School of COMMUNITY MEDICINE

Clinical Vignette Symposium 2021

Book of Abstracts

University of Oklahoma – Tulsa
School of Community Medicine

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Dear Colleagues,

It is my pleasure to welcome you to 10th annual Clinical Vignette Symposium the hosted by the OU-Tulsa School of Community Medicine. At CVS, trainees present interesting and unusual medical case studies in a conference setting. We look forward to learning the stories behind these unique case reports.

In alignment with current public health guidelines, CVS 2021 will be hosted virtually. In addition to creating posters, presenters will also be able to record brief narratives describing these intriguing cases. It is our hope that this collaborative case dissemination enhances our collective knowledge about thought-provoking medical treatments.

I would like to extend a warm thank you to the presenters as well as those who organized and are hosting CVS this year. We hope you enjoy CVS 2021.

Sincerely,

Martina Jelley

Martina Jelley, MD, MSPH, FACP

Professor and Vice Chair for Research, Department of Internal Medicine

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Clinical Vignette Symposium 2021

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Emergency Medicine

Abstract #49: A DEVASTATING COMPLICATION OF A COMMON UROLOGIC PROBLEM

Dr. Kyle Hollmann – OU Department of Emergency Medicine
Dr. Jaron Soulek – OU Department of Emergency Medicine

Introduction

Scrotal pyoceles are a rare complication of epididymo-orchitis that result from a purulent collection within the tunica vaginalis. They are urologic emergencies that can progress to testicular infarction, Fournier's gangrene, and sepsis even with prompt recognition and treatment. Ultrasound is the diagnostic modality of choice; however, CT and MRI can also be used especially when Fournier's gangrene is of concern. Treatment involves broad-spectrum antibiotics, emergent surgical intervention, and pain control and fluid resuscitation as needed.

Case Description

A sexually active 17-year-old male without history of STIs presented to the ED for 2 days of minimally painful left testicular swelling. He denied fever, dysuria, penile discharge, or scrotal trauma. His left testicle was mildly swollen with epididymal tenderness. Scrotal ultrasound showed a small left hydrocele, hyperemic left epididymis, and no evidence of torsion. He was treated for epididymitis with ceftriaxone in the ED and 10 days of outpatient doxycycline. He returned to the ED 13 days later for worsening extremely painful left testicular swelling over the past 3 days. He reported completion of the prescribed antibiotics. Physical exam revealed an exquisitely tender and inflamed left hemiscrotum. His left testicle could not be palpated due to severe pain and firm scrotal swelling. Repeat scrotal ultrasound showed heterogenous enlargement of the left testicle without internal vascularization and a complex left hydrocele with internal septations. Urology was emergently consulted and ceftriaxone was started in the ED. He was taken to the OR for pyocelectomy and orchiectomy of a necrotic left testicle. Labs were notable for a mild leukocytosis but blood cultures, UA with culture, and GC/CT NAAT resulted negative. He was discharged the following day with a prescription for 14 days of TMP-SMX. At his urology follow up appointment 20 days later, his left scrotal drain was removed and appropriate wound healing was appreciated.

Discussion

Testicular infarction is an exceedingly rare complication of epididymo-orchitis that is more likely to occur in the setting of a pyocele. This is likely due to mass effect resulting in mixed venous and arterial insufficiency. Pyoceles tend to be caused by typical urologic pathogens rather than STIs. The presence of risk factors such as older age, urinary obstruction, anatomic GU abnormalities, recent GU instrumentation, or anal intercourse should prompt consideration of broader antibiotic coverage.

Abstract #53: ACUTE MI IN LOW-RISH PATIENT FOLLOWING COVID-19 INFECTION

Dr. Matthew Millington – OU Department of Emergency Medicine
Dr. Christoph Schieche – OU Department of Emergency Medicine

Introduction

Early in the pandemic, research was already showing higher rates of thromboembolic events in hospitalized COVID patients, including pulmonary embolism, ischemic strokes, and myocardial infarction. The mechanism of myocardial injury in patients with Covid-19 has been debated, with possibilities of higher rates of plaque rupture, cytokine storm, hypoxic injury, coronary spasm, microthrombi, or direct endothelial or vascular injury.1 Published studies showed that echocardiograms were abnormal in up to 55% of tested COVID-19 patients. 4Our case presents a low cardiac risk individual presenting for acute thrombo-occlusive MI within 2 weeks of COVID-19 diagnosis.

Case Description

A 43-year-old male with no significant known past medical history presented to an urgent care after having worsening chest pain that started approximately 24 hours prior. He had no known significant cardiac risk factors, denying any history of tobacco use, diabetes, hyperlipidemia, or family history of cardiac disease. He stated he had been diagnosed with COVID-19 infection 10 days prior. EKG was performed and showed ST elevation in the inferior and lateral leads and patient was taken by ambulance to the emergency department. Repeat EKG showed diffuse ST elevations, most prominent in the inferior and lateral leads. Patient received ticagrelor, heparin and underwent emergent cardiac catheterization. Cardiac catheterization showed angiographically normal left main coronary artery, with minimal plaquing in the left circumflex and RCA. Patient was found to have a large thrombus with 90% stenosis of the LAD and a distal segment with 100% occluded thrombus. Patient underwent thrombectomy, with placement of drug-eluting cardiac stent and was admitted the hospital.

Discussion

In our review of current literature, we found one similar case of a low cardiac risk patient presenting with acute MI with diagnosis of COVID 19 at admission.3 We found no current case reports on patients presenting with acute ischemic MI outside of acute COVID 19 infection or hospitalization, although studies from Denmark in hospitalized patients showed a five-fold increased incidence of first time acute MI within 14 days of COVID-19 diagnosis, as well as statistically increased incidence within 31 days of diagnosis. 2 While current research shows correlation between acute thromboembolic events and COVID-19 infection in hospitalized patients, this case highlights the need for continued research as to what long-term effects COVID infection can have on future thromboembolic events. Further research is warranted to assess whether prophylactic medications or other interventions may be beneficial to patients during the recovery phase of COVID-19 infection.

Abstract #67: PULMONARY ABSCESS AFTER COVID PNEUMONIA

Dr. Sarah Fichuk – OU Department of Emergency Medicine
Dr. Eric Lee – OU Department of Emergency Medicine

Introduction

COVID-19 infection can cause many numerous and unexpected complications. Here we describe a case of a lung abscess after hospital admission for COVID-19 pneumonia treatment. Lung abscesses are necrotic areas of lung parenchyma usually due to anaerobic bacteria after aspiration. There have only been 3 other cases of lung abscess development after COVID-19 pneumonia described in the literature. The lung abscesses presented between 18 and 24 days post initial COVID-19 pneumonia hospitalization. Only one of the patients required intubation and the others just needed supplemental oxygen support. All 3 cases had no organism detected on cultures.

Case Description

A 47-year-old male with history of aortic valve replacement on warfarin presented 3 weeks after having COVID-19 pneumonia with hemoptysis. He was found to have a right lower lobe pulmonary abscess that measured 6.1 by 5.9 cm with no pulmonary embolism present. CT also showed diffuse patchy consolidated lung opacities. His previous hospitalization for COVID-19 pneumonia only required supplemental oxygen and no mechanical ventilation. He received steroids and remdesivir and then discharged after a 9-day hospital stay. He was readmitted for the lung abscess one week after his discharge. His labs showed an elevated WBC count at 17 and his INR was 4.2. Sputum, blood, and fungal cultures all had no growth. Empiric antibiotics of vancomycin and piperacillin-tazobactam were started. No drainage or biopsy of the abscess was performed. He was hospitalized for 5 days and received IV piperacillin-tazobactam during his stay.

Discussion

At discharge he was placed on oral amoxicillin-clavulanate to be continued for 4-6 weeks.

Abstract #92: VAGINAL CUFF DEHISCENCE SECONDARY TO TRAUMA

Dr. Gautami Gandham – OU Department of Emergency Medicine
Dr. Joshua Gentges – OU Department of Emergency Medicine

Introduction

Vaginal cuff dehiscence (VCD) is a very rare (with incidence rate of 0.4 - 5%) and serious complication of pelvic surgery specifically hysterectomy. VCD means separation of anterior and posterior vaginal edges. These edges are typically closed after uterus is removed. Complete cuff dehiscence involves full- thickness separation of the entire length of the vaginal incision. VCD can lead to evisceration of abdominal or pelvic contents with risk of peritonitis, bowel injury, and necrosis. Risk factors of VCD includes mode of surgery, smoking, lower BMI. Patients usually present with one or more of below symptoms: pelvic or abdominal pain, vaginal bleeding/ discharge or gush of fluid, vaginal pressure/ mass. There is significant variation in timing of presentation.

Case Description

A 36-year-old woman presents with abdominal pain. Patient fell from a tree about eight feet high 3 days ago. She complains of sharp, generalized abdominal pain, right sided chest pain, low back pain, shoulder pain that got worse since the fall. She states pain is constant and worsens with any movement. She states "everything is moving inside her abdomen." She noticed blood in urine yesterday. She reports urinary incontinence since last night and feels the urge to urinate. Past medical history includes Hep C, anxiety, asthma. Patient is status post total vaginal hysterectomy, uterosacral ligament suspension, anterior colporrhaphy, urethral bulking and cystourethroscopy 3 months ago for uterovaginal prolapse, cystocele, rectocele and stress urinary incontinence. She endorses smoking and injecting methamphetamines. On physical exam patient had suprapubic pain with guarding. Labs were unremarkable except for leukocytosis. CXR showed pneumoperitoneum. CT chest abdomen pelvis with contrast showed large amount of free intraperitoneal air without an exact source. General Surgery was consulted. In operating room patient was found to have 4cm complete dehiscence of the vaginal cuff. Gynecology was consulted intra-operatively who did the primary repair. Patient was extubated in the operating room. She was provided appropriate post-op care and discharged four days later with pelvic rest for 6 weeks, pain medication, and outpatient follow up with General Surgery and Gynecology.

Discussion

VCD is a clinical diagnosis made during pelvic exam. Surgical closure is the primary treatment for VCD. Fluids and empiric antibiotics are given prior to surgery. It is important to evaluate for VCD in suspicious patients with history of hysterectomy so prompt consultation, treatment can take place and complications can be avoided.

<u>Abstract #106:</u> METFORMIN-ASSOCIATED LACTIC ACIDOSIS IN A PATIENT WITH ACUTE RENAL FAILURE

Dr. Riley Polk – OU Department of Emergency Medicine
Dr. Eric Lee – OU Department of Emergency Medicine

Introduction

Metformin-associated lactic acidosis (MALA) is a rare but significant clinical entity, with an incidence of 3-9 cases per 100,000 patient years. It carries a mortality rate of 36-50%. The toxic effects of metformin occur by inhibition of the mitochondrial transport chain causing buildup of NADH and pyruvate to be converted to lactate. MALA is often associated with renal failure and acute infectious processes as well as intentional overdoses. Treatment is generally supportive, and patients with refractory acidosis or impaired renal function may require hemodialysis.

Case Description

An 82-year-old female with history of hypertension, CKD stage 2 and Type 2 diabetes treated with insulin and metformin presented to the emergency department due to altered mental status after 3 days of nausea, vomiting, and diarrhea. She arrived to the ED obtunded and hypotensive and was found to have acute renal failure with oliguria and creatinine of 7.54 and BUN of 100. She had a profound anion gap metabolic acidosis with a pH of 6.96 and her lactic acid returned at 15.8. Antibiotics, fluids, and vasopressors were started due imaging findings of colitis, but there was concern for metformin-associated lactic acidosis as well precipitated by her acute renal failure. Nephrology was consulted and the patient underwent SLED dialysis after HD catheter placement and was admitted to the ICU.
The patient underwent SLED dialysis for four days while in the ICU and experienced improvement in her renal function and her urine output greatly increased. Her creatinine returned to baseline and lactate returned to normal by hospital day 4. She was weaned off of vasopressors as well. However, the patient had worsening respiratory failure and required intubation on hospital day 5. She remained intubated at last review of records with a guarded prognosis.

