The most common location for adhesions was vesicouterine (n, %; 17, 20.7%), followed by anterior abdominal wall and umbilical, respectively (15, 18.2; 7, 8.5). There were no entry-related complications or failed entry in either group.

CONCLUSIONS The safest method of laparoscopic entry in obese patients with prior surgery has not been clearly defined. In this study we examined the safety of using Palmer's point for laparoscopic entry in obese patients with prior surgery. We found no complications in this population and no instances of failed entry. Laparoscopy is beneficial in obese patients who may have multiple comorbidities and are at increased risk for incisional hernia and infection. However, obese patients present a particular set of problems in laparoscopic surgery due to challenges of entry. Tenting of the abdominal wall in obese patients for placement of the first trocar or Veress needle increases the distance between the skin and peritoneum (13). Preperitoneal insufflation can occur more frequently due to the thickness of the abdominal wall (14). In patients with previous surgery intra-abdominal adhesions can increase the risk of injury to bowel during entry and limit visualization during the case. The preferred site of entry in gynecologic surgery is the umbilicus due to the thinness of the fascia and ease of entry though adhesions from prior laparoscopy or a midline incision can lead to adhesions at this point. Palmer's point, or left upper quadrant, entry has been described for indications such as umbilical hernia, large uterus, large ovarian cyst, previous surgery, or known adhesions (15, 16). Left upper quadrant entry in gynecologic surgery has been described in several studies and in patients with previous abdominal surgery (16-19). LUQ has also been described as an initial point for laparoscopy to create pneumoperitoneum (20). Although nasogastric decompression is often used when employing LUQ entry, a case of gastric injury despite decompression has been described (21). Relative contraindications to LUQ entry include severe hepatosplenomegaly, prior gastric or splenic surgery, suspected upper abdominal adhesions, gastric or pancreatic masses (15). A limitation of our study is the small sample size and its prospective nature. However, cases were performed by one surgeon, ensuring that the same technique was followed each time. Almost 10% of patients were considered morbidly obese, a population not well studied in laparoscopy. Our experience at one institution shows LUQ entry is safe in obese patients with prior surgery and additionally, we had no cases of failed entry with this technique.

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7. Case Report: Primary Abdominal Ectopic Pregnancy

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Introduction

An abdominal ectopic pregnancy is a rare event with an incidence of around 1 per 10,000 pregnancies (1). Abdominal pregnancies make up less than 1% of ectopic pregnancies (2). They are more common in women with a history of infertility and low socioeconomic class, possibly due to the higher frequency of pelvic inflammatory disease prevalent in this population (5, 6). Abdominal pregnancies are implanted outside of the uterus, ovaries and fallopian tubes and pose a risk to the mother's health. The risk of dying from an abdominal pregnancy is 7.7 higher than dying from other ectopic pregnancies and 89.8 times higher than in intrauterine pregnancies (3). However, better diagnostic tools and early intervention have decreased the mortality rate from 20% to <5% over the last 20 years (4).

Case Presentation

A 34-year old Gravida 2 Para 0 at 13 weeks of gestation by last menstrual period presented to the emergency department with complaints of lower abdominal pain and vomiting. The patient had presented to our clinic 4 weeks earlier for a confirmation of pregnancy. Her qualitative Beta HCG at the time was positive but her ultrasound was not confirmatory for an intrauterine gestation. It was noted that the patient had extensive leiomyomata. The patient was lost to follow up and notified our clinic that she was going to another provider. On repeat ultrasound in the emergency department, a gestational sac was visualized and noted to rupture spontaneously during the exam. No fetal cardiac activity was identified. The patient then became hypotensive with a blood pressure of 80/58 and was noted to be drifting in and out of consciousness. Due to the deterioration of clinical status, the patient's sibling was consented for emergent laparotomy under general anesthesia. Upon entry of the peritoneum, an estimated 2000 mL of blood was noted within the abdominal cavity.

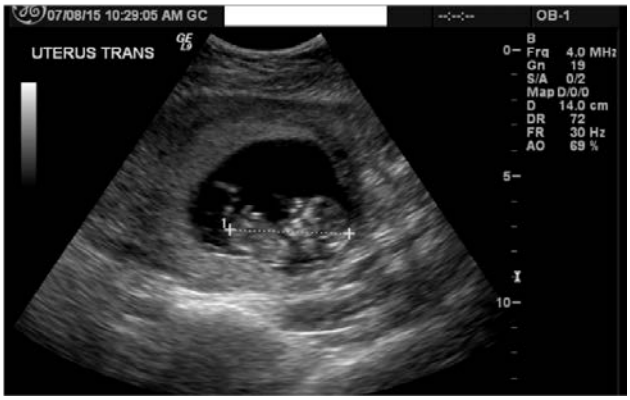

Fig 1 Fetus inside gestational sac

A 13-week fetus with an umbilical cord and placenta were found freely floating in the abdominal cavity. There was evidence of placental attachment to the serosa of the posterior aspect of the uterine fundus. The defect was repaired with adequate hemostasis. The small bowel was thoroughly and carefully evaluated from ileum to descending colon for ectopic implants and none were noted. She had an uncomplicated post-operative course and was discharged on post-operative day two with recommended outpatient follow up.

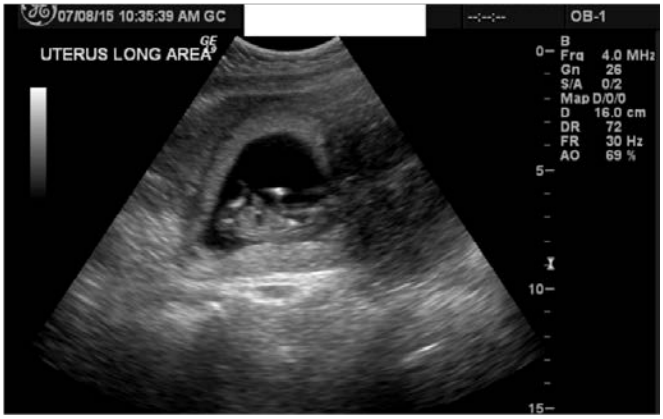

FIG 2 Rupture of the gestational sac

Discussion

Intra-operatively, it was noted that the patient met all of Studdiford's criteria for abdominal ectopic pregnancy. Both fallopian tubes and ovaries were intact. There was no evidence of a utero-peritoneal fistula, and the pregnancy was found exclusively within the peritoneum (8). Making the diagnosis by ultrasound was initially challenging due to the coexistence of extensive leiyomyomata. It was also unfortunate that the patient was lost to follow-up. As per the patient, the other provider informed her that she had a normal intrauterine pregnancy and therefore delaying a proper diagnosis. It was rather fortuitous that the gestational sac ruptured during the in house ultrasound examination.

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8. Chronic Cervicits: Presenting Features and Response to Therapy

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Introduction Cervicitis is a state of cervical inflammation that results in an abnormal mucopurulent discharge and cervical friability.1 *Chlamydia trachomatis* and *Neisseria gonorrhoeae* are two common sexually transmitted infections (STIs) known to cause clinical cervicitis with or without symptoms 2. Collectively gonorrheal and chlamydial diseases account for approximately 50% of the cases of cervicitis; the etiology of the remaining cases is unknown (1-4). With at least 50% of cases of cervicitis not due to gonorrhea or chlamydia, the putative causes of non-gonococcal non-chlamydial cervicitis (NGNCC) remain unclear (2-6). Proposed pathogens include *Mycoplasma genitalium*, *Ureaplasma urealyticum* and *U. parvum*, *Trichomonas vaginalis*, and vaginal flora associated with bacterial vaginosis (BV). In the case of the genital mycoplasmas, an absence of clinically available and validated tests for these organisms, along with controversy about their role and how best and whether to treat them, further complicate clinical management (1,7-11). Similarly, the possible role of viruses such as herpes simplex virus (HSV) and cytomegalovirus (CMV) in NGNCC is unclear (6). Given these many unanswered questions about NGNCC and its causes, it is not surprising that there are no clear guidelines on how to manage this condition, particularly in persistent cases. The 2015 CDC Sexually Transmitted Diseases Treatment Guidelines recommend referral to a gynecologic specialist in cases of persistent cervicitis, but there is little guidance available to those specialists on how to manage them (CDC). Published information about management options remains sparse.

Methods Participants were selected from the Drexel Vaginitis Center, a tertiary care center that sees approximately 500 new and 4300 return patient encounters annually. Patients are typically referred to the center with persistent or recurrent symptoms. Each new patient undergoes a standardized history and examination, which includes testing for vaginal pH, amines, saline, 10% KOH microscopy and any indicated additional testing. A retrospective chart review was performed on all electronic medical records from the Drexel Vaginitis Center between April 1, 2008 and March 1, 2014 with the ICD-9 code (616.0) for cervicitis. Charts were further analyzed for a clinical diagnosis of cervicitis which necessitated any two of the following three criteria: 1) a friable cervix, 2) symptoms of discharge as described by the patient, or 3) evidence of mucopurulent discharge on speculum exam as noted by the provider. Each patient had nucleic acid amplification tests (NAAT) for *N. gonorrhoeae*, *C. trachomatis* or *T. vaginalis*. Any positive test for these three organisms at the time of cervicitis diagnosis excluded their inclusion in the study. Once commercially available, NAATs for *M. genitalium*, *Mycoplasma hominis*, *U. urealyticum* were also sent for each patient. Institutional review board approval was obtained from Drexel University College of Medicine's office of research to perform this study. Data were collected on eligible patients including demographics, gynecologic and obstetric history, social history and clinical information regarding examination findings, symptoms, treatments and responses. This information was analyzed for descriptive statistics. Each patient received one of three following initial treatment regimens, intended to target the putative bacterial causes of NGNCC: azithromycin

500mg two pills together followed by once daily for 14 days, doxycycline 100mg twice daily for 14 days or Moxifloxacin: 400mg daily for 14 days. Patients were then brought back for a follow-up appointment four to six weeks after initiation of treatment. At this visit, a physical examination was repeated and symptoms were assessed for improvement. A clinical cure was defined by resolution of cervical friability and/or discharge (whichever findings were present upon diagnosis). Symptomatic cure was defined by a reduction in symptoms by 50% or more. Clinical cure did not always correlate with a symptomatic cure. For the purposes of this study, cure (when not specified) relates to a clinical cure, as it is a more objective and easily defined outcome to trace. Recurrence was defined as a return of symptoms or physical findings at a subsequent visit a minimum of one month after cure had been reached. If patients continued to have symptoms at their follow up visit, one of 11 possible secondary treatments were employed. The non-invasive secondary treatments can be divided into: hormonal treatments (depo-medroxyprogesterone, estradiol cream), additional antibiotics (clindamycin, doxycycline, azithromycin, moxifloxacin, metronidazole), silver nitrate and vaginal hydrocortisone. If further treatment was required, this was generally followed by a second antibiotic treatment of a different class or depo-medroxyprogesterone if no contraindication existed. If at any point throughout follow-up a specific area of isolated cervical friability was found, then in-office silver nitrate was added to the regiment. In general, patient management, especially after the second line therapy, was individualized. Additional treatments were tried until cure was reached or the patient was lost to follow up. If the patient's symptoms were intractable to all secondary treatments, more invasive procedures such as cryotherapy and loop electrosurgical excisional procedure (LEEP) were considered.

Results: Of the 8,279 patient encounters that were originally evaluated for their significance in this study, 71 women were identified as having cervicitis. Six of these women were excluded for having an active STI – including *Neisseria gonorrhoeae*, *Chamydia trachomatis*, or *Trichomonas vaginalis*. Therefore, 65 women met the study inclusion criteria for NGNCC. Of those 65, an additional four patients were excluded due to incomplete charts or loss to follow up after the first visit. The final analysis includes a total of 61 patients. Demographic information for the 61 patients is presented in Table 1. Information gathered includes social and demographic information as well as any history of STI, Pap abnormality, or history of cervical procedure such as a LEEP or cervical conization. Table 2 summarizes the clinical picture of the patient population. Although discharge was the most common complaints (n=55, 90.2%), many women had also irritative vulvovaginal symptoms such as irritation, itching, burning or dyspareunia As expected in a population of women with persistent NGNCC, over 50% of patients had symptoms of more than a year's duration. As described earlier, part of the clinical evaluation for many women included testing for the presence of various urogenital and vaginal pathogens, including mycoplasma and ureaplasma species via NAAT. A total of 30 women were tested for some combination of these species. Aerobic bacterial cultures were also performed to look for rarer pathogens such as Group A streptococci. The majority of these bacterial cultures were negative (7/9, 77.8%), growing only routine genital flora. Two (22.8%) grew out Group B streptococci, which appropriately reflects the fact that this organism is normal genitourinary flora in up to 20 to 30 percent of women. Twenty of the thirty women who were tested had negative results for any genital mycoplasma. No patient tested postive for *M. genitalium.*

Age (mean, standard deviation)	31.0yo, 8.55yrs
Marital Status Single/separated	41 (67.2%)
Married	20 (32.8%)
Partners in Last Year 0	3 (4.9%)
1	33 (54.1%)
> 1	18 (29.5%)
Unknown	7 (11.5%)
Race	
Caucasian	37 (60.7%)
Asian	6 (9.8%)
African American	5 (8.2%)
Hispanic	1 (1.6%)
Not recorded	12 (19.7%)

Nulliparous	36 (59.0%)
Smoker	5 (8.2%)
History of LEEP/Cold Knife Cone	4 (6.6%)
History of Abnormal Pap	23 (37.7%)
History of Recurrent BV	19 (31.1%)
History of Recurrent Yeast	39 (63.9%)
History of STI	27 (44.3%)
GC (% overall, % of STI)	1 (1.6%, 3.7%)
CT (% overall, % of STI)	5 (8.2%, 18.5%)
HSV (% overall, % of STI)	4 (6.6%, 14.8%)
HPV (% overall, % of STI)	21 (34.4%, 77.8%)
Trichomonas (% overall, % of STI)	5 (8.2%, 18.5%)

Table 1. Demographics of Women with Cervicitis (n=61)

