



MEDICAL STUDENT POSTER COMPETITION

Abstract Booklet
with
Poster Presentation Links

Clinical Vignettes

Poster Number: 01 - Psoriatic arthritis and nail psoriasis

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Poster Presentation Link: <https://www.youtube.com/watch?v=NmFuQHZpL-4>

Introduction

Psoriatic arthritis (PsA) is a chronic inflammatory disease associated with cutaneous psoriasis. It can affect peripheral and axial joints, entheses, and nails. Nail involvement, specifically nail psoriasis (NP), has the highest correlation with PsA. Over 80% of patients with PsA will have underlying nail lesions. NP often precedes PsA and is associated with more severe cases of psoriasis. Common clinical findings of NP include nail pitting, ridging, thickening, onycholysis, and 'oil spot' (yellow) discoloration. Early detection of NP and screening for PsA are critical to improving patient outcomes, as PsA may lead to irreversible joint damage and diminish quality of life. A targeted treatment approach can significantly improve the pain and physical impairments from disease burden. Herein we present a case of PsA and NP and discuss the diagnosis, histopathological findings, and treatment options.

Description

A 53-year-old female presented to the nail clinic with a four-month history of progressive pain and swelling around her right fourth fingernail. The patient endorsed joint pain with limited mobility of the digit. She denied any past medical history. Physical exam revealed yellow discoloration, pitting, and onycholysis on several fingernails, along with localized swelling of the right fourth distal interphalangeal joint. Complete blood count with differential and comprehensive metabolic panel were within normal limits. Hand x-rays were performed and showed bony erosion with associated soft tissue swelling at the right fourth distal phalanx. Nail clippings were also obtained and histopathological analysis revealed some neutrophilic infiltration and few retained nuclei. Diagnoses of PsA and NP were made based on the respective findings. Her PsA was initially treated with Otezla (apremilast) 30 mg BID for three months, improving her joint pain. The NP was treated with topical Taclonex (calcipotriene-betamethasone) 0.005%/0.064% daily and Vectical (calcitriol) 3 mcg/gm nightly with minimal improvement. She was switched to clobetasol 0.05% under occlusion with regular intralesional injections of triamcinolone, which mildly improved the appearance of the nail bed deformities. Because the patient was not satisfied with the progress of her current treatment regimen, all medications were discontinued. She then underwent three injections of Stelara (ustekinumab) 45 mg with no improvement, and finally three Skyrizi (risankizumab-rzaa) 150 mg injections with great improvement of her nail appearance. During this time, she did not experience any joint pain and repeated x-rays no longer showed evidence of PsA.

Conclusion

Concomitant PsA is common in patients with NP and can cause deleterious long-term effects if left untreated. Management of PsA involves treating the underlying NP, if present. A targeted step-wise treatment approach to PsA is recommended as many drug options exist, ranging from topical steroids to systemic biologic agents. The latter have been utilized to successfully treat both conditions concurrently, significantly reducing radiographic progression of PsA.

Clinical Vignettes

Poster Number: 02 - Utilization of Intravascular Ultrasound in Superficial Femoral Artery Stenting Through Pedal Access

Author: Ozman Ochoa, TTUHSC - Texas Tech University Health Sciences Center School of Medicine

Co-Authors: Alison Tran; Daemar Jones; Kate Holder; Yasser M. Esmail, MD; Mohammad M. Ansari, M.D

Poster Presentation Link: <https://www.youtube.com/watch?v=32-oeFcEko>

Introduction: Peripheral artery disease (PAD) accounts for a significant incidence of cardiovascular disease (CVD) globally with complications leading to critical limb ischemia (CLI) and amputation. Arterial calcification common in diseased vessels further complicates percutaneous coronary interventions (PCI) and endovascular therapies such as angioplasty, stent placement, or atherectomy. Challenges arise in size acquisition for balloon angioplasty or stenting, with the major issue being under-sizing. Under-sizing leads to improper treatment and re-occlusion through pedal access. This case study examines a successful application of intravascular ultrasound (IVUS) guided endovascular treatment in superficial femoral artery (SFA) stenosis through pedal access for proper balloon sizing treating occlusions and improvement of patient outcomes.

Case: Hispanic female aged 61 with a past medical history of PAD, CLI, atherosclerosis, coronary artery disease (CAD), DM type II, Hypertension, Hyperlipidemia, and smoking history presented with pain and discoloration to her right toes. Physical exam revealed decreased peripheral perfusion. Doppler of the right SFA revealed extensive occlusion, calcification, and stenosis, deeming the patient a good candidate for peripheral intervention through pedal approach. Ultrasound guided right pedal access was obtained with the wire traversed through the anterior tibial artery and successfully crossed through the chronic total occlusion (CTO). Percutaneous transluminal angioplasty (PTA) of the SFA was performed as well as laser atherectomy. Balloons were implemented and anterograde IVUS of the right SFA revealed improvement in occlusion and a small dissection. Repeat angiography was performed post balloon angioplasty with no dissections noted. Proper sizing with balloon angioplasty was done. In addition, utilization of IVUS assisted in identifying the dissection, which ultimately led to favorable results for our patient.

Conclusion: Utilization of IVUS SFA catheterization through pedal access demonstrates successful improvement in occlusions and lesions through proper sizing in patient with PAD and CTO. In addition, IVUS aids in diagnosis of dissections missed in regular fluoroscopy that could lead to re-occlusion. This case study helps satisfy the literature need concerning exploration of SFA endovascular treatments using IVUS via pedal access points that would not have been seen through other methods, such as fluoroscopy.

Clinical Vignettes

Poster Number: 03 - A case of rounded atelectasis secondary to pulmonary embolism

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Co-Authors: Brittany Tu, Emily Stephens, Drew Payne

Poster Presentation Link: <https://www.youtube.com/watch?v=YCjMBohCSCs>

Introduction:

Rounded atelectasis is a unique form of lung collapse that occurs when redundant pleura separates from the chest wall, in many cases, following a lung trauma, exposure to a toxic inhalant (e.g. asbestos), or pleural effusion, causing a false mass-like appearance. Rounded atelectasis is often asymptomatic, making it difficult to diagnose in the absence of a computed tomography scan (CT scan). This case illustrates an association between unprovoked pulmonary embolism and rounded atelectasis which has not previously been documented.

Case description:

A 40-year-old female with a history of hypothyroidism and endometriosis presented to the internal medicine clinic with a 3-day history of shoulder and back pain on her left side that worsened on inspiration and movement following strenuous exercise. Vital signs were all within normal limits. A chest x-ray showed no acute injury to bony structures, obvious soft tissue swelling, or pneumothorax. She was started on acetaminophen-codeine, a muscle relaxant, and was advised to limit exercise and physical activity for several days. She returned to the emergency department three weeks later with a similar presentation of intermittent pleuritic chest pain and shortness of breath. Upon admission, she had stable vital signs and was negative for any symptoms of hypoxemia, hypotension, or tachycardia. A chest CT scan without contrast revealed a wedge-shaped pleural-based opacity in the left lower lung, consistent with rounded atelectasis. A second scan with pulmonary embolism protocol showed bilateral tiny emboli, compatible with unprovoked pulmonary embolism. She was discharged with a full dose anticoagulation.

Upon follow-up at the internal medicine clinic one week later, the patient stated that her shortness of breath, chest tightness, and back pain were improving. Her labs revealed an elevation in factor VIII, an elevated lupus type anticoagulant profile, and a negative COVID-19 IgG antibody. She was referred to a gastroenterology and gynecology clinic to rule out any underlying malignancy given the unexplained pulmonary emboli. Testing revealed no malignancies.

Conclusion:

Rounded atelectasis is uncommon and often presents without symptoms. The characteristic findings upon imaging in which the lesion adheres to the pleura of the lung may suggest a possible malignancy, but the mismatch in clinical symptoms and radiologic findings may prolong the path to initial diagnosis. However, signs of pulmonary embolism should be monitored in patients with radiographic evidence of rounded atelectasis to ensure proper treatment or management of the underlying cause.

Clinical Vignettes

Poster Number: 04 - Discussion of morbidity and mortality from underdiagnosis of compensated cirrhosis in Alpha-1-Antitrypsin Deficiency (AATD)

Author: Shivani Bhatnagar, UNT-TCOM -University of North Texas Health Science Center at Fort Worth/Texas College of Osteopathic Medicine

Co-Authors: Parker Lachowsky, Dylan Lopez

Poster Presentation Link: <https://www.youtube.com/watch?v=4spuBfJTRw>

Background: Alpha-1-Antitrypsin (AAT) is a prominent enzyme in our bodies that regulates protease activity. The deficiency of this enzyme is rare, under-recognized, and associated with disease of the lung, liver, and skin. It is estimated that 90% of individuals with AATD are never diagnosed, which is potentially complicated by the high estimates of patients with hidden or compensated cirrhosis. A clinical diagnosis is made difficult by a lack of typical disease indicators, leading to unforeseen complications, especially in the setting of surgery. We present one such case.

Case: A 73-year-old female with asthma, COPD, GERD, and HTN presented with nine days of sharp neck pain, fatigue, and dysphagia. Imaging revealed a large retropharyngeal abscess, which was drained and cultured to reveal MSSA. Her labs indicated hypercalcemia and hypoalbuminemia with no other abnormalities. Later workup revealed a large parathyroid adenoma. Her progress was complicated by hypernatremia treated with IV hydration. However, she suffered from persistent fluid overload despite diuresis and discontinuation of fluids. She developed worsening respiratory failure requiring non-invasive positive-pressure ventilation and later intubation. The patient began to have hematemesis, which revealed an undiagnosed variceal bleed confirmed with EGD. Imaging confirmed liver cirrhosis despite normal liver enzyme tests and negative hepatitis panels throughout her hospitalization. Later workup revealed decreased AAT level at 70. She continued to decline from multiorgan failure, which prompted inpatient hospice placement, where she expired upon arrival.

Discussion: Liver cirrhosis is considered decompensated once there is evidence of complications, such as variceal hemorrhage, ascites, SBP, hepatocellular carcinoma, hepatorenal syndrome, or hepatic encephalopathy. We present a patient with lung disease and no indications or risk factors of liver disease on admission. Her development of variceal bleeding, ascites, hepatic encephalopathy, and worsening liver synthetic functions in the setting of decreased AAT levels indicates that she was living with compensated liver cirrhosis for many years, which appeared after surgery. It is well-documented that decompensation in compensated liver cirrhosis can be triggered by bleeding, infection, alcohol, medications, dehydration, and activities that raise variceal pressure such as constipation. This case adds to a frustrating trend that physicians are unable to detect well-compensated cirrhosis despite advancements in diagnostic tools.

Thus, providers cannot adjust management to avoid triggering decompensation. As in our case, decompensation of liver cirrhosis dramatically increases mortality. We present this case as a reminder that not only is AATD grossly undiagnosed, but that chronic liver disease and progressive fibrosis can exist in asymptomatic patients with unremarkable liver chemistries due to long-standing compensation. Multiple triggers place these patients at risk of decompensation, which clinicians should be mindful of until we find a universal diagnostic tool for compensated cirrhotics.

Clinical Vignettes

Poster Number: 05 - “Doctor please stop my belly from ripping apart” – A case of acute intermittent porphyria

Author: Iqra Kazi, PLFSOM - Texas Tech University Health Sciences Center Paul L. Foster School of Medicine

Co-Authors: Onyedika Umeanaeto, MD; Hien Pham, MD; Priyanka Kesavan-Chary, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=gUaJYXlqubs>

Background: Acute Intermittent Porphyria (AIP) is an autosomal dominant disease caused by a mutation in the gene that codes for the enzyme porphobilinogen deaminase (PBGD), the third enzyme that catalyzes the heme synthetic pathway. The alteration of this enzyme results in a partial deficiency of PBGD that results in an accumulation of heme pathway intermediates. Elevation of these heme pathway intermediates in circulation produces a number of highly variable and non-specific clinical manifestations that most commonly involve gastrointestinal symptoms such as acute abdominal pain, autonomic and central nervous system involvement such as peripheral neuropathy, and bladder dysfunction, including red urine due to the presence of porphyrins.

Case Report: We report a 22 year old female with no significant past medical history, who presented with three days of severe abdominal pain, nausea and vomiting, bloating, and constipation; the patient had not been taking any medications other than oral contraceptives for birth control and laxatives for chronic constipation. Physical exam was significant for mild abdominal distention with diffuse, non-rebound tenderness to palpation. Initial workup for the patient’s GI symptoms was significant only for enteritis found on CT of the abdomen and pelvis. The patient was discharged home with supportive care but presented to the ED again due to persistent abdominal pain. Further workup and imaging then showed small bowel obstruction, treated with gastric decompression and evaluated with colonoscopy, the latter of which demonstrated significant bowel dilatation with successfully decompression as well. The patient continued to have severe, unrelenting abdominal pain despite adequate pain management, along with tachycardia and worsening hyponatremia. Due to persistent abdominal pain, a random urine porphobilinogen level was ordered and showed an elevation of 99.919 (normal <0.22 mg/g). Urine and plasma fractionated porphyrin levels were obtained, the former which showed significant elevations in Uroporphyrin I and Uroporphyrin III, with total porphyrins of 6714 (normal 27-153.6 mcg/g creatinine). Plasma fractionated porphyrin levels had significant elevations of Uroporphyrin and Coproporphyrin, with total porphyrins of 15.2 (normal 1.0-5.6 mcg/L). Hematology was consulted upon the patient’s diagnosis of AIP, and patient was started on hemin and IV dextrose 10%, with her abdominal pain significantly improving. She was then discharged home with instructions to follow-up with Hematology on an outpatient basis, and is also pursuing confirmatory DNA testing.

Conclusion: Our case suggests that AIP should be considered in the differential diagnosis of persistent abdominal pain once other etiologies are either ruled out or appropriately managed. Timely diagnosis and medical intervention can prevent disease complications such as renal failure and hepatocellular carcinoma.

Clinical Vignettes

Poster Number: 06 - Severe Idiopathic Intracranial Hypertension Associated with Transverse Sinus Stenosis Treated with Stent Placement

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Co-Authors: Aurelio Vargas B.S., Michael Blanco B.S., Darko Quispe-Orozco M.D., Victor Montalvan Ayala M.D., Jongyeol Kim M.D.

Poster Presentation Link: <https://www.youtube.com/watch?v=3ULLiv2gogo>

Idiopathic intracranial hypertension (IIH) is characterized by increased cerebrospinal fluid pressure of unknown cause that mainly affects obese women of childbearing age. Common presenting symptoms include headache, tinnitus, and visual disturbance. Decreased visual acuity, elevated CSF opening pressure, other cranial nerve abnormalities, and papilledema are common clinical findings. Dural venous sinus stenosis has been associated with IIH, but whether venous sinus stenosis is part of the cause or part of the consequence of the increased intracranial pressure is still unclear. Brain venous stenting has become a treatment option for those cases that are refractory to treatment with acetazolamide. The aim of this study is to present a case of severe IIH whose symptoms improved significantly after bilateral transverse venous sinus stent placement.