Discussion

Metformin-associated lactic acidosis, although rare, is an important process for physicians to consider in patients with severe metabolic acidosis and metformin use given its high morbidity and mortality. In this patient, rapid recognition and initiation of dialysis was performed. Although the patient also had coexisting septic shock contributing to her clinical presentation, prompt initiation of dialysis was crucial to improve the patient's profound metabolic acidosis.

Abstract #116: A PAINFULLY UNDIAGNOSED DIFFUSE RECURRENT RASH

Dr. Jeremiah Wang – OU Department of Emergency Medicine
Dr. Emily Fisher – OU Department of Emergency Medicine

Introduction

Rashes are among the most diverse and nebulous of clinical presentations. Some are benign, while others may not only look drastic but also have dramatic consequences. Among diffuse, pruritic rashes are Stevens-Johnson Syndrome, its more diffuse form Toxic Epidermal Necrosis, erythema multiforme, chronic dermatitis, and exfoliative erythroderma. Understanding their nuanced differences may help categorize them and therefore guide more targeted prevention and treatment.

Case Description

A 75-year-old female with a history of diabetes, hypertension, and depression presented with Stevens-Johnson Syndrome. The patient described full body pruritic, painful, and peeling rash that started as small papules on her left wrist, spreading to her entire body over the past 6 weeks. Patient denied any fever, airway compromise, or other systemic symptoms. Patient's medication list, which has remained unchanged, includes gabapentin, insulin, metformin, Pepcid, and sertraline. No recent exposures. Patient was previously seen at Hillcrest 3 weeks ago and evaluated by infectious disease and dermatology. There were no identifiable triggers, and skin biopsy showed chronic dermatitis. Although prednisone had helped mitigate symptoms for a few days, this patient's rash continued to worsen after discharge.

Patient had 100% coverage of erythematous, pruritic, and painful scaling rash. The rash was in various stages of flaking and scarring, with some regions thick and silvery, while others were excoriated and weeping. Patient had no mucosal involvement, discharge, or bleeding. Burn unit was consulted, and patient was admitted to hospital for symptomatic treatment. On further revaluation, patient once again had no clear causes of skin eruptions. Infectious disease and dermatology were again consulted with no clear diagnoses. Differential was expanded from TEN to erythema multiforme to chronic dermatitis.

Discussion

Rashes may be very difficult to categorize. Patients like the one presented may have severe and chronic complaints without any clear triggers or diagnoses. Disease presentations may not always fit classical findings. Though they have their own defining characteristics, they may nonetheless present with significant variations. We can hope that as medicine progresses, diseases as described above will be easier to diagnose and treat.

Abstract #119: NEUROLOGICAL IMMUNE RELATED ADVERSE EVENT OR VIRAL NEUROPATHY?

Dr. Jasmine Washington – OU Department of Emergency Medicine
Dr. Craig Kennedy – Green Country Emergency Physicians

Introduction

Immune checkpoint inhibitor (ICI) therapy has revolutionized the management of various cancers. The therapy is associated with a wide spectrum of immune-related adverse events (irAE) including neurological symptoms which can affect all parts of the central and peripheral nervous system. However, these agents also compromise the immune system in a way that can allow viral infections such as HIV, CMV, EBV, and syphilis to progress rapidly. Patients often present to the emergency department with neurological symptoms of unknown cause. Awareness of these events and the proper workup of unexplained neurological symptoms in patients on these therapies is important for proper diagnoses and treatment.

Case Description

A 27-year-old male with diagnosis of primary peritoneal mesothelioma presented to the emergency department with chief complaint of bilateral feet and hand paresthesias onset 3 weeks ago and getting progressively worse. Patient reported difficulty walking secondary to the pain. Patient was being treated with Nivolumab and Ipilimumab, ICI agents, at the time of presentation. Patient medical history other than his cancer diagnosis was non-contributory. Initial physical exam was notable for a patient with a diffuse macular rash that included the palms and soles. Neurological exam was significant for patchy, nondermatomal numbness of bilateral lower extremities and bilateral hands. Patient also had right foot with weakness with dorsiflexion of the foot (foot drop) and absent patellar and achilles tendon reflexes of the right lower extremity. The left lower extremity had normal strength and reflexes. The remainder of the patient's physical exam, including neurological exam was unremarkable. Patient presented with basic laboratory work already completed by his oncologist and joint decision-making plan with neurology and oncology was made to perform a lumbar puncture in the emergency department to rule out Guillain-Barre Syndrome. Guillain-Barre Syndrome is a documented neurologic irAE of ICI therapy. CSF cell count, CSF glucose, CSF protein, CSF LDH, CSF culture, and CSF VDRL and titer were ordered. CSF cell count showed mild pleocytosis and CSF VDRL returned positive with a 1:1 titer. Although titer was low, secondary to patient rash and immunosuppressed state, patient was treated for syphilis upon admission to the hospital.

Discussion

This case demonstrates the importance in ruling out infectious processes that may also cause neurological symptoms in patients on ICI therapy. Neurological irAE should be a diagnosis of exclusion in the setting of ICI therapy.

Abstract #133: ATYPICAL SKIN INFECTION IN ACQUIRED IMMUNODEFICIENCY SYNDROME

Dr. Luke Lewis – OU Department of Emergency Medicine
Dr. Julie Dodson – OU Department of Emergency Medicine

Introduction

A thorough physical exam must be conducted in all encounters. This is especially important when presenting symptoms are atypical for a patient's age or risk factors. Skin pathology is a commonly missed objective finding that requires further history to create a comprehensive differential. Here we describe a case of atypical Kaposi Sarcoma incidentally discovered a patient presenting with a chief complaint of stroke-like symptoms.

Case Description

A 46-year-old male presented to St. John's Emergency Department via EMSA after he developed right arm and leg paresthesia in the setting of a headache. He denied any history of stroke, falls, loss of consciousness, blood thinner use, migraine, seizure. A quick neurologic exam while being placed in CT scanner revealed subjective paresthesia to right-sided extremities grossly. CT head without contrast and CT angiogram head/neck were negative for any acute pathology. The patient was then taken to his room in the Emergency Department.

Upon being roomed the patient was found to have unsightly and malodorous condylomatous right foot lesions and violaceous subcutaneous macules scattered across bilateral lower legs. He stated that his first skin changes were noticed 8-12 weeks prior. Upon questioning regarding Human Immunodeficiency Virus risk factors the patient revealed that he was diagnosed ten years prior but had been nonadherent to his medications for the last year because of an insurance lapse. The patient was in stable condition with relatively unremarkable basic labs and was admitted for further workup and infectious disease consult. CD4 count was found to be 95. Blood cultures revealed Corynebacterium Bacteremia and wound cultures revealed Pseudomonas. Biopsy of the foot lesions were sent to pathology and revealed Kaposi Sarcoma with an atypical appearance. MRI brain revealed left pontomedullary stroke vs neurofibromatosis. Transesophageal echocardiogram did not reveal any vegetations, endocarditis, or other pathology. At time of discharge the patient was continued on antibiotics and antiretroviral therapy with neurology, hematology and oncology, and infectious disease follow-up arranged.

Discussion

This patient required admission prior to the discovery of his skin findings and AIDS status. However, if he had presented for a more benign complaint such as sore throat or wrist pain, these discoveries could have easily gone unnoticed. Many disease processes are not readily disclosed and require a high degree of suspicion to provide appropriate treatment. This case is a valuable lesson in thorough examination.

Family Medicine

Abstract #61: SEROPOSITIVE RHEUMATOID ARTHRITIS

Dr. Amy Dunn – OU-TU School of Community Medicine, Family and Community Medicine
Dr. Simone Bigelow – OU-TU School of Community Medicine, Family and Community Medicine

Introduction

Rheumatoid arthritis (RA) is an inflammatory condition that causes erosion of cartilage and bone leading to joint destruction and deformity. Early diagnosis and treatment with disease-modifying anti-rheumatic drugs (DMARDs) is paramount in its control and prevention of disability in order to prevent complications.

Case Description

A 28-year-old female with past medical history of anxiety and depression presented to the outpatient clinic with 6 months of fatigue and 1 month of joint swelling and stiffness. She was evaluated for fatigue one month prior where she was diagnosed and treated for vitamin D deficiency, despite an elevated ESR and CRP. The patient developed new onset joint pain that was severe, polyarticular and symmetric, and presented for telemedicine evaluation. Over-the-counter acetaminophen and NSAIDs did not control symptoms. She was treated with naproxen, trial of prednisone, and supportive care with instructions to follow-up for in-person evaluation in clinic within 3 days. Upon in-person evaluation, she reported significant improvement in symptoms with the steroid treatment. Physical exam was remarkable for mild joint swelling in the right wrist and ankle, decreased ROM in bilateral upper and lower extremities, and tenderness to palpation in multiple joints bilaterally. Lab work-up resulted in an elevated rheumatoid factor >1000 and positive ANA 1:80 titer, confirming suspected diagnosis of RA. An urgent referral to rheumatology was obtained. Prior to initiating DMARD therapy, the patient underwent several pre-treatment evaluations and interventions with PCP. She subsequently started DMARD and folic acid therapy and has demonstrated clinical and quality of life improvement.

Discussion

The diagnosis and treatment of RA can be difficult due to the large differential and complex treatment, and RA should be considered as a potential diagnosis any time a patient is presenting for joint pain. However, RA- associated symptoms and lab results went unnoticed at an initial office visit for this patient, delaying diagnosis and treatment. Timely referral to a rheumatologist is an important part of RA treatment to decrease the acute physical ailments associated with the disease. However, it can be difficult to gain access to a specialist if the patient lacks insurance or lives in a rural setting. This patient was evaluated by a rheumatologist, but not until one month after her diagnosis. A primary care physician should commence pre-treatment evaluations and interventions, after confirmation of an RA diagnosis, to accelerate initiation of DMARD rather than waiting for initial consultation with the specialist to prevent serious complications.

Abstract #63: MULTIPLE MYELOMA PRESENTING AS CHRONIC BACK PAIN

Dr. Chelsea McDonald – OU-TU School of Community Medicine, Family and Community Medicine
Dr. Janelle Whitt – OU-TU School of Community Medicine, Family and Community Medicine

Introduction

Back pain is one of the most common presentations in a primary care office. It is estimated that up to 84% of adults will have low back pain at some point. Multiple myeloma is a malignant plasma cell disorder that accounts for approximately 10%-17% of all hematologic malignancies, and is more common in men, African Americans, and people 65-75 years old. We present a case of chronic back pain, ultimately diagnosed as multiple myeloma, in a young male.

Case Description

42-year-old African American male with past medical history of hypertension and recent hospitalization for secondary syphilis presented to the ER for worsening chronic back pain. Initial injury occurred four months prior after hyperextending his leg. Symptoms were being managed through his primary physician. In the ER, patient endorsed severe low back pain with associated fatigue, shortness of breath, intermittent fevers, nausea/vomiting, and polydipsia. Labs were significant for Hbg 6.5, Na 128, Cr 3.28, and Ca 13.2, with Ionized Ca 7.4. CT abdomen/pelvis showed a 7cm soft tissue mass on his right ilium and pathological compression deformities in T10/T11. Bone survey showed diffuse polyostotic myelomatous changes consistent with osseous metastasis. Previous lumbar x-ray during syphilis hospitalization showed no lytic changes. Patient was admitted for suspected multiple myeloma as well as hypercalcemia, acute kidney injury, normocytic anemia, and hyponatremia. He was given fluids, RBCs, and dexamethasone. Hematology/Oncology recommended biopsy that showed findings consistent with plasma cell myeloma. No surgical intervention was indicated. Radiology Oncology initiated radiation treatment. With pain well-controlled, he was discharged with instructions to follow up with his physician and Hematology/Oncology for further treatment for multiple myeloma.