Symptoms	
Abnormal discharge	55 (90.2%)
Irritation	39 (63.9%)
Itching	35 (57.4%)
Odor	27 (44.3%)
Burning	26 (42.6%)
Dyspareunia	24 (39.3%)
Intermenstrual vaginal bleeding	21 (34.4%)
Vaginal bleeding with coitus	16 (26.2%)
Urinary	7 (11.5%)

Symptom Duration Average, Standard Deviation	25.2mos (30.2mos)
</= 1mo	10 (16.4%)
>1-3mo	7 (11.5%)
>3-12mo	12 (19.7%)
>12mo	32 (52.5%)
Physical findings	
Discharge	46 (75.4%)
Friability	43 (70.5%)

Table 2. Initial presentation (n=61)

Most commonly, no testing was done for individual Ureaplasma species, and results were reported as either positive or negative for *Ureaplasma spp*. In fact, only one of the positive results contained any species-specific information on ureaplasmas. Five (16.7%) women were positive for M. hominis, and eight (26.7%) were positive for Ureaplasma spp. Of those, 3 (10%) were positive for a combination of M. hominis and Ureaplasma spp. The first line of treatment for all women was a course of antibiotics. The most commonly prescribed were azithromycin (38/61, 62.3%), doxycycline (14/61, 22.9%), and moxifloxacin (9/61, 14.8%). With an initial course of one of these antibiotics, thirty (49.2%) women were cured; more specifically, 25/38 (65.8%), 11/14 (78.6%), 4/9 (44.4%) were cured with azithromycin, doxycycline or moxifloxacin as a single therapy, respectively. Nineteen (31.1%) patients required at least one

further treatment, and eight (57.9%) of them received treatment with a second antibiotic regimen, either azithromycin (1/25, 4%), doxycycline (2/14, 14.3%), or moxifloxacin (5/9, 55.6%). Of these eight patients, three (37.5%) achieved cure, one with azithromycin (100%), two with moxifloxacin (40%), and none with doxycycline. After antibiotic therapy, second line therapy consisting of DepoProvera, vaginal hydrocortisone cream or silver nitrate was give to 11 patients. Five (45.5%) received Depo-Provera 150mg IM; 60% of those were cured. Three women (27.2%) received hydrocortisone cream, and three also received silver nitrate as a second line therapy. All of the three women who received hydrocortisone cream necessitated further treatment. All three women who received mycoplasma ($p = 0.273$) or for ureaplasma alone ($p = 0.454$) was not associated with cure after the first line antibiotic regimen ($p < 0.05$). These patients were not routinely cultured for a test of cure. Overall, of the 61 patients with at least one follow-up visit, 57 (93.4%) were cured, and 4 (6.6%) were not cured. Forty (70.2%) were cured with a single treatment, 9 (15.8%) were cured with two treatments, and 8 (14.0%) were cured with three or more treatments. silver nitrate were cured. Ten of the original 61 women (16.4%) required three or more treatments, and of those ten, 9 achieved a cure. Third and fourth line treatments included clindamycin cream, cryotherapy, Estrace, and a loop electrosurgical excisional (LEEP) procedure. Of note, a LEEP was performed in two women as a last resort, and they were both cured.Lastly, we looked at therapeutic outcomes for those patients who tested positive for genital mycoplasma. Specifically, we looked at whether or not there was an association between a positive test for genital mycoplasma or for ureaplasma alone with cure from a single antibiotic regimen. This analysis was performed using a chi-square model. We found that the presence of a positive test for any genital

Discussion NGNCC is an uncommon phenomenon. Despite the nearly 5000 annual patient encounters at the Drexel Vaginitis Center, only 65 cases were encountered. This has been demonstrated by other studies as well. In a randomized control trial by Taylor et al. 2013 looking at cervicitis of unknown etiology in patients attending STI and family planning clinics, there were insufficient cases to complete enrollment (3). There is very little documented in the literature about the true prevalence of cervicitis of unknown cause. The cause of NGNCC is unknown. *Mycoplasma genitalium*, a urogenital pathogen known to cause STI in men and women, has been associated with cervicitis in women with high-risk sexual behavior (8-10,12). Multiple studies have shown a statistically significant two to three fold greater risk of cervicitis when *Mycoplasma genitalium* was detected by polymerase chain reaction (PCR) (5, 9-11). Despite these data there is insufficient evidence to support a causal link between clinical disease (including symptomatic cervicitis and pelvic inflammatory disease) and the presence of *M. genitalium.(*3,7,13). Additionally, there is a lack of consensus regarding the true prevalence of *M. genitalium*, a validated clinical test, and standardized treatment (5-8,12).Ureaplasmas are commonly isolated bacteria of the female genital tract. There are two predominant species recognized, *Ureaplasma urealyticum* and *U. parvum*. Their overall prevalence rate among sexually active women is high (12-64%); however the literature to date has failed to show a linkage between carriage of either species. and cervicitis (7). Bacterial vaginosis (BV) is the most common vaginal infection. It is caused by an overgrowth of endogenous bacteria and can involve the cervix. Up to 15% of cases of BV concurrently have cervicitis.6 Herpes simplex virus (HSV) can also cause cervicitis in rare severe primary outbreaks where lesions are more likely to involve the cervix (6). *Trichomonas vaginalis* is a STI, which is typically asymptomatic but can cause vaginal discharge and cervical friability. However, it accounts for only a small percentage of NGNCC (1,6). We had no positive test results for *M. genitalium*. The few positive test results that we did have were for rare bacteria whose significance is even less clear. We were limited in drawing any conclusions regarding the role of mycoplasmas in our study population due to the

fact that the clinical lab utilized in this study does not have a validated test for genital mycoplasmas. Despite not knowing the causes of NGNCC, most patients can be adequately treated. Our results indicate that antibiotics are a good initial treatment choice. Few other studies have shown improved or resolved symptoms with antibiotics however the ideal regiment is not defined and the previous results are mixed (14,15). For second line treatments there is no standard indicated therapy however additional antibiotics may be helpful. The Centers for Disease Control and Prevention (CDC) recommendations for 2015 support empirical treatment of cervicitis only in women at high risk of STI with empirical antibiotics to cover for *C. trachomatis* and *N. gonorrhoeae*. Furthermore they report that prolonged or repeated antibiotics has unknown benefit at this time. They do not address additional therapies. Hormonal treatments may have some value however there is even less literature to support its use in chronic cervicitis. As a last resort, excisional procedures can be undertaken with good results. Additional studies utilizing this technique are lacking. Our study was limited by the lack of a definitive test for diagnosis. We relied on diagnostic criteria which were based on clinical data obtained by one of two providers. Furthermore, treatment success and clinical case definition were based on subjective data provided by both patient and provider. In being a retrospective study we additionally were limited by not having a placebo control group or randomization of treatments given.

Conclusion NGNC cervicitis is an uncommon reason for referral to a tertiary care vaginitis center. Thirty-six of the 52 (69.2%) patients initially treated with doxycycline or azithromycin as initial therapy were cured. Best second line treatment is unclear, but most patients were eventually cured. LEEP procedures are successful as a last resort treatment when antibiotic and hormonal treatments have failed. The cause of NGNC cervicitis remains unknown. The role of genital mycoplasmas is still unclear. No patients tested positive for *M. genitalium* and only a small number of patients tested positive for other species with no discernable pattern or response to therapy. This data is in-line with much of the literature that has failed to delineate a clear role of genital mycoplasmas in genital infection and determine a successful treatment regimen (6-8,12,13,17). The lack of ubiquitous testing in this study made the evaluation of genital mycoplasmas difficult. However, during the course of this study multiple laboratories developed NAAT tests none of which have been properly validated and thus standard testing was not feasible. Despite the limitations of this study we have demonstrated that persistent NGNCC can cause long-term intractable symptoms. However, our results suggest that there are treatment modalities that can be helpful and are worthwhile offering to patients. Controlled studies are indicated to determine best approaches to treatment. Given the small number of cases encountered at our specialized referral center, these future studies should likely be part of a multi-center collaboration.

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9. Primary Cardiac Liposarcoma Diagnosed in Pregnancy

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INTRODUCTION : The prevalence of primary heart tumors is low, with an incidence of ~0.001-.28%. Only one quarter of these is malignant. The most common of the primary malignant heart tumors is cardiac sarcoma at 75%. The rest are primarily lymphomas (1). Primary cardiac liposarcomas make up approximately 1% of all malignant cardiac sarcomas. These tumors are aggressive and offer a poor prognosis. Due to their rarity – there is currently no standardized treatment. However, early and complete surgical intervention is thought to improve prognosis. Therefore, the earliest possible diagnosis is important. This becomes more difficult in pregnancy, as the most common presenting symptom, such as shortness of breath, can be a normal finding in pregnancy. The decision whether or not to pursue chemotherapy during pregnancy is a difficult one given the lack of data on its efficacy in rare tumors (2). The treatment plan is more difficult when the effect on the fetus is considered. Because this condition is rare and treatment is complex, it is important to offer this report with the hope that it may guide others in formulating a treatment plan. It may also help to council the patient on prognosis and possible outcomes. We present the case of a 29 year old female diagnosed at 13 weeks gestation after presenting with the symptom of shortness of breath. Initially these symptoms were felt to be due to pulmonary embolism but imaging revealed a cardiac mass and she was eventually diagnosed with a primary cardiac liposarcoma.

CASE: A 29 year old woman, gravida 2 para 1001 presented to her obstetrician with a chief complaint of shortness of breath at 13 weeks gestation. Computed tomography angiogram revealed a left atrial mass with differential diagnosis including thrombus and cardiac tumor. The mass involved a large portion of the mitral valve, causing severe mitral stenosis. She underwent resection of the mass and mitral valve replacement under cardiopulmonary bypass two weeks after the diagnosis. The resection was incomplete due to the size of the tumor and extension into the pulmonary vasculature. Pathologic examination showed a dedifferentiated liposarcoma. Medical oncology recommended systemic chemotherapy with adriamycin and isophosphamide or cyclophosphamide. The patient sought a second opinion and ultimately decided to defer chemotherapy until she was delivered. A maternal fetal medicine consultant recommended chemotherapy and delivery at 32-34 weeks. At 27 6/7 weeks the patient presented with epigastric pain. She had received treatment for presumed peptic ulcer disease the week prior

with no relief of symptoms. She received two doses of betamethasone at that time. MRI of the abdomen without contrast demonstrated enteroenteric intussusception in the left upper quadrant. This was thought to be due to metastatic disease. General surgery recommended conservative treatment with nasogastric tube placement, intravenous fluid resuscitation, enteral rest and serial abdominal exams. The patient's condition continued to deteriorate over the next few days; she became increasingly short of breath and less alert. Computed tomography angiogram showed a new two centimeter thrombus versus tumor mass in the left atrium as well as signs of right hear strain. The mass was completely occluding the pulmonary vein. Following discussion about her status, the patient requested to undergo delivery. In the operating room an attempt was made to place a temporary transcutaneous pacer after she developed heart block. During this preparation time the fetal heart tracing became nonreassuring, necessitating prompt delivery. A viable female infant was delivered weighing 950 grams; Apgar were 3/5/7. Following delivery the abdomen was explored leading to resection of a portion of small bowel with primary reanastamosis. A transcutaneous pacer was eventually placed and "capture" position was confirmed by transesophageal echocardiogram. Pathologic evaluation of the specimen from the surgery revealed that the small intestine resection was consistent with metastatic dedifferentiated liposarcomas. The patient was initially stable post operatively, but her condition worsened and she died on post-operative day number eight from respiratory and heart failure. She was never extubated following and surgery. After several discussions with our palliative care team the decision was made to remove ventilator support in accordance with her previously stated wishes.

DISCUSSION Liposarcoma is the most common soft tissue sarcoma, accounting for approximately 25% of all sarcomas; although they make up a small percentage of primary cardiac tumors. Liposarcomas are divided into three categories on the basis of cytogenetic characteristics: myxoid/round Cell, pleomorphic and well-differentiated/de-differentiated. Well-differentiated and de-differentiated types may have overexpression of MDM2, HMGA2 and CDK4, which results in uncontrolled proliferation through effects on p53 and the cell cycle. Italiano et al retrospectively analyzed 208 patients, with 171 (82%) patients having dedifferentiated liposarcoma and 37 (18%) having well-differentiated histology. It should be noted that the majority of these patients were diagnosed with liposarcoma of the limbs or peritoneum. This study reported a median overall survival of 15.2 months, with higher progression free survival in the well differentiated histology group , 8.7 months versus 4 months in dedifferentiated group. Combined chemotherapy with doxorubicin and ifosfamide were associated with a higher response rate than single agent doxorubicin but did not improve overall survival. This may be a reasonable option when a tumor response may lead to improved symptoms (3). Current knowledge in the management of this rare disease is primarily based on single-institution series, case studies, and data from other tumor sites. Surgery remains the cornerstone of therapy, often with palliative intent for relief of symptoms. Complete resection is possible in approximately half of the cases where involvement is limited to atrial septum or a small part of ventricle or valve. Surgery is often indicated, and despite traditionally being deferred to 12-14 weeks to minimize risk of spontaneous abortion, surgery should not be delayed at any gestational age if such a delay would risk maternal life. Long-term survival remains poor mostly due to local or systemic recurrence (4). Regimens for the more common soft tissue sarcomas exist, with chemotherapy being the most commonly recommended (Adriamycin or doxorubicin plus ifosfamide). The use of anthracyclines during pregnancy was described in 160 cases by Germann et al with a favorable toxicity profile when used during the second and third trimesters of pregnancy (83% of cases). They found maternal and fetal prognosis to be poorer under the following

circumstances: administration during the first trimester of pregnancy, use of idarubicin, doxorubicin doses exceeding 70 mg/m2 and in cases of maternal acute leukemia. Fetal outcomes were most often normal (73%); reported abnormalities included malformations (3%), fetal death (9%), spontaneous abortion (3%), fetal complications (8%) and prematurity (6%) (5).