A 27-year-old female with history of hypertension, Addison's disease, hypothyroidism, and obesity presented with 10 days of rapidly worsening headache and blurry vision. Physical exam was positive for decreased visual acuity and bilateral papilledema. MRI of the brain showed signs of intracranial hypertension, including protrusion of the lateral optic nerve papilla and widening of optic nerve sheaths. Magnetic resonance venography showed right transverse sinus stenosis and a hypoplastic left transverse sinus. Lumbar puncture revealed opening pressure of 42cm H₂O with no other abnormality in CSF analysis. Headache and blurry vision worsened despite a therapeutic dose of acetazolamide. Right transverse sinus stenting was performed with immediate decrease of transverse sinus gradient of pressure and subsequent improvement of symptoms. A few days later, headache and blurry vision re-emerged, for which a left transverse sinus stenting was performed with improvement of the headache and gradual improvement of the visual symptoms.

Venous sinus stenosis stenting is currently a therapeutic option for patients with IIH refractory to medical therapy and has been associated with the relief of symptoms. The effectiveness of this treatment compared to medical therapy and the rate of recurrence of symptoms after intravascular therapy are questions that still need to be addressed. Further studies are needed to better characterize the response to endovascular therapy in refractory IIH.

Key words: Intracranial hypertension, transverse sinus stenosis, magnetic resonance venography

Clinical Vignettes

Poster Number: 07 - Ischemic Cholangiopathy After Coil Embolization of a Pancreaticoduodenal Artery Pseudoaneurysm

Author: Joseph Silvaggio, TTUHSC - Texas Tech University Health Sciences Center School of Medicine

Co-Authors: Dr. Roy Joseph

Poster Presentation Link: <https://www.youtube.com/watch?v=WO3ZqXSAzD4>

A 66-year-old male presented to the ER with complaints of severe epigastric pain after eating a large meal. Initial workup with laboratory tests and imaging by contrast-enhanced CT scan were non-diagnostic. He was admitted to the hospital for observation. The following day another CT scan was performed for persistent abdominal pain. This revealed a retroperitoneal hematoma, hemoperitoneum, and a 7mm pseudo-aneurysm of the pancreaticoduodenal artery and stenosis of the celiac artery. The patient received transcatheter coil embolization of the bleeding vessel. Two coils were deployed during the procedure, and one migrated into the gastroduodenal artery due to a high flow state in the vessel. Stasis of the bleeding vessel was achieved, and his condition stabilized.

The patient presented again 13 days later with jaundice. Labs showed total bilirubin of 4.4 mg/dL, ALT and AST of 284 and 161 U/L respectively, and Alkaline Phosphatase of 959 U/L. A CT scan of the abdomen showed a reduction in the retroperitoneal hematoma and mild dilation of the bile duct with possible debris in the distal bile duct.

The patient was taken to endoscopy where he underwent an ERCP. Extrinsic compression of the distal 2nd and 3rd portion of the duodenum was noted due to the retroperitoneal hematoma, but bile was freely flowing into the duodenum from the ampulla. Flecks of bile-stained translucent material were noted draining out of the bile duct. This was felt to be desquamated bile duct epithelium. The bile duct was cannulated, and a 10 Fr plastic stent was placed to allow biliary decompression and drainage. Over the next two days AST, ALT, ALKP, and total bilirubin all declined, and the patient was discharged without complications.

Pancreaticoduodenal pseudoaneurysm has been documented in patients with celiac stenosis, most likely due to the increased flow state in the vessel. The decreased blood supply from the celiac artery stenosis may have resulted in the development of collaterals from the pancreaticoduodenal artery. The embolization of the pancreaticoduodenal artery to stop the bleeding may have diminished the collateral blood supply to the bile duct resulting in ischemic cholangiopathy. It is also possible that the hemorrhage prior to embolization also caused transient ischemia to the bile duct epithelium. Ischemic cholangiopathy is a well-described complication usually seen post-liver transplantation. It is also described albeit less commonly during transcatheter embolization of bleeding vessels. The placement of a stent during ERCP will hopefully allow for free bile drainage and prevent biliary stricture formation as a consequence of epithelial healing.

Clinical Vignettes

Poster Number: 08 - Spontaneous Solid Tumor Lysis Syndrome in Esophageal Adenocarcinoma

Author: Claire Culbertson, UTMB - The University of Texas Medical Branch at Galveston

Co-Authors: Karen Szauter, MD

Poster Presentation Link: <https://youtu.be/Kng75txpUd0>

Introduction:

Tumor Lysis Syndrome (TLS) is an oncologic emergency due to massive tumor cell lysis that is most often seen with hematologic malignancies. Most reports of TLS in solid tumors occur in association with chemotherapy. We describe spontaneous TLS in a patient with esophageal adenocarcinoma.

Patient Description:

Mr. M is a 55-year-old man who presented to the hospital with altered mental status (AMS) and acute excruciating left shoulder pain. His medical history was notable for stage IV esophageal adenocarcinoma diagnosed 6/2021 with liver metastasis. His family relayed he had been unable to receive chemotherapy and was awaiting inpatient hospice placement. Upon admission he was afebrile, hypertensive (153/101 mmHg), tachycardiac (101 bpm); room air SpO2 was 94%. Physical exam was remarkable for diffuse jaundice and abdominal distention with a 19 cm, hard mass in the perixiphoid region, with tenderness to palpation in the left lateral and right lower quadrants. Initial labs were notable for a WBC of 29.81, Hgb of 11.4, Na of 126, K of 5.9, Cl of 89, AGAP of 20, creatinine of 1.64 (0.9 at baseline), total bilirubin of 13.1 with 7.3 conjugated bilirubin, elevated LFTs, and a lactic acid of 7.48. Repeat vitals revealed a temperature of 38.1° C; additional labs showed phosphorus of 5.2 and uric acid of 10.5. Blood culture was positive for MSSA. In the setting of a large tumor burden, his presentation of hyperuricemia, hyperkalemia, hyperphosphatemia, and acute kidney injury was consistent with spontaneous TLS. Unfortunately, his clinical condition rapidly deteriorated and he passed away the following day.

Discussion:

TLS occurs due to massive lysis of tumor cells, often following cytotoxic chemotherapy, which in turn releases large amounts of phosphate, potassium and uric acid into the serum. Although TLS is relatively common in hematologic malignancies, there have only been a few cases reported of TLS in solid tumors of the upper GI tract, almost all of which followed chemotherapy. Of these cases, there were only four cases of unprovoked solid TLS, which occurred with gastric adenocarcinoma. The only other case of TLS in esophageal adenocarcinoma was reported in Japanese literature, and was chemotherapy-induced, making our case particularly unique due to lack of provocation.

Although Mr. M initially presented for shoulder pain, we quickly determined that shoulder pain was not his utmost concern and did not further pursue the cause. Upon postmortem consideration, we found his normocalcemia in the setting of TLS to be of note, as we would expect hypocalcemia due to TLS-induced hyperphosphatemia. However, if bony metastasis was the underlying cause of the patient's shoulder pain, his calcium could appear normal due increased osteoclast activity causing calcium release into the serum.

Clinical Vignettes

Poster Number: 09 - Brugada Syndrome presenting in COVID-19

Author: Parker Lachowsky, UNT-TCOM -University of North Texas Health Science Center at Fort Worth/Texas College of Osteopathic Medicine

Co-Authors: Shivani Bhatnagar, Dylan Lopez

Poster Presentation Link: <https://www.youtube.com/watch?v=M47UtVzgMpY>

Background: Brugada Syndrome is a male-predominant genetic disorder with a prevalence of 0.1 – 1% that results in an increased risk of ventricular tachyarrhythmias and sudden cardiac death in people with hearts that appear structurally normal. Although it is inherited in an autosomal dominant pattern, variable expressivity can make it difficult to diagnose with family history alone. Thus, diagnosis is typically made by identifying the characteristic pseudo-right bundle branch block in leads V1 and V2 on EKG, but diagnosis is often delayed due to the transient nature of these EKG changes. As a result, Brugada Syndrome can remain undetected until it is unmasked by a trigger, commonly fever or cocaine use. We present a case in which fever due to COVID-19 infection revealed Brugada Syndrome in a previously healthy 19-year-old male.

Case: A 19-year-old male with no known medical history presented to the ED after being found down and profusely diaphoretic by his parents. He was unresponsive to multiple doses of Ativan and Narcan. He was tachycardic to the 150s and had respiratory insufficiency, so he was intubated in the ED. Initial EKG showed sinus tachycardia without ST changes. UDS was positive for THC, and labs revealed elevated procalcitonin, D-Dimer, Potassium, and LDH. CTA of the chest showed no evidence of PE but did identify multilobar pneumonia. Follow-up testing confirmed that he was COVID-positive. While in the ED, the patient's heart rate then rapidly decreased and a stat EKG was performed. The patient then converted into pulseless VFib and ROSC was achieved after CPR. The stat EKG immediately before the code was notable for a type 1 Brugada pattern. Further EKG showed resolution of the pattern, however, the patient ultimately expired from anoxic brain injury.

Discussion: Patients with Brugada Syndrome typically first present after a syncopal episode or sudden cardiac arrest due to the apparent lack of cardiac abnormalities on routine testing. Although genetic mutations have been identified as a likely cause of Brugada Syndrome, cardiac arrhythmias typically do not appear until triggered, most commonly by fever. As such, a high degree of clinical suspicion of Brugada Syndrome is necessary any time young male patients present with syncope, cardiac arrest, or an abnormal EKG in the setting of a febrile illness. In the context of the recent COVID-19 pandemic, where high fevers may be associated with COVID-19 infection, physicians should be aware of underlying causes that can put young patients at risk of sudden cardiac death as a result of COVID-19-induced fevers. Additionally, aggressive antipyretic therapy should be considered in young patients with COVID-19 to decrease the chances of triggering Brugada Syndrome that could progress to sudden cardiac death.

Clinical Vignettes

Poster Number: 10 - Chilblain Lesions in an African American Patient with Suspected COVID – 19: A Case Report

Author: Jessica Vanschuyver, PLFSOM - Texas Tech University Health Sciences Center Paul L. Foster School of Medicine

Co-Authors: Charmaine Martin, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=WKCC284JtuA>

Introduction: On 11 March 2020, the World Health Organization officially declared SARS – CoV – 2 a global pandemic. As of 17 August 2021, there have been 207,784,507 confirmed cases worldwide and 4,370,424 deaths. COVID – 19 has a wide range of symptoms including fever, cough, dyspnea, diarrhea, ageusia, anosmia, and cutaneous lesions. Maculopapular rash, urticaria, chilblains, vascular lesions, levido reticularis, and petechia are all suspected cutaneous manifestations of SARS – CoV – 2. Chilblains are usually painful, tend to present later in the course of disease, and usually resolve within 10 days without the need for treatment. If histological studies are done, they tend to show inflammatory cell infiltrate in the dermis with lymphocytic predominance. The fact that these lesions tend to appear later in the disease process suggests that they will be more useful as an epidemiological marker than for diagnosis.

Description: A 56 year old African American male with a past medical history of DM type 2, hypertension, and dyslipidemia presented to an urgent care clinic on 27 June 2020 with a sore throat. Patient denied any fever, cough, conjunctivitis, or difficulty breathing. Rapid Strep test was negative. Pt was given Amoxicillin to take home. 10 days later, the patient was seen by his primary care physician (PCP) and reported painful, erythematous bumps on both hands that started 7 days before. Pt reported numbness and stated that the lesions were progressively getting bigger. He tested negative for COVID – 19 at this time. The patient was referred to dermatology, who described a differential diagnosis of dyshidrosis, ID reaction, and perniosis. A biopsy was done and showed superficial and mid-dermal lymphocytic infiltrate with papillary dermal edema. Comments on the report stated that these findings are typical for perniosis (chilblains), but they have also been described in COVID – 19 infection. A week later, the patient was seen by his PCP and reported his cutaneous symptoms were resolving. He denied any fever, cough, nausea, vomiting, or any new lesions.

Conclusion: It is suspected that chilblains constitute one of the cutaneous manifestations of COVID – 19. Biopsy results show dermal lymphocytic infiltrate. Patients normally have a mild course of disease and often test negative for COVID – 19. Further studies need to be done to prove the association between chilblains and SARS – CoV – 2. Further studies should also include patients of various races and ethnic groups as very few have been included in the literature on this subject. We found a limited number of papers that included images of these lesions, and even less that included images of these lesions in African American patients.

Clinical Vignettes

Poster Number: 11 - Vulvar Melanosis in an African American Female: A Case Report

Author: John Rafael, TTUHSC - Texas Tech University Health Sciences Center School of Medicine

Co-Authors: Asley Sanchez, BS; Gary Ventolini, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=C5KaUbr5QWg>

Vulvar melanosis accounts for most pigmented lesions in the vulva in women during their reproductive years. It usually presents as a singular macule or patch or a multitude of varying sizes exhibiting asymmetry, coalescence, and lacking defined borders. Vulvar melanosis patients have favorable prognosis, although their clinical picture and dermatological findings on physical exam can elicit anxiety due to its gross similarity to melanoma. While literature has delved into the histology, derma pathological, and even epidemiological characteristics, little literature has focused on women of color. We herein report a 46-year-old African-American female with no relevant past medical history presenting with multiple brown to black lesions on the vulva. The patient was perimenopausal and referred to the OB/GYN clinic by a physician assistant in another department to rule out melanoma. The patient noted the vulvar lesions started three to four months ago after beginning perimenopausal hormone replacement therapy (HRT); these lesions grew slowly over time. The woman denied any other symptoms suggestive of underlying malignancy and presented with no other complaints. Further examination of the vulva noted three to four brown to black macules on the right vulva vestibule hugging the vaginal opening, with slight coalescence and poorly defined borders. While asymmetrically located, the lesions exhibited neither rapid growth nor varied pigmentation; no history of prolonged sun exposure or melanocytic nevi were reported. Given the patient's history and lack of worrisome signs of physical examination, a diagnosis of vulvar melanosis was made and biopsy was not indicated at the time. The patient was reassured melanoma was ruled out and was thus put on expectant management for her lesions; no additional progression to malignancy reported over the next several months. The patient continues to be monitored with no progression of her symptoms.

This case is significant for its unique demographic being studied and its indirect attribution to the etiology of pathogenesis. The etiology of vulvar melanosis is not well understood; research has proposed associations of these lesions to hormonal changes and other pathologies, with a recent study noting over 67% of cases appeared in women younger than 50 years of age and 65% received HRT prior to diagnosis. The seemingly direct correlation between the onset of the lesions and HRT may support a hormone change as the basis of this lesion. Furthermore, vulvar melanosis often occurs in the labia minora, clitoris, or labia majora, and much of the literature has focused on women of European descent; the onset of lesions mainly in the vulvar vestibule of an African-American woman should be of note. We report vulvar melanosis in a perimenopausal African-American woman, a population warranting additional epidemiological and derma pathological study.