Discussion

This diagnosis of multiple myeloma was complicated by its early presentation, rapid progression, and the patient's recent hospitalization. Early lab abnormalities consistent with multiple myeloma diagnosis were attributed to his syphilis infection. This, with normal lumbar x-ray and history of known injury as reason for back pain, made bone disease a less likely cause. Trending labs back to baseline is not standard of care, so it is unlikely routine follow-up with his physician would have caught worsening lab values. Although back pain is a common presentation in the outpatient clinic with usually overall benign outcomes, it can be a precursor to significant disease and require urgent intervention. It is important to get routine yearly labs to set baseline values and to obtain imaging when an injury occurs.

Abstract #71: MUSCULAR WEAKNESS SECONDARY TO HIV

Dr. Kiran Paul – OU-TU School of Community Medicine, Family and Community Medicine

Introduction

Acute HIV infection presents as a flu-like syndrome with a constellation of non-specific symptoms. Without a high degree of suspicion, the diagnosis can frequently be missed by clinicians. Headache is the most common neurological finding, but more serious neurologic manifestations such as distal symmetric peripheral neuropathy have been reported. This case details the importance of always considering infectious etiology, even when initial symptoms point to an obvious diagnosis.

Case Description

47-year-old female arrived to the Emergency Department for back pain with bilateral lower extremity weakness. Spinal cord imaging ruled out spinal cord injury, but brain MRI showed white matter lesions. Patient was started on ceftriaxone at admission due to pyuria, and methylprednisolone at the direction of the neurosurgeon, likely secondary to white matter lesions on imaging. On the second day of admission, she improved clinically from her weakness. Urine culture was negative for UTI. Due to the brain lesion, Neurology consult recommended an HIV screen, which came back positive. Newly diagnosed HIV+ status raised concern for progressive multifocal leukoencephalopathy (PML) as cause of weakness. Labs were ordered and Infectious Disease consulted to manage the new HIV diagnosis. CD4+ came back at 48. She was started on prophylactic sulfamethoxazole/trimethoprim. Lumbar puncture was negative for Human polyomavirus 2, ruling out PML. On hospital day 5, patient's husband shared he was HIV+ and being treated. MRI showed soft tissue mass in her nasal passage, resulting in ENT referral. Presently, patient has been started on triple anti-viral therapy, and on prophylactic antibiotics until CD4 count >200.

Discussion

The diagnosis of this case of AIDS due to HIV-1 was complicated by several aspects. The delay of her husband sharing his HIV+ status likely led to unnecessary tests and subjected patient to broad-coverage pharmacotherapy. Additionally, the immediate need to rule out stroke was appropriate, but it was also important to keep a broad differential. Early inclusion of specialists helps define etiology of patient's constellation of symptoms more quickly by taking a more diagnostic path than a general practitioner. Given the wide range of symptoms associated with acute HIV infection, clinicians should have a low threshold to suspect it. Overall the patient's symptoms were directly correlated to severe immunocompromised state with CD4 count of 48.

Abstract #78: SPONTANEOUS CORONARY ARTERY DISSECTION

Madison Snow – The University of Oklahoma School of Community Medicine
Lee Luetkemeyer – The University of Oklahoma School of Community Medicine

Introduction

Spontaneous Coronary Artery Dissection (SCAD) is an underdiagnosed phenomenon which most commonly affects the left anterior descending artery. SCAD can lead to cardiac ischemia by a poorly understood process of vessel wall hemorrhage, formation of an intramural hematoma, and arterial occlusion. The condition is associated with having personal history of fibromuscular dysplasia (FMD), the peripartum period, and hypothyroidism.

Case Description

34-year-old woman with unremarkable past medical history presented to a rural emergency department complaining of chest pain. She was found to have a non-ST-elevation myocardial infarction with an elevated troponin and was transferred for emergent left heart catheterization with placement of three stents. During catheterization the patient was found to have spontaneous dissection of her left anterior descending artery and was diagnosed with Spontaneous Coronary Artery Dissection. After a complicated hospitalization with alternate vessel SCAD reoccurrence, advanced cardiac life support and subsequent cardiogenic shock, transaminitis, and hypoxemic respiratory failure requiring intubation, she was eventually discharged home with an ejection fraction of 35-40%. Fibromuscular dysplasia and auto-immune workups were negative. She was found to have a TSH of 5.2 which was monitored over the course of one year due to amiodarone therapy. Most recently, ejection fraction has increased to 45-50% and levothyroxine is being titrated.

Discussion

The true prevalence of SCAD is unknown. It was previously thought to be rare but new studies suggest it could be responsible for up to 4% of acute coronary syndromes. Unfortunately, it is difficult to execute randomized control trials or further investigate the efficacy of treatment modalities due to low prevalence. The current treatment recommendations are either invasive revascularization, usually reserved for those who are hemodynamically unstable, or conservative medical management. Revascularization occurs via percutaneous coronary intervention or coronary artery bypass graft while medical management involves use of antiarrhythmics and supportive care. Other long-term considerations include screening for anxiety and depression and implementing secondary cardiac prevention measures. This patient did receive appropriate treatment based on the current evidence. This case highlights an uncommon cause of acute chest pain. Additional research is necessary to better understand prevalence and treatment.

Abstract #104: NON-HERITABLE RETINOBLASTOMA IN A YOUNG CHILD

Dr. Madison Beckman, DO – OU-TU School of Community Medicine, Family and Community Medicine
Dr. Syeachia Dennis – OU-TU School of Community Medicine, Family and Community Medicine

Introduction

Retinoblastoma is the most common primary intraocular malignancy of childhood and accounts for 10%-15% of cancers that occur within the first year of life. Retinoblastoma occurs in both heritable and non-heritable forms. Heritable retinoblastoma tends to present at an early age; most cases are bilateral and/or multifocal, and approximately 10 percent have a positive family history. In contrast, children presenting with non-heritable retinoblastoma typically have unilateral and unifocal disease, have a negative family history, and usually present at a later age.

Case Description

A two-year-old previously healthy male presented to clinic with his guardian for concerns of unequal pupil size for 1-2 weeks duration. Physical exam was remarkable for the right pupil measuring 2-3mm and reactive to light accommodation, while the left pupil was 5-6mm and not reactive to light or accommodation in either light or dark. The left eye conjunctiva was injected. Patient was referred to a pediatric ophthalmologist where he was diagnosed with glaucoma in the left eye, with an intraocular pressure of 51. He was then referred to another ophthalmologist for further evaluation diagnosed with advanced retinoblastoma that replaced the entire retina with secondary neovascular glaucoma. Patient underwent enucleation of the left eye with prosthesis. Fortunately, the retinoblastoma did not invade the optic nerve and the patient did not require chemotherapy. Genetic testing was performed. The patient did not have heritable retinoblastoma and was declared cured.

Discussion

Retinoblastoma typically presents as leukocoria in children under two years of age. However, it can present as nystagmus, red eye, or strabismus. These findings on physical exam should prompt an urgent referral to an ophthalmologist, as diagnosis is made through a dilated fundus exam along with imaging, such as MRI, ocular ultrasound, and optical tomography. First-line therapeutic options include local and systemic chemotherapy, cryotherapy, laser photo ablation, radioactive plaques, and enucleation. Genetic testing is also warranted. Untreated retinoblastoma is a deadly disease; however, with advances in treatment, the five-year survival rate is >95 percent. As family physicians, we have the opportunity to routinely screen patients for disease and malignancies. This case highlights the importance of simple physical exams and screening tools, such as an eye exam performed in well-child checks, and proves they can be lifesaving, especially in the setting of retinoblastoma.

Abstract #105: EMBRYONAL RHABDOMYOSARCOMA, A RARE OCCURANCE IN AN ADULT

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Introduction

Embryonal rhabdomyosarcoma is a form of malignancy that arises from skeletal muscle cells. This most commonly affects children under the age of 5-years-old, rarely affecting adults. However, compared to children and adolescents, adults are more likely to have faster-growing tumors in less accessible areas, which can pose a significant challenge to treatment. This report details a rare case of embryonal rhabdomyosarcoma in an adult which presented as prolonged abdominal pain, nausea and vomiting.

Case Description

A 60-year-old woman with severe COPD, and history of treated uterine cancer, presented to clinic with one week of middle and right upper quadrant burning abdominal pain, associated with nausea, vomiting and diarrhea. Bedside ultrasound showed a normal liver but an unknown mass vs stool burden in the right abdomen. She declined going to the ED for further evaluation and elected for symptomatic control and outpatient imaging. Two weeks later, she returned with worsening intractable nausea, vomiting and pain refractory to famotidine and over-the-counter pain reliever. She had since developed hematemesis, increasing fatigue, weakness, and a 10-pound weight loss. She was ill-appearing and tachycardic, with a distended, firm, and diffusely tender abdomen. She declined transfer to the ED, and underwent urgent outpatient labs and imaging. Initial blood work showed thrombocytopenia but was otherwise unremarkable. CT revealed a vascular mass involving the abdomen and pelvis with numerous metastases throughout the mesentery and right hemidiaphram. Subsequently admitted to the hospital for intractable nausea, vomiting, and pain, Oncology was consulted. A CT-guided biopsy of the mass revealed embryonal rhabdomyosarcoma. Due to the rapid growth and spread of the tumor, patient's prognosis was poor. After several conversations with the multidisciplinary team, the patient chose to discharge home with Hospice.

Discussion

Embryonal rhabdomyosarcoma is diagnosed from biopsy of a radiologically suspicious mass. Treatment often consists of surgery, chemotherapy, and radiation but varies based on the location, size, and spread of the malignancy at the time of diagnosis. Poor prognostic factors include large tumor size (> 10 cm), rapid growth, and metastases. In this case, the patient presented with advanced spread and rapid growth of the tumor, both poor prognostic factors. Additionally, her underlying COPD made her a poor surgical candidate, leaving few treatment options. Primary care physicians commonly address prolonged abdominal pain, nausea and vomiting. Malignancy should be included in the differential for this constellation of symptoms and cannot be ruled out without imaging and possible biopsy.

Abstract #117: METASTATIC PROSTATE CANCER DIAGNOSED IN THE OUTPATIENT SETTING

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Introduction

Aside from non-melanoma skin cancer, prostate cancer is the most common cancer among men in the United States, and a leading cause of cancer death among men across all races and populations. In developed areas, prostate cancer is increasingly diagnosed when the tumor is confined to the prostate, due in part to screening with prostate-specific antigen (PSA). Most men with prostate cancer are diagnosed and successfully treated while disease is localized, but some will present with or subsequently develop disseminated disease. We describe a case of such disseminated disease.

Case Description

A 56-year-old male with past medical history significant for chronic back and neck pain presents in clinic with weak urinary stream. Urinalysis was significant for hematuria and he was started on Flomax with assumption of benign prostatic hyperplasia. On return to care he complained of new onset constipation, intermittent diarrhea, and vague abdominal pain. Labs were significant for elevated liver enzymes, including alkaline phosphatase. Evaluation of PSA (862ng/ml) and GGT (22U/L) verified etiology of bone metastases as primary source of elevated alkaline phosphatase. CT abdomen/pelvis imaging was significant for 2.2 cm enhancing lesion with bladder invasion and diffuse multiple sclerotic bone lesions. Thus prompting referral and treatment by urology and hematology/oncology.

Discussion

This case was peculiar in many aspects secondary to the patient's age and aggressive nature of his cancer with no prominent family or personal past medical history. He presented with complaints consistent to other common etiologies but inherently tied to a singular cause. As an outpatient workup, lab and imaging took longer than an inpatient setting, but was impressively expedited secondary to lab and insurance supporting the etiology. Patient onset of symptoms to staging of disease took approximately 40 days. During this time he was evaluated with multiple lab draws and imaging, and by specialists.