In conclusion, it is important to report on the existence of this rare tumor in a young, pregnant woman to help further our knowledge of its progression and response to treatment, as well as to alert clinicians to its possible presentation in pregnancy. This case demonstrates the aggressive nature of primary cardiac sarcomas, and the importance of early surgical intervention as well as planning for an early delivery of the fetus. It also highlights the difficulties of pursuing treatment of such a rare condition as dedifferentiated liposarcoma. This is especially true due to the fact that historically many cases originally classified as malignant fibrous histiocytoma were in fact actually liposarcomas (6,7). This makes review of the literature particularly difficult. The patient presented with vague symptoms of dyspnea. This is a common complaint due to physiologic changes of pregnancy; imaging and echocardiogram were essential in establishing an accurate diagnosis. A multidisciplinary approach is necessary to care for the patient.

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10. Comparison of Structure of Psychiatry Training Across Atlantic

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Keywords: Career development, Careers in Psychiatry, International Medical Students, Careers choice, Residents evaluation.

Introduction According to WHO, out of the 192 countries and territories in the world, 122 (63.5%) have formal training programs for psychiatry residents/trainees, 57 (29.7%) had no training program, while information was unavailable for 12 countries (1). Medical education and psychiatry training vary considerably in different regions in terms of the duration of training, structure of clinical experiences, level of responsibility and autonomy of trainee, amount of classroom teaching, national examinations, and credentialing (2). Psychiatry training programs are responsible for training doctors to become psychiatrists to deliver mental health services to the population. Many of the western countries have training programs that do not only benefit their own physicians but train foreign medical graduates as well. United States of America and United Kingdom, closely followed by Australia seem to be the most attractive options for medical graduates from developing countries for specialist training (3).In return the psychiatry residents contribute to the workforce of mental health personnel in the country of training. For example in USA, the percentage of IMGs in

psychiatry residency programs has remained between 31-40% from 2001-20134. USA and UK are two most desired destinations as these are English speaking countries where training systems have been established for a long time and undergo constant evaluation. Both countries have training programs that are well-structured and have significant psychotherapy component in them (5). We compared the training requirements, assessment and examination systems in the two countries through review of information available via their corresponding accrediting bodies. We also looked at the selection process of residents/trainees from the websites of recruitment organizations. One of the authors has personal experience of training in both countries. We will compare the training systems in the two countries in the domains of Selection/Recruitment process, structure of training, and assessment of residents/trainees in thetraining.

I- **Selection/Recruitment process**: USA adopts a centralized system of resident selection Electronic Residency Application Service (ERAS)(6). The programs receive online application from applicants at the start of application cycle in September each year. The application involves USMLE scores, CV, a personal statement and 3-4 letters of recommendations, generally from Attending Physicians or equivalent in case of foreign physicians (6). Each program then interviews prospective candidates throughout the interview season which typically extends from September to February. The applicants also get an opportunity to see the facilities, meet with faculty and assess the program for their suitability. Applicants are encouraged to ask questions to clarify any doubts about the program, educational activities like didactics and in general about the city etc. Most programs allow the applicants to meet with the current residents so applicants can learn first-hand how these residents perceive their training experience, while simultaneously getting acquainted with their future peer group. At the end of interview season each program establishes a Rank Order List (ROL) which is submitted to National Resident Matching Program (NRMP)(7). The applicants also after interviewing at their places of interest submit their preferences in the form of a rank order list to NRMP. The NRMP then “matches” the residents with the programs on a specific day called, "Match Day" generally in March, in view of the preferences given by both the programs and the applicants. Programs can opt not to go through the match process and give "pre-matches" to the individual candidates they like, but then they have to fill all of their positions via this method. Unfilled positions are filled by "Post-match scramble" where programs and candidates have a few days to make contact with each other and fill the positions. The matched applicants then start training in July the same year, in their respective programs. In UK the selection process has changed in the last few years and now it’s a centralized process as well which is managed by North Western Deanery (8). The applications are submitted twice a year and applicants can apply through a centralized online web portal to 3 deaneries of their choice. The applicants are required to research on their own about the psychiatric programs in order to be able to make a decision at the time of application. The application involves a structured application form, details of primary medical qualification, General Medical Council registration status and references. The potential candidates are interviewed generally at their first choice deanery. The interview is a structured process, conducted by a panel of interviewers and the interview questions are published on the website prior to the interviews (8). The interview also involves checking the documents for evidence of GMC status and successful completion of foundation year (FY1 and FY2) competencies. The candidates are then selected based on their preferences and the scores that they receive for the CV and interviews etc. Offers are made to the applicants, who have the option of accepting, holding or declining the offer for a limited time, after which if not accepted, they are passed on to the next candidate in the list. Any unfilled positions after these processes are filled by a second round of applications and interviews. The deanery places successful candidates to individual hospitals and they start their training

either in February or August. As the trainees are now selected for Core Psychiatric training (year 1-3), they go through similar selection process for getting into Higher specialist training (year 4-6) in their chosen subspecialty after completing the core training.

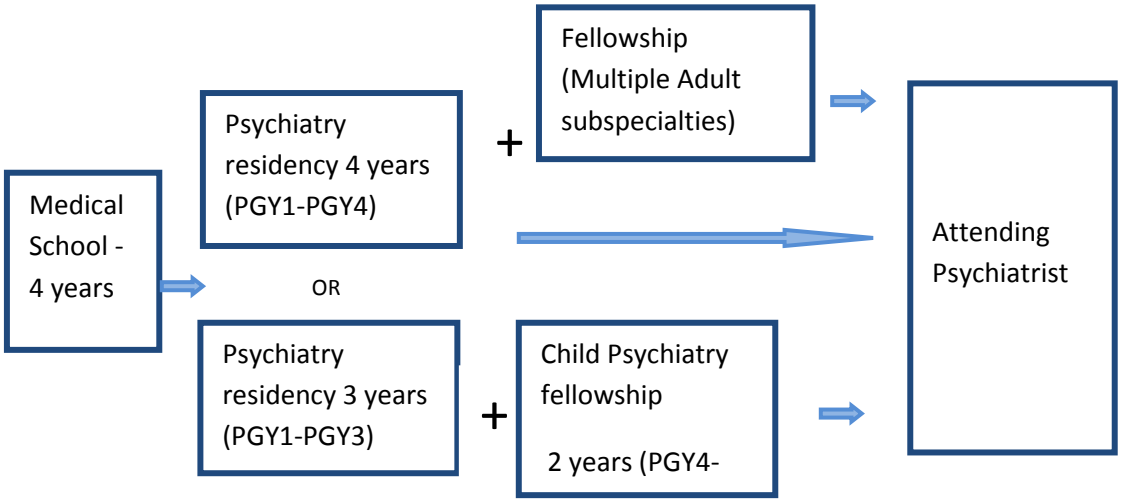

Fig 1 Flowchart of the training process in the USA

II - Structure of training: ACGME, the accrediting body for medical training in USA has specific training requirements for the competencies, content as well as time duration for psychiatry training in USA (9). Medical graduates can enter into Psychiatry training after completing medical school. The General Adult Psychiatry training is a minimum of 48 months. The first year of training (PGY-1 year) must include at least 4 months of Family Medicine/Internal Medicine and or Pediatrics. Minimum of 2 months are required in Neurology during the course of residency, of which at least 1 needs to be completed in first 2 years of residency. General In-patient psychiatry experience must be at least 6 months but cannot exceed 16 months. Out-patient general psychiatry should be at least 12 months in a 48 year month residency program. The training program also must give adequate sub-specialty training and the residents must have at least 2 months in Child and Adolescent Psychiatry, 1 month in Geriatric Psychiatry, 1 month in Addiction Psychiatry and 2 months in Consult-Liaison Psychiatry (9). There are no minimum time requirement for Community Psychiatry, Emergency Psychiatry and Forensics; however ACGME requires certain competencies to be achieved by the residents in these fields. ACGME also mandates that the residents receive at least 2 hours of supervision every week. Following successful completion of training the graduates can then work as an Attending Psychiatrist. Residents can also opt to do Fellowships in the fields of Addiction Psychiatry, Brain injury Medicine, Child and Adolescent Psychiatry, Geriatric Psychiatry, Sleep Medicine, Pain Medicine, Hospice and

Palliative care medicine, Psychosomatic medicine and Forensic Psychiatry. Most of the fellowships with the exception of Child and Adolescent psychiatry fellowship are 1 year long. Child and Adolescent psychiatry fellowship is 2 years; however it can be done after 4 or 3 years of training. ACGME allows residents to go into Child psychiatry fellowship after 36 months of general psychiatry training through a process called, "fast-track" provided that they start fellowship immediately after completing 3 years of residency. In UK the training standards are implemented and assessed by Royal College of Psychiatrists in conjunction with General Medical Council (GMC)(10). Medical graduates need to have completed 2 years of post-graduate medical training called Foundations years to be eligible for applying to psychiatry training programs. Experience in foundation years can be gained in most of the major specialties of medicine but cannot be counted towards completion of psychiatry training if resident has done psychiatry as part of foundation years. The total duration of psychiatry training is 6 years or 72 months which is divided into Core training Program (years 1-3) and higher specialty training (Years 4-6). The trainees must pass all the components of MRCPsych examination conducted by Royal College of Psychiatrists in order to proceed to Higher Specialist training (11). The training is generally delivered in 4 or 6 months blocks. The higher specialist training can be done in any one of the six recognized disciplines, which are General Adult Psychiatry, Child and Adolescent Psychiatry, Psychotherapy, Learning Disabilities, Forensic Psychiatry and Old Age Psychiatry. After completing 3 years in Higher Specialty training, the trainees are given Certificate of Completion of Training (CCT), and are added to the specialist register of General Medical Council (GMC) and can work as a consultant psychiatrist. The consultant Psychiatrist can then work in the discipline in which he or she has obtained higher specialist training. An entry into specialist training can also be gained by acquiring Certificate of Eligibility of Specialist Registration (CESR) by providing documentation to the satisfaction of Royal College of Psychiatrists that clinical competencies have been achieved without being in the full formal training program11. Physicians who do not want to go through the whole process of training or who are unable to progress through the training steps can adopt non-consultant grade jobs and still participate in delivery of mental health services to patients. They can, on gaining sufficient experience and competencies, and then apply to Royal College for entry into specialist registration via CESR10.

III- Assessment of residents/trainees during training: In USA, the residents undergo a number of evaluations during the course of their training. At the end of each rotation, the residents get an evaluation from the Attending Physician supervising them. There are 360 degree evaluations that involve non physician staff like Nurses, Social workers, psychologists etc. They are all combined to get a summative evaluation biannually, called "Biannual".

In addition to these evaluations, the residents also take a knowledge based MCQ exam called "Psychiatry Resident In Training Examination" (PRITE). This is conducted annually, has two parts to it and is conducted by American Board of Psychiatry and Neurology (ABPN)(12). There is no pass or fail cut off stipulated by ABPN, however each resident is given feedback on his/her performance in all subspecialties/disciplines and a comparison is provided with residents in the program and with the psychiatry residents across the country. Training programs can implement the minimum required scores or cut offs for progressing to the next level of training. Each resident is required to complete a number of Clinical Skills Verification (CSV) evaluations in each year of training as they are needed for progression to next level. ABPN conducts the board exam annually which can be taken following four years of training and completion of all necessary requirements, including an unrestricted license to practice in one of the states of USA (12). Pass at this exam gives a physician, the title of Diplomat American Board, however it is not essential for practicing as a psychiatrist in USA. Physicians can also take the ABPN Board exam for their respective specialty if they have

completed fellowship training in that specialty. ACGME has moved to a new process of evaluation called, "Milestones" which has started in July 2014. They are competency based developmental points which a resident is to accomplish at each step of training.

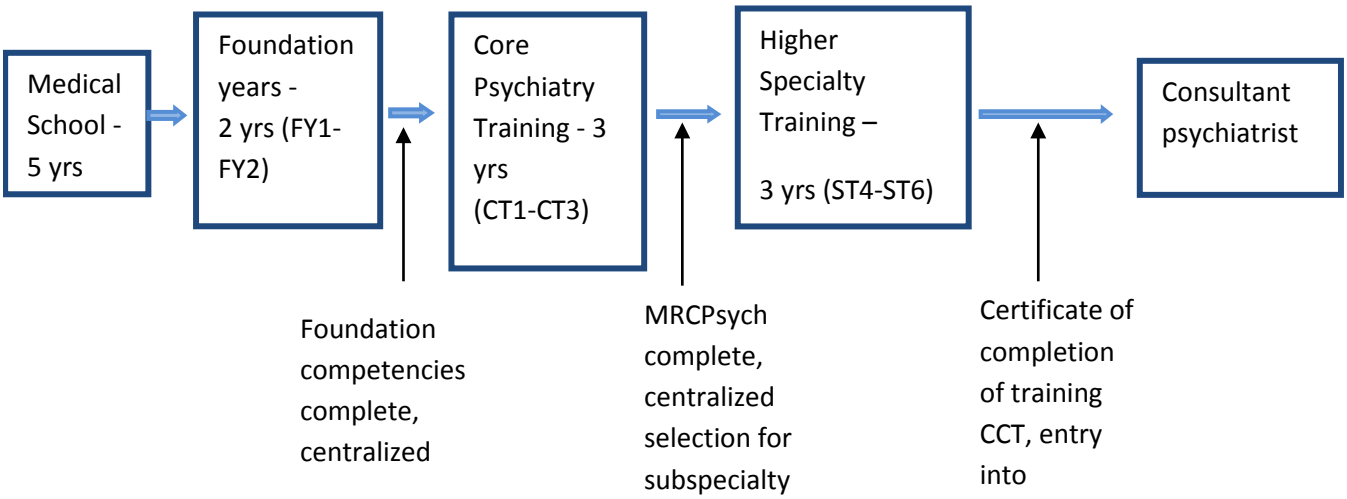

FIG 2 Flowchart of the training process in the UK

In UK the trainees are assessed using exams for membership of Royal College of Psychiatrists (MRCPsych), Work Place Based Assessments (WPBA) and evaluations at midterm and end term of each rotation. The structure of MRCPsych exam is in the process of transition and its writtenpapers have been reduced to 2 from 3 in 2015. So the exam now has two MCQs papers, Paper A and Paper B and an interview based exam called Clinical Assessment of Skills and Competencies (CASC) which can be taken after written papers are passed and 24 months of Psychiatry training has been completed. A CASC involves 16 clinical situations assessment scenarios, of which a candidate needs to pass 12 in order to pass the whole exam. Success at the CASC exam along with college approval confers MRCPsych degree (13). The WPBA assessments consist of encounters of different clinical situations in different time limits and assess a variety of skills depending on the type of WPBA. They consist of Assessment of Clinical Expertise (ACE), Mini-Assessed Clinical Encounter (Mini ACE), Case based Discussion (CbD), Mini-Peer Assessment Tool (Mini-PAT), Case presentation (CP), Journal Club Presentation (JCP), Directly Observed Procedural Skills (DOPS) and Assessment of Teaching (AoT). Different numbers of these assessments are needed to be passed in each year of training for progression and for sitting for the MRCPsych exam. Each trainee is also assessed for competencies mid-term of each 4 or 6 monthly rotation and then at the end of rotation by his/her own consultant and the training program director. Every trainee has to maintain a portfolio of these assessments and evidence of competencies relating to the level of training which is then assessed at Annual Review of Competence progression (ARCP) meeting which determines progression. After successful ARCP in last year of training, the trainees can apply for Certificate for Completion of training (CCT) in order to start working as a consultant psychiatrist.