Clinical Vignettes

Poster Number: 12 - Management of Diabetic Foot Wounds by Addressing Underlying Chronic Limb Ischemia: Highlighting Overlooked Contributing Factor

Author: Bernardo Galvan, TTUHSC - Texas Tech University Health Sciences Center School of Medicine

Co-Authors: Katherine Holder, Mikal Ramon, Daemar Jones M.S., Yasser M. Esmail, M.D., Mohammad M. Ansari M.D.

Poster Presentation Link: <https://www.youtube.com/watch?v=dYRmlkerrA4>

PAD affects over 200 million people worldwide, causing asymptomatic disease in some. This disease necessitates amputation in 3-4% of PAD patients. CTO refers to 100% occlusion of an artery for 3 or more months. To mitigate the adverse events associated with CTO, a plethora of procedures have been developed and refined over the past two decades. Data in support of intervention is becoming increasingly robust, but the most efficacious intervention methods are still highly debated with a variety of strategies and techniques currently in use. This case examines a special technique of sequential combined use of multiple catheters, guidewires, balloons, and stents in the treatment of advanced peripheral artery disease. A male age 77, with a history of right lower extremity CLI (Rutherford V) presented for peripheral angiogram. The patient has a past medical history of PAD, CLI, CAD, diabetes mellitus type II, and hypertension. He presented initially with a gangrenous right first and second toe that has progressively worsened over the past two months, but was initially attributed primarily to the patient's diabetes. Treatment with antibiotic ointment and wound care provided no improvement. Peripheral angiogram was performed and revealed the severe extent of occlusion throughout the right lower limb, prompting the patient to be emergently taken for reperfusion via angioplasty. Atherectomy was performed to the calcified superficial femoral artery. Balloons were advanced and inflated in the SFA, PDA, DP, and AT. Self expanding coated stents were subsequently placed in the SFA. Drug coated balloons were deployed proximal to the stent. Finally, a balloon was deployed to crack the remaining calcium in the SFA. Intervention in CTO of the peripheral vasculature requires a specialized technique that may be optimally effective when tailored to each patient. This becomes increasingly important in patients with PAD who also have diabetes as a primary comorbidity. Diabetic foot wounds are customarily managed with wound care and antibiotics. This case presents a glaring example of how lack of angiogram in a diabetic foot wound patient can lead to misclassification and delayed intervention to restore blood flow of an ischemic limb. Once a correct diagnosis was made, a customized approach led to favorable results that prevented further manifestations of PAD.

Clinical Vignettes

Poster Number: 13 - Utilizing Radial Access to Treat Bilateral Lower Extremity Peripheral Artery Disease in a One Procedure Setting

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Poster Presentation Link: <https://www.youtube.com/watch?v=Gx6aK0Dnh5I>

With the rise in prevalence of patients with peripheral artery disease (PAD), there is a rise in patients presenting with bilateral diffuse lower extremity PAD. Disease in the lower extremities can be treated with normal endovascular interventions; however, if the provider chooses to intervene through a femoral artery access site, treating the ipsilateral lower extremity may be difficult requiring the patient to undergo another intervention. Radial access has been shown to be useful for treating patients with bilateral lower extremity PAD during one procedure and is not inferior to the transfemoral approach. We present our case of a patient who underwent two percutaneous interventions using the radial approach to treat bilateral lower extremity PAD in one procedure. An 80-year-old male with a history of hypertension, hyperlipidemia, coronary artery disease, and PAD status post percutaneous intervention of the right and left lower extremity one year prior, presented with bilateral lower extremity pain at rest. An arterial duplex was performed and showed right distal anterior tibial artery occlusion, left common femoral, superficial femoral, and popliteal artery stenosis. The patient underwent successful bilateral lower extremity percutaneous intervention with right radial artery access. Atherectomy on the right superficial femoral artery was performed followed by angioplasty on the right superficial femoral, popliteal, and tibioperoneal trunk. Crossing over to the left lower extremity was easily achieved due to the transradial approach. Angioplasty on the left common femoral and popliteal artery was performed. At the end of the procedure, significant improvement of the lesions was noted on angiography. The post-operative course was unremarkable as the patient reported resolution of bilateral lower extremity resting pain. The patient was discharged the next day with instructions for follow-up care. The use of the radial artery approach for the treatment of bilateral lower extremity PAD has been shown to be more efficient compared to the femoral artery approach. Using this approach can reduce the number of procedures needed and provide the benefits of radial artery access to reduce complications and lower costs. Radial access is economically feasible, safe, and efficient in treating complex bilateral lower extremity PAD in one setting reducing the need for the patient to return for another procedure.

Clinical Vignettes

Poster Number: 14 - Granulomatosis with polyangiitis (GPA) with hypereosinophilia and renal involvement

Author: Shreya Kondle, UTSW - The University of Texas Southwestern Medical Center

Co-Authors:

Poster Presentation Link: <https://youtu.be/6N6zRPZsMdw>

Granulomatosis with polyangiitis (GPA; Wegener's granulomatosis) is a necrotizing vasculitis typically diagnosed in middle-aged adults that affects small to medium-sized vessels. Few cases of GPA have been documented among pediatric patients, much less variants of the disease with eosinophilia or remarkably severe clinical presentations. Herein, we report a case that evolved from an atypical initial constellation of rheumatologic and dermatologic findings into a diagnosis of GPA with hypereosinophilia and renal involvement. In April 2021, a 16-year old male patient with a past medical history of Asperger's syndrome, seropositive polyarticular juvenile idiopathic arthritis, and sinusitis presented with an approximate 15-pound weight loss since September 2020, a 7 month history of pain and swelling in bilateral wrists and feet, and a 1 week history of tender, erythematous scabbed papules on the scalp and extremities unrelieved with hydrocortisone and mupirocin. His history was also significant for chronic otitis media, dysfunction of bilateral eustachian tubes, and allergic rhinitis. The patient's mother noted the reappearance of oral ulcers from a Streptococcal infection a month prior during which he was also diagnosed with conjunctival injection and right eye uveitis. Laboratory findings from March 2021 showed a significantly elevated rheumatoid factor level of 285 IU/mL and negative testing for antinuclear antibodies (ANA), cyclic citrullinated peptides (CCP), and human leukocyte antigen B27 (HLA-B27). A skin biopsy revealed nonspecific leukocytoclastic vasculitis. Repeat laboratory results were significant for elevated complement C3 (166 mg/dL), phosphatidylserine prothrombin IgM antibody (36.6 units), C-ANCA IgG (1:160 AU/mL), serine protease 3 IgG (603 AU/mL), rheumatoid factor (587 IU/mL), and absolute eosinophilia (5.23 thousand/mm³). Due to a high eosinophil count leaving EGPA and GPA vasculitis processes on the table for diagnosis and mild proteinuria (414 mg/24hr), the patient was scheduled for a right kidney biopsy, which confirmed GPA with renal involvement. With a significantly elevated rheumatoid factor, bilateral arthritis, and suspected rheumatoid nodules of the hand, the patient had initially received a misdiagnosis of polyarticular juvenile idiopathic arthritis (JIA), a subtype of JIA in which uveitis is rare. The patient's eosinophilia in the setting of GPA thereby presents a novel finding that urges further investigation of the role of eosinophils in inflammatory vasculitis; the patient's young age, non-asthmatic history, and a lack of pulmonary infiltrates on chest imaging argued against the diagnosis of EGPA. Previous studies reveal correlations between high blood eosinophil counts (above 5.00 hundred/mm³) and higher mean disease activity at baseline, renal failure, cutaneous manifestations, and peripheral neuropathy with sensory and motor involvement. As such, this case warrants dedicated exploration of eosinophils in tissue damage and maintenance of broad differential when evaluating children and young adults with possible GPA and EPGA as we develop a better understanding of phenotypic variations across both diseases.

Clinical Vignettes

Poster Number: 15 - Pericarditis As A Suspected Complication of Graves Disease

Author: Priyanka Jagannathan, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Rajvi Patel, MD; Pratima Kumar, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=0qF7fEArt-s>

Introduction:

Graves disease is an autoimmune condition that is the most common cause of hyperthyroidism, known to cause arrhythmias and increase strain on the heart. Here we describe a woman diagnosed with Graves disease presenting with pericardial effusion and pericarditis.

Description:

A 25 year old woman presented to her outpatient physician for evaluation of fatigue, unintentional 50-pound weight loss, heat intolerance, dry skin and bulging of her eyes. Her labs revealed TSH<0.01 (normal 0.5 - 5 mIU/L), free T4 6.86 (0.9 - 1.7 ng/dL) and TSI of 400 (normal below 130%). Thyroid ultrasound showed an enlarged thyroid gland with hypervascularity without nodularity. She was diagnosed with Graves disease and started on methimazole and propranolol.

Two weeks later, she presented to the hospital with worsening chest pain associated with deep inspiration, dyspnea at rest, fever, chills and myalgias. Physical exam was significant for positive JVD, diffusely enlarged thyroid without nodules or bruit, and positive pericardial rub. CT Angiography of the chest demonstrated a large pericardial effusion and diffusely enlarged thyroid gland. Transesophageal echocardiogram was remarkable for an ejection fraction of 55% and large pericardial effusion with chamber collapse. Pericardiocentesis showed bloody, opaque fluid with elevated white count of 3835, elevated red cell count of 478,239, glucose 44, LDH 3140 and amylase less than 10. Treatment with ibuprofen and colchicine was initiated. Subsequent work-up was negative for infectious etiologies with unremarkable pericardial and blood cultures. Rheumatological evaluation revealed a negative ANA and C3/C4. It was suspected that her pericarditis was secondary to severe Graves disease, a rare but reported complication of this autoimmune condition.

Conclusion:

Acute pericarditis is the most common pathologic process involving the pericardium. It is often associated with additional pericardial conditions including tamponade, effusion and constrictive pericarditis¹. Etiologies of acute pericarditis are infectious, traumatic, autoimmune, and drug-induced. Pathophysiology is postulated to be due to immune-mediated proinflammatory cytokines in the pericardial fluid². Although minimally evidenced in the literature, it is possible for Graves to affect the pericardium given its autoimmune pathophysiology³. Literature review found approximately 10 previous cases of pericarditis secondary to Graves disease⁴. In our patient, the acute onset of pericarditis following a new diagnosis of Graves disease with a negative ANA is rare and not as well reported in the literature.

The learning points of our case are two-fold. Firstly, acute pericarditis and pericardial effusion should be considered a rare, but possible complication of Graves disease. Secondly, positive ANA have been seen in other case reports of Graves-induced pericarditis which makes physical examination and history crucial to differentiating between rheumatologic and endocrine etiologies².

Clinical Vignettes

Poster Number: 16 - More than meets the eye: A case of bacteremia from what is usually regarded as a contaminant

Author: Yajaira Jimenez, TAMUHSC - Texas A&M Health Science Center College of Medicine

Co-Authors: Shivan Shah M.D.

Poster Presentation Link: <https://www.youtube.com/watch?v=-ymvYV6nxfE>

Corynebacterium striatum is commonly found in normal skin and respiratory flora, it has historically been regarded as a contaminant when isolated from blood cultures. Recent studies have found this organism has pathogenic potential and has caused multidrug-resistant (MDR) infections in immunocompromised patients. We present a unique case of *C. striatum* bacteremia in an immunocompetent host.

A 77-year-old male with history of paroxysmal atrial fibrillation with permanent pacemaker placement, hypertension, type 2 diabetes mellitus and chronic kidney disease presented with fever, progressive generalized weakness, multiple falls, and acute left vision loss. Infectious work-up was started and showed negative chest X-Ray, urinalysis, and viral panel and blood cultures that grew *C. striatum* in 2 aerobic bottles and 1 anaerobic bottle. CT head did not show evidence of acute infarct, hemorrhage or other acute intracranial abnormality. Eye examination by ophthalmology revealed findings consistent with endophthalmitis. Transthoracic echocardiogram (TTE) did not show findings of wall motion abnormalities or vegetations, so transesophageal echocardiogram (TEE) was obtained showing oscillating densities on the aortic valve suggestive of endocarditis without pacemaker lead endocarditis. Intravitreal antibiotics were recommended for endophthalmitis, but patient's altered mental status and inability to undergo anesthesia prompted use of ophthalmic moxifloxacin drops. After initiation of combination of IV vancomycin and ophthalmic moxifloxacin the patient slowly improved and was safely discharged to a rehab facility.

This case report highlights the importance of considering *C. striatum* as a pathogenic bacterium rather than contaminant in the correct clinical setting. The capacity of biofilm production by *C. striatum* makes it a virulent pathogen capable of attaching itself to venous access lines and other hardware. Despite this mechanism of virulence, our patient did not have hardware involvement, making *C. striatum* endocarditis and in turn the secondary endophthalmitis easily missed in this setting. Early recognition of this pathogen in immunocompetent patients is important for improved patient outcomes as well as antibiotic stewardship – especially with increasing number MDR infections in the hospital setting.

Clinical Vignettes

Poster Number: 17 - Thermograms Leave Patients Out in the Cold

Author: Safee-Hana Belbina, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Daphne Hancock

Poster Presentation Link: <https://youtu.be/rSxt9F2CUrY>

Introduction

Although breast cancer continues to be the second leading cause of cancer-related death in women, screening mammography has contributed to a reduction in overall breast cancer mortality.^{1,2} However, inappropriate screening through non-evidenced based techniques can delay diagnosis resulting in disease progression and atypical presentations of breast cancer. The following case describes a patient whose mammogram screenings were inappropriately replaced by thermograms. Thermograms use infrared imaging to record heat emission of the breast, and have no clinical use in early malignancy detection.³ The prevalence of such alternatives to mammography threatens the progress in survival rates that have been achieved due to improved screening.

Description

History: A 59-year-old previously healthy woman presented to the ED with 4 weeks of worsening non-specific back pain. Upon further investigation she reported worsening right breast pain for 3 months that started after a fall onto her chest. Family history was pertinent for breast cancer in her maternal grandmother at age 40. The patient reported receiving annual thermograms for breast cancer screening, with a normal thermogram 6 months before presentation. She denied ever having a mammogram and expressed surprise towards the team for being unfamiliar with thermograms.

Physical Examination: On presentation, the patient was afebrile, tachycardic to 135, and hypertensive to 180/102. The right breast was tender to palpation and diffusely erythematous with a peau d'orange appearance but no nipple discharge. Superior to the nipple there was an area of skin breakdown with surrounding pustular lesions and edema. The right axillary and supraclavicular lymph nodes were palpable. There were no remarkable changes to the left breast. Palpation of the spine revealed tenderness between the cervical and lumbar regions.

Investigations: Laboratory studies revealed transaminitis and hypercalcemia. CT Abdomen/Pelvis revealed innumerable hepatic metastases and lytic lesions throughout the visualized osseous axial and appendicular skeleton, as well as metastatic lymphadenopathy. Breast biopsy revealed invasive ductal carcinoma with dermal lymphatic invasion.