The natural course of this disease is insidious in onset and rare in this age group. Due to the aggressive and diffuse nature of his disease an expedited evaluation was warranted, but no clear benefit would have come from inpatient evaluation. Outpatient evaluation was appropriate with urgent referrals to providers and imaging services. The time taken to fully evaluate the disease likely does not affect his long term prognosis. This case should be considered a good example of an appropriate and effective use of outpatient medicine.

Abstract #138: BACTEREMIA SECONDARY TO EMPHYSEMATOUS PYELONEPHRITIS IN THE SETTING OF TYPE-2 DIABETES MELLITUS

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Dr. Simone Bigelow – OU-TU School of Community Medicine, Family and Community Medicine

Introduction

Emphysematous pyelonephritis is a dangerous kidney infection with gas formation within or around the kidney, most commonly diagnosed in patients with uncontrolled Diabetes mellitus. If not caught early this can lead to sepsis. Most cases are caused by Escherichia coli, followed by Klebsiella sp. This case presents the course of emphysematous pyelonephritis that led to sepsis and percutaneous drainage tube placement but did not require nephrectomy.

Case Description

A 39-year-old female with morbidly uncontrolled Diabetes (HbA1c>16) presented to the clinic via a telehealth appointment, as follow-up to an urgent care visit, for concerns of a urinary tract infection. Not given antibiotics at urgent care, she came to the clinic for a urinanalysis and stat complete blood count and comprehensive metabolic panel. Upon arrival, she was tachycardic, appeared ill, with slight hypotension. She was transported to emergency department where pain medication, fluid bolus and ceftriaxone were given. Her white blood cell count was 16.7 and glucose was 605. She left against medical advice. Blood culture results later returned positive for Klebsiella pneumoniae. The patient went to second emergency department, where labs showed worsening leukocytosis 20.1, creatinine 3.67, hyponatremia, and hyperkalemia, and elevated glucose 450. A computed tomography scan abdomen showed emphysematous pyelonephritis. Admitted in septic shock, she required 2 days of pressors. Progression to bacteremia resulted in several drain placements and levofloxacin IV antibiotic therapy. After 21-day admission, she was discharged home with tubes still in place and the need for 2-3 months of oral levofloxacin. The patient is to follow-up with Urology and Infectious Disease and have repeat CT scan before drains are removed.

Discussion

This is a complex case as the patient received no antibiotics at urgent care and she left a different hospital against medical advice. Early treatment in emphysematous pyelonephritis is critical; she did not receive treatment until day 7 of illness leading to her sepsis. The mortality rate is 11-50% with best outcomes from antibiotics and percutaneous drainage tubes followed by nephrectomy as a last resort. The complexity of her case resulted in a 21-day hospital stay that could have been shortened by earlier treatment. This patient could have required a nephrectomy due to the critical nature of her case. Urinary tract infections are common and sometimes lead to pyelonephritis. Physicians must remember that uncontrolled diabetes in a patient can lead to fatal emphysematous pyelonephritis and consider doing further workup on this patient.

Internal Medicine

Abstract #45: PROGRESSION OF CARDIAC CONDUCTION DELAY SECONDARY TO COVID-19

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Introduction

Third-degree atrioventricular (AV) block arises when electrical impulses normally originating in the sinoatrial node cannot be propagated through a diseased AV node. Diverse etiologies can lead to third-degree AV block, including infectious agents that either directly disrupt neuronal firing in the myocardium or produce myocarditis that subsequently suppresses electrical conduction. Emerging evidence has identified SARS-CoV-2, the causative agent of COVID-19, as a probable cause of intracardiac conduction delays.

Case Description

An 84-year-old male with a history of end-stage renal disease, atrial fibrillation, coronary artery disease, aortic stenosis, and hypertension who presented to the emergency department complaining of lightheadedness that started shortly before arrival was found to have bradycardia with a rate of 37 bpm and complete AV dissociation consistent with a new-onset third-degree AV block. Laboratory testing demonstrated markedly elevated troponin-I and brain natriuretic peptide levels. The patient was then admitted for inpatient management of his symptomatic bradycardia.

On arrival to the hospital, he required supplemental oxygen at 3 L/min. Physical examination disclosed significant jugular venous distension, diffuse crackles and wheezes on pulmonary auscultation, and a 4/6 systolic murmur in all valve areas on cardiac auscultation. His hemoglobin, potassium, and thyroid-stimulating hormone concentrations were within normal limits. Plain chest radiography showed evidence of pulmonary edema. Echocardiography revealed a left ventricular ejection fraction of 70% and no evidence of myocarditis.

The patient's respiratory symptoms prompted routine inpatient testing for COVID-19, which revealed that he was positive for SARS-CoV-2. The cardiac electrophysiology team deferred pacemaker placement on account of the patient's active SARS-CoV-2 infection. After several days of supportive management, the patient was discharged to hospice and palliative care and expired about two months after discharge from the hospital.

Discussion

This case illustrates the progression of AV nodal disease to third-degree AV block in an elderly male patient at high risk of severe complications from COVID-19. While this patient's co-morbidities placed him at elevated risk of intracardiac conduction abnormalities, other case reports have shown that patients without these underlying conditions have also developed similar cardiac pathology. While it is possible that this patient could have developed this unsustainable dysrhythmia in the absence of COVID-19, the emerging echocardiographic and electrocardiographic evidence from across the world suggests that COVID-19 likely accelerated any underlying intracardiac conduction issues and contributed significantly to his condition. This case also highlights the importance of hospice and palliative care, shared medical decision-making, and ongoing primary care during the pandemic.

Abstract #47: EXTENSIVE BIOPROSTHETIC AORTIC VALVE ANNULAR ABSCESS

Dr. Addison McGinn – OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Heather Cha – St. John's Heart and Vascular Center

Introduction

Infective endocarditis (IE) is a relatively common, usually subacute infection involving heart valves. IE is often preceded by bacteremia in patients with prosthetic hardware, artificial heart valves, vascular access catheters, or in patients with risk factors such as intravenous drug use. Normally, IE is found during work-up for bacteremia and is best evaluated with echocardiography. Prolonged IV antibiotics are the treatment of choice unless the patient has an indication for surgery such as a large vegetation or signs acute heart failure, among others.

Case Description

A 75-year-old male with a past medical history of aortic stenosis status-post bioprosthetic aortic valve (AV) replacement presented with back pain. At the time of admission, labs were notable for acute kidney injury, transaminase elevation, leukocytosis, and lactic acidosis. Subsequent blood cultures grew Enterococcus faecalis. Transthoracic echocardiography confirmed endocarditis with a mobile mass involving the tricuspid valve (TV). Transesophageal echocardiography further demonstrated a large bioprosthetic aortic valve annular abscess extending into the ascending and descending aorta. Direct visualization in the OR confirmed native TV endocarditis and an AV annular abscess eroding into the atria and left ventricular outflow tract (LVOT). He underwent AV/LVOT abscess debridement, repair of aortic root using autologous pericardium with coronary reimplantation, and TV debridement and repair. His postoperative course was complicated by ventricular tachycardia and refractory cardiogenic shock secondary to right ventricular failure. He was transferred to an outlying facility for extracorporeal membrane oxygenation (ECMO) support, but ultimately passed away. Just two weeks prior to this aforementioned admission, the patient underwent transthoracic echocardiography for new onset atrial fibrillation which demonstrated a bioprosthetic aortic valve with normal pressure gradients and without vegetation.

Discussion

The incidence of perivalvular abscess among patients with bioprosthetic valve endocarditis is between 30% to 40%. What makes this case interesting is not only the impressive local extent of abscess, but also the aggressive nature of the infection given negative imaging just weeks prior. This case illustrates the need for rapid identification, early initiation of treatment, and availability of post-operative mechanical support for patients with bioprosthetic valve abscess from endocarditis.

Abstract #48: TRANS-CATHETER AORTIC VALVE REPLACEMENT COMPLICATED BY LEFT VENTROCULAR FREE WALL PERFORATION AND CARDIAC TAMPONADE

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Introduction

Trans-catheter aortic valve replacement (TAVR) is widely recognized as an alternate therapy for patients with severe aortic stenosis who are a high operative risk for conventional surgical valve replacement. However, this procedure has inherent risks that physicians must recognize and understand. Wire perforation of the lateral wall of the left ventricle and subsequent cardiac tamponade is a rare yet serious complication. We describe a case of acute cardiac tamponade after a lateral left ventricular free wall perforation and the subsequent successful percutaneous treatment of this complication.

Case Description

A 92-year-old female with past medical history of aortic stenosis presented with presyncope. Transthoracic echocardiography (TTE) showed thickened and calcified aortic valve leaflets with a mean valve gradient of 42mmHg indicative of severe aortic stenosis. Given the patient's advanced age and fragility, the risk of open aortic valve replacement was deemed prohibitively high. Consequently, the patient consented for a planned elective TAVR. Her AV valve was replaced in the usual fashion without initial complication. Immediately post- operatively, the patient became acutely hypotensive requiring high dose vasopressors. Subsequent TTE revealed a large pericardial effusion completely compressing the right ventricle with wire perforation of the lateral wall of the left ventricle. Emergent pericardiocentesis was performed with 500cc of blood removed. Prior to procedure, both the patient and her family were adamantly against sternotomy and despite the seriousness of the situation, the consensus remained. We continued to aspirate blood with no evidence of hemostasis despite upsizing to a 12 French pericardial drain. It was decided to attempt injection of thrombin into the pericardial space though hemostasis was not achieved. We then proceeded with several injections of SurgiFlo along the lateral wall. We then advanced an 8 French Arrow sheath into the pericardium and attached it to continuous suction until the bleeding stopped. The patient was taken to the cardiac intensive care unit where no further evidence of cardiac tamponade or significant pericardial effusion was observed.

Discussion

We report herein a case of achieving hemostasis and avoiding sternotomy after left lateral free wall wire perforation and subsequent cardiac tamponade using a combination of thrombin and SurgiFlo injected into the pericardial space. In conclusion, although a rare occurrence, ventricular free wall rupture should be considered in patients who develop cardiogenic shock following TAVR. This complication often necessitates need for sternotomy; however, it is our experience that hemostasis can also be successfully achieved using thrombin and SurgiFlo percutaneously.

Abstract #52: A VIOLACEOUS VIRUS: LIVEDO RETICULARIS IN A PATIENT WITH SEVERE SARS-COV-2 INFECTION

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Dr. Blake Lesselroth – OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Livedo reticularis (LR) is a cutaneous finding classically associated with vasculitic disorders and coagulopathies. Emerging literature indicates a transient LR-like exanthem may be a manifestation of severe SARS-CoV-2 (COVID-19) infection.

Case Description

A 57-year-old woman with systolic heart failure, chronic obstructive pulmonary disease, and chronic untreated hepatitis C, presented to the ED with subacute shortness of breath. She had been without diuretics for two weeks and had developed progressive swelling of legs and hands. She endorsed dyspnea and orthopnea, but denied chest pain, cough, or fever. Her oxygen saturation was 72%, and she was placed on bilevel positive airway pressure. She was oriented, though ill-appearing and grossly anasarcic. She was tachycardic and had bibasilar crackles posteriorly. She had bilateral pitting edema of the hands and legs, and LR-like dermatologic pattern on her thighs, calves, and feet. There were no ischemic findings on her ECG and her troponin was undetectable. A CT angiogram of the chest showed volume overload and pulmonary edema without embolism.