Table.1*: Comparison of Selection Process*

Selection process	**United States of America**	**United Kingdom**
Overall Selection process	Centralized (ERAS and NRMP)	Centralized (North Western deanery)
Application cycle	Once a year	Twice a year
Mode of application	Online	Online
Number of programs an applicant can apply	No limit	Three deaneries
Interview venue	Program of interest	Mostly deanery of first choice
Interview process	Semi-structured and flexible	Structured
Interview length	Generally half to full day	Generally less than 2 hours
Information about the program	Online, at the time of interview (verbal and written information)	Prior to application via websites, guides etc
Informal meeting with residents	Arranged by program	Not arranged
Placement in the program	Through match	Placed by deanery
Filling unfilled positions	Post match “scramble”	Second round of applications and interviews

Conclusion: Psychiatry training programs across the Atlantic have some clear similarities and some differences. Both countries are among the top choices for local and foreign medical graduates aspiring to gain good training in Psychiatry. Comparison between the psychiatric trainings of the two countries can help both countries to understand better what has been useful in one country and can be tried in the other or vice versa. The centralized selection process has been established in both countries to recruit the most suitable candidates to be the future psychiatrists. In USA, the central recruitment has been in place for a long time and has evolved over time into a very efficient yet comprehensive process. The applications are submitted through a uniform system which not only ensures standardized credentialing mechanisms but also helps assessors rate them in comparison to one other, which is important as USA residency programs get applications from around the world and it would be very difficult to compare one application to the other in the absence of such a system. The ability of applicants to see the place, interview with multiple faculty members, residents and spend a whole day is invaluable in the decision making process. In UK the centralized process has just started and appears to be in relative infancy. The structured interview is less time consuming, however it does not afford the applicants to ask questions or compare against most other programs as there is a limit on the number of programs they can apply to. In our opinion, weighing all the positives and negatives, we consider USA recruitment system more robust, well-established and applicant friendly. The structure of training, length of time required and components of training are different across the two countries; however they aim to provide the residents/trainee with a comprehensive exposure to all the branches of psychiatry and

patient populations. The psychiatry training has mandatory medicine and neurology rotations in USA, which seems to offer more insight into related disciplines and emphasizes more integrated approach to patient care. Additionally, in USA, some institutions offer combined residency programs (Psychiatry-Internal Medicine; Psychiatry-Family medicine; Psychiatry-Neurology) which emphasize training in both disciplines for trainees to have a diverse educational experience and perspective. In UK, there are no such combined training programs. In USA, the overall training is shorter for becoming an attending psychiatrist; however every resident has the option of doing additional training in the form of fellowships. In UK the basic training is shorter, but the trainees have to complete sub-specialty training in order to get the CCT to work as a consultant psychiatrist, thus prolonging it to a total of 6 years. This has to be done after completing the 2 years of foundation training. The authors think both training structures have unique characteristics suitable for their needs, and therefore while comparing we consider them at par to each other. Both countries use multiple structured tools to assess the progression of residents/trainees during the course of training. USA training system uses more in-house tools for assessment of residents, including the 360 degree assessment. The PRITE exam offers the opportunity to assess the knowledge and skill of each resident every year across standardized national norms. Individual programs can implement cut-offs for progression to the next level; however no central passing mark or score is set for progression by ABPN. UK system has a full system of examinations that are administered by Royal College of Psychiatrists in addition to the internal Work Placed Based Assessments. These national examinations are more rigorous, essential for progression, and not only test knowledge but also interview skills via live oral format. In our opinion, this assessment system offers more comprehensive and multi-dimensional assessment of trainees as compared to USA. As our emphasis was on comparing the infra-structure of training in the two countries, we have not reviewed the didactic curriculum of training.

Conflict of Interest: On behalf of all authors the corresponding author states that there is no conflict of interest.

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11. **Intravenous Lidocaine as a Treatment for Refractory Myotonia Congenita**

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Keywords: Myotonia Congenita, Thomsen's disease, Lidocaine, EMG, sodium channel blockers

Introduction Myotonia is a disorder of muscle caused by defects in either ion channels or muscle membrane function resulting in prolonged contraction after cessation of voluntary effort or stimulation (1). Myotonia is a major feature of Myotonic Dystrophy, and the nondystrophic disorders of Paramyotonia Congenita and Myotonia Congenita (MC). MC is a hereditary channelopathy of skeletal muscles resulting from reduced sarcolemmal chloride conductance secondary to missense or nonsense mutations in chloride channel-1 (CLCN1) gene on Chromosome 7q (2). MC has been classically divided into 2 groups based on the inheritance pattern: Thomsen's Disease which is Autosomal Dominant (AD), and Becker's Disease which is Autosomal Recessive (AR) (1, 3). The AD variant or Thomsen's disease was described in the 1870s by the Danish physician Asmus Julius Thomas Thomsen, who was himself affected by the disease (4); while the AR variant was described much later in the 1970s by Peter Emil Becker (4-6). Becker's disease is much more common than Thomsen's, with a prevalence of 1:25,000 compared to the latter's prevalence of 1: 400, 000 (2). Both variants are characterized by improvement in myotonia with exercise (the "warm-up phenomenon") and worsening with exposure to cold. Thomsen's is usually manifested in early infancy with less profound myotonic stiffness and severe muscle hypertrophy which is often noted in the proximal arms, thighs, and calves (7). Becker's has a later onset, have more severe myotonic features and is associated with moderate muscle hypertrophy. It can have episodes of transient muscle weakness sometimes progressing to permanent muscle weakness and atrophy of the forearm and neck muscles, though it is still considered a nondystrophic syndrome (1). Treatment of myotonia includes warming up with light exercises prior to activity and pharmacologic intervention in more severe cases (7). Several studies have reported the anti-myotonic effects of various sodium channel blockers - namely phenytoin, procainamide, tocainide, mexiletine, carbamazepine and more recently flecainide (8-17). Preliminary results of a recent randomized controlled trial in patients with non-dystrophic myotonias displayed improvement in myotonia with mexiletine (16). However none of the prior myotonia treatment studies reported was sufficiently high quality to conclude that any of the available drugs to treat myotonia was effective and safe (18). Given the need for more definitive and safe anti-myotonia treatment, we present 2 genetically proven cases with severe refractory Thomsen's disease, who have exhibited marked improvement in their myotonia and painful cramps following intravenous lidocaine therapy, a voltage-gated Sodium channel blocker. To our knowledge, no prior study has examined the effect of intravenous lidocaine on myotonia patients.

Materials and Methods: Two patients with genetically established AD pattern of myotonia congenita were chosen for the study, after obtaining their consent and approval from the Institutional Review Board (IRB). Neither of the patients was on sodium channel blockers at the time of this study. The patients received a 5-day regimen of escalating doses of lidocaine therapy as per our institutional protocol (19). Pre-treatment Cardiology clearance was obtained and the patients were maintained on telemetry throughout the period of infusion.

Lidocaine infusion consisted of 2 g of lidocaine in 250 mL of 5% dextrose in water which was delivered by a continuous infusion at a rate of 7.55 ml per hour over the first 24 hours, 11 ml per hour over the next 24 hours, 15 ml per hour on day 3, 18 ml per hour on day 4, and 21 ml per hour on day 5. Blood lidocaine levels were obtained daily to monitor the infusion rate: the infusion rate was increased if the blood level was less than 5 mg/L and reduced if the blood lidocaine level was greater than 5 mg/L. Each patient had clinical and electrophysiologic testing performed twice once, prior to the start of the infusion therapy and once, post its completion. Electrophysiologic testing included performing a short exercise test according to a standardized protocol and a needle EMG (3). The short exercise test consisted of recording a Compound Muscle Action Potential (CMAP) by placing electrodes on the hypothenar eminence (abductor digiti minimi muscle) and stimulating the ulnar nerve at the wrist every minute for 5 minutes while the subject was at rest to ensure a stable baseline response. Each subject was then asked to perform maximal voluntary contraction for 10 seconds, following which a CMAP was recorded immediately and then every 10 seconds for 2 minutes. Electromyographic myotonia was demonstrated by inserting standard 30 gauge 25 mm concentric EMG needle into the oponens pollicis muscle of thumb at rest and after voluntary contraction. A standardized protocol to quantitatively assess myotonia was incorporated into our clinical evaluation (20). Muscle strength was assessed in 15 muscles on either side manually using the 5-point Medical Research Council (MRC) scale (5 = normal), and on 8 pair of muscles using a dynamometer (21). Myotonia was assessed by: (a) measuring 1/2 and 3/4 relaxation times (RT) after maximum voluntary contraction (MVC) using QMA apparatus; (b) functional tests such as time to close and open a fist 10 times, time to open and close the eyes 10 times , time to climb 10 steps starting from a seated position, time to protrude the tongue 10 times, time to step onto a chair 10 times; (c) subjective measures of the severity of myotonia pre and post treatment, using an arbitrary self-reported 4-point scale (0 = absent, 3 = severe); and (d) electromyography (EMG) relaxation times after MVC.

Case Presentation:

Case 1: First patient was a 51 year old man with a juvenile onset severe myotonia with warm up phenomenon. He had full strength and a normal clinical examination aside from his myotonia and a “herculean” appearance. His family history was positive for a sister with similar symptoms. While he was able to work through his 20s and 30s, gradually his myotonia and painful cramps became increasingly disabling and he required narcotic medication for the pain. He had tried and failed several treatments of myotonia including sodium channel modifiers, such as lacosamide and lamotrigine.

Case 2: The second patient was a 59 year old woman with childhood onset severe myotonia. She complained of deep muscle pain maximal in the morning. She had full strength but with severe difficulty initiating movements and severe myotonia with hypertrophy of all muscle groups. Her son and one of her paternal aunts also had myotonia. The patient was treated with quinine as a child which was not helpful and subsequently failed a trial of Mexilitine due to intolerable side effects of heartburn, tremor and dizziness. Patient was clinically depressed after she had failed on all previous medications.

After lidocaine, one of the patients (Case 1) displayed remarkable improvement in electromyographic myotonia. Image 1 demonstrates the EMG improvement (in the left sided opponens pollicis muscle) in Case 1 post-lidocaine infusion compared to that of his pre-infusion state.

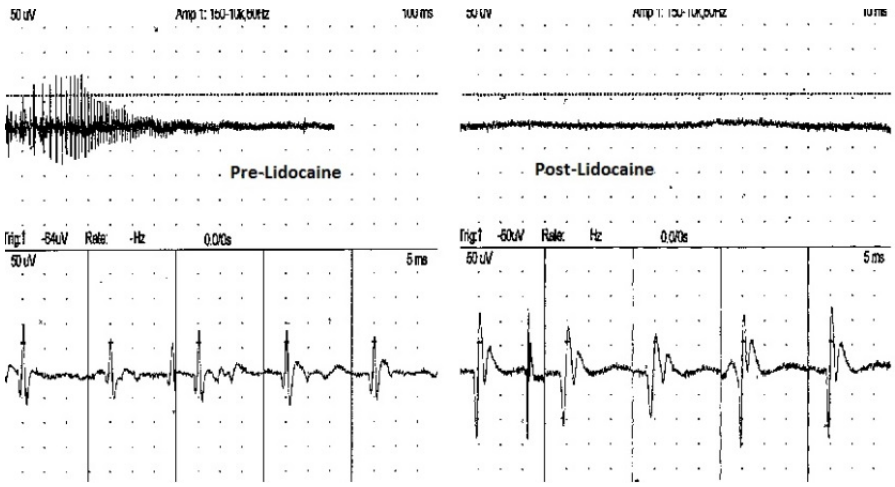
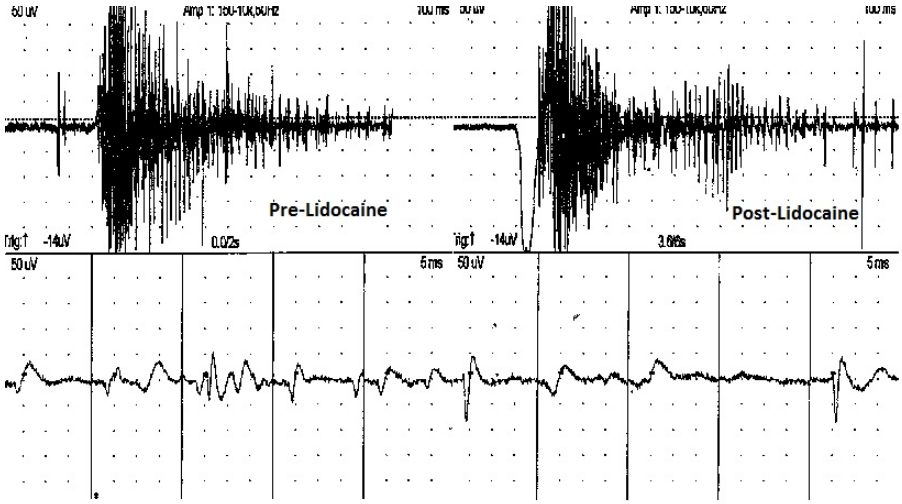


Image 1 EMG improvement, case #1

Image 2 (Below) exhibits the pre and post-lidocaine EMG (in the left sided opponens pollicis muscle) in Case 2. However both the patients reported notable improvement in their myotonic symptoms including pain with lidocaine and no significant adverse events were noted.