Clinical Course: The patient remained in the hospital for 15 days to complete her breast cancer workup and to begin chemotherapy.

Conclusion

In this case, a woman presented with non-specific back pain. Although she believed she was up to date on her breast cancer screening, she left the hospital with a diagnosis of stage IV breast cancer. Her clinical course highlights a discrepancy between what physicians and patients see as adequate screening for breast cancer. There are many reasons patients are hesitant towards mammograms including pain, radiation exposure, misinformation, and guideline discrepancies between ACOG and USPSTF.^{1,4} It is imperative for physicians to be aware of the proposed alternatives to mammograms, such as thermograms, and counsel patients that these tests are not a replacement for the evidenced based mammogram screening.

Clinical Vignettes

Poster Number: 18 - Effects of Social Determinants of Health on Late HIV Diagnosis: A Case of Kaposi's Sarcoma

Author: Khairiya Haj-yahya, UTRGV - The University of Texas Rio Grande Valley Medical School

Co-Authors: Rodolfo Singleterry Medical Student, Eddy Valdez MD

Poster Presentation Link: https://www.youtube.com/watch?v=FZNhlazM_k8

Background: A late diagnosis of Human Immunodeficiency Virus (HIV) is defined as having acquired immunodeficiency syndrome (AIDS) at the time of, or within three months of initial diagnosis. While Texas ranks 7th in the country for new HIV diagnosis, the CDC estimates up to 17% of HIV+ individuals in Texas remain unaware of their status. The alarming rate of late-stage diagnoses and related deaths is often concentrated in areas with significant health disparities such as the Rio Grande Valley.

Case Presentation: The patient is a 37-year-old male with no past medical history, who presented with a 4-month history of rapid, unintentional weight loss, totaling 60 lbs. During this time, he also complained of progressively worsening dysphagia to both solids and liquids for the past 3 weeks, as well as the recent development of cottage cheese-like lesions along his tongue. On interview the patient further noted the emergence of multiple dark purple, raised skin lesions on his back, arms, and legs which first appeared about 9 months prior. He denied any abdominal pain, SOB, or headache, but did admit to having intermittent fevers, night sweats, weakness, and fatigue over the last few months. The patient stated he was told he had a critically low WBC count during at a health fair at his job one year prior, but did not follow up as he was uninsured and lacked access to a primary care physician. Workup on admission revealed a dangerously low WBC count of 1.4, and a CD4+ T-cell count of 2. He was diagnosed with late-stage HIV and oral candidiasis after an EGD with biopsy ruled out CMV esophagitis. A shaved biopsy of the skin lesions later revealed a diagnosis of Kaposi's sarcoma, an AIDS defining illness. His critically low WBC and CD4 T-cell counts prompted the need for neutropenic precautions to limit contact while he was started on treatment. A regimen of Granix for neutropenia, prophylactic antibiotics to prevent additional opportunistic infections, and antiretroviral therapy was initiated.

Discussion: The United States Preventative Services Taskforce recommends that clinicians screen for HIV in all individuals 15 to 65 years of age, as early diagnosis of HIV is crucial to improving mortality. The implementation of such preventative screening measures is increasingly difficult in medically underserved areas such as South Texas, which is home to the nation's largest population of uninsured persons, of which over 30% live below the federal poverty level. Clinicians must aim to understand how social circumstances pose significant barriers to accessing health care in their communities, and work to reduce disparities, ultimately improving patient outcomes and saving lives.

Clinical Vignettes

Poster Number: 19 - Mucormycosis in uncontrolled diabetes: aggressive treatment for lower extremity preservation

Author: Vincent Phan, UTMB - The University of Texas Medical Branch at Galveston

Co-Authors: Eden Afework

Poster Presentation Link: <https://youtu.be/KlgB7Xr38RA>

Introduction:

Mucormycosis is an invasive species of fungi that has become increasingly prevalent in at risk-populations globally over the past two decades (1). Poorly controlled diabetes mellitus is typically associated with the rhino-orbito-cerebral distribution, the most common site of this infection (1). We describe a patient with a primary right lower extremity infection and discuss treatment options to optimize limb preservation and prevent Mucormycosis recurrence.

Patient Description:

Our patient is a 49-year-old woman who presented with pain in her right ankle. Her past medical history is significant for inadequately controlled diabetes mellitus (recent HgA1c >14) and hypertension. One week prior, she saw a provider for an ankle wound; on presentation to our ER she was on her 7th day of Augmentin with no improvement. Physical exam: BP 171/106 mmHg, pulse 129 bpm, temp. 98.5°F, BMI 18.19kg/m². Fluctuant abscesses were present on the right foot. Labs: WBC 12.81, glucose 339; X-ray and MRI of the right foot concluded an absence of osteomyelitis. She was treated with 1 dose of Zosyn and vancomycin in the ER for pseudomonas coverage and suspected MRSA. Podiatry was consulted for debridement of the right foot wound; wound cultures revealed Mucormycosis and MRSA. She was started on Amphotericin B and continued on vancomycin for two weeks with periodic wound cultures. At discharge, with negative cultures, her antibiotics were changed to Posaconazole and Levaquin to be continued for 3 months with follow-up by Primary Care, Infectious Disease, and Podiatry.

Discussion:

Mucormycosis is an angioinvasive, opportunistic infection often diagnosed in the setting of trauma, immunocompromised states, and type 2 diabetes. Once the protective barrier of the skin is broken or the infection has proliferated in the vasculature, spread becomes rapid, surgical necessity increases, and prognosis decreases. Several studies have correlated diabetes mellitus with rhinocerebral disease and trauma with cutaneous Mucormycosis (2). In this case, the patient presented with a foot wound in combination with uncontrolled diabetes type 2 that elevated risk for Mucormycosis infection. The opportunity for direct inoculation of spores into the skin in combination with hyperglycemia stimulated fungal proliferation in a state of decreased chemotaxis and phagocytic efficiency. Early detection of this organism in combination with aggressive antibiotic treatment and frequent debridements decrease the risk of limb amputation. While rare, cases have been reported for lower extremity cutaneous Mucormycosis requiring amputation in the absence of major penetrating trauma (3). Thus, the patient was treated with Amphotericin B for two weeks, four surgical debridements, and Posaconazole for 180 days despite a less severe case of cutaneous Mucormycosis. Prevention of reinfection is dependent on behavioral change and patient compliance with diabetes management in combination with adherence to medications and provider follow-up.

Clinical Vignettes

Poster Number: 20 - Complete Left Atrial Thrombus in Patient on Venous-Arterial Extra-Corporeal Membrane Oxygenation Following Valve Replacement

Author: Natasha Cigarroa, UTMcGovern - The University of Texas Health Science Center at Houston, McGovern Medical School

Co-Authors: Sachin Kumar MD, FACC, FSCAI

Poster Presentation Link: <https://www.youtube.com/watch?v=yrVTZzFFlts>

Venous-arterial Extracorporeal membrane oxygenation (VA ECMO) is widely used to provide oxygenation and circulatory support for patients who are refractory to conventional management. Their use has witnessed a tremendous growth in the setting of cardiogenic shock.

A 61-year-old man with history of chronic kidney disease, atrial fibrillation, severe peripheral vascular disease, and type 2 diabetes mellitus presented with dyspnea, palpitations and chest pain. Workup included echocardiogram and angiogram showing mitral valve regurgitation and significant stenosis of coronary arteries. The patient underwent combined mitral valve replacement (MVR) with a 27mm St. Jude's bioprosthesis, coronary artery bypass, left atrial appendage ligation and pump maze ablation for persistent atrial fibrillation.

On postoperative day (POD) 0, the patient was hypotensive and profuse chest tube bleeding was noted. POD 1, the patient became hypotensive and went into cardiac arrest. He was defibrillated, placed on femoral-femoral VA ECMO, and sent to the OR for re-exploration. Due to ongoing chest tube bleeding, the patient could not be anticoagulated. A Transesophageal Echocardiogram (TEE) was performed showing a dilated right and left ventricles and a well seated bioprosthetic valve with a mean gradient of 7mmHg and no evidence of left atrial thrombus. POD 2, the patient developed decreased pulse pressure on the arterial monitoring waveform. This prompted further interrogation with a TEE, which showed a massive clot completely occupying the left atrium (LA); surgical LA clot evacuation was subsequently performed. A TEE at post thrombus removal showed complete evacuation of thrombus with no indication of prosthetic valve dysfunction. The patient continued to be on multiple vasopressors and hence could not be weaned off the ECMO. POD 3, complete LA thrombus was noted again followed by thrombus evacuation and the patient was cautiously started on a continuous Heparin infusion. He continued to be hemodynamically unstable, requiring multiple vasopressors, with end organ damage. One week after the initial surgery, the patient was comatose with severe lactic acidosis. After extensive discussions with the patient's family, it was decided to stop further life-sustaining treatment with ECMO and the patient expired.

The presentation of sequential near complete left atrial thrombotic events in the setting of ECMO following an MVR has not been previously described in literature. One peculiar complication seen in mitral valve prosthesis is increased afterload in presence of a VA ECMO. VA ECMO causes retrograde flow into the aorta, resulting in increased afterload, leading to left ventricular (LV) and left atrial distension, along with higher myocardial wall stress. This afterload mismatch and LV distension, could cause the aortic valve to close, worsening the LV-LA distension, causing sluggish circulation, and in turn could lead to left ventricular or left atrial clot formation exacerbated by the presence of a valve prosthesis.

Clinical Vignettes

Poster Number: 21 - AIDS-associated Kaposi's sarcoma complicated with COVID-19

Author: Adriana Saavedra-Simmons, UTRGV - The University of Texas Rio Grande Valley Medical School

Co-Authors: Veronica Salazar, MD

Poster Presentation Link: https://www.youtube.com/watch?v=OVC_Sr3ynA8

INTRODUCTION

Several studies have not found a significant increase in risk of poor outcomes in people with HIV (PWH) who are coinfecting with COVID-19. However, the majority of PWH included in the studies were stable with their highly active antiretroviral therapy (HAART) regimen. More research is needed to determine whether COVID-19 is associated with poorer outcomes in patients with AIDS. We present a case of AIDS-associated Kaposi's sarcoma (KS) with superimposed COVID-19 infection.

CASE DESCRIPTION

Our patient is a 21-year old Hispanic male with recent diagnosis of HIV-1 who presented to the emergency department with generalized facial swelling and right lower extremity edema, associated with shortness of breath and palpitations. Swelling was not associated with urticaria, pain or discharge. Patient denied fever, chills, weight loss, chest pain, cough, nausea or vomiting. He denied contact with people exposed to COVID-19.

On physical exam, right periorbital edema was worse when compared to the left side. Right lower extremity pitting edema, 2+, was also noted. There were painless non-ulcerating, non-purulent, violaceous, warm, elliptical papules and plaques on the face, chest, abdomen, upper and lower extremities. He had recently been started on dovato (dolutegravir/lamivudine) regimen, trimethoprim-sulfamethoxazole prophylaxis and fluconazole. AIDS-associated KS was confirmed with punch biopsy. Patient tested COVID-19 positive on admission. He rapidly declined developing severe anasarca and respiratory failure. Treatment plan included dexamethasone, remdesivir, and one unit of convalescent plasma, and multiple antibiotics.

CONCLUSION

There was a 115% increase in the number of new HIV cases per 100,000 in the Rio Grande Valley from 2007-2015. Given that one-third of Hispanics live below the federal poverty line, it is not surprising that Hispanics are more likely to be diagnosed with AIDS and less likely to have consistent HIV care than non-Hispanic whites. Despite the low prevalence of KS (1.5-7%) in the U.S. due to HAART, regions in the U.S. with limited access to care may still have AIDS-associated KS as the first sign of HIV infection as in our patient.

AIDS-associated KS typically occurs in patients with low CD4 cell counts (<200 cells/ μ L), however it can also occur at a normal CD4 cell count (>500 cells/ μ L). HAART is part of the treatment regimen for both localized and disseminated AIDS-associated KS as it increases CD4 cell count, decreases tumor burden, and HHV-8 viral load. This emphasizes the need for consistent HAART therapy to prevent complications of disseminated AIDS-associated KS.

Our case of poor risk, T1I1S1 AIDS-associated KS highlights the importance of early diagnosis of KS and rapid initiation of HAART which may prevent its progression to disseminated AIDS-associated KS with severe lymphedema. More studies are needed to assess the risk of COVID-19 associated mortality by HIV stage stratification.

Clinical Vignettes

Poster Number: 22 - A Case of Intracranial Hemorrhage Due to Arteriovenous Malformations in Hepatic Cirrhosis

Author: Maya Ramy, TAMUHSC - Texas A&M Health Science Center College of Medicine

Co-Authors: Kiely Whitham

Poster Presentation Link: <https://www.youtube.com/watch?v=wVJUDiZ6joU>

A 56-year-old male with a medical history of alcoholic cirrhosis complicated by portal hypertension presented to the emergency department for rectal bleeding. Upon further evaluation, it was discovered that he had been experiencing progressive difficulty with word-finding over the previous three weeks. Neurological exam confirmed anomia and expressive dysphasia, prompting a head CT. This revealed a large cortical left inferior frontoparietal space occupying lesion with edema concerning for a mass with unclear etiology. MRI with and without contrast was then obtained to further define the extent and nature of the mass. This indicated a chronic left temporoparietal parenchymal hematoma with microbleeds in the setting of what was believed to be cerebral amyloid angiopathy (CAA). At this point, he was transferred to the stroke service for further evaluation of CAA. Cerebral angiogram was ordered to exclude other potential etiologies for the hematoma and microbleeds. Surprisingly, the CTA revealed multiple arteriovenous malformations (AVMs) that were located in the left frontal, left deep temporal, right deep temporal, and right temporal superficial lobes. The left frontal and deep temporal AVMs were thought to be the likely cause of the hemorrhage due to their close vicinity to the hemorrhage, rather than a diagnosis of CAA. The neurosurgery team was consulted and did not recommend surgical resection for AVM management due to the patient's comorbidities and risk of intervention. Endovascular and stereotactic radiosurgery were offered as second and third line treatment options, and he has recently received a referral for outpatient assessment to see which option would be best in his case.

AVM formation in the setting of liver cirrhosis is rare, with only 2 documented cases. AVM formation was traditionally thought to originate congenitally. However, recent hypotheses have emerged considering de novo AVM formation following a two-hit mutation model. This hypothesis notes that AVM formation requires two mutations to occur: the first an inherited genetic mutation followed by an environmental trigger later in life that serves as the second mutation. In the setting of liver cirrhosis, venous hypertension and thrombosis serve as this second hit. Pro-angiogenic factors released from the liver during cirrhosis contributes to this phenomenon. This theory is supported by the second published case of AVMs in cirrhosis as this patient experienced complete AVM resolution after liver transplantation, and therefore removal of the pro-angiogenic cirrhotic liver. Based on this information, a liver transplant team has been consulted for our case to review the possibility of transplant for our patient that could encourage resolution of his neurological disease state and symptoms.