Lacking a clear unifying diagnosis, the team empirically treated her for decompensated heart failure and sepsis. Nevertheless, the presence of LR raised our suspicion for vasculitis or a consumptive coagulopathy. The patient quickly improved with initial diuretics and broad spectrum antibiotics, and by the second day of hospitalization, tested positive for COVID. The treating team attributed her acute hypoxic respiratory failure to decompensated heart failure with concurrent COVID-19 infection. Her skin findings eventually resolved after receiving dexamethasone, remdesivir, and additional diuretics. On hospital day seven, she left against medical advice.

Discussion

Despite classical associations with cryoglobulinemia and antiphospholipid syndrome, LR is a nonspecific dermatologic finding caused by changes in blood flow of the superficial vasculature.[1] There are many causes of LR including thrombotic occlusion, vasospasm or venodilation, dysautonomia, and systemic inflammation.[1] Therefore, it is crucial to consider this differential when encountering LR.

Recent case series of COVID patients estimate that dermatological findings manifest in 9.8%-23% of patients; 2%-7% also have a transient LR-like exanthem.[2,3,4] Systemic inflammation-induced hypercoagulability with resultant small vessel inflammation is a possible explanatory mechanism for the appearance of LR in patients with severe COVID infection.[3,4] We believe the inflammatory response triggered by SARS-CoV-2, coupled with decompensated heart failure and poor perfusion, caused the development of LR in our patient.

Abstract #55: LEMIERRE SYNDROME: NO LONGER JUST A SORE THROAT

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Dr. Audrey Corbett – OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Lemierre Syndrome is a rare, and potentially lethal septic thrombophlebitis of the internal jugular vein. This is most commonly seen in adolescents and young adults, usually caused by the bacteria Fusobacterium necrophorum. There has been a recent increase in the prevalence possibly due to antibiotic resistance, recurrent tonsillitis, increased use of corticosteroids to treat infectious mononucleosis, and lack of antibiotic stewardship.

Case Description

A 32-year-old female with no significant past medical history presented to the emergency department complaining of elbow pain. The patient was found to have a large neck mass on physical examination. A CT scan of the head and neck showed a 2.2 cm x 1 cm abscess, along with a thrombus in the internal jugular vein. A diagnosis of Lemierre Syndrome was made. Although she denied any neck pain or sore throat the patient had recent head and neck trauma due to physical assault, which is the believed mechanism of action. She was placed on empiric antibiotics of vancomycin and piperacillin-tazobactam. ENT performed an incision and drainage, which was subsequently cultured and grew Streptococcus pyogenes and MRSA. With ID she started intravenous vancomycin, ampicillin-sulbactam, and clindamycin. Repeat CT scans and an MRV showed extension of the septic thrombus into her sigmoid sinus. There are no guidelines for anticoagulation in these patients. Neurology determined three months of anticoagulation therapy with either DOAC or warfarin would be sufficient. Due to financial constraints she started warfarin. She was discharged home with weekly follow up with ENT and oral antibiotics of trimethoprim-sulfamethoxazole and amoxicillin-clavulanic acid, for a total of six weeks of antibiotics after appropriate source control. The patient was able to resume a full diet and had no neurological deficits.

Discussion

This case illustrates a rare, but serious complication of a retropharyngeal abscess. Consideration must be taken regarding the decision to anticoagulate these patients or not, along with duration of anticoagulation. Currently, anticoagulation should be carried out in absence of any contraindication or presumed risk following clinical anticoagulation guidelines and only in patients with poor clinical response despite antibiotic therapy, thrombophilia and intracranial thrombosis.5 However, a recent meta-analysis showed no difference in mortality or clot resolution in those who received anticoagulation therapy.6 Therefore, the risk of not adequately treating a potentially lethal septic emboli must be weighed heavily with a multidisciplinary team approach for these complicated patients.

Abstract #56: METASTATIC PRIMARY PLASMACYTOMA OF THE LUNG: THE ZEBRA DISGUISED AS A HORSE

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Dr. Tina Bui – OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Oliver Cerqueira – OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Extramedullary plasmacytomas are plasma cell tumors originating outside the bone marrow, most commonly found in the oropharynx or nasal cavity. These plasmacytomas are only 3% of all plasma cell disorders. Plasmacytomas of pulmonary origin are exceedingly rare without multiple myeloma. Clinical manifestations are poorly described due to a dearth of reported cases in the literature.

Case Description

We present the case of a 75-year-old female seen in neurosurgery clinic for a four month history of both low back pain with progressive bilateral lower extremity weakness. MRI revealed L1 lesion concerning for neoplasm. She was admitted directly to the hospital for further workup and operative intervention. Her review of systems was otherwise unremarkable. She denied shortness of breath, hemoptysis, chest wall pain, signs of bleeding, or lymphadenopathy.

During the hospitalization, lab work-up, including complete blood count, chemistry-14 panel, and peripheral blood smear, was unremarkable. Serum protein electrophoresis did show an abnormal free kappa to lambda light chain ratio despite no protein gap. The patient underwent L1 laminectomy and biopsy of L1 lesion, T11-L3 posterior fusion, as well as L1 corporectomy. Intraoperative biopsy revealed plasma cell neoplasm with lambda light chain restriction. CT chest/abdomen/pelvis showed extension of an 8.6 cm left upper lobe mass into the chest wall. Due to concern for a second primary malignancy and given the rarity of primary pulmonary plasmacytoma, the patient also underwent lung mass biopsy. Biopsy of the lung mass revealed plasma cell neoplasm with lambda light chain restriction, as well. She denied having any pulmonary or localized musculoskeletal symptoms despite the extent of tumor burden found in her chest. MRI spine revealed multifocal metastatic disease involving thoracic spine, lumbar spine, sacrum, and pelvis. XR metastatic bone survey showed no other lytic or sclerotic lesions. Bone marrow biopsy showed no evidence of primary bone marrow disorder. She was discharged to inpatient rehabilitation with plans to follow up with hematology/oncology for further management options.

Discussion

This case illustrates the presentation of primary plasmacytoma of the lung without pulmonary symptoms, despite late stage diagnosis. It is important to keep a broad differential of pathologies when working up patients with suspected malignancy. Cancer type and grading have a direct influence on both treatment options and prognosis. In this case, a thorough workup led to the correct diagnosis, allowing for greater accuracy in planning the patient's management and goals of care.

Abstract #58: SUBARACHNOID HEMORRHAGE IN A HYPERCOAGULABLE STATE: A BALANCING ACT

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Dr. Mark Steichen – St. John Medical Center

Introduction

While the most common etiology of subarachnoid hemorrhage is ruptured aneurysm, an overlooked etiology may include non-aneurysmal hemorrhagic transformation secondary to underlying hypercoagulable states, such as lupus or antiphospholipid syndrome. Likewise, the necessary anticoagulation pharmacotherapy may obscure the workup necessary for definitive diagnosis of such hypercoagulable state.

Case Description

A 33-year-old G3P2012 woman presented to the emergency department for severe headache, abdominal pain, and intractable emesis. These symptoms arose following two weeks of difficulty with verbal comprehension and word finding. Her past medical history includes a left middle cerebral artery stroke 9 months prior, spontaneous miscarriage at 6 weeks gestation, and tobacco use. She had been prescribed an unknown anticoagulant, and had discontinued it 2.5 weeks prior to presentation. Her family medical history is significant for deep vein thrombosis in her mother and lupus in her grandmother. Head CT revealed a left frontoparietal subarachnoid hemorrhage and a small lacunar infarct. Subsequent MRI confirmed multiple small right hemisphere infarctions and a left frontotemporal subacute infarct with hemorrhagic transformation. Abdominal CT showed multiple cortical kidney infarcts, multiple splenic infarcts, and a ventricular thrombus; later confirmed on echocardiography in addition to a thrombus on the anterior mitral valve leaflet. With the patient's large clot burden and family history a hereditary, hypercoagulable condition was pursued finding normal anticardiolipin antibodies, anti-beta-2-glycoprotein antibodies, lupus anticoagulant sensitive-PTT, DRVVT, prothrombin gene mutation, and Factor V Leiden. Infectious etiologies were pursued revealing normal blood cultures and viral panels. After initiating a heparin-warfarin bridge, her clinical picture and repeat imaging stabilized. Once her INR stabilized at goal, the patient was discharged on hospital day 9 with close neurology and hematology follow-up. Further clotting workup was recommended outpatient when stable enough to temporarily suspend pharmacotherapy.

Discussion

This case relates an atypical presentation of subarachnoid hemorrhage in a hypercoagulable patient. Furthermore, it illustrates the delicate balance between diagnosis and treatment of a suspected antiphospholipid syndrome and lupus anticoagulant. Physicians must utilize clinical judgement, given the patient at hand, to determine if halting pharmacotherapy is worth the possibility of achieving a definitive diagnosis knowing the potential risk of patient harm, namely repeat ischemic or hemorrhagic stroke in this patient.

Abstract #70: MELAS SYNDROME

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Introduction

Mitochondrial disorders are characterized by a wide range of mutations in both the nuclear and mitochondrial DNA, which manifest as diverse signs and symptoms that can usually be grouped into distinct syndromes. As our knowledge of genetics has increased, so too has the number of known mitochondrial diseases. Once thought to be rare, as many as 1/11,000 individuals are born each year with mitochondrial encephalomyopathy, the most frequent subtype of which is the syndrome of metabolic encephalopathy, lactic acidosis, and stroke- like episodes abbreviated MELAS.

MELAS mutations lead to impairments in mitochondrial translation and protein synthesis, impairing mitochondrial energy production. The inability of abnormal mitochondria to meet the energy needs of various organs results in the multi-organ dysfunction found in MELAS. Organ systems with high metabolic demand such as the brain and skeletal muscles tend to be the most affected. Common manifestations of MELAS include stroke-like episodes, epilepsy, dementia, recurrent headaches, ataxia, blindness, lactic acidemia, myopathy, and diabetes. The course can be relapsing-remitting in nature, but the syndrome is always progressive, leading to cognitive decline, disability, and premature mortality.

Case Description

The patient is a 33-year-old female with known MELAS Syndrome who presents with 4-day history of recurrent vomiting associated with appetite loss and lack of sleep for 72 hours. Patient's weight is 77lbs and she is seeking medication management of her chronic symptoms related to MELAS. Medications include Januvia and Basaglar Kwikpen for diabetes, Keppra to prevent seizures, Mirtazapine to increase appetite and decrease pruritus, Cymbalta for depression and neuropathic pain, Zofran for nausea, Ambien for insomnia, and Propranolol for recurrent headaches.

Discussion

A diagnosis of MELAS must include all three invariant criteria: stroke-like episodes, encephalopathy characterized by seizures and/or dementia, and myopathy evident by lactic acidosis and/or ragged-red fibers. As providers, it is critical to recognize syndromes which require specific treatments. Both diabetes and seizures are frequent manifestations of MELAS, but some common treatments for these conditions are contraindicated in patients with MELAS. Metformin can worsen lactic acidosis and valproic acid can be toxic to mitochondria, exacerbating the course of disease when the diagnosis has not been identified. In order to better support patients, providers need to be aware of how disorders of mitochondria present. While no disease modifying treatment exists, knowledgeable providers can improve the quality of life of their patients with MELAS.

Abstract #73: LEPTOTRICHIA GOODFELLOWI SUBACUTE BACTERIAL ENDOCARDITIS IN AN IMMUNOCOMPETENT ADULT

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Introduction

Leptotrichia goodfellowi (LG) is an anaerobic gram negative bacterium common to oral, gastrointestinal, and genitourinary flora. It is rarely known to cause infective endocarditis (IE), particularly in immunocompetent patients. However, a handful of patients with a history of preexisting valvular lesions who are otherwise healthy have acquired IE. This unique case serves as an example of the potential pathogenicity of LG, and will hopefully help guide future clinical judgement.