Results Improvement in subjective myotonia severity, quantitative myotonia assessment and functional assessment after intravenous lidocaine treatment was observed in both patients and is illustrated in Table 1. Reduced time to relaxation or time of completion was demonstrated for all tested manoeuvres. Short exercise testing performed on both the patients was positive as evidenced by a significant decrement of the CMAP (up to 40-50% from baseline) recorded at the abductor digiti minimi immediately following 10 seconds of exercise with recovery to baseline and no habituation. There was no significant change in the size of the decrement observed pre and post intravenous lidocaine administration.

Table 1: Pre and post–lidocaine therapy clinical myotonia assessment

Clinical and Functional Attributes	Patient 1		Patient 2	
	Pre-lidocaine	Post-lidocaine	Pre- lidocaine	Post-lidocaine
Complete hand opening after 10 seconds maximal grip‡	2.65 sec	1.98 sec	8.30 sec	0.82 sec
Relaxation of handgrip after 3 seconds of MVC ‡	2.73 sec (55 lb)	1.00 sec (56 lb)	7.16 sec (20 lb)	0.90 sec (30 lb)
Complete eye opening after 10 seconds maximal closure‡	2.75 sec	1.58 sec	16.90 sec	0.70 sec
Stick out tongue 10 times	12.65 sec	12.65 sec	9.85 sec	6.90 sec
Open and close hand 10 times‡	21.15 sec	9.65 sec	20.31 sec	5.10 sec
Open and close eyes 10 times‡	10.41 sec	8.19 sec	7.52 sec	6.20 sec
Walk up 9 steps (from seated position)	20.75 sec	7.61 sec	24.68 sec	8.20 sec
Myotonia Rating scale(0-3)	2.5	1	3	2

‡= Values denote the average of left and right sides

EMG showed myotonic discharges at rest, elicited by needle movement and after voluntary contraction in both patients at baseline.

Discussion: Myotonia Congenita symptoms result from reduced sarcolemmal chloride conductance due to missense or nonsense mutations in CLCN1 gene on Chromosome 7q (2). The defect in chloride conductance leads to impaired hyperpolarization of sarcolemma, thereby leading to recurrent depolarization resulting in repetitive firing of the muscle fibre and clinical myotonia (2). Due to non-availability of pharmacologic agents which increase chloride channel conductance of the skeletal muscle, sodium channel blockers are used for myotonia (22). Lidocaine is a sodium channel blocking

agent which acts by reducing the number of spontaneous discharges of electrical myotonia by decreasing the available sodium channels causing membrane depolarization. Tocainide and Mexiletine, which are lidocaine derivatives, have also been shown to improve myotonia (13,15). Our 2 patients with MC demonstrated clinical improvement subjectively and objectively on functional testing after lidocaine therapy. Despite this, we could not demonstrate consistent improvement in electrophysiologic features of myotonia. This is consistent with previously reported case, where clinical improvement with sodium channel blockers didn't correlate with electrophysiologic improvement (23). Therefore, the significant clinical improvement in myotonia with lidocaine should not be dismissed due to non-concomitant EMG improvement. Our study has a few limitations. The greatest being our trial is conducted on only 2 patients and do not have substantial evidence to come to any conclusion. Further, although QMA seems to be a reliable tool to quantify the degree of myotonia, there are still a number of unsolved issues. More studies are needed to ensure the ability of QMA to assess the severity of myotonia and to guarantee the reliability of the results for clinical research purposes. Various sodium channel blockers have been shown to be helpful in treating myotonia in not only chloride channelopathies but also sodium channelopathies and the dystrophic myotonias (3). Our study proved lidocaine therapy to be well tolerated and effective in resistant myotonia congenital patients. Therefore medications that modify sodium channels should be further studied in randomized, double-blinded, placebo-controlled trials. Also in patients who have myotonia symptoms refractory to treatment with oral medications, a trial of intravenous lidocaine should be considered.

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CASE REPORTS

1.A Case of Green Thrush Presenting in Behçet's Disease

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INTRODUCTION: Behçet's disease (BD) is a rare inflammatory condition that presents as a small vessel vasculitis with mucous membrane and genital ulceration. Described with symptoms of recurrent oral ulcers, genital ulcers and uveitis, BD affects multiple organs without a clear etiology. In severe forms this syndrome can be fatal if vascular aneurysm rupture occurs.
CASE: A 33 y/o Brazilian male with no past medical history presents to the ED complaining of tongue and groin pain for the past week. Oral ulcers rapidly progressed to green thrush on the tongue (right). Patient also noted the appearance of painful bilateral groin lesions. No penile discharge or STI history. PE: revealed a fever and tachycardia. Extensive patches of thick greenish thrush on his tongue with multiple ulcerative lesions on the base, and lateral aspects (fig. 1). Generalized erythematous rash with macules less than 1 cm with overlying vesicles and several small pustules were seen on lower extremities. Open necrotic bilateral groin and scrotum ulcerations (fig. 2). Laboratory analysis showed leukocytosis, CRP and ESR were elevated. Skin biopsy taken from the pustule revealed findings of BS. He was treated with oral colchicine with resolution of oral and genital lesions.

DISCUSSION: BD has been reported and described for nearly a century yet there is no full understanding of its etiology. BD can be diagnosed by criteria set by the International Committee on Behçet's Disease. Colchicine remains the standard medication to use in patients that present with acute BD.

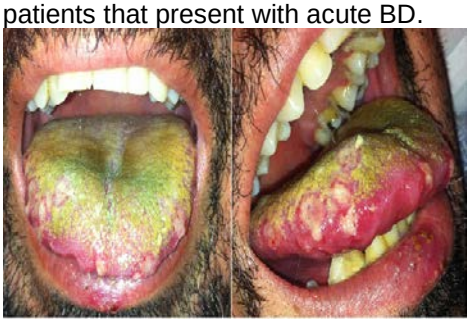

Fig 1. Thick green oral thrush with ulcerations

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2.Cardiac Tamponade and Extensive Venous Thrombosis post Pacemaker Placement

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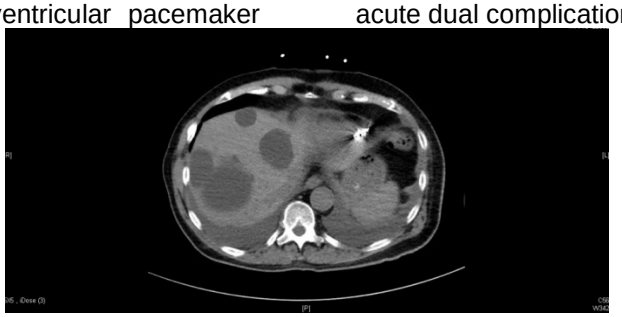
**Abington Memorial Hospital: Department of Medicine, Division of Cardiology

Introduction: Acute symptomatic deep vein thrombosis and myocardial perforation with subsequent cardiac tamponade are

complications of permanent endocardial pacemaker therapy (1)(2)(3). It is uncommon to have both in the same patient, which presents a huge dilemma in management.
Case: 83 year old man who had dual chamber pacemaker placement 6 days ago, presented with dizziness and shortness of breath. His systolic blood pressure was in the 80s and heart rate in the 90s with muffled heart sounds. He had echocardiographic evidence of cardiac tamponade. Pericardiocentesis yielded over 800mls of bloody fluid. His left upper limb was noted to be swollen and tender with finger numbness. Duplex ultrasound scan revealed an extensive thrombosis of left Brachial, Basilic, Axillary and Subclavian veins. Chest CT scan showed the tip of right ventricular pacemaker lead extending beyond the right ventricle. After consultation with cardiothoracic surgery team, conservative management without lead repositioning was adopted. He did well on Warfarin with serial echocardiogram to monitor for re-accumulation.
Discussion: Our patient had protrusion of helix of active fixated ventricular lead through the ventricular wall with blood leak leading to cardiac tamponade. Conservative management has shown to be adequate in select situations (4)(5). He also had acute symptomatic extensive thrombosis of the vein used for access for the implant with successful anticoagulation typically contraindicated in this setting. There is paucity of case reports and investigation on this acute dual complication and its management.



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3.Implantation of a CardioMEMS Heart Failure System in dextro-Transposition of the Great Vessels

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**Drexel University College of Medicine: Interventional Cardiology
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Introduction: The CardioMEMS heart failure system is a wireless implantable hemodynamic monitoring modality. Utilization of these novel implanted wireless monitoring systems have shown to decrease hospitalizations in the NYHA Class III heart failure population. We report a case of successful implantation of a CardioMEMS heart failure system in a patient with dextro-Transposition of the great arteries surgically corrected via Mustard procedure in childhood.
Case presentation: A 37-year-old female with history of d-Transposition of the great arteries surgically corrected in childhood with a Mustard procedure and moderate pulmonary hypertension presented for implantation of a

CardioMEMS heart failure system. The patient was selected with evidence of NYHA Class III symptoms and reduced ejection fraction of anatomic right ventricle serving as the systemic ventricle for hemodynamic monitoring with the anticipated prevention of recurrent hospitalizations. Given the congenital anomalies and surgical repair of our patient, there were significant anatomic challenges in navigating the CardioMEMS delivery catheter system. Despite the technically difficult procedure, a CardioMEMS pulmonary pressure-monitoring device was successfully implanted in the left lower lobe pulmonary artery. **Conclusions:** Due to the innovative nature of the CardioMEMS system, a clearly defined population has yet to be established that would benefit from this technology. Our case report expands on the current population described in the initial studies by outlining a potential patient population who would benefit the CardioMEMS heart failure system.

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4.Culture Negative Endocarditis Causing ST-Elevation Myocardial Infarction

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***Drexel University College of Medicine: Cardiovascular Disease
****Drexel University College of Medicine: Interventional Cardiology

Introduction: Embolic coronary occlusion caused by endocarditis is a rare phenomenon. The diagnosis of endocarditis is more elusive in patients previously treated with antibiotics. We present a case of culture negative endocarditis diagnosed in a patient with a ST elevation myocardial infarction.
Case: A 41 year old female with no medical history brought to the hospital unresponsive in ventricular fibrillation arrest with resuscitation in the ED. She developed Acute Respiratory Distress Syndrome for which she was placed on a ventilator and broad spectrum antibiotics. Once off the ventilator, she underwent cardiac catheterization and a transthoracic echocardiogram, which were both normal. Six days after that catheterization, she developed a low grade fever and complained of chest pain. EKG revealed an Inferior STEMI. Cardiac catheterization showed thrombotic occlusion of the right posterior descending branch and right posterolateral branch. Revascularization was unsuccessful. She was stabilized and started on medical management. Transesophageal echocardiogram revealed a 1 cm x 0.8 cm pedunculated mass on the right coronary cusp. Our differentials included infective endocarditis, lupus endocarditis, and fibroelastoma. Blood cultures and autoimmune tests were negative. The patient revealed she was taking care of new kittens in her home, which led us to believe she had culture negative endocarditis possibly caused by Bartonella.
Discussion: The patient treated with antibiotics and anticoagulation and she was followed in clinic with complete resolution of her vegetation. This case demonstrates the importance of using a high index of suspicion to supplement Duke's Criteria in order to diagnose culture negative endocarditis.

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5.Splenic Hematoma- An Uncommon Complication of Pancreatitis

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Case: A 28 year old female with a history of alcohol induced pancreatitis two months prior, presented with two weeks of progressive epigastric pain and vomiting. Examination revealed tachycardia, normotensiveness, left upper quadrant tenderness and no peritoneal signs. Laboratories showed hemoglobin 6.6g/dl; hemoglobin was 13.8 g/dl 2 months ago. Lipase was elevated at 592U/L. CECT showed a 12cm x 12cm x 14cm subcapsular splenic hematoma, peripancreatic inflammatory changes, pseudocysts and compression of the stomach. She was managed conservatively with blood transfusion and ICU monitoring. Due to inappropriate response to transfusion, angiography was performed showing no active bleeding. After 48 hours of conservative management, her hemoglobin stabilized, symptoms resolved and she was discharged home. Follow up CT 6 months later showed 50% decrease in the size of the hematoma.

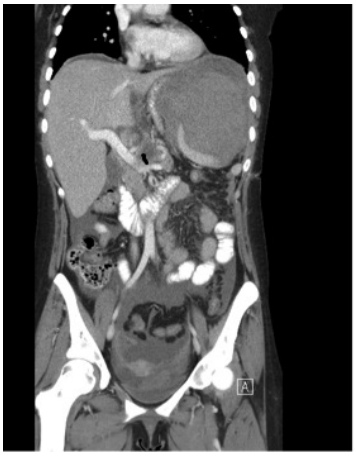

Fig. Coronal (A) view of the CECT abdomen showing the large subcapsular splenic hematoma compressing the stomach.

Discussion: Splenic complications of pancreatitis include splenomegaly, splenic vein thrombosis, splenic necrosis, intrasplenic pseudocysts and spontaneous splenic rupture. The overall incidence of splenic complications is 2.2 %. Splenic hematoma is a rare complication seen in only 0.04% of patients with pancreatitis. Local factors and coagulation disorders may play a role in the pathogenesis of splenic hematoma. Local factors include thrombosis and pseudo-aneurysm in the splenic vein, dissection of pancreatic pseudocysts into the splenic hilum with splenic rupture, splenic infarction, progression of an infectious process from the pancreatic tail towards the splenic hilum with subsequent formation of a hematoma. Observation, percutaneous drainage, arterial embolization or surgery are treatment options. Though uncommon, splenic complications can be life threatening and should alert the clinician to prompt diagnosis and management.