Clinical Vignettes

Poster Number: 23 - Metastasis of Hepatocellular Carcinoma in the Right Ventricle

Author: Cortney Matthews, UT Dell - The University of Texas at Austin-Dell Medical School

Co-Authors: Douglas Benson, MD, Jadranko Corak, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=J0i-Ytyv-ug>

Hepatocellular carcinoma most frequently metastasizes to the lungs, lymph nodes, bones, and adrenal glands. Cardiac metastasis of HCC is rare, with one study showing a rate of 1.2% at autopsy. Further, most cardiac metastases are continuous intravascular extensions of an intrahepatic HCC, and few cases of isolated cardiac metastasis are described in the literature.

A 69-year-old male with atrial fibrillation, HFpEF, and 8-month history of unresectable HCC status post 6 cycles of nivolumab presented to our hospital with 3 days of subjective fevers, epigastric pain, and myalgias. On arrival he was afebrile and hemodynamically stable. On examination he was in no acute distress with clear lungs, normal heart sounds, no significant peripheral edema, no JVD, and a benign abdomen. ECG demonstrated atrial fibrillation with rate of 110 bpm and PVCs. Labs performed the week prior were notable for an AFP level which had increased markedly from 8960 ng/mL to 19,904 ng/mL over 1 month. CT of the abdomen and pelvis demonstrated a mass in the right ventricle as well as possible thrombus in the apex of the right ventricle. An anterior epicardial lymph node was noted to have enlarged, and enlarged abdominal nodes were noted. Cardiology was consulted and the patient was admitted for further work-up. Subsequent transthoracic echocardiogram showed a mass on the ventricular side of the tricuspid valve that did not opacify with contrast and an apical right ventricular filling defect with hypokinesis. There was no RV inflow obstruction. Subsequent cardiac MRI confirmed a mass adherent to the RV apex measuring 3.2 x 3.0 x 3.3 cm, and a second mass located below the posterior tricuspid annulus measuring 2.5 x 2.2 x 1.8 cm. Both masses perfused on dynamic imaging as well as enhanced on delayed imaging consistent with malignancy. In the setting of known advanced HCC, progression of disease by imaging and tumor markers, the presumed diagnosis was metastatic HCC. Given the development of these metastases on therapy with limited additional options for treatment, the patient elected to proceed with palliative and hospice care.

Beyond representing a rare presentation, this case of HCC with cardiac metastasis demonstrates the importance and nuances of multimodal cardiac imaging in making the diagnosis. Cardiac MRI was critical for differentiating mass versus thrombus, as the echocardiogram was not conclusive despite the use of contrast. Of note, the patient was hemodynamically stable with a cardiac function only mildly decreased and without inflow/outflow obstruction.

The prognosis and treatment options for HCC metastasis into the RV are palliative in nature, as a standard treatment has not been well established. Palliative radiation and surgical resection have been noted in the literature, but the prognosis remains poor.

Clinical Vignettes

Poster Number: 24 - Brittle Type 2 diabetes or Latent Autoimmune diabetes of adults? Extreme glucose variability uncovers underlying autoimmunity

Author: William Mahony, UTMB - The University of Texas Medical Branch at Galveston

Co-Authors: L. Maria Belalcazar, MD.

Poster Presentation Link: <https://youtu.be/YGFL-5uhoA4>

Background

As new alternatives emerge for the treatment of type 2 diabetes (T2DM), it becomes important to identify individuals who may have underlying diabetes-associated autoimmunity and undiagnosed latent autoimmune diabetes of adults (LADA). We describe two patients thought to have T2DM in whom extreme glucose variability led to the diagnosis of LADA.

Clinical Cases

Two patients, aged 57 and 59 years, admitted for non-glycemic complaints, experienced a prolonged hospital stay due in part to extreme glucose variability. Both patients were diagnosed with T2DM 5-7 years prior and treated with insulin and metformin. They reported glucose levels above 200 mg/dL, and one noted nocturnal hypoglycemia. One of the two patients had a family history of diabetes and was obese (BMI 35.7 kg/m²), whereas the other had no family history and was non-obese (BMI 21.4 kg/m²). Complications included sensory neuropathy in one patient and heart failure with reduced ejection fraction in the other. None had a history of diabetic ketoacidosis (DKA), evidence of advanced kidney disease or gastroparesis. Their HbA1c was high at 10.9 and 8.5%, respectively.

Glucose levels in the hospital ranged from 31 mg/dL to 507 mg/dL. The average daily blood glucose range (maximum – minimum blood glucose value per day) approached 300 mg/dL (288 mg/dL for patient 1 and 282 mg/dL for patient 2). Of the 32 days that patient 1 was in the hospital, 25% were marked by hypoglycemia (62% with glucose < 54 mg/dL) and 34% by severe hyperglycemia (glucose > 400 mg/dL). For patient 2, 54% of his 26 days in the hospital revealed hypoglycemia (43% of them with glucose < 54 mg/dL) and 46% severe hyperglycemia.

Workup for diabetes-associated autoimmunity revealed antibodies to glutamic acid decarboxylase (96.7 and > 250 IU/mL in patients 1 and 2, respectively). Patient 2 had a postprandial C-peptide level of 0.3 ng/mL (n=.9-1.8 ng/mL). Treatment regimen at discharge was modified to include detemir and prandial plus correctional bolus insulin, instead of basal and correctional bolus insulin alone. Patient 1 was restarted on metformin. Both patients were advised about disease progression and their risk of developing DKA.

Conclusion

Patients thought to have T2DM who present with protracted glucose instability may have LADA, even if obese. Correctly diagnosing LADA is critical as it shifts the focus of treatment to insulin optimization when uncontrolled and discourages the use of oral agents that may increase the risk of DKA or accelerate beta-cell function loss.

Clinical Vignettes

Poster Number: 25 - Multiple gastric pyogenic granulomas: diagnostic and management challenges

Author: Soumya Shekhar, TAMUHSC - Texas A&M Health Science Center College of Medicine

Co-Authors: Sudha Kodali, MD, David Victor, MD, Akshay Shetty, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=TBnIBd1OSME>

Introduction. Pyogenic granulomas (PG) are benign vascular tumors commonly found on the skin and mucosal surfaces. Rarely, PG are found as solitary lesions in the GI tract and can present with anemia, melena, or hematochezia.

Case report. A 67-year-old male with a history of decompensated alcoholic cirrhosis presented with a six-month history of symptomatic anemia. His initial laboratory testing showed a hemoglobin of 9.3, and iron studies confirmed iron deficiency anemia. He underwent an esophagogastroduodenoscopy (EGD) which showed esophageal varices and multiple 30 mm pedunculated polyps in the gastric antrum. The polyps were biopsied via cold forceps and pathology confirmed the diagnosis of PG. Endoscopic resection was not attempted given that there were multiple large polyps, and there was concern for hemorrhage with resection. The case was discussed at multidisciplinary conference, and the decision was made to continue conservative management. The patient continues to follow up and receives blood transfusions and iron infusions as needed.

Discussion. Gastrointestinal PG have been reported around 50 times in the literature. PG tend to bleed with minor trauma and are an uncommon cause of iron deficiency anemia. The etiology of gastric PG is hypothesized to be due to a combination of underlying diseases promoting vascular endothelial proliferation as well as mucosal trauma. In patients with cirrhosis, portal hypertension causes splanchnic vasodilation which promotes the formation of collateral circulation that can ultimately give rise to vascular lesions such as PG. The diagnosis of PG is based on clinical history and histopathologic findings showing groups of capillaries lined by endothelial cells interspersed in a fibromyxoid stroma. Differential diagnoses for PG include bacillary angiomatosis caused by *Bartonella henselae*, inflammatory or hyperplastic polyps, and Kaposi sarcoma caused by Human herpes virus 8. Treatment options for PG includes conservative management, endoscopic resection, or surgery. Most previous reports of gastric PG have been treated with endoscopic resection. Surgical risk in patients with cirrhosis can be assessed using a MELD score, composed of whether the patient had dialysis twice in the past week, creatinine, bilirubin, INR, and sodium. In patients undergoing intra-abdominal surgery, MELD scores of 8-14 predict poor outcomes, and patients with scores > 15 can have up to 54% mortality. Antrectomy was considered in our patient for removing his PG. However, given his high MELD score, the risk of undergoing surgery outweighed the benefits, and thus the decision was made to continue conservative management.

Conclusion. In conclusion, gastric PG are an underreported cause of GI bleeding and iron deficiency anemia with multiple management options. Early detection and treatment can prevent complications of chronic blood loss.

Clinical Vignettes

Poster Number: 26 - Multifactorial jaundice and pigmented choledocholithiasis secondary to warm autoimmune hemolytic anemia (w-AIHA) and alcoholic c

Author: Colten Watson, TAMUHSC - Texas A&M Health Science Center College of Medicine

Co-Authors: Mazen Hassan, MD; Grant Breeland, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=s47hglg86sk>

Introduction

Warm autoimmune hemolytic anemia (w-AIHA) is a rare condition characterized by autoantibodies IgG1 and IgG3 that bind and lyse red blood cells¹. The combination of w-AIHA and alcoholic cirrhosis within a patient is not well documented in medical literature. We are presenting a 67-year-old male with w-AIHA, alcoholic cirrhosis, and acute gastrointestinal bleed in the span of one hospital stay.

Case Presentation

A 67-year-old male with a history of alcoholic cirrhosis presented to the emergency department for worsening jaundice, pruritus, and blood-colored stools over a three-week period. On exam he exhibited periumbilical pain radiating to his flank. Four units of packed red blood cells were transfused over a 24-hour period due to a persistent hemoglobin of 6.3 g/dL. Notable Laboratory data showed a positive occult blood test, a direct bilirubin of 35.2 mg/dL, a lipase of 390 U/L, and a warm agglutinin IgG1 antibody. An abdominal ultrasound showed intrahepatic ductal dilation and thickened gallbladder wall. A subsequent Magnetic Resonance Imaging (MRI) showed a 7 mm obstructing stone at the level of the sphincter of Oddi which prompted a therapeutic endoscopic retrograde cholangiopancreatography (ERCP). An esophagogastroduodenoscopy (EGD) was performed as well to investigate his gastrointestinal bleed. The ERCP resulted in the complete removal of two pigmented gallstones via sphincterotomy and balloon extraction. The EGD stabilized a bleeding lesion in the gastric antrum with argon plasma coagulation (APC), and ablation of an arteriovenous malformation (AVM) in the gastric fundus. The main diagnosis was determined to be multifactorial jaundice and pigmented choledocholithiasis secondary to w-AIHA and alcoholic cirrhosis. The patient's autoimmune disorder was stabilized with 20 mg of prednisone, and he was discharged with instruction to follow up with hematology and hepatology within seven days.

Discussion

This case provides a rare manifestation of a patient with w-AIHA that directly contributed to an acute on chronic decompensation of alcoholic cirrhosis which ultimately manifested into pigmented choledocholithiasis. The diagnosis of multifactorial jaundice and pigmented choledocholithiasis secondary to w-AIHA and alcoholic cirrhosis requires recognition of clinical symptoms and appropriate Coombs testing as well as imaging studies. An abdominal ultrasound with subsequent MRI is the preferred modality and may show multiple choledocholithiasis obstructing the common bile duct. The etiology and relationship between w-AIHA and alcoholic cirrhosis is not well understood. Therapy is guided by both clinical severity and the underlying illness of alcoholic cirrhosis. Abstinence from alcohol is recommended as well as oral steroids to suppress the immune-mediated hemolysis. Long-term complications of w-AIHA combined with alcoholic cirrhosis are not well documented.

Clinical Vignettes

Poster Number: 27 - Massive PE, Cardiogenic Shock, Multiorgan Failure, and HIT following COVID-19 Hospitalization

Author: Wenqiao Wang, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors:

Poster Presentation Link: <https://www.youtube.com/watch?v=2hvOMipFNNU>

Introduction:

There is a well-established association between COVID-19 and an increased incidence of venous thromboembolism. However, there is no established consensus on the need for extended anticoagulation following recovery of COVID-19 and limited literature regarding thromboembolic events following a COVID-19 hospitalization. This is a case of lower extremity DVT, massive bilateral pulmonary embolism, cardiogenic shock, and heparin-induced thrombocytopenia (HIT) type II one month following recovery from a COVID-19 hospitalization.

Case Report:

A 56-year-old man previously hospitalized for COVID-19 with no previous history of DVTs or thrombotic events presents to the ED with two days of worsening shortness of breath and cough. Due to worsening respiratory failure, he was intubated and mechanically ventilated. Chest CTA showed bilateral emboli in the lower lobes. An echocardiogram revealed a severely dilated, impaired right ventricle; hypokinesis of the left ventricle with pronounced leftward septal deviation; and multiple highly mobile thrombi in the right atrial cavity, with large thrombi in transit. The patient decompensated from severe RV dysfunction and went into cardiogenic shock. Systolic BPs fell to the 80s and he was started on norepinephrine and milrinone. He underwent catheter-directed TNK thrombolysis and was subsequently placed on a heparin drip. An ultrasound of the lower extremities revealed bilateral segments of occlusive and non-occlusive DVTs. His hospital course was complicated by shock liver, acute kidney injury (AKI), and HIT. On admission, AST was 63, ALT was 36, and creatinine was 0.9. AST increased to 14,362 and ALT increased to 6,335 by day three of admission. He was anuric following decompensation, with creatinine rising from 0.9 on admission to 5.3 by day three. He was subsequently started on continuous renal replacement therapy before transitioning to hemodialysis. Between days two to eight of hospitalization, his platelet count dropped from 435 to 99 while on heparin. He had a high pretest probability of HIT with a 4T score of 6 along with a positive anti-PF4/heparin antibody. He was subsequently transitioned off heparin and started on argatroban. By day 14, his shock liver and AKI resolved, he no longer required hemodialysis, and he was discharged on apixaban for long-term anticoagulation.

Discussion:

There is still much to learn about the long-term effects of COVID-19 on patients, particularly the duration of prothrombotic and proinflammatory states following the acute phase of the disease. This case argues for extended thromboprophylaxis in recently hospitalized COVID-19 patients to prevent future thromboembolic events. Additionally, this case highlights a possible association between COVID-19 and the development of HIT. Both COVID-19 and HIT cause a prothrombotic state. Devastating thromboembolic events may occur from a missed HIT diagnosis in patients with COVID-19 receiving heparin prophylaxis. Further investigation into the relationship between COVID-19 and HIT should be considered.