Case Description

A 39-year-old male with a history notable for severe mitral valve regurgitation (MVR) was admitted for evaluation of 3 months of worsening fatigue, intermittent night sweats, and 30-pound weight loss. On physical exam, the man was healthy appearing and afebrile. The only abnormal findings were pale conjunctiva and a prominent holosystolic murmur. Later, he was found to have multiple, severe dental caries that had not been evaluated by a dentist. On admission, he was noted to have a Hgb of 6.5 requiring transfusion and a Creatinine (Cr) of 4.7. CT imaging revealed a congenitally absent right kidney, but no other significant findings noted. Eventually he developed a fever and leukocytosis, which prompted blood cultures and a gram stain originally showing gram positive and later revealing gram negative. Initially he was placed on empiric cefepime and vancomycin. A transthoracic echocardiogram (TTE) was obtained showing a mobile mass on the posterior mitral valve leaflet suggestive of torn chordae or mobile vegetation. One of three blood cultures grew LG, with no sensitivities noted, and the patient was switched to IV Unasyn. After normalization of Cr and Hgb levels, the patient underwent mitral valve repair via right mini thoracotomy, and echocardiography post-surgery showed no regurgitation. He was discharged on oral Augmentin, aspirin, and metoprolol.

Discussion

This case represents a rare example of IE with LG in an immunocompetent patient with a history of MVR. Based on the modified Duke criteria for IE, the patient fulfilled 1 major (echocardiographic evidence) and 3 minor criteria (fever, predisposing heart condition, and positive blood culture). This was only observed multiple days into his hospital stay, and his subacute presentation made diagnosis difficult. The organism's variability on gram stain, patient's compounding acute kidney injury and anemia further clouded the diagnosis. Though rare, this case highlights the susceptibility of patients with preexisting cardiac conditions to unique organisms such as LG causing IE. Further research would aid in clarifying its pathogenicity and better guide future treatment options.

Abstract #74: TICK BITES AND HEMOPHAGOCYTES

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Dr. Caleb Hurst – OU-TU School of Community Medicine, Department of Internal Medicine
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Introduction

Hemophagocytic lymphohistiocytosis (HLH) is a rare disease characterized by widespread inflammation and potential multisystem organ failure. Clinical manifestations of HLH can include fever, splenomegaly, hepatomegaly, neurological symptoms, lymphadenopathy, pulmonary involvement, and in less than 33%, rash. Laboratory findings may include anemia, thrombocytopenia, neutropenia, hypertriglyceridemia, hypofibrinogenemia, elevated ferritin, hypoalbuminemia, abnormal liver enzymes, abnormal renal function, hemophagocytosis, and low NK cell activity. HLH can occur as a familial disorder or secondary to a variety of triggers including infection, malignancy, autoimmune disorders, medication exposures, pregnancy, immunosuppression, and, in very rare cases, ehrlichiosis.

Case Description

In this report, we present a case of HLH secondary to Ehrlichiosis, with a chief complaint being a rash. The patient is a 54-year-old male with no significant past medical history who presented to the Emergency Department with a 3-day history of trunk rash, fever, chills, and body aches. Labs were significant for pancytopenia, elevated liver function tests, and hyponatremia. Serum tick panel was positive for ehrlichiosis and he was started on doxycycline 100 mg IV BID. At this time, labs were also significant for LDH of 922, ferritin of 8,469, and fibrinogen of 182. Ultimately, our patient met 5 of the 8 criteria for HLH. He finished a 14-day course of 100 mg doxycycline BID, and outpatient follow up roughly one month later revealed that all of his labs had normalized.

Discussion

Ehrlichiosis is a very rare cause of secondary HLH. This tick-borne disease most commonly occurs in the summer and spring months and is transmitted via Lone Star tick bite. Typical presenting symptoms are fever, chills, arthralgia, and malaise; lab findings are typically significant for leukopenia, thrombocytopenia, and elevated liver enzymes. To date, there have been 11 reported cases of Ehrlichiosis induced HLH in adults. In Ehrlichiosis triggered HLH, patients should be started on 100 mg doxycycline twice daily immediately for 14-21 days. Patients who respond within a few days to treatment of Ehrlichiosis may be able to avoid HLH-specific chemotherapy, which includes an 8-week induction regimen of dexamethasone, etoposide, cyclosporine, and intrathecal methotrexate and hydrocortisone for those with CNS involvement. Without therapy, the mortality rate of HLH is roughly 58%. Additionally, most patients who relapse do so within a year of the acute illness; therefore, close follow up and minimizing exposure to triggering condition is key.

Abstract #97: HEREDITARY HEMORRHAGIC TELANGIECTASIA WITH PULMONARY ARTERIOVENOUS MALFORMATIONS COMPLICATED BY PANCYTOPENIA

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Introduction

Hereditary hemorrhagic telangiectasia (HHT) is an autosomal dominant genetic syndrome resulting in multiple arteriovenous malformations (AVM) commonly presenting with recurrent epistaxis. While this syndrome carries a prevalence of nearly 1 per 5,000, and anemia is generally present at diagnosis, iron deficiency induced pancytopenia is excessively rarer.

Case Description

A 45 year-old male with known medical history of chronic anemia was admitted to the inpatient service after having acute shortness of breath and syncope. Chest x-ray completed at that time showed possible right basilar and mid-lung pulmonary opacities as well as a calcified left lung pulmonary granuloma. Patient was noted to have pancytopenia (hemoglobin: 9.3 g/dL; white blood cell count: 2.0x10^9/L; platelet count: 78x10^9/L) without clear etiology. Iron level was 22 mcg/dl, with a percent saturation of 9%. Total iron-binding capacity was 250 mcg/dL with a ferritin level of 50.8 ng/ml. Absolute reticulocyte count was low at 22 x 10^9/L and immature platelet fraction was increased at 9.5%. Further evaluation included HIV, hepatitis A/B/C, histoplasma antigen, ANA, ESR, CRP, TB Gold, arsenic, lead, zinc, vitamin-D, folic acid and vitamin-B12. All were within normal limits except ESR minimally elevated to 22 and zinc decreased to 46.8 mcg/dL. While uncommon, the source of his pancytopenia was likely his iron deficiency anemia, which all recovered after initiating intravenous ferric gluconate. Computerized tomography with contrast of the chest incidentally showed multiple pulmonary AVMs with the largest measuring 4.5 x 2.0 cm. MRI brain ruled out cerebral AVM. Interventional radiology could not immediately coil the AVMs due to the size. Patient later endorsed a history of recurrent epistaxis and noted a long history of syncopal episodes without origin since the age of 12 years. Finally, patient related that on his mother's death certificate was listed "fatal hypoxic myocardial necrosis secondary to arteriovenous malfunction of the right lung". Genetic sequencing has of yet to be performed, but this presentation satisfies recent recommendations for diagnosis of HHT.

Discussion

There are multiple case reports suggesting iron deficiency as a cause of pancytopenia and that treatment with iron resolves this presentation. Our patient was found to have HHT causing iron deficiency. HHT can be hard to diagnosis, but the Curacao criteria can be helpful. Once the diagnosis of HHT is made, it is imperative to rule out cerebral AVMs and as allowable, AVMs should be coiled to prevent spontaneous hemorrhage.

Abstract #101: FROSTED LIPS: EXTREME COLD OR VASCULITIS?

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Introduction

Granulomatosis with polyangiitis is a rare and potentially lethal vasculitis. The infrequency with which it is encountered and protean manifestations makes this diagnosis one of importance to recognize because of overlapping infectious and malignant manifestations.

Case Description

A 51 y/o male with no significant past medical history presented to the emergency department complaining of hemoptysis of two days. Physical exam was significant for scattered petechiae on bilateral upper extremities and significantly tender fingertips from self-reported extreme cold exposure. A CT scan of the chest with pulmonary embolism protocol showed bilateral cavitary lung lesions with the biggest one paratracheal on the right. Initial differential was broad with infectious versus autoimmune versus malignancy etiology. With the help of ID, IR, and Pulmonology the patient underwent extensive infectious workup, thoracentesis, and bronchoscopy, all of which were negative for an infectious or malignant etiology. He had elevated ESR at 68 and CRP at 30. The patient began to have digital necrosis of his fingertips, but bilateral arterial duplex scans showed triphasic blood flow, and TTE showed no emboli or thrombus. His C-ANCA came back elevated, and his Proteinase-3 AB was extremely elevated. At this point Rheumatology was consulted, and although this patient did not have symptoms of rhinosinusitis nor nephritic involvement a decision was made to begin the patient on high dose steroids, methylprednisolone 1g for three days and rituximab. Based on the compelling evidence of autoimmune markers sensitive for vasculitis along with the patient not improving with antibiotics, induction therapy was started in absence of official tissue confirmation. Although biopsy of the patient's cavitary lesions were taken, they were unremarkable for a vasculitis. Since the patient had yet to develop renal symptoms and had no hematuria on urinalysis, a renal biopsy was not performed. The patient's symptoms improved rapidly with steroids. Acral necrosis continued to worsen and so rituximab was started.

Discussion

This case illustrates a rare but serious life-threatening vasculitis with a rather atypical presentation. It is critical for the clinician to understand that a vasculitis can affect almost any area of the body, have physical manifestations such as digital necrosis or episcleritis, and may even bypass areas such as the kidneys or nasopharynx. A timely multidisciplinary team approach is imperative for these complicated patients.

Abstract #118: MULTIPLE HITS OR BAD LUCK? ACUTE KIDNEY INJURY IN THE HOSPITAL SETTING

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Introduction

Acute Kidney Injury (AKI) is one of the most frequent discharge diagnoses in hospitalized patients. AKI is not always straightforward and many patients have multiple factors placing them at risk such as complex volume management issues, exposure to nephrotoxic agents, and underlying chronic kidney disease of various etiologies. The kidneys demand upwards of 25% of cardiac output, and as such, many AKIs are related to states of poor perfusion. However, other mechanisms must be considered when formulating a differential diagnosis for AKI, especially in the setting of bacteremia and sepsis.

Case Description

We present a 61-year-old male with a complex past medical history of antiphospholipid-antibody syndrome (APS) and multiple related complications including superior mesenteric artery thromboembolism with subsequent intestinal necrosis status post extensive small bowel resection and subtotal colectomy with resultant short gut syndrome and total parenteral nutrition dependence, as well as multiple prior bacteremias and fungemias. He presented to the emergency department with complaints of fever, chills, nausea, and infiltration of his central access port. He also complained of scrotal edema, erythema, and discomfort. He was febrile, mildly tachycardic, and had a WBC count of almost 10k with significant left shift upon arrival. The patient was subsequently admitted with both sepsis presumably secondary to central line infection and epididymitis, and empiric antibiotic treatment was initiated. Blood cultures revealed an MSSA bacteremia. Early on in the hospital course, he received multiple different anti-infectives and on hospital day eight, he developed an AKI. Over a period of five days, the patient became oliguric and his GFR decreased to less than 10 mL/min requiring hemodialysis. Both repeat CBC and renal ultrasound were unremarkable. Few urine eosinophils were noted. With an unclear etiology of renal failure, renal biopsy was performed. On pathology, the biopsy showed an IgA predominant glomerulonephritis. He was discharged after a six-week hospital course, still with dependence on hemodialysis but slowly increasing daily urine output.

Discussion

Given the patient's history of APS, history of volume depletion in the face of short gut syndrome, and his exposure to nephrotoxic antibiotics, he was at risk of AKI due to several etiologies. It is important to keep a broad differential of etiologies when working up hospitalized patients with AKI, as pathology has a direct influence on both treatment and prognosis. This case highlights the need for thorough evaluation of AKI etiology in complex cases with confounding test results.

Abstract #131: PERNICIOUS HEADACHE: A CASE OF MOYAMOYA

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Introduction

Moyamoya disease (MMD) is a cerebrovascular disease involving progressive stenosis of the internal carotid arteries (ICAs) and subsequent collateral vessel formation. It is primarily seen in Asian countries, though it has a low worldwide incidence of 0.35/100,000 cases, and occurs with a bimodal distribution that affects young children as well as middle aged adults. Though it carries a poor prognosis, MMD can be slowed with surgical intervention if discovered early.