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6.Foreign Body in Heart: Complication from Central Venous Catheter Insertion

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Introduction Central venous catheters are one of the most commonly used mechanical devices used in intensive care units. Their use is associated with both mechanical and infectious complications(1). Below is a very interesting clinical case related to short term mechanical complication of central venous catheter.

Case A 63 years old male was admitted to the hospital for evaluation of fevers, chills and weakness. He was in septic shock. He was managed with aggressive fluid resuscitation and pressor support, but developed acute oliguric renal failure secondary to sepsis which required ultrafiltration by intermittent hemodialysis. Central venous access was obtained through the insertion of double lumen catheter in the right subclavian vein for temporary ultrafiltration. During the hospital stay, he also developed respiratory failure. CT chest was performed which revealed an accidental finding of "a foreign body" in the right atrium that was extending till the medial border of liver by passing through the inferior vena cava. Patient was immediately transferred to another medical facility where successful IR guided retrieval was performed." The foreign body was found to be the guide wire of the double lumen catheter that was placed for temporary hemodialysis(2).

Discussion Complications from central venous catheter insertion are uncommon but if occur can prove to be fatal from cardiac dysrhythmias, perforation of the vascular chambers, embolization etc. Interventional Radiology is the most preferred modality which is used currently for the retrieval of foreign bodies from the vascular system as a consequence of central venous catheter related complications.

Fig. A Hemodialysis Catheter Guide Wire

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7."I ate shellfish", A case of Vibrio vulnificus induced DIC and Death

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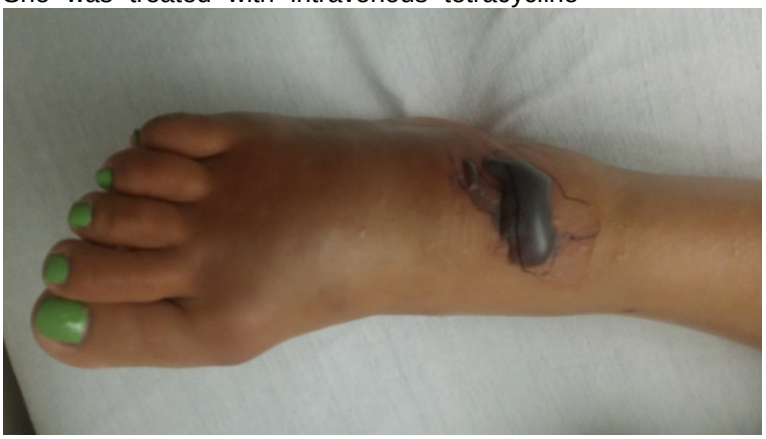
Introduction Vibrio vulnificus infections are the leading cause of shellfish induced deaths in United States(1). Below is an unfortunate case of a middle age Korean speaking female who had a prolonged hospital course for V.vulnificus septicemia but ultimately died because of its complications.

Case A 51 years old female had a family dinner

12 hours before her presentation to the hospital. She ate "raw seafood" including shellfish and crab meat. Of note her past medical history included iron deficiency anemia, alcoholic liver disease and hepatitis B. Her only medication was oral ferrous sulfate. After ingestion, she started to feel nauseous, crampy abdominal pain and diarrhea. In the ER, she was hemodynamically unstable with Temp 102 F oral, HR 130/min, BP 70/40 mmHg, RR22, SpO2 99 RA. Initial labs were suggestive of disseminated intravascular coagulation with INR 2.6, APTT 66, D-dimer 3800 and fibrinogen 150. Blood culture came back as Vibrio vulnificus. She was treated with intravenous tetracycline and 3rd gen cephalosporin. She also developed hemorrhagic bullous lesion on her lower extremities. Unfortunately patient developed DIC during her hospital course and died as a result of gastrointestinal bleeding despite aggressive hematological and hemodynamic support. **Discussion** Vibrio vulnificus is an uncommon cause of DIC. Risk factors include chronic liver disease, alcohol intake and iron therapy(2), all of these risk factors were present in the above clinical case. Hemorrhagic skin lesion are associated with high mortality. Early goal directed therapy is needed for V.vulnificus septicemia as mortality rate is very high.(3)



Distinctive bullous skin lesions are seen in approximately 75 percent of patients with V. vulnificus infection

Ref.
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8.**A rare case of Pseudohypoparathyroidism Type Ia with Features of Albright's Hereditary Osteodystrophy: undiagnosed till age 15**

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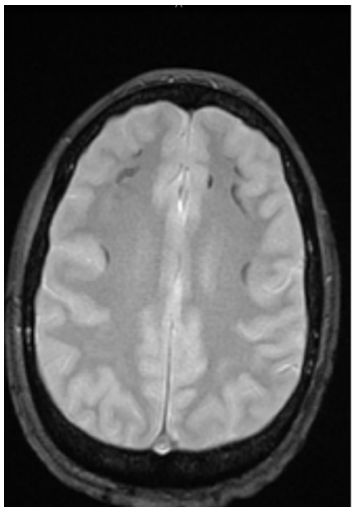
Introduction: Pseudo-hypoparathyroidism (PHPIa) is a rare autosomal dominant disease characterized by resistance of the renal tubules to parathormone,also called Albright's hereditary osteodystrophy.
Case: This is a case of 15 year old African American girl with language disorder, sickle cell trait, delayed milestones, childhood obesity and poor academic performance. She had hypocalcemia (total calcium 4.8 mg/dl), TSH 6.1 IU/ml (N: 0.45-4.5),T4 7.7 mcg/dl (range: 4.5-12).She was referred to the ER for management. She reported twitching of her eyes for last 10 days. Exam revealed round facies, short stature, short fourth metacarpal bones and obesity. She had ionized calcium level 2.39mg/dl (4.76- 5.28), total calcium 5.2mg/dl (8.3-10.2), Phosphate 6.7 mg/dl (2.4-5.7) ,Mg 1.4 mg/dl

(1.5-2.5), parathyroid hormone level 1031.2pg/ml (10-65), urinary calcium excretion <4 mg/dl (2-10), Alkaline phosphatase 162 U/Liter (53 -149), 25-OH Vitamin D level 10.3 ng/ml (30-100). An MRI of the brain demonstrated curvilinear areas of gradient echo susceptibility at the gray-white matter junction. Skeletal survey revealed thickening of the posterior calvarium, endplate concavity of the thoracic and lumbar spine. We arrived at a diagnosis of pseudo-hypoparathyroidism Type Ia, treated with Calcium gluconate and calcitriol.



Discussion: PHP type 1a is caused by loss-of-function mutation of the GNAS1 gene, causing inability to activate adenyl cyclase when PTH binds to its receptor.(1) PTH resistance of the renal tubule leads to hyperphosphatemia ,hypocalcemia, secondary hyperparathyroidism and hyperparathyroid bone disease (osteitis fibrosa). GNAS1 is predominantly expressed from the maternal allele in the thyroid, gonads and pituitary.(2)Hence, patients with PHP type Ia display resistance to other G-protein coupled hormones including TSH, LH, FSH, and GNRH.(3)

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9.**Localized Painful Swelling of Ipsilateral Upper And Lower Extremities in DM: A Clinicopathological Reappraisal of Diabetic Muscle Infarction**

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Introduction Diabetic muscle infarction (DMI) is an uncommon complication of uncontrolled diabetes mellitus (DM) presenting as a (sub)acute localized painful swelling usually affecting the lower extremities(1-3), and rarely the upper extremities(4). To our knowledge, simultaneous involvement of the ipsilateral upper and lower extremities has not been hitherto reported.

Case This is a 35-year-old African-American female with a 20-year history of uncontrolled DM type 1, advanced chronic kidney disease (CKD), neuropathy, digit amputation, stroke post-partum, and deep vein thrombosis (DVT) who presented with left upper and lower extremity pain and swelling for over a month. Data included a Leukocytosis (15,000/mm3) with negative cultures, elevated creatine kinase (CK, 1,800 IU/mL), and elevated anti-cardiolipin antibody titer. DVT and abscess were excluded on ultrasound. MRI without contrast showed increased T2-weighted signal of the left triceps

brachii muscle(Fig. 1). Core biopsy showed diffuse muscle necrosis with ischemic features (Fig. 2A), myophagocytosis(Fig. 2B), severe microangiopathy(Fig. 2C), and sparse, focal perivascular lymphoid infiltrates(Fig. 2D), compatible with DMI.

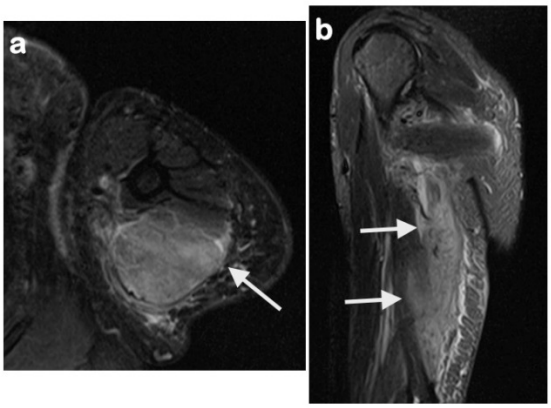

Fig 1: T2-weighted MRI sequence in axial (a) and sagittal (b) planes demonstrate an increased signal in the left triceps brachii muscle (white arrow)

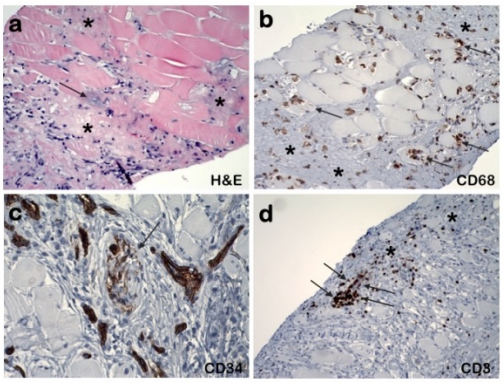

Fig 2: (a) Coagulation necrosis of skeletal muscle fibers, which are devoid of nuclei, merging with areas of subacute and old (healed) necrosis wit

Discussion DMI is attributed to microangiopathy and in some cases hypercoagulability owing to anti-cardiolipin antibodies(5). The typical patient has a long-standing poorly controlled DM with CKD(1-4). Serum CK may be normal or slightly elevated but there are also instances of overt elevation(3). Increased T2-weighted signal on MRI is considered diagnostic(1-4). Differential diagnosis includes DVT, abscess, pyomyositis, focal, nodular, or proliferative myositis, and necrotizing fasciitis(2). Symptoms resolve spontaneously during the ensuing weeks with supportive treatment but recovery may be hampered by invasive diagnostic procedures. Relapses in the same or contralateral extremity are frequent (1-3).

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10.Influenza Unmasking Eosinophilic Granulomatosis with Polyangiitis

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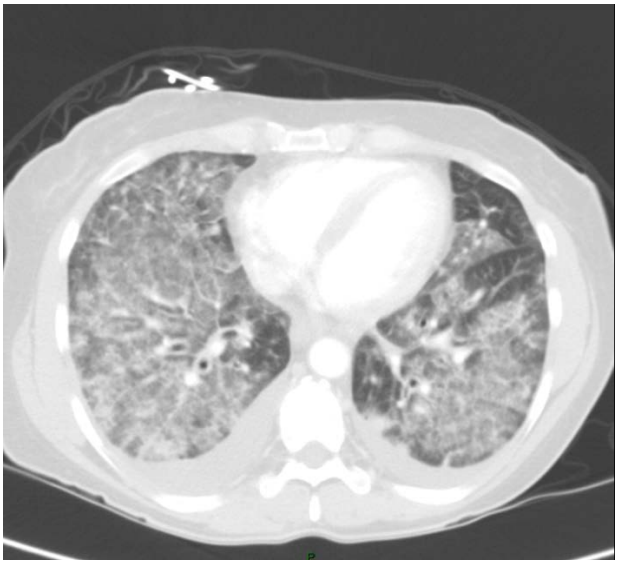
Introduction: Eosinophilic granulomatosis with polyangiitis (EGPA), formerly Churg-Strauss syndrome, is a potentially life-threatening systemic necrotizing vasculitis, occurring in 1-3/100,000 persons/year(1).

Case: A 49 year old female, with rheumatoid arthritis on etanercept, asthma, chronic recurrent sinusitis on chronic antibiotics, presented with fever, cough and dyspnea for a week. She also noted numbness and paresthesias in her feet for three months. Work up revealed peripheral eosinophilia, influenza B, and bilateral diffuse pulmonary infiltrates on imaging. While being managed for pneumonia and influenza in the hospital, she developed severe respiratory

distress requiring mechanical ventilation, intravenous steroids and bronchoscopy. Further studies showed 64% eosinophils in bronchioalveolar lavage fluid, elevated serum IgE and negative ANCA. Once improved, she was discharged on a slow prednisone taper over six months. On outpatient follow up, new left foot plantar flexion weakness, absent ankle reflexes and reduced sensation over the right lower leg were noted. EMG showed mononeuritis multiplex suggestive of vasculitic neuropathy. The patient is being treated for EGPA with cyclophosphamide and prednisone. **Discussion:** This phasic presentation of EGPA makes it a diagnostic challenge. Reported precipitating factors of EGPA include medications, allergic desensitization, vaccinations, including the H1N1 vaccination against influenza and infections(2). However, influenza in particular has not been described as a trigger. This unique case of EGPA was unmasked in the setting of influenza despite immunosuppression with etanercept, which has been used to treat refractory cases of EGPA (3). Further investigation to explain the pathogenesis of influenza as a precipitant for EGPA is needed.