Clinical Vignettes

Poster Number: 28 - Metastatic Melanoma in the GI Lumen Following Immune-Mediated Colitis Treatment

Author: Gabriel Sperling, UTMB - The University of Texas Medical Branch at Galveston

Co-Authors: Yinghong Wang, MD, Ph.D., MS

Poster Presentation Link: <https://youtu.be/XtV5iwcxXGw>

Introduction:

Immune-mediated diarrhea and colitis (IMDC) is one of the more frequent and severe toxicities of immune checkpoint inhibitors (ICIs) that is often treated with potent immunosuppressant therapy (e.g. vedolizumab or infliximab) in cases of steroid-refractory disease (1). Similar immunosuppressive treatments (TNF-alpha blockers) for inflammatory bowel disease (IBD) have already been shown to increase the risk of malignancy in IBD patients (2). Independently, adding concurrent corticosteroids was also found to decrease clinical benefit of ICI therapy and shorten the survival (3). These associations raise the concern of an increased risk of worse cancer outcomes among IMDC patients treated with immunosuppressants.

Case Presentation:

Mr. R.S. is a 73-year old man, initially diagnosed with ocular melanoma in 2016. He was in remission following brachytherapy until 2019 when metastatic melanoma was found in his right liver lobe. He underwent electroporation of the liver and was placed on Nivolumab monotherapy, which was later switched to dual Nivolumab and Ipilimumab due to progressive liver involvement. Days after the first dose of dual therapy, he presented with 10-15 watery bowel movements per day and unintentional weight loss. Colonoscopy and biopsy revealed immune-mediated colitis, thereafter ICI was withheld due to this adverse event as well as cancer progression.

Steroids were given for six weeks followed by five doses of Vedolizumab until his IMDC achieved clinical and histologic remission. 11 months later, he developed 5-10 daily episodes of watery diarrhea, fatigue, weakness, nausea, and rectal bleeding. CT imaging showed new diffuse enterocolitis and increased ascites. Previous findings of cirrhosis and portal hypertension were stable. Upper endoscopy and colonoscopy showed diffuse metastatic melanoma throughout the GI lumen, including the duodenum, stomach, and colon. Further adjustment of cancer treatment strategy based on this new finding is under discussions from the oncology team.

Discussion:

Vedolizumab works by blocking the interaction between $\alpha 4\beta 7$ integrin on T lymphocytes and MAdCAM-1 on endothelial cells, ultimately reducing gut inflammation while inducing GI-specific immunosuppression. As seen with other immunosuppressive IBD treatments, there exists increased risks of malignancy with both thiopurine and anti-TNF monotherapy (2), but this is less reported with vedolizumab use (4). However, metastatic melanoma to the GI lumen is exceptionally rare, with one tertiary GI referral institution citing seven cases of GI melanoma metastasis over a 20-year period, which were typically limited to one luminal location (5). Our patient's diffuse metastasis is even more unusual and could raise two potential contributing factors. One is the extremely aggressive cancer behavior with continuous breakthrough even after multiple cancer therapies. The other is the potential counteracting effect of immunosuppressants to diminish the benefit of cancer therapies. Further studies are warranted to determine the safety of immunosuppressant treatment for ICI-related adverse events on cancer outcome.

Clinical Vignettes

Poster Number: 29 - Postictal Psychosis: An Uncommon Sequela of Temporal Lobe Epilepsy

Author: Kimberly Ambrosini, UTRGV - The University of Texas Rio Grande Valley Medical School

Co-Authors: Areeb Masood, Grecia Dominiguez Rivera MD, Raul Tovar-Castro DO, Jose Campo Maldonado, MD, MSCI, FACP

Poster Presentation Link: <https://www.youtube.com/watch?v=Unclq1e6YQ4>

Management of bitemporal epilepsy with post-ictal psychosis in young adults with concomitant organic mood disorders presents a considerable treatment challenge and warrants multifactorial treatment considerations.

A 20-year-old woman with a six-year history of temporal lobe epilepsy and inconsistent compliance with oxcarbazepine presented to the emergency department via EMS while in status epilepticus. She was intubated en route and was given lorazepam. This patient was later successfully extubated and monitored in the intensive care unit. Breakthrough seizures requiring hospitalizations occurred at ages 14, 16, 19, and 20 years old. Following seizure episodes, the patient exhibited signs of post-ictal psychosis which included visual hallucinations, insomnia, and delusions which lasted up to two weeks. Due to previous unwanted reactions to risperidone, antipsychotic treatment was withheld. During the hospitalization course, she was hypertensive, tachycardic, and had leukocytosis and elevated creatine kinase. CT scan of the head, brain, and chest and MRI of the brain were unremarkable. EEG was significant for mixed generalized slowing in the theta range in the frontocentral and temporo-central regions of the brain, with normalizing occipital background. Neurologic and psychiatric consultation yielded a diagnosis of an unspecified mood disorder. The patient was treated with clonazepam and levetiracetam and slowly improved over the course of 12 days.

In preparation for discharge, the healthcare team assessed the reasons for medication nonadherence and additional factors contributing to breakthrough seizures. Factors included psychosocial barriers within the family unit and an unaddressed seasonal pattern to the patient's epilepsy episodes. The patient and her family members had low levels of education and low motivation to follow-through with treatment. Additionally, a close review of the patient's medical record showed that her breakthrough seizures occurred exclusively during the summer months. Epileptic seizures follow a seasonal pattern and peak during warm months of the year. Research suggests that this phenomenon is in part due to high temperatures, high humidity, and improper storage of antiseizure medication, which decreases potency and efficacy. Low-income residents of the southern United States, where this patient resides, are particularly vulnerable to seasonal heat, as they may lack proper air conditioning and refrigeration for medication. For this patient, a thorough explanation of the medications, dosing and storage instructions, adverse effects, and consequences of noncompliance were provided to the patient and her immediate family in their primary language. The family confirmed receipt of the medications from their pharmacy and could reiterate their understanding of the medications to the health care team.

This case illustrates the complex, multifactorial assessment and follow-up needed to successfully manage temporal lobe epilepsy in young patients with concomitant psychosocial and environmental barriers to care, and demonstrates the ways in which the healthcare team's pursuit of understanding and empathy can greatly improve health outcomes.

Clinical Vignettes

Poster Number: 30 - Progression of Etoposide-related Secondary Leukemia

Author: Erin Huilin Yang, BCM - Baylor College of Medicine

Co-Authors: Sarvari Yellapragada, Anita L. Sabichi

Poster Presentation Link: <https://www.youtube.com/watch?v=oJC74Wb6OUQ>

Etoposide is a chemotherapy used in combination to treat a variety of malignancies including small cell lung cancer. However, it has many known side effects including nausea/vomiting, myelosuppression, and even the development of myeloid lineage leukemias years later.

Here we discuss a 66-year old male with complicated medical history including Afib, COPD, CHF, HTN, prostate cancer s/p resection and XRT, stage IV small cell lung carcinoma (SCLC). He presented to clinic with weakness and dyspnea and was found to be febrile and pancytopenic. He was diagnosed with SCLC roughly two years prior to this presentation and subsequently completed five cycles of carboplatin/etoposide/pembrolizumab. He was on maintenance pembrolizumab for eight months but had to be discontinued after developing immunotherapy-induced hypothyroidism and severe psoriatic dermatitis. Notably, he had a hospital admission one month prior to this presentation when he was treated for pneumonia and a gastrointestinal bleed. He was persistently pancytopenic through the admission, but bone marrow biopsy at the time showed hypoplastic marrow with 20% cellularity, myeloid arrest, and no blast cells identified. This was consistent with myelosuppression of infection. Symptoms on current admission were concerning for recurring pneumonia and sepsis; he was treated with fluids, broad-spectrum antibiotics, and multiple blood transfusions. However, he continued to be febrile and pancytopenic with a rapidly declining clinical status. Eventually, a bone marrow biopsy was repeated showing vastly different results from only one month prior. The biopsy showed 80% cellularity and the normal hematopoietic tissue in the marrow replaced with blast cells, which constituted 75% of the marrow population. He was diagnosed with acute erythroleukemia likely related to previous etoposide treatment.

Given the rapid progression of the patient's leukemia and his poor functional status, we informed the patient of his poor prognosis and discussed measures for comfort care. He trialed treatment with azacitidine as palliative chemotherapy, but elected to stop after two days due to intolerable nausea and malaise. He was transitioned to outpatient hospice with weekly blood transfusions as needed for symptomatic relief.

This case highlighted the aggressive nature of chemotherapy-related secondary leukemias. Over the span of one month, the patient's bone marrow developed from 20% to 80% cellularity with over 75% blasts. We recognized that very little could have been done to prevent or more rapidly diagnose this complication. This case highlighted the importance of considering all short- and long-term consequences when giving chemotherapy, and for patients, families, and treatment teams to stay vigilant with surveillance.

Clinical Vignettes

Poster Number: 31 - Sensory Impairment and Developmental Delay in the Treatment of Psychosis and Tardive Dyskinesia

Author: Cailin O'Connell, TAMUHSC - Texas A&M Health Science Center College of Medicine

Co-Authors: Ranjit Chacko, MD, Department of Psychiatry, Houston Methodist Hospital Linda Barloon, NP, Department of Psychiatry, Houston Met

Poster Presentation Link: <https://www.youtube.com/watch?v=NtRDOrnEf2Y>

Tardive Dyskinesia is a complication of prolonged exposure to antipsychotic D2 Blockers causing hypersensitization of the D2 dopamine receptors in the nigrostriatal pathway which presents as oral, facial, buccolingual, truncal, and extremity choreiform movements. Symptoms begin insidiously and treatment may be further delayed by other complicating conditions including cognitive impairment and communication difficulties due to visual and hearing loss.

A 54 year old male presented in wheelchair to the emergency department with his nursing aid for worsening ataxia, neck extension, eye rolling, and dysarthric speech. The patient had a history of developmental delay, a ten year history of optic neuritis, and cochlear implants for sensorineural deafness. He had a four year history of Major Depressive Disorder with Psychotic Features treated with atypical antipsychotics, and had most recently been switched to clozapine six months prior to presentation for treatment of worsening auditory hallucinations. Physical symptoms of neck extension, eye rolling and dysarthric speech began three months prior to presentation and were initially treated by outpatient psychiatrist with diphenhydramine for extrapyramidal symptom control. Symptoms worsened and three weeks prior to presentation clozapine was discontinued due to new-onset ataxia. Hospital stay was complicated by the patient's visual and auditory disabilities, which limited orientation and evaluation. Staff training in the proper utilization of cochlear implant hearing aids became a vital component of the care plan. Patient was observed responding to internal stimuli in the early morning hours prior to cochlear implants being placed and turned on, however, was alert and oriented and able to describe auditory hallucinations with insight after the placement of the hearing aids. Abnormal involuntary movement physical exam showed choreiform movement of the lower extremities and buccolingual movements and opisthotonos. Mental status exam demonstrated response to internal stimuli, including a persecutory auditory hallucination that caused the patient considerable distress. Diphenhydramine was discontinued due to risk of delirium and exacerbation of tardive dyskinesia due to anticholinergic properties, and low dose olanzapine was started to treat auditory hallucinations and provide blockade of hypersensitive D2 receptors. Patient reported decrease in auditory hallucinations and was discharged on day five to his assisted living facility with physical therapy and supervision for fall precautions. If tardive dyskinesia did not improve, follow up included consideration of vesicular monoamine transporter 2 (VMAT2) inhibitory agent.

This case illustrates the importance of care team competency in the implementation of hearing assistance devices, as well as the challenge of diagnosing and treating tardive dyskinesia in the hearing and vision impaired patient. Early recognition of tardive dyskinesia allows for the tapering of the offending agent in order to prevent rebound symptoms of abrupt discontinuation and the addition of VMAT2 inhibiting agents in the case of non-refractory symptoms.

Clinical Vignettes

Poster Number: 32 - Check Your Feet: The Importance of Health Education in the Prevention of Limb Amputations in Patients with Diabetes Mellitus

Author: Daniel Paul Nurse, UIWSOM - University of the Incarnate Word School of Osteopathic Medicine

Co-Authors: Alexander Paiva, Wade Becker, Nikhita Jacob, Victoria Fahy, Manuel Estrada, MD

Poster Presentation Link: <https://www.youtube.com/watch?v=ery541nSxsw>

Background:

Over ten percent of Texans have diabetes mellitus, with an incidence of more than 180,000 new patients diagnosed every year. Diabetes disproportionately affects Texans with lower socioeconomic status, and the prevalence of diabetes mellitus is >15 percent in Bexar County, inclusive of the San Antonio metropolitan area. Uncontrolled diabetes increases the risk for poor health outcomes related to heart disease, kidney disease, retinopathy, and infections. Foot infections are the most common type of soft-tissue infection in diabetic patients, many of whom require lower-limb amputations. The rate of lower-limb amputations is consistently and significantly higher in Bexar County compared to the overall rate in Texas, with the majority of cases coming from low-income neighborhoods on the south side of San Antonio.

Clinical Presentation:

A 44-year-old Hispanic female with a history of type 2 diabetes mellitus, hypertension, polycystic ovarian syndrome, and obesity presented to the emergency department with toes that had turned black over the course of one week. Two weeks prior, she reported suffering a laceration on her foot while walking in a yard. She noticed an infection developing with redness and swelling around her toes. She did not seek care until her toes and foot started to change color. Her only medication is metformin 500mg BID which she began taking six months prior when her gynecologist noted an elevated blood glucose level on routine laboratory assessment. Despite having Medicaid health insurance, the patient did not receive any other primary care, had not been self-monitoring glucose levels because she did not own a glucometer, and had not received any previous diabetes education.

On examination, the patient was afebrile and had necrotic gangrene of the dorsal and plantar surfaces of the left foot and toes, with sloughing of multiple skin layers on the proximal and distal ankle. Warm, nontender erythematous skin extended to just below the left knee. Laboratory assessment revealed leukocytosis (WBC 18.9 cells/ μ L), hyperglycemia (glucose 405 mg/dL), and an elevated HgA1c (9.4%). The patient was treated with broad-spectrum antibiotics, followed by radical below-the-knee amputation three days after presentation.

Discussion:

Diabetes mellitus is a manageable disease with effective education, lifestyle modification, medical therapy, and timely surveillance. Nevertheless, approximately 48 percent of all adults with type 2 diabetes have never attended a diabetes self-management education course. Following the initial onset of diabetic foot ulceration, the five-year mortality is 43 to 55 percent and this may increase to 74 percent in patients requiring lower extremity amputation. Diabetes self-management education has been shown to reduce all-cause mortality by 0.8 percent over a 1.5-year period. The significant morbidity in our patient demonstrates the importance of early and consistent diabetes education in a primary care setting to avoid debilitating diabetic complications.