Case Description

A 46-year-old African American female patient with a history of hypertension, type two diabetes, depression, and remote history or cerebellar infarct presented for a routine follow-up visit with new onset headaches that she noted were worse when looking down. The headaches had increased in pain over the course of a few weeks and were accompanied by blurred vision and photosensitivity. As no prior vascular imaging could be found, the patient was sent for an MRI and CTA of her brain which revealed old cerebellar infarcts, a "diminutive" right ICA, and a nearly completely obstructed left ICA. The patient was referred to neurology who recommended a neurosurgery evaluation with cerebral angiogram. Neurosurgery conducted cerebral angiography and discovered right sided MMD as well as near occlusion of the middle cerebral artery. In her most recent neurosurgery clinical visit after the procedure, the patient was advised to continue taking aspirin and a statin as well as recommended surgery to bypass the right ICA. The patient agreed but has yet to undergo surgery.

Discussion

The exact cause of MMD is unknown. Like this patient, half of patients first experience symptoms such as headache in their 40s. This patient's history of prior infarct is also classic. Research favors direct revascularization using the external carotid artery to bypass the ICA stenosis over the indirect approach, which involves placing vascularized tissue supplied by the external carotid in contact with the brain and allowing new vessels to grow into the cerebral cortex. Medication can be used to treat symptoms but should only be done in conjunction with surgical therapy. As the patient is already taking the recommended medications, and has plans to undergo a direct bypass, she is receiving the standard of care, though her stroke risk is high until she undergoes surgery. This rare case highlights the need to consider MMD in both pediatric and adult patients with new onset headache or stroke.

Abstract #136: EVALUATION AND TREATMENT OF MAY THURNER SYNDROME

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Introduction

May Thurner Syndrome (MTS) is an anatomical variant that causes compression of the vessels in the iliocaval territory. It is often caused by a right iliac artery that overlies a left iliac vein and compresses it against the lumbar vertebrae. Complications of MTS are related to outflow obstruction and venous hypertension. These include DVT, superficial thrombophlebitis, chronic venous insufficiency, and post-thrombotic syndrome. The prevalence of this disease is estimated to be around 20%, but the true prevalence is unknown and thought to be higher due to under-diagnosis. While some cases are mild and require minimal treatment, the following will present the case of a patient with undiagnosed MTS and multiple VTEs, eventually requiring invasive procedures and long-term anti-coagulation.

Case Description

A 52 year old male with a history of obesity, multiple DVTs, and recent saddle PE presented to the ER with worsening LLE pain and swelling for 1 week. The patient had not been compliant with anti-coagulation as prescribed. CT venogram from knees to diaphragm revealed changes consistent with DVT and possible iliac thrombus. The vascular surgeon on the case had a high index of suspicion for MTS given these findings and the patient's history. During surgery, the diagnosis was confirmed. The patient underwent catheter-directed pharmacomechanical thrombectomy and balloon angioplasty of the IVC, left common and iliac veins, common femoral, femoral and popliteal veins. Stents were placed in the left common iliac and external iliac veins. He was transitioned from heparin to apixaban indefinitely and instructed to follow up outpatient.

Discussion

The true prevalence of MTS is unknown due to the wide variation in presentation as some patients remain asymptomatic. Additionally, it is under-diagnosed as the root cause of VTEs due to the lack of distinct risk factors. This diagnosis should be considered and appropriately ruled out when evaluating a patient with lower extremity vascular disease, including venous insufficiency or thromboembolism. In the presented case, the diagnosis was delayed and subsequently the patient had recurrent thrombotic events that may have been prevented with proper disease management. Disease management varies based on the severity of occlusion and the patient's symptoms. In order to prevent VTE recurrence and post-thrombotic syndrome, severe disease is best treated with angioplasty and stenting. Clinicians should be aware of MTS, as early intervention in patients with clinically significant disease leads to better outcomes and quality of life.

Pediatrics

Abstract #60: BILATERAL OPTIC NEURITIS FOLLOWING EPSTEIN-BARR VIRUS MONONUCLEOSIS

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Introduction

Optic neuritis is typically caused by demyelination of the optic nerves. While it is often assumed to be autoimmune in origin, its etiology can include inflammatory, infectious, or even idiopathic origins. Epstein-Barr virus (EBV) is a rare cause of optic neuritis and should be included in the differential diagnosis as its presentation in children can be variable and difficult to distinguish.

Case Description

A 5-year-old female presented to the ED with a seven-day history of headache, visual changes, and fatigue with initial symptom resolution with acetaminophen. The patient's parents noticed symptom recurrence leading to worsened visual and ambulation impairment. History revealed no recent infectious or toxic exposures with no family history of neurological or seizure disorders. On physical exam the patient was lethargic with complete bilateral vision loss to hand motion, mydriasis, and sluggish pupillary light responses. Vestibulo-ocular reflex was not present on exam. Funduscopic exam performed by ophthalmology revealed bilateral mild optic disc edema greater on the right. Initial laboratory results included an erythrocyte sedimentation rate (ESR) of 64 mm/h, white blood cell (WBC) count of 13.5 thousand, normal cerebrospinal fluid (CSF) studies, and negative immune studies. Further findings included a positive mononuclear spot test, elevated EBV IgG early (D) antigen, and markedly elevated EBV antibody to nuclear antigen IgG consistent with EBV infection. Additionally, a <1 cm focus of subcortical heterotopia was noted on brain MRI. IV methylprednisolone was administered which led to marked improvement with ability to track objects by day two of treatment. The patient was eventually discharged on a 10-day prednisolone taper and referred for follow-up with outpatient ophthalmology.

Discussion

Epstein-Barr virus is an exceptionally rare etiology of optic neuritis in children and may be considered in the primary workup in addition to MRI, lumbar puncture, autoimmune studies, and other infectious panels. A combination of visual and CNS changes can be observed, but these findings may be complicated in the pediatric population, due to difficulties obtaining a detailed history. It is important to inquire about CNS symptoms such as somnolence, headache, and ataxia in combination with classic visual findings such as papilledema, mydriasis, and vision loss. The current state of treatment includes corticosteroids, which have been shown to accelerate symptom resolution. This case highlights the important role of EBV workup in pediatric optic neuritis and the wide variety of history and physical findings present as well as the role of treatment in recovery.

Abstract #62: A CASE OF MYCOPLASMA-ASSOCIATED ANTI-N-METHYL-D-ASPARTATE RECEPTOR ENCEPHALITIS

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Introduction

Pediatric encephalitis is challenging to evaluate and treat given the variability of presentation. An etiology is identified in less than 50% of cases. Many studies reveal Mycoplasma pneumoniae as a common infectious agent. Anti-N-Methyl-D-Aspartate receptor (ANMDAR) encephalitis is an autoimmune condition that often manifests as a paraneoplastic phenomenon. However, the majority of affected pediatric patients do not have an associated neoplastic antigenic stimulus. There have been few documented cases of ANMDAR+ patients with serologic evidence of Mycoplasma infection. Here we present a 2-year-old with ANMDAR encephalitis secondary to M. pneumoniae.

Case Description

A previously healthy 2-year-old female presented to the PICU with altered mental status, choreoathetoid and repetitive orofacial movements. Comprehensive autoimmune work-up was pending when M. pneumoniae serum IgM antibody was confirmed. MRI of brain and spine were normal with no demyelinating lesions. With concern for Mycoplasma-associated encephalitis, high dose corticosteroids, IVIG, and plasmapheresis were initiated. Her dyskinesia and dysautonomia persisted, requiring multiple psychotropic medications. Once ANMDAR antibodies were detected in the cerebral spinal fluid, second line therapy with weekly rituximab, biweekly IVIG, and high dose corticosteroids were initiated. CT abdomen and pelvis revealed no evidence of tumor. Clinical improvement may take up to 2 years following aggressive immunomodulating therapies. Our patient remains in critical condition and continues to be closely monitored for improvement.

Discussion

The recognition of M. pneumoniae and ANMDAR encephalitides as common causes of infectious and autoimmune encephalitis respectively, underscores the need for ongoing surveillance for Mycoplasma as an antigenic trigger for ANMDAR encephalitis. Mycoplasma is ubiquitous, making it challenging to identify it as a causative agent. The possibility of concomitant infectious and autoimmune encephalitis suggests that an infectious agent should not be accepted as the sole explanation. Strong consideration for an autoimmune etiology, even at initial presentation, will lead to early diagnosis, early treatment, and optimistically, better neurologic outcomes.

Abstract #64: BEYOND FEVER, HEADACHE, AND RASH: EHRLICHIA MENINGOENCEPHALITIS AND SEVERE SEPSIS

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Introduction

Ehrlichia Chaffeensis is the intracellular bacteria transmitted to humans primarily via the bite of an infected tick. Ehrlichiosis, the disease caused by the bacteria, often presents as the classic triad of fever, headache, and rash.

Case Description

A 15-year-old male was found unresponsive after four days of fever, anorexia, and vomiting. He arrived to the emergency department in decerebrate posture with GCS of five, seizure-like activity, and severe sepsis. Continuous vasopressors support and endotracheal intubation were initiated. CSF revealed an abnormal WBC count, 471 cells/cmm; elevated protein, 320.7 mg/dL; low glucose, 37 mg/dL; culture was negative. Empiric antimicrobial therapy, including doxycycline, was initiated due to hyponatremia, thrombocytopenia, and presentation in the summer months. Brain MRI demonstrated diffuse dural enhancement consistent with meningitis. EEG revealed generalized slowing without evidence of seizure. A petechial rash was noted on dorsal aspect of hands and feet on day two of hospitalization (day six of illness) which migrated proximally. Ehrlichia chaffeensis IgG titer was positive at 1:4096. A 14-day course of doxycycline was prescribed for tick-borne illness. Severe sepsis and hemodynamic instability resolved and extubation was successful on day six of hospitalization. The patient remained severely neurologically compromised: non-verbal and disoriented without memory intact. On hospital day 15, the patient was stable for transfer to an inpatient rehabilitation facility with concern for impaired mobility, gait, cognition, apraxia, and impulsive behavior. After 21 days of inpatient speech, occupational, and physical therapy, he was discharged home. Increased agitation, impulsivity, and poor cognition persisted 45 days after onset of illness.

Discussion

Ehrlichiosis typically presents with mild to moderate symptoms but can progress rarely to severe sepsis, meningoencephalitis, and death. Early recognition and treatment are key to preventing rapid progression of illness. Tick-borne infection should be suspected in cases of fever, altered mental status, and/or rash without a known source. Treatment is often delayed due to missed recognition of illness and delayed laboratory confirmation. While significant improvement was observed in this case, neurological and behavioral impairment persisted despite treatment.

Abstract #65: MULTISYSTEM INFLAMMATORY SYNDROME IN CHILDREN PRESENTING AS ACUTE ACALCULOUS CHOLECYSTITIS

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Introduction

Multisystem Inflammatory Syndrome in Children (MIS-C) is a rare, hyperinflammatory complication of SARSCoV-2 infection. The diagnostic criteria established by the CDC require fever, laboratory evidence of inflammation, clinically severe illness requiring hospitalization with multisystem organ involvement, and evidence of current or recent SARS-CoV-2 infection.

Case Description

A previously healthy eight-year-old male without clinical history of SARS-CoV-2 infection presented to the pediatric emergency department with a three-day history of fever and abdominal pain and was found to have acute acalculous cholecystitis. He quickly developed hyperinflammatory shock and had positive SARS-CoV-2 serology. Following treatment with intravenous immunoglobulin (IVIG) and high dose corticosteroids, his fever and shock quickly resolved. Acalculous cholecystitis resolved within two weeks of IVIG administration.