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11.**Acute Onset Abdominal Pain After Cesarean Section**

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***York Hospital: Emig Research Center

Case: After a planned caesarian section, a 30 year old female was readmitted on day 5 post-surgery with acute onset abdominal pain and vomiting. In the emergency department the patient had leukocytosis and fundal tenderness. Antibiotics were started for possible endometritis. The patient experienced worsening abdominal pain, nausea, and vomiting; a nasogastric tube was placed and abdominal X-ray demonstrated a non-specific bowel gas pattern. On readmission day 3, the patient's condition did not improve so a CT scan of the abdomen and pelvis was obtained and general surgery was consulted. The CT scan revealed herniation of the small bowel through the peritoneum and ascites. The caesarian section operative report noted that peritoneum was closed during the procedure. The patient was taken to the operating room where she underwent exploratory laparotomy through the previous Pfannenstiel incision. Immediately, a large amount of ascites was encountered. The rectus was divided by cutting the previous sutures and several loops of small bowel were found to have herniated through a broken down suture line closing the peritoneum. An area of small bowel was noted to be stenotic so it was resected and reanastimosed. The fascia was closed and the skin was loosely approximated with staples. Afterwards, there was a rapid return of bowel function and she was discharged home on post-op day 3.

Discussion: A review of the literature did not reveal any similar cases. Cochrane review does not recommend routine closure of the peritonium due to increased operative time and no change in post-op adhesion formation.

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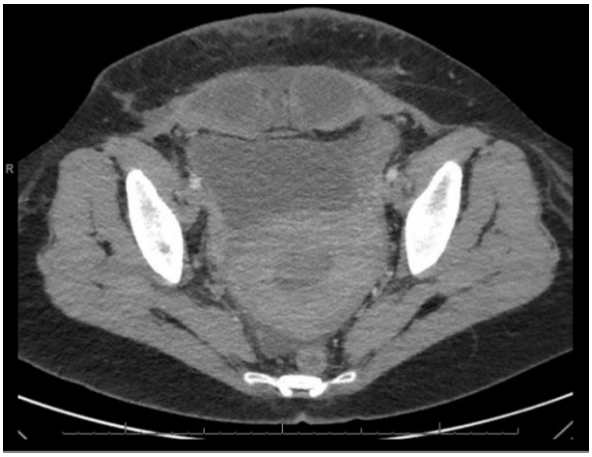

Fig. CT of the Abdomen and Pelvis

12.**Hemobilia and Obstructive Jaundice Due to Hepatic Artery Psuedoaneurysm post Biliary Drain Placement**

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**Medical Student with Drexel Univeristy School of Medicine: Surgery
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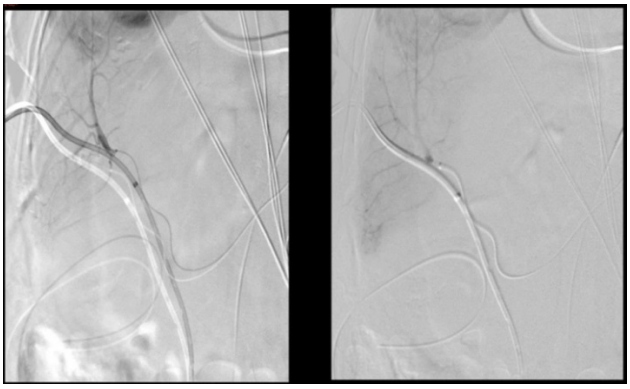
Case: An 85 year old Caucasian presenting with epigastric pain was diagnosed with acute cholecystitis for which she underwent open cholecystectomy due to an iatrogenic injury to the small bowel. Postoperatively, a bile leak was treated by Interventional Radiology (IR) guided transhepatic internal/external biliary drainage catheter and subsequently she was discharged. She presented to our hospital with hematemesis on day 21. The patient's laboratory studies were suggestive of obstructive jaundice. During biliary drain evaluation, marked filling defects throughout the biliary system consistent with thrombus and a transhepatic tract communicating with a right hepatic artery branch was noted. During angiogram, a pseudoaneurysm originating from a branch of the right hepatic artery was identified, adjacent to transhepatic biliary drainage catheter, which was successfully embolized using platinum coils.

Discussion Hemobilia presents with the classical clinical triad of biliary colic, obstructive jaundice and gastrointestinal bleeding known as the Quincke's triad. Hemobilia should be suspected as the cause of upper GI bleeding when a patient presents with obstructive jaundice. An EGD is an important diagnostic modality that rules out other causes of upper GI bleeding and demonstrates bleeding from the Ampulla of Vater which is suggestive of hemobilia. CT angiography with multi-detector CT (MDCT) is now replacing the traditional arteriography for diagnosis of pseudoaneurysms. Embolization is a minimally invasive treatment for hemodynamically unstable patients and is now considered gold standard in the management of hemobilia. Surgery is indicated in very rare cases when angiography with embolization fails and it involves resection of the aneurysm.



Arteriogram of right hepatic artery with early phase (left) and delayed phase showing filling of pseudo aneurysm (right)

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13.**Colonic Mantle Cell Lymphoma**

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***Drexel University College of Medicine: Surgery

Introduction Mantle cell lymphoma is one of the mature B cell non-Hodgkin lymphomas. It compromises about 7 percent of adult non-Hodgkin lymphomas in the United States and Europe. The reported incidence is about 5 to 8 cases per million persons per year. Approximately 75% of patients are male and of Caucasian descent. The overexpression of the **Case Report** A 64-year-old male had a screening colonoscopy. A transverse polyp and five cecal polyps were identified and biopsied. The histopathological review showed large proliferation of monotonous small lymphocytes. Immunoperoxidase stains were positive in nearly all lymphocytes. This confirmed the diagnosis of Mantle Cell Lymphoma.
Discussion Extranodal non-Hodgkin lymphoma of the gastrointestinal tract is rare but has a rising incidence. The reported frequency of cyclin D1 gene located on 11q13 is what drives oncogenic behavior. This gene promotes cell cycle transition from G1 to S phase. Gastrointestinal involvement may cause bleeding or obstruction. The incidental detection of a Mantle Cell Lymphoma during screening endoscopy is exceedingly rare. We are presenting a case of Mantle Cell Lymphoma. gastrointestinal tract involvement is 15-30% and the colon is the least likely site. The majority of patients are diagnosed at an advanced stage. The incidental detection of a Mantle Cell Lymphoma during colonoscopyscopy in asymptomatic patients is rare and has, to the best of our knowledge, not been previously reported. **Conclusion** Primary colonic Mantle Cell Lymphoma is exceedingly rare. It may present as multiple lymphomatous polyposis. Lymphomatous polyposis should be

differentiated from other forms of polyposis syndromes.

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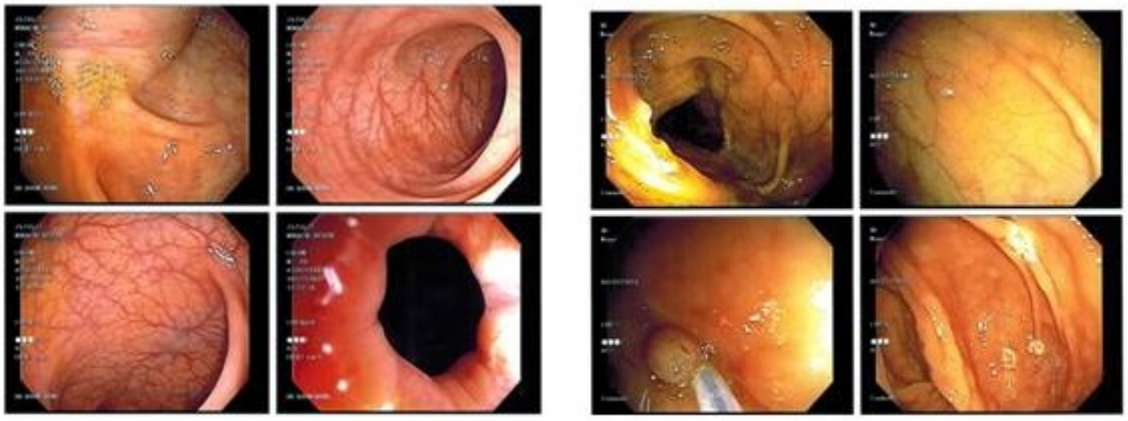

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14. **Acute Gastric Dilatation**

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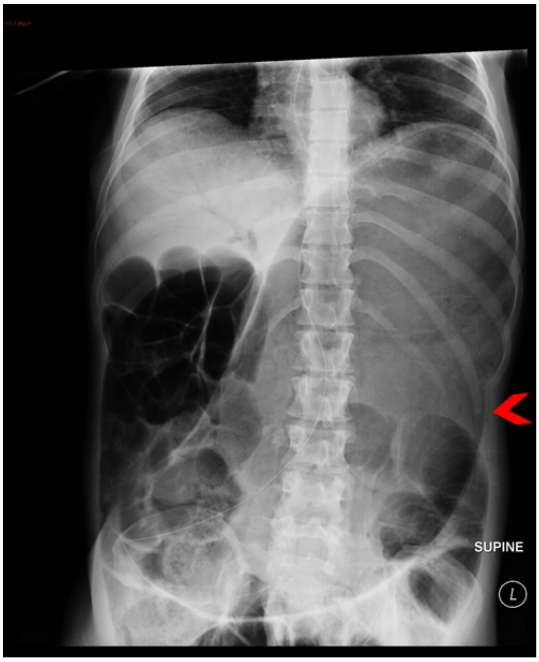
*Easton Hospital: Surgery
**Easton Hospital: Department of Surgery

Introduction: Acute gastric dilatation (AGD) is a rare paralytic phenomenon involving the stomach resulting in a severe gastric distention culminating in gastric ischemia, necrosis and eventually perforation. First described by Duplay in 1833 this condition is associated with a loss of muscle tone rather than mechanical obstruction [1]. Seen in eating disorders, trauma resuscitation, volvulus of hiatal hernias, medications, electrolyte abnormalities and superior mesenteric artery syndrome, the mortality can be 80-100% [2, 3, and 4]. A plain radiograph or computed tomography will reveal a massively dilated stomach. In extreme cases, stomach may dilate enough to occupy the entire abdomen from diaphragm to pelvis and from left to right; this is called acute massive gastric dilatation (AMGD) [5, 6]. Treatment focuses on early diagnosis and gastric decompression, thus halting vascular congestion and ensuing ischemia. An early diagnosis with a prompt gastric decompression in the phase of parietal ischemia and mucosal necrosis may avoid an unnecessary laparotomy [7]

Case report: Presented here is the case of a 36 year old mentally challenged female admitted to medicine inpatient for failure to thrive. One night after dinner she reported severe abdominal pain and emesis. Abdomen noted to be distended, firm, tympanic but non tender. Tachycardic with a blood pressure of 95/55 mm Hg and leukocytosis (15,200/cu. mm) she underwent a plain abdominal X-ray [Figure 1]. Urgent laparotomy revealed a severely distended necrotic stomach with intestinal necrosis extending to the mid transverse colon. Per family request, surgery was terminated and she expired few hours later.



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15.A Case of Pelvic Organ Prolapse in the Setting of Cirrhotic Ascites

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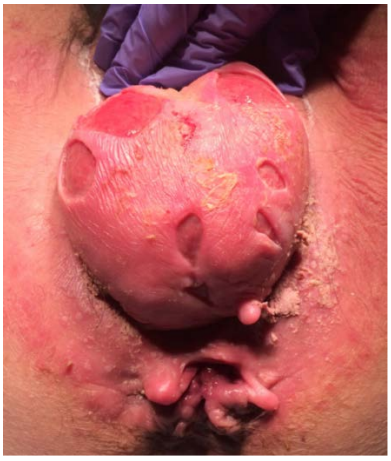
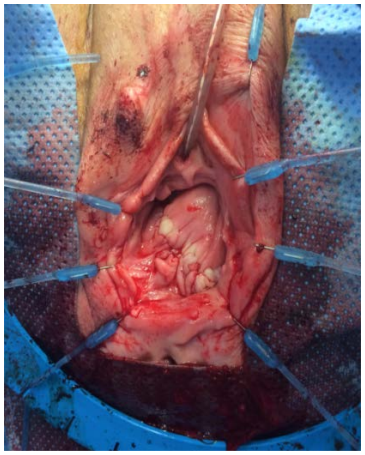
Introduction: Cirrhosis is the most common cause of ascites in the United States, accounting for approximately 85% of cases. Ascites is associated with increased intra-abdominal pressure and weakening of the abdominal fascia. This concept applies similarly to the pelvic floor and the endopelvic fascia. **Case**: Our patient is a 63-year-old female with a complaint of posthysterectomy vaginal prolapse, associated with severe pain and vaginal ulcerations (Fig 1, left). Her medical history was significant for alcohol induced and nonalcoholic steatohepatitis (NASH) cirrhosis, with a MELD score of 10. She also had persistent ascites which she was having drained twice monthly.She desired definitive therapy and proceeded with colpocleisis and possible use of dermis graft. The patient was medically optimized for her procedure. Preoperatively, she underwent paracentesis with removal of 7 liters of ascites. Her liver profile, coagulation and hematology panels were within normal limits. Utilizing moderate sedation, pudendal block and local anesthetic, she underwent cystoscopy, colpocleisis, enterocele repair, augmentation with dermis graft, and perineorraphy. Her colpocleisis was performed in the traditional fashion. After imbrication of the prolapse, the enterocele was repaired via an extraperitoneal, high uterosacral ligament suspension with PDS sutures. The dermis graft was then placed along the pubocervical fascia, and secured to the sacrospinous ligament, iliococcygeus and rectovaginal septum with PDS suture. The vaginal mucosa reapproximated with vicryl suture (Fig 2, right). Postoperatively, the transplant surgery team cared for the patient concurrently and she was discharged postoperative day 3 after paracentesis.