Clinical Vignettes

Poster Number: 33 - Neuroinvasive Aspergillosis associated with COVID-19 Infection

Author: Allison Teng, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Dr. Rebecca Nekolaichuk, Dr. Snehal Patel

Poster Presentation Link: <https://vimeo.com/637323658>

Aspergillus fumigatus is commonly found in nature and causes infection following inhalation of conidia. Organ invasion is uncommon and typically only occurs in the setting of immunosuppression caused by treatment for solid organ transplantation and hematologic malignancies. Central nervous system involvement (CNS) occurs from local extension from the paranasal sinuses or in the setting of disseminated infection. These patients will present with seizures or other focal neurological deficits¹. Aneurysms can also develop and rupture, causing hemorrhagic bleed and/or empyema. Diagnostic findings typically show ring-enhancing lesions, cortical and subcortical infarction, and mucosal thickening of the paranasal sinuses². CNS involvement is associated with a very poor prognosis. A 64-year-old man currently experiencing homelessness with a history of untreated hepatitis C, COPD, CAD s/p CABG, HFpEF, atrial fibrillation, intravenous drug use and severe COVID-19 infection five weeks ago who presented to the hospital after a fall. His CXR showed bilateral patchy opacities and MRI brain showed numerous peripherally enhancing centrally non-enhancing/necrotic intraparenchymal lesions identified throughout the supratentorial and infratentorial brain with prominent vasogenic edema suspected to be parenchymal abscesses of an embolic nature. Lung and brain biopsies confirmed infection with *Aspergillus fumigatus*. Galactomannan antigen was 1.19 (normal <0.5) and beta-D glucan was elevated >500. *Aspergillus* antibody was <1:8, HIV 1/2 antibody/antigen was negative and fungal blood culture showed no growth. CSF showed a TNC of 37 (42% seg, 28% monocyte, 30% lymphocyte), RBC 0, protein 53, glucose 64. Meningitis/encephalitis PCR panel negative, acid fast CSF and brain biopsy negative, and CSF fungal culture with no growth. TTE showed no vegetation. CD4 at time of admission was 363 (previously during COVID infection had been 103). He was treated with liposomal amphotericin B and voriconazole for only one week but prematurely self-discharged due to a social emergency. Two weeks later, he returned to the hospital for resumption of treatment. MRI showed improvement of his ring-enhancing lesions but worsening vasogenic edema. He was restarted on his antifungal medications and his neurological status improved.

COVID-19-associated pulmonary Aspergillosis is described in the literature, but COVID-19-associated neuroinvasive Aspergillosis has not been well described^{3,4}. This case illustrates the potential for COVID-19 to cause an immunocompromised state in which opportunistic infections like invasive Aspergillosis can occur. In this patient with high social vulnerability and currently experiencing homelessness, treatment continuity was challenging. Nonetheless, completion of treatment led to great improvement in clinical symptoms and disease progression. Interestingly, his CD4 count during prior COVID-19 infection was low and it subsequently rose post-infection. This demonstrates that active COVID-19 infection may cause a transient immunocompromised state increasing vulnerability to opportunistic pathogens. We should be vigilant to consider opportunistic infections in individuals with recent COVID-19 infection.

Clinical Vignettes

Poster Number: 34 - Building the “Crypt” Through Non-Compliance: A Case of Cryptococcal Meningitis in an AIDS Patient

Author: Rodolfo Singleterry, UTRGV - The University of Texas Rio Grande Valley Medical School

Co-Authors: Khairiya Haj-yahya (4th year Medical Student at UTRGV School of Medicine)

Poster Presentation Link: <https://youtu.be/dJnySiiC2js>

According to the World Health Organization, over 10-25% of hospital admissions result from patient noncompliance. This is a complex issue that has vast ripple effects as it not only worsens outcomes for patients but places a strain on the healthcare system entirely. In patients with HIV/AIDS, compliance with Antiretroviral therapy (ART) is necessary to prevent a host of potentially lethal infections. A 33-year-old female with AIDS presented to the ED complaining of nausea and vomiting for seven days. Labs on admission revealed a CD4 count of 71, and CT-Head and MRI showed no acute abnormalities. Three days later, the patient began complaining of frontal headaches and displaying signs of right-sided CN VI and VII palsies. Subsequent CSF analysis revealed an elevation in WBC's (36), lymphocytes (94%), and protein (55), with low glucose (30). CSF PCR and antigen were both positive for cryptococcus neoformans, and India Ink stain showed encapsulated yeasts. Subsequently, treatment for Cryptococcal meningitis was started. Throughout her hospital stay, the patient was regarded as medically noncompliant with daily episodes of refusing medications, hiding pills in her bed or under her tongue, or simply throwing them in the trash. Numerous physicians explored the reasoning behind her non-compliance, to which she was evasive, making attempts to leave against medical advice. The patient was thoroughly counseled on the consequences of not being treated for an infection of such severity and ultimately decided to stay. She received multiple therapeutic lumbar punctures to decrease her intracranial pressure (ICP) but continued to have nausea, vomiting, and headaches and unfortunately developed bilateral vision loss. The patient was emergently taken to the OR for placement of a ventriculostomy catheter and right frontal VP shunt, subsequently relieving her symptoms. At discharge, she was counseled on medication adherence and the necessity of following up. Strict adherence to ART is essential to suppressing viral replication and improving morbidity and mortality. Patients are often faced with the burden of balancing life with an HIV/AIDS diagnosis, stigmatization, and work/social responsibilities, resulting in increased difficulty managing ART. The patient, in this case, was diagnosed with HIV 8 years prior and was admittedly nonadherent to her prescribed ART therapy. Her HIV ultimately progressed to AIDS with a low CD4 count, leaving her vulnerable to a variety of opportunistic infections, such as cryptococcal meningitis. Presumably, the solution to this problem begins in understanding the person beneath the diagnosis. With boundaries to patient compliance such as patient-physician miscommunication and treatment fatigue, clinicians are tasked with the responsibility of recognizing these obstacles and beginning an open discussion about potential solutions. As a medical community, we must not be pigeonholed into thinking noncompliance is an unavoidable consequence of patient lack of self-investment or the public's misunderstanding.

Clinical Vignettes

Poster Number: 35 - Acute Toxic Encephalopathy Secondary to Acyclovir Toxicity

Author: Dina Zamil, BCM - Baylor College of Medicine

Co-Authors: Ariadna Perez-Sanchez MD, Pavela Bambekova MD, Chirag Buch MD, Amir Ashkan Ahmadian-Tehrani MD

Poster Presentation Link: <https://www.youtube.com/watch?v=yd5gHbAE2PA>

Acyclovir is the first-line treatment for herpes simplex and varicella-zoster viruses. Although widely utilized and considered a safe drug with a large therapeutic index, in rare cases of toxicity, systemic effects can be severe and challenging to diagnose. Adverse reactions to acyclovir toxicity include liver and kidney dysfunction, phlebitis, and neurological symptoms. Manifestations of neurotoxicity can range from altered mental status to slurred speech, myoclonus, hallucinations, fasciculations, and tremors. This case highlights a severe manifestation of acyclovir toxicity following treatment for shingles.

A 66-year-old male with a past medical history of end-stage renal disease (ESRD) presented to the emergency department with a new pruritic rash associated with vesicles extending over the mid-back towards the abdomen. The patient was given one dose of steroids and started on standard-dose oral acyclovir for suspected cutaneous varicella zoster flare and discharged home. The next day, his spouse noticed that he was confused and could not finish his sentences, so she brought him back to the emergency department. On arrival, he was extremely disoriented, agitated, combative, and complained of weakness and decreased vision in the right eye. He was accompanied by his family who was able to verify the drastic change from his baseline mental status.

Given the concern for acyclovir-induced neurotoxicity, the patient was prepped for emergent hemodialysis. Given his extreme agitation, he was transferred to the medical intensive care unit (MICU) for sedation. A lumbar puncture was performed to exclude infectious causes of acute encephalopathy and was unremarkable. Due to his uncontrolled hypertension, an MRI was obtained to rule out posterior reversible encephalopathy syndrome and was unremarkable. Within 12 hours, the patient was transferred to inpatient medicine and recovered to baseline mentation following completion of dialysis. Renally-dosed acyclovir was then continued until zoster lesions adequately resolved.

Acyclovir is metabolized by the kidney and excreted through the urine. As such, acyclovir neurotoxicity is a rare, dose-dependent phenomenon seen in patients with renal failure, or in children and the elderly, depending on renal function. This case highlights a very extreme case of neurotoxicity complicated by severe agitation and altered mentation in a patient with ESRD, which resulted in complete resolution after clearance of acyclovir via hemodialysis. To avoid such neurotoxicity, it is essential to use renally-dosed acyclovir in patients with risk factors. Finally, when instances of neurotoxicity do arise, emergent hemodialysis serves as an effective treatment and can help with confirming the diagnosis.

Quality Improvement

Poster Number: 36 - Investigating the Need for Smell Training in Medical Education

Author: En-Dien (Sam) Liao, TTUHSC - Texas Tech University Health Sciences Center School of Medicine

Co-Authors: Elleana Majdinasab, Anu Satheeshkumar, Malvika Ramesh, Christopher Le

Poster Presentation Link:

https://www.youtube.com/watch?v=Fkr4EcvShZw&lc=Ugwh27_sxpcFUotDwhl4AaABAg

Modern medical education overlooks the utility of smell in clinical practice. Medical students are taught to feel, hear, and touch patients in order to arrive at a diagnosis, but never to smell them. Certain medical pathologies, such as diabetic ketoacidosis, bacterial vaginosis, and phenylketonuria are marked by distinct odors that can be easily recognized if previously known to the provider. Smell recognition can guide clinicians toward ordering relevant lab work and imaging, allowing providers to save time and arrive at correct diagnoses. The literature on this topic is rather outdated and sparse. The New England Journal of Medicine and British Journal of General Practice, among others, both agree that smell is underutilized in medical practice. This project will expand on the existing literature by identifying whether there is a need for the inclusion of smell in medical training. It was hypothesized that medical students would note that scent is overlooked in their training and consequently feel incompetent in their scent identification abilities. Furthermore, it is hypothesized that medical students will benefit from the incorporation of the sense of smell into their medical education. To assess if there is an increased need for smell training in medical education, a survey was emailed to medical students at Texas Tech University Health Sciences Center School of Medicine. Data was anonymously collected from July 25, 2021 to August 8, 2021. Statistical analysis was utilized to assess the attitudes of medical students regarding the utility of smell in clinical practice. The data will be used to identify whether further emphasis on scent training is beneficial in the medical field. 139 total responses were received. The vast majority of students assessed were not confident in their ability to distinguish specific odors associated with pathologies such as bacterial vaginosis or phenylketonuria, and 88% of students felt that further training in diagnostic use of smell would help them become a more competent physician. On average, students surveyed felt that the use of smell was moderately important in assisting the diagnostic process. Based on the results of our survey and identified need for increased training with medically relevant scents, it is recommended that healthcare institutions consider incorporating these lessons into their existing curriculums and practice in order to train students to provide more effective and efficient patient care.

Quality Improvement

Poster Number: 37 - Use of ABRA DTS and ACell MatriStem for Successful Closure of Traumatic Complex Extremity and Trunk Soft Tissue Wounds

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Poster Presentation Link: <https://www.youtube.com/watch?v=5EO3nRNkT8Y>

Introduction

Traumatic soft tissue injury with substantial tissue loss is a frequent and challenging problem, requiring operations that have long-term functional and cosmetic consequences. This, combined with painful dressing changes, prolonged wound healing, and increased resource utilization, prompted exploration of more effective solutions. The ABRA Dynamic Tissue System (DTS) closure device has been successfully used to facilitate open abdomen closure, but may be appropriated for soft tissue extremity wounds as well. There are both invasive and non-invasive variations of the device for closing soft tissue extremity and trunk defects. ACell MatriStem is a porcine urinary bladder matrix (PUBM) which accelerates wound healing through constructive remodeling.

Methods

We identified 26 patients with large complex traumatic wounds and used PUBM to definitively heal these wounds. In half of these cases, the ABRA DTS was additionally utilized for wound closure. Detailed photographic documentation was performed of each wound. Data and information were collected via chart review of EMR at University Medical Center from the initial ER visit, the intrahospital course, and post-operative care of each patient.

Results

Among our patients, there was 100% healing of each wound without the need for skin grafting or tissue flaps. There was a 0% incidence of surgical site infections (SSIs) even in the most contaminated of wounds. In each case, wound healing was accelerated with excellent cosmetic and functional outcomes.

Conclusions

Complex traumatic wounds of the extremities are a challenging problem. The ABRA DTS closure device uses a series of elastomers anchored at the wound edges to create dynamic tension across the soft tissue defect, allowing for serial contraction of the retracted wound edges. This results in decreased wound volume dimensions that are more amenable to primary closure. PUBM is an extracellular matrix substrate that serves as the site for cell attachment, migration, proliferation, and differentiation. In addition, the processing of the xenograft maintains the integrity of the epithelial basement membrane and viability of various collagens and growth factors. The host remodeling response includes angiogenesis and innervation, modulation of the inflammatory response, resistance to infection, and host deposition of functional, site-appropriate tissue. Combined use of ABRA DTS and PUBM can be used to successfully heal large soft tissue defects in the extremities with minimal SSI and positive cosmetic and functional outcomes.

Quality Improvement

Poster Number: 38 - Houston Methodist Coordinated Care ACO Goal To Improve Cardiac Rehabilitation Rates for CMS AMI Bundle Patients

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Co-Authors: Alex Gaeto, BA, Julia Andrieni, MD, FACP

Poster Presentation Link: <https://vimeo.com/636543285/3d49163a61>

Cardiac Rehabilitation (CR) is important in the post myocardial infarction period. CR is consistently proven to reduce cardiovascular mortality. CR may reduce all-cause mortality and may reduce readmissions. One way in which CR achieves this is by increasing vagal tone. Comprehensive CR addresses risk factor management and reduces costs while improving patient outcomes, thus a strong tool of high value care. According to the American Heart Association, there exist three Phases of Cardiac Rehabilitation: 1- Inpatient, 2- Early Outpatient, and 3- Long Term Outpatient. Our goal is to leverage Houston Methodist Coordinated Care (HMCC) ACO inpatient and outpatient team expertise to increase participation rates in Phase 2 & 3 CR for CMS defined Acute Myocardial Infarction (AMI) patients, supporting the opportunity identified by the AHA. The purpose of this project is to determine the percentage of patients who successfully received consults for, and participated in, Cardiac Rehabilitation following an inpatient admission for AMI. This will then serve as a benchmark for measuring effectiveness of future interventions and workflows to increase CR patient participation rates.

Methodology: CMS Claims data for AMI patients from Jan-July 2021 were gathered and manual chart review was performed to evaluate CR referrals and participation. Process map analysis was carried out on HMCC AMI Bundle team's workflow. **Results:** HMCC AMI Bundle Patient CR Phase 2 Participation | Consult is 33%, comparable to the average calculated by the CDC to be between 33.7-35.5%. Process map analysis revealed how ambulatory referrals for Phase 2 CR are currently generated. The Inpatient CR team, after Phase 1 evaluation and determination that patient is a good candidate for Phase 2, places the ambulatory referral. With the AHA's stated goal to "implement a coordinated effort to promote outpatient CR", we believe that this study contributes to the understanding of how patients in a large health center set in a metropolitan area are provided the resources to participate in CR. To further improve CR participation rates, we suggest adjusting the workflow to include referrals for Phase 2 to be placed at the same time as the Phase 1 Consult for all AMI patients. Furthermore, we suggest augmenting the Phase 2 ambulatory referral process by adding the HMCC Outpatient Bundles team. In the event that a patient misses the evaluation during Phase 1, in the subsequent follow up, the HMCC Outpatient Bundles team should screen for, and enable, Phase 2 participation. For future study, we suggest more in-depth process mapping analysis and identification of why some Phase 2 consults fail to translate into patient participation. For instance, what percentage of patients refused? We specifically would examine the effects of patient education, patient beliefs, health literacy, and socioeconomic factors on CR participation rates.