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16.A NOVEL APPROACH TO MESH REVISION AFTER SACROCOLPOPEXY: A CASE REPORT

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Introduction*:* Pelvic organ prolapse affects 50% of parous women who have symptoms consistent with voiding and defecatory dysfunction, incontinence and discomfort from vaginal bulge. Of those women 11% will need surgery based on bothersome symptoms. Repair with native tissue has a 30% recurrence rate. Transvaginal mesh has been used for vaginal augmentation since the 1990s in order to reduce the rate of recurrence. Over the years, complications of mesh have become more prominent and include chronic pelvic pain, dyspareunia/hispareunia, vaginal mesh erosion and extrusion, and urinary and defecatory dysfunction. Presently there is no consensus regarding the best treatment option for these complications. In our review, we chose surgical treatment to eliminate vaginal mesh and help preserve tissue integrity while improving pain and dysfunction caused by mesh placement. **Case**: We report 2 cases of women that have significant defecatory dysfunction and pain after sacrocolpopexy and underwent revision with extensive mesh excision from both vaginal and laparoscopic approaches performed with both urogynecology and colorectal surgery. **Discussion**: Mesh excision was successful with the help of colorectal surgery to completely excise all mesh from the vagina and rectum in 2 women with prior sacrocolpopexy. These mesh revision procedures demonstrated decreased pain and defecatory dysfunction at follow up visits. The use of omentum mobilization and grafting over mesh excised sites may improve healing and integrity of tissues. The future of mesh revision surgery may entail more combined efforts from colorectal surgery for posterior complications.

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17. **Side Effects of Sipping Silver**

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Case: A 24 year-old male with a history of insulin-dependent diabetes mellitus and hypertension presented to the emergency department for evaluation. The patient had been ingesting “a shot glass amount” of a liquid solution made using a Colloidal Silver Generator Kit he had ordered off the Internet for approximately nine months. The physical examination and vital signs were within normal limits, and his laboratory results were significant only for a white blood cell count of 2.4 mcL. The patient was counseled to discontinue the silver solution and discharged with follow-up with his primary care doctor.

Discussion: Silver is a non-essential metal to human physiology, and yet because silver cations are weakly microcidal at low concentrations (1), many silver-containing products are marketed and sold as health supplements. Exposure to silver may also occur in the occupational setting (photographers, jewelers), medical exposure to burn dressings, or by environmental exposure to coins, clothing, dental fillings, and tableware. (1) The most well-known adverse effect associated with silver overexposure is argyria—a permanent blue-gray discoloration of the skin. (2) Chelation is ineffective for treating silver toxicity and argyria, and management is supportive. Whereas historically silver toxicity occurred primarily due to use of silver-containing medications and occupational exposures, most reported cases of symptomatic silver poisoning today are associated with the use of colloid silver supplements touted as alternative natural remedies.

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18. **Usher’s syndrome and Psychpathology - A Case Report**

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Introduction: Usher syndrome (USH) is characterized by congenital sensorineural hearing loss, retinitis pigmentosa, vestibular areflexia with a prevalence rate of 5–6/100,000 in Europe and the USA, and is the major cause of genetic deafness and blindness1. The most common pychiatric manifestation reported is psychosis.1 It is supported by the Stress-Related Theory, that states visual or auditory impairment is associated with a higher rate of depression, suicidal behavior and psychological stress.

Case: 54-year-old Caucasian female was admitted for suicidal ideation, depressed mood and anxiety. Patient had history of somatic delusions and paranoia. History of suicide attempt. Family history is positive for USH in two sisters. History was mainly obtained through old records, collateral from husband (deaf) and with two-interpreters. Sensitivity was exercised at all times towards patient's limitations. Patient had failed trials with Quetiapine, Citalopram and Risperidone. During inpatient stay, family sessions were held and patient was encouraged to attend exercise therapy using physical aids. Treatment approach was geared to prevent falls and clear explanations of treatment modalities using interpreters and using the "guiding arm" technique. Venlafaxine XR was continued at 37.5mg and Olanzapine at 2.5mg. She was discharged to outpatient care with a diagnosis of Major Depressive Disorder with Psychotic Features.

Discussion: The rate of association between a pleiotropic genetic disorder such as Usher's and its impact on mental health further illustrates the multifactorial pathogenesis of psychiatric conditions. Genes, environment, sensory cues and stress all play a role, thus emphasizing a biopsychosocial approach to our management.

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MEDICAL ESSAY

Internet Gaming Disorder

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Internet is an integral part of our daily lives and is essential for day to day working now. While most of the internet usage is not a disorder, it is not very unusual to see people completely pre-occupied by the machines. We encountered a patient who we suspected to suffer from Internet Gaming Disorder. (IGD).

A 14 year old male diagnosed with ADHD and ODD continues to attend the Child Psychiatry outpatient clinic with his mother. Although his ADHD symptoms are well controlled, mother complaints that he does not pay attention to what is going around him. A more detailed enquiry leads to more information about how he spends his time in the house. Mother mentioned that after coming back from school, he does not want to talk to anyone and wants to go directly to his room to switch on his computer. She said that he is mostly pre-occupied on the phone prior to coming to home anyways, but in addition he makes no eye contact and wants to move to his room as soon as possible. A few times when his mother has tried to stop him, so that he can spend more time with his siblings and her, he has become agitated. After going to his room, mostly he is seen playing games. He does not want to come out of his room for meal time and if he even comes out, it is mostly for a few minutes when he hurriedly puts things in his mouth and goes back to his room. His mother said that a few times, she has tried to convince him to spend more time outside his room, but this has resulted in confrontation and on one occasion he tried to punch his mother, therefore she is afraid of talking to him about it now. His performance in school is continuously declining and last report card showed almost all Ds and Es. He has never been known to be very social, but more recently, he has stopped talking to the friends he had and does not appear interested in any conversations with his peers. He said, he felt very anxious and upset when he is unable to game online. He described a day when he had to go on a field trip and he suffered from butterflies in his stomach, sweating and extreme anxiety. He said he was unable to enjoy other things in his life and is almost always thinking about the internet games. A mood disorder, recurrence of ADHD symptoms, substance abuse disorder and psychosis were ruled out by history. We think our patient was suffering from a newest disorder in DSM-5: Internet Gaming Disorder (IGD). DSM-5 has included IGD in Section III, as one of the possible diagnoses which requires further research and study. It is categorized as a non-substance addictive disorder. In order to fulfill the criteria a patient must have at least 5 of the 9 set of symptoms.

Criteria for Internet Gaming Disorder:

- Preoccupation with games
- Psychological withdrawal symptoms (anxiety, irritability)
- Tolerance - the need to spend an increasing amount of time playing games)
- Unsuccessful attempts to control or limit game participation
- Loss of interest in previous hobbies
- Continued use despite knowledge of problem
- Deceiving family members
- Use of Internet games to escape a negative mood
- Has jeopardized or lost a relationship, job, or educational opportunity

The diagnostic criterion is presented to assess the severity, extent and functional impairment for internet gaming disorder. A literature search revealed that there authors have suggested to adopt a common methodology to assess the IGD however there is no consensus as yet1. It appears that this disorder is more prevalent in some Asian countries than North America. Based on a state wide study in Germany, endorsement of five or more criteria of DSM-5 IGD occurred in 1.16% of the students, and these students evidence greater impairment compared with non-IGD students. Symptoms related to 'give up other activities', 'tolerance' and 'withdrawal' are most relevant for IGD diagnosis in this age group2. In 2007, AMA issued the following statement, "While more study is needed on the addictive potential of video games, the AMA remains concerned about the behavioral, health and societal effects of video game and Internet overuse," "We urge parents to closely monitor their children's use of video games and the Internet."3

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REVIEW ARTICLE

The Advent of Smartphone Use in Medicine-What Are the Pros and Cons of Smartphone Camera Use?

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Keywords: Smart phone; patient care; patient confidentiality; consultant use

Introduction The smartphone use by working physicians is growing quickly, which allows them to achieve their tasks in a faster and more efficient way. Yet, it needs to be regulated and monitored to avoid any unexpected consequences which could potentially harm the patient through misleading the physicians to inappropriate management, or compromising the personal property or confidentiality of the patient. It is necessary to count the practice of using smartphones and their contained camera to communicate with consultants. A primary concern by any hospital administration is to keep patient confidentiality safe. Our article is not to encourage or discourage that practice but to mention it among physicians and medical personnel of different specialties. That phenomenon that is considered new to medicine has to be studied thoroughly and explicitly to establish advantages and disadvantages. Due to

the ease of use of smart phones, there is no specific data regarding the true incidence of its use, and no documentation of when and how it is used. This paper hopes to work on encouraging the physicians to document these interactions so that the medical community can contain, control, and legalize it. For example, we can document consultation by smartphone so the consultant could be compensated for their intellectual property while helping to cover the medico-legal aspect.

Discussion Mobile communication has drastically changed the way we work and live our lives. More recently, another technology is again driving such change: the smartphone. Faster processors, improved memory, and smaller batteries, in concert with highly efficient operating systems capable of advanced functions, have paved the way for applications (commonly referred to as apps) that are affecting our personal and work environments. One market research firm estimates that 72% of US physicians use a smartphone, and it is projected that this number will rise to 81% in 2012 **(1).** In another study, 85% of medical providers working in Accreditation Council for Graduate Medical Education training programs reported use of the smart phone **(2).** Using smartphone camera is on the rise, and is extremely useful to the physician working in an emergency, time sensitive, all-hour environment. Some patients present with a skin lesion, and the Emergency Physician may think to text a picture taken by his smartphone to a consultant who works as a dermatologist. Another frequently mentioned practice is texting an EKG to a cardiologist, for faster evaluation and appropriate advice, with close follow up. Another example is radiological images which could be copied and sent in a phone text to the orthopedic or neurologist to ask for help with the possible diagnosis. It is well known the different smart phones available in the market and operating systems. Today, smartphones are being manufactured by numerous companies and are one of the fastest growing sectors in the technology industry. Operating systems include Google's Android, Apple's iOS, Research in Motion's BlackBerry, Nokia's Symbian, and the Windows Phone 7 platform. One valuable article searched the database and retrieved 60 articles examining the different applications (apps) related to medical practice. These articles were subdivided into the following categories: 1- patient care and monitoring, 2- health apps for the layperson, 3- communication, education, and research, and 4- physician or student reference apps **(3).** Many applications have been developed and the field is expected to expand day by day to a wider variety of medical diseases, and medical monitoring, especially in elderly people **(4)** and in developing countries with poor resources **(5).**

Smartphone camera use: The phone's camera, along with its light-emitting diode light source, has been shown to measure heart rate accurately **(6).** The camera can also be used as an echocardiogram **(7)** or a Doppler device **(8).** The practice is growing regarding sending the radiological images via text messages. Texts containing pictures of the imaging study EKG, or even of the patient, which was taken by the smartphone camera. A recent study detailed the diagnosis of patients of stroke via sending the CT scan of the brain via smartphone camera to the radiologist. The study found promising results, with identical accuracy to the traditional way of reading the image by the radiologist on the computer in the hospital **(9).** Rahme et al. mentioned that typical telemedicine systems are expensive and smartphone MMS (multimedia messaging system) offers a more practical, less expensive, low complexity way for communication by physicians. Still, the MMS could be used for simple images rather than complex images - some complicated cases could be missed if the photography is not taken correctly **(10).** Phone camera could help in tele-diagnosis by communicating a picture taken depicting a specific finding on physical examination **(11).** Tele-microscopy is a technology developed to send pictures by attaching a microscope to a cell phone to send pictures to the pathologist for remote consultations **(12).** Surgeons are now adopting smartphone camera use to send pictures of findings seen on patients by physical

examination or by radiological images. A common practice is to send a picture by a junior resident to the senior staff to illicit communication and advice. Dala-Ali et al**.** wrote an article about surgeon's growing use of smartphone cameras, how it can assist them in their busy lifestyle, and improve their efficiency **(13).** A study found smartphone camera use in wound examination with high sensitivity and specificity compared to regular physical examination **(14).** There is a study examining orthopedic surgeons and their use of smartphone cameras; however, the camera resolution at that time was poor and hence the misdiagnosis rate was high **(15).** A further study depicted that the smartphone camera can also be used as an ophthalmoscope **(16).**

Risk of smartphone camera usage

The smart phone camera use is here to stay. It poses many risks in the field of medicine, to include misinformation, inappropriate use, and particularly patient's confidentiality. A survey found that 73 percent of physicians text other physicians about work **(17).** Health Insurance Portability and Accountability Act) (HIPAA) was established in 1996 to protect the confidentiality and security of healthcare information. On April 2001, the HIPPA privacy rules had become effective (18, 19). It is imperative for each health facility to control texting patients information, absolutely including those pictures taken by smartphone camera, to make sure it will go through central IT and health workers should commit to that and be penalized in case they violated using a HIPPA compliant software (20). We emphasize the wrong diagnosis as a risk coming from either physicians or patient if he relies only on smartphone use without seeking a realistic medical advice. Although we mentioned above that some studies found that the accuracy of using smartphone camera for tele-diagnosis is the same as working through the workstation **(13, 15),** a study showed high incidence of wrong diagnosis of skin lesion which was malignant melanoma but was misdiagnosed using smartphone app **(21).**The barriers against the use of that technology include poor network coverage. It could be a difficulty for elderly patients or even elderly physicians who are not used yet to that kind of technology. It is expected the lack of patient-physician face-to-face interaction. On the other side, this could be lifesaving to get an urgent consult from a colleague physician by sending him a picture of a specific finding in the patient who is in a critical condition via smartphone. This could be lifesaving or devastating on the other side for the barriers and disadvantages mentioned above. The physician who helped with the consultation after checking the picture sent to him on the smartphone will not be paid for that consult. But in the same time, he is not responsible for it as it is just a nonofficial consultation. But we have to remind everybody that the consult that he did after he checked the picture is going to affect the patient health and life either in the right or wrong direction.

Conclusion Smart phone camera use must be contained in a legal official way by using software that has to be installed on the smart phone of the resident who is sending the patient information. Also the receiving consulted physician should carry that software. That software will be well known by the hospital staff. The software should protect the patient confidentiality. It should allow transmitting the pictures clearly so we avoid any wrong diagnosis by the consultant. This has to be documented clearly as part of the patient care through his medical chart. Any physician who violates these rules should be penalized accordingly.

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