Quality Improvement

Poster Number: 39 - Medication Made Manageable: The Impact of Federally Qualified Health Centers on Access to Medications in Uninsured and Underinsured Populations

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Poster Presentation Link: <https://youtube.com/watch?v=xg0hzS3cWL8&feature=share>

Introduction

Access to care is a major contributor to health care quality, encompassing all six quality domains (safety, timeliness, effectiveness, efficiency, equitability, patient-centeredness) defined by the Institute of Medicine. Despite this, access to health care is unevenly distributed based on socioeconomic characteristics. Federally Qualified Health Centers (FQHCs) and their look-alikes are critical safety nets that help bridge the persistent care gaps for uninsured and underinsured patients. While studies have examined the role of FQHCs and their look-alikes in increasing access to primary and preventive care, less is known about the role of these clinics in improving medication access.

Methods

To synthesize the evidence regarding the impact of FQHCs and their look-alikes on medication access, we conducted a systematic scoping review following the PRISMA Extension for Scoping Reviews (PRISMA-Scr) methodology. We identified relevant publications by searching the PubMed database for articles published after 1992. The search terms were synonymous with medication access, safety net clinics, and uninsured and underinsured patients.

Results

The initial search yielded 432 articles. We excluded those that focused on non-prescription medications, e.g., vaccinations, discussed in-patient settings, or occurred prior to the passage of 340B, legislation that expanded medication access to FQHCs and their look-alikes. This resulted in the inclusion of eighteen articles. Most safety-net clinics providing prescription medications (88%) were FQHCs. The remaining 12% included Community Health Centers, Student-Run Clinics, and Free Clinics. Clinics utilized several mechanisms to assist patients in accessing medications such as the Patient Assistance Program (PAP), a program sponsored by drug manufacturers that provides low-cost or free prescriptions to eligible patients. Medication access was also supported through private donations, grants, and funding from state health departments. Five studies noted barriers to ensuring consistent pharmaceuticals to patients such as lack of dedicated staff and limited medication budgets. Despite barriers, studies noted that successful prescription medication programs in safety-net clinics were associated with lower rates of ED visits, increased medication adherence, and improved health outcomes, e.g., lower average systolic blood pressures.

Conclusions

Improved medication access not only benefits individual patients, but also the healthcare system overall. Our findings suggest that FQHCs and their look-alikes are important sources of prescription medications for uninsured and underinsured individuals. Increased funding for pharmaceutical programs like 340B and PAP may enhance the capacity of FQHCs and their look-alikes to provide access to necessary medications, improving health care quality and outcomes for vulnerable populations.

Quality Improvement

Poster Number: 40 - Assessing HIV-Related Stigma Burden to Guide Quality Improvement Intervention in Travis County

Author: Sharmila Paul, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Shannon Sayyadoskoie, Ayane Rossano, Joshua Mercer, Mason Payne

Poster Presentation Link: <https://www.youtube.com/watch?v=9ez6dq18pJw>

Travis County ranks among the top five counties in the country for both incidence and prevalence of HIV. The Austin Fast-Track Cities initiative highlighted HIV-related stigma as a key barrier to reaching their 90-90-90 targets for eradicating the HIV/AIDS epidemic. HIV-related stigma establishes social and structural barriers that hinder prevention, diagnosis, and treatment of HIV while limiting mental health and social support. There is insufficient data on HIV-related stigma in the Austin/Travis County area. The objective of this study is to fill this gap and assess the burden of HIV-related stigma within the population of people living with HIV (PLWH) in Austin/Travis County, with a particular aim to capture the experiences of vulnerable populations in our community. This data will serve to establish a city-specific baseline for HIV-related stigma, which will be used to design future multidisciplinary stigma-reducing interventions. To achieve this goal, a broad coalition of community partnerships, including public health entities, clinics, and local non-governmental organizations, was established for survey distribution. Multiple modalities of survey deployment were employed to mitigate language, technological, and literacy barriers.

To assess stigma burden, we utilized a 29-point survey, which incorporated a validated HIV-stigma survey and a demographic and social determinants of health survey. The HIV-stigma survey contained 15 questions assessing the five domains of stigma including disclosure concerns, public attitudes to HIV, negative self-image, internalized stigma from personal relationships and healthcare-related stigma. Each question was answered using a Likert scale, scored from 1-5 with 5 corresponding with the highest severity of stigma. Total stigma score was calculated as the sum of scores for all questions of the stigma survey, categorized by severity as follows: no stigma (15), limited stigma (16-30), moderate stigma (31-45), severe stigma (46-60), most severe stigma (61-75). Additionally, stigma sub-scores were calculated for each domain of stigma.

Thus far, the survey has had 29 respondents. Of these respondents, 48.3% reported experiencing food insecurity, 48.3% reported a monthly household income of below \$1000, 31.0% reported experiencing housing insecurity, and 27.6% stated that other people's perceptions of HIV affect how often they attend their appointments. Total stigma scores ranged from 17 to 54 with a mean of 35, corresponding with moderate stigma. The healthcare domain of stigma had the lowest mean stigma sub-score of all 5 domains assessed (4.59 compared to other sub-scores ranging from 6.00-8.80). Total stigma score was significantly associated with influence of others' perceptions of HIV on participant appointment attendance ($p < 0.05$, ANOVA test). The findings of this study demonstrate that HIV-related stigma represents a barrier to receiving care for PLWH in Travis County and highlight the need for stigma reduction interventions targeted to underserved populations.

Quality Improvement

Poster Number: 41 - in 140 Characters: Content Analysis of Global Perceptions and Outreach Efforts on Twitter

Author: Sofia Gereta, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Vishal Patel, Christopher J Blanton, Michael Mackert, Nico Nortjé

Poster Presentation Link: <https://www.youtube.com/watch?v=r67wu2uryXE>

Introduction

Colorectal cancer (CRC) is the second leading cause of cancer-related death worldwide. Although mortality is highly preventable when detected early, over a quarter of at-risk adults remain unscreened in the US. Social media is increasingly being leveraged to improve communication of cancer care, yet there is scarce data on the effectiveness of CRC screening and education efforts on virtual platforms. We examined discussions on Twitter, one of the largest social media networks, to characterize CRC-related communication online and identify the users leading these conversations. Understanding public perceptions about CRC will guide the communication of future public health recommendations, ultimately improving future outreach campaigns, screening adherence, and CRC mortality.

Methods

Tweets containing references to CRC (e.g., 'colon cancer', 'colorectal cancer') were collected from January 2020 to April 2021 using Twitter's Application Programming Interface. Participating users were then classified as either organizations, influencers, or individuals based on user profiles and metadata. Influencers were defined as non-organization users who had at least 100,000 followers or a verified Twitter account. For content analysis, Latent Dirichlet Allocation, a machine learning approach, was used to identify relevant topics of discussion in the collected tweets.

Results

There were 72,229 unique CRC tweets created by 31,170 Twitter users. CRC-related tweets reached a daily maximum after the death of Chadwick Boseman, a well-known American actor who died from CRC. Individuals accounted for the majority of users (62.7%). Organizations and influencers posted more frequently on average than individuals (3.01, 2.43, 1.93 tweets, respectively). Influencers made considerably more impressions on average than any other user (376,269 impressions). Tweets contained the following topics: appeals for early detection (19.4%), bereavement (27.9%), access to screening (12.5%), National Colorectal Cancer Awareness Month (NCCAM) (13.7%), risk factors (12.4%), and research (14.0%). Tweets referencing bereavement had the most user engagement, while tweets referencing research had the least. Organizations and influencers emphasized NCCAM and early detection, while individuals prioritized bereavement. Within research-related tweets containing embedded links, clinical trial enrollments were the least shared (0.3%).

Conclusion

Coverage of celebrity deaths and/or diagnoses of CRC stimulated conversations about early detection. However, this is not a reliable method of outreach since this trend was observed only with select celebrities. NCCAM was effective in increasing goal-oriented tweets about early detection, but these tweets did not persist beyond the awareness month. Organizations may produce more engaging outreach messages by directly sharing individuals' stories of bereavement and personal experiences with CRC. Future campaigns could also collaborate with influencers from more diverse follower bases, rather than targeting preexisting followers who likely are familiar with CRC. Finally, clinicians may tweet more information about clinical trials, as this route is currently underutilized.

Quality Improvement

Poster Number: 42 - Life Support and Advance Care Planning During COVID-19: A Cross-Sectional Study of Perceptions Among Global Twitter Users

Author: Vishal Patel, UTDell - The University of Texas at Austin-Dell Medical School

Co-Authors: Sofia Gereta, Alexander L. Chu, Christopher J. Blanton, Michael Mackert, Nico Nortjé, Gregory Wallingford Jr

Poster Presentation Link: https://youtu.be/Y_dY51H8Xfs

Introduction: The unforeseen number of COVID-19 deaths has increased media coverage and online conversations about life-sustaining interventions (LSIs). It remains unknown how this new public focus on life support has influenced communication surrounding specific end-of-life preferences, such as do-not-resuscitate orders. End-of-life planning (EOLP) is especially pertinent during COVID-19 because escalation to intensive care is often rapid and provides little time for appropriate planning.

Understanding public viewpoints about these topics can help providers better engage with patients who may benefit from EOLP, ultimately improving patient-centered care, safety, and advance directive completion rates. This study tracked discussions about EOLP and LSIs on Twitter during COVID-19 and employed machine learning techniques to better characterize perceptions surrounding these topics.

Methods: Tweets containing references to LSIs (e.g., 'mechanical ventilation', 'CPR', 'ECMO') or EOLP (e.g., 'DNI', 'DNR', 'advance directives') were collected from January 2019 to May 2021 using Twitter's Application Programming Interface. Participating users were then classified as organizations, clinicians, or individuals by searching user profiles for key terms. Individuals with over 100,000 followers or a verified account were marked as influencers. For content analysis, Latent Dirichlet Allocation was used to identify topics of discussion in the collected tweets. User impact was estimated by computing impressions (number of followers multiplied by number of tweets). User engagement was estimated using the ratio of retweets to tweets (RT:T).

Results: During the study period, there were 202,585 unique tweets about LSIs and 67,162 unique tweets about EOLP. Organizations comprised 15.6% of users; influencers 1.3%; clinicians 19.6%; individuals 63.4%. Influencers tweeting about LSIs had significantly more followers (LSIs: 161,002; EOLP: 115,985; $P=0.01$), unique tweets (LSIs: 1.8; EOLP: 1.45; $P=0.02$), and impressions (LSIs: 276,810; EOLP: 171,555; $P<0.001$) than those tweeting about EOLP. Content domains of EOLP tweets included: public appeals to establish advance directives (6.3%), National Healthcare Decisions Month (NHDM) (4.2%), research studies (13%), personal stories (24.8%), legal advice (14.5%), discrimination during COVID-19 (18.7%), and precautions related to COVID-19 (15.8%). Personal experiences had the highest engagement (RT:T=4.7). Individuals shared the most personal experiences while influencers and clinicians emphasized research ($\text{CHI}^2=500.9$; $P<0.0001$). DNR-related discrimination during COVID-19 was identified as a major public concern and contained the greatest negative sentiment.

Conclusion: During the COVID-19 pandemic, conversations about LSIs were considerably more popular than conversations about EOLP, owing to influencers' disproportionately large share of voice on Twitter. This represents an opportunity for healthcare organizations to partner with influencers to increase viewership regarding EOLP. Our findings suggest that organizations and clinicians can increase user engagement by sharing more personal experiences related to end-of-life care. Finally, acknowledgement of public issues, such as DNR-related discrimination during COVID-19, may allow clinicians to better address DNR hesitancy at the bedside and increase goal-concordant care during public emergencies.

Quality Improvement

Poster Number: 43 - Empowering the Anti-Racist Physician: A Med-Ed QI Proposal

Author: Khushali Roy, UTMB - The University of Texas Medical Branch at Galveston

Co-Authors: Farah Kudrath, Sarah Siddiqui

Poster Presentation Link: <https://vimeo.com/manage/videos/637149205>

INTRODUCTION:

Health equity plays a critical role in reducing healthcare disparities and improving patient outcomes. The ongoing pandemic of COVID-19 magnifies several unmet needs of vulnerable populations as priorities heed to privileges over rights, furthering gaps in equitable care. Now more than ever, the emphasis on health equity must be addressed. One such medium through which this knowledge can manifest as change is medical education. In a novel health systems science (HSS) course designed for fourth year medical students at the University of Texas Medical Branch Galveston, a module was created to assess a variety of attitudes and beliefs on race. Under the umbrella goal of the course, which is to improve students' understanding of the social structure of healthcare, this module seeks to breed ground for the "anti-racist" physician. Students were tasked to complete pre and post module surveys that assessed knowledge on health equity literature, attitudes on racial biases, and understanding of the driving forces of healthcare disparities.

METHODS:

The anti-racism module offered content in three areas: 1) race correction in clinical algorithms, 2) physician implicit bias associations, and 3) public health interventions that perpetuate health disparities. Students read one article in each subject, subsequently completing quizzes (three total) on the corresponding articles. A 14-question attitudinal survey was given prior to having exposure to the content and repeated upon module completion. Questions assessed perceptions on racial bias, a physician's role in reducing healthcare gaps, and self-efficacy in the promotion of health equity. Multiple choice answers ranged from strong agreement to strong disagreement. Both pre and post module surveys were compared and analyzed.

RESULTS:

Although most survey questions showed similar results at the end of the module, a considerable number of responses recorded shifts in attitude. Compared to the pre-survey, responses from the 34 students on the post-survey showed a stronger propensity towards the following: 1) affirming more implicit over explicit physician bias, 2) increasing accountability of the physician over the public on racial bias, 3) acknowledging worsened health disparities over the past decade, and 4) growing self-interest in addressing health disparities through projects or education in the future. Initial literature searches on anti-racism in medical education suggested several topics that coincided with our curriculum. One major goal to improve the efficacy of future modules is to incorporate more workshop-based learning materials alongside readings to ensue discussion amongst students. Content from this module was also incorporated into a residency panel and was well received by fourth year students.

CONCLUSION:

The need to establish health equity training amongst young physicians is great. Ultimately, raising awareness of biases through medical education today will strongly determine the closing of patient care gaps for the posterity of healthcare.