Discussion

Presentations of MIS-C vary significantly and some documented cases more closely resemble severe COVID-19 or Kawasaki Disease vasculitis. This case is clinically and phenotypically distinct and represents the newly recognized hyperinflammatory physiology unique to MIS-C. It is important for clinicians who encounter any inflammatory disease processes in children, including acalculous cholecystitis, to include MIS-C in the differential diagnosis.

Abstract #66: ACUTE MYOCARDITIS IN MULTI-SYSTEM INFLAMMATORY SYNDROME IN CHILDREN: MANIFESTATIONS AND MANAGEMENT

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Introduction

Multi-system Inflammatory Syndrome in Children (MIS-C) is a rare, but dangerous, immune response triggered by SARS-CoV-2 virus (COVID-19). This case illustrates a pediatric patient who became critically ill with cardiogenic shock due to acute myocarditis secondary to MIS-C.

Case Description

An 11-year-old female presented to the hospital with a six-day history of fever, emesis, diarrhea, headaches, and rash. She also had anosmia following direct exposure to COVID-19 a month prior to presentation. She was in septic shock, which responded to fluid resuscitation. Initial lab work was pertinent for leukocytosis with neutrophilia, mild thrombocytopenia, acute kidney injury, metabolic acidosis, and coagulopathy. CRP was elevated to 31.39 mg/dL. Viral PCR testing was negative for common pathogens and COVID-19. Serum COVID19 antibodies were positive. BNP, CK, and Troponin I levels were elevated at 2669 pg/mL, 308 U/L, and 0.47 ng/mL, respectively. Echocardiogram (echo) showed moderate biventricular systolic dysfunction without coronary artery changes. Critical care, Infectious Disease, and Cardiology were consulted with agreement to initiate treatment, which included aspirin 81 mg once daily, methylprednisolone 30 mg/kg IV once followed by 30 mg IV Q12h for 5 days, with taper, IVIG 2g/kg once, and empiric Ceftriaxone for 7 days. She was transferred to the pediatric intensive care unit (PICU) within 12 hours of admission due to becoming critically ill. In the PICU, she was electively intubated and treatment with dopamine 5mcg/kg/min and milrinone 0.5mcg/kg/min was initiated. Her clinical status deteriorated over the next 12 hours, warranting advancement from conventional to high-frequency oscillatory ventilation and placement of a Swan-Ganz catheter. Her inotropes were changed from dopamine to low-dose epinephrine at 0.3mcg/kg/min and milrinone to 0.75mcg/kg/min with significant improvement in cardiac function the following 24 hours. Repeat echo obtained on hospital day five showed an improvement in cardiac function and the patient was extubated on day six. She was transferred to the general floor with steroid taper initiated on day eight. A final echo done on hospital day nine showed normal function and she was discharged with close follow-up with primary care, Infectious Disease, and Cardiology.

Discussion

This case report illustrates the importance of prompt detection of MIS-C and urgent intervention in the setting of cardiac dysfunction. As a syndrome that causes rapid onset multi-system organ failure with unclear immunopathogenesis, interdisciplinary collaboration will be essential when planning treatment of MIS-C and its complications and can even result in a complete resolution of the disease processes.

Abstract #68: NEUROBLASTOMA RESEMBLING EXTRALOBAR PULMONARY SEQUESTRATION AND CONGENITAL PULMONARY AIRWAY MALFORMATION

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Introduction

Extralobar pulmonary sequestration (ELS) and Congenital Pulmonary Airway Malformation (CPAM) are benign congenital pulmonary pathologies that can present with similar findings. Affected patients can be clinically asymptomatic, but also can present with a cough, cyanosis or respiratory distress. Treatment varies from careful observation to requiring surgical resection. This case report illustrates a presentation of a newborn with initial suspicion of neuroblastoma that eventually led to the final diagnoses of ELS and CPAM Type 2.

Case Description

A mother presented to her 5-month prenatal visit with fetal ultrasound imaging revealing a mass in the left lung base concerning for pulmonary sequestration. A post-natal abdominal ultrasound was performed with possible evidence for subdiaphragmatic pulmonary sequestration; however, a neoplastic mass could not be ruled out. CT imaging of the chest, abdomen, and pelvis were obtained to investigate further and revealed a 3 cm x 2 cm x 5 cm mass suspected to originate from the left adrenal gland that partially encased the celiac artery, superior mesenteric artery and possibly the right and left crus of the diaphragm and demonstrated concern for neuroblastoma. Additionally, a separate lesion was visualized at the left costophrenic angle that was suspicious for possible metastasis. Hematology-Oncology and General Surgery were consulted and surgical resection of the mass was arranged. Left adrenalectomy was performed without complications and the mass was sent for histopathologic evaluation. This revealed the mass contained irregular and dilated cysts with ciliated columnar cells, alveoli components, and a systemic blood supply. The diagnosis was confirmed as ELS. Additionally, the pathologist noted that it closely resembled CPAM Type 2 given the presence of maldeveloped lung parenchyma with microcystic changes. Further treatment was not necessary following surgical resection.

Discussion

Features of CPAM include a pulmonary vascular supply, unilateral involvement, cysts lined by ciliated columnar or cuboidal cells, and alveoli or bronchiole components. ELS has mostly left lung involvement, a systemic vascular supply, and abnormal pulmonary tissue. When features from both pathologies are present, as in this case, it is termed a hybrid. Though initial imaging alluded to a neuroblastoma and resulted in an adrenalectomy, ultimately, histopathologic evaluation of the mass revealed its true identity. The prognosis is good in this case, mostly because a resection was performed rather than close monitoring and follow up. This case emphasizes the differences between CPAM Type 2 and ELS as well as highlights the fact that these conditions can present together.

Abstract #75: SUCCESSFUL DIAGNOSIS AND EMBOLIZATION OF VEIN OF GALEN MALFORMATION

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Introduction

Vein of Galen malformations (VOGMs) are rare intracranial vascular lesions that represent approximately 30% of vascular malformations in the pediatric population. VOGMs often consist of multiple arteriovenous collaterals that drain into a dilated median cerebral venous collector. The underlying anatomy and hemodynamics of the VOGM predict the clinical signs and age of presentation. In the neonatal period and early infancy, presentation often consists of high-output cardiac failure secondary to high-flow arteriovenous shunting to the right atrium. Treatment decisions are dictated by the degree and timing of symptoms. In this report, we discuss the diagnosis and treatment of a young infant who presented with congestive heart failure.

Case Description

A previously healthy 5-week-old full term female infant presented to the emergency department with new onset lethargy and bleeding from the nose. She was found to have lactic acidosis and required endotracheal intubation due to respiratory failure. Concerns for child abuse prompted skeletal survey imaging and CT imaging of the head. The skeletal survey revealed cardiomegaly, concerning for congestive heart failure. CT imaging of her head revealed concerns for a VOGM, which were subsequently confirmed with an MRI. An MRA found multiple abnormal tortuous feeding arteries supplying the VOGM. She then underwent emergent endovascular embolization of the right middle cerebral arterial feeders with coils and glue resulting in a 20% reduction in flow across the malformation. Postprocedurally, she was treated with furosemide and her congestive heart failure symptoms improved over the next several days. She was discharged in stable condition with a plan for second stage embolization at 6 months of age. Due to sustained improvement in clinical symptoms of heart failure and age-appropriate neurological development, subsequent endovascular embolization was delayed allowing time for further growth and development. She underwent successful completion of staged embolization at 15, 17, and 23 months and maintained appropriate development at 2year follow up.

Discussion

Vein of Galen malformations are rare vascular lesions primarily diagnosed in pediatric patients. Neonates or young infants presenting with signs or symptoms of congestive heart failure should prompt consideration of this diagnosis. Historically, VOGMs have been associated with very high mortality and morbidity rates; however, advances in endovascular embolization have led to improvements in these areas. Despite these advances, approximately one-third of treated patients will die or have significant neurological deficits. This case highlights the successful diagnosis and treatment of a VOGM that resulted in age appropriate neurological development.

Abstract #89: SUBDURAL HEMATOMA REBLEEDING AND THE CONCERN FOR ACUTE ABUSIVE HEAD TRAUMA

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Introduction

Acute brain trauma may lead to liquid and clotted blood, which can form a membrane and which may become a chronic bleed. Chronic subdural hematomas contain friable vessels predisposing them to rebleeds. A known complication in children with abusive head trauma (AHT) with subdural hemorrhages is repeat bleeding into existing hematomas. These rebleeds are often incidental radiological findings. Children presenting with rebleeds into existing chronic subdural hematomas are typically without neurological symptoms. When a child does show symptoms from a rebleed, the symptoms develop over days as the hematoma expands causing increased intracranial pressure and associated mass effect.

Case Description

A 9-month-old male with a history of AHT, including retinal damage, seizures, dysphagia, and subdural hematomas presented to the Pediatric Intensive Care Unit for post-operative monitoring following neurosurgery for subdural drain placement & burr holes. He underwent this procedure after a routine MRI demonstrated progression of his existing subdural bleeds. Child Abuse Pediatrics was consulted due to concerns for a new abusive event. Medical history was negative for recent trauma. Social history revealed good compliance with recommended medical care and a stable kinship foster care placement. Physical exam was notable for surgical dressings over burr holes. Per the neurosurgeon's interpretation of both the MRI and the nature of the blood evacuated during surgery, the existing subdural hematomas had progressed, indicating the bleed was not from an acute separate trauma. Physical abuse and subsequent new subdural hematoma were ruled out and a diagnosis of chronic subdural hematoma rebleed was made based on lack of clinical symptoms, normal physical exam, and the neurosurgeon’s report.

Discussion

Subdural hematomas, specifically those caused by abusive injury, are challenging for clinicians due to their potential for lifelong physical sequelae and social consequences. Subdural hematoma rebleeding is welldocumented in the literature and must be considered when presented with a subdural bleed. Failure to consider rebleeding as an etiology of acute subdural hemorrhage may result in child protective services or law enforcement involvement which increases social, emotional, and psychological strains on both the child and family. Clinicians must take detailed social histories for children with a history of abusive head trauma. Routine imaging is part of the surveillance required for victims of abusive head trauma, and should be evaluated critically regarding the significance of the findings of new trauma versus a progressive rebleed.

Abstract #98: SIMULTANEOUS BARTONELLOSIS AND TOXOCARIASIS IN AN IMMUNOCOMPETENT PEDIATRIC PATIENT

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Introduction

Toxocariasis and Bartonellosis are uncommon infections caused by roundworm parasite, Toxocara species, and intracellular gram-negative bacillus, Bartonella henselae, respectively. Toxocara cati is associated with feline feces and B. henselae with cat scratches or bites. Seroprevalence of Toxocara ranges from 5.1–13.9% in the United States, and the incidence of B. henselae is 6.4 cases per 100,000 in the Southern US, and highest in children from ages 5 to 9 years. Typically, these infections are self-limited, but can have severe manifestations in immunocompromised patients.

Case Description

A 5-year-old male with a history of asthma and allergic rhinitis presented to clinic with one month of increasing left-sided painful cervical lymphadenopathy with fatigue, diarrhea, night sweats, decreased appetite and bone pain. A week prior, he presented to the ED for increased swelling of the area, concerning for an abscess. WBC, hemoglobin, platelets, electrolytes, CRP and ESR were all unremarkable. Bartonella testing was negative. Ultrasound was consistent with prominent lymph nodes. Amoxicillin was started for suspected lymphadenitis. At outpatient follow-up from the ED, the mother reported the mass began as a small bump on his neck, and had not improved. Amoxicillin-clavulanate was started with referral to Pediatric ENT. Lymph node excision was completed and pathology was benign, with reactive follicles and loose granulomatous inflammation. Special stains were negative for fungal and acid-fast organisms. At later follow-up with Pediatric Infectious Diseases, the patient presented with new, right-sided cervical lymphadenopathy and fatigue. On further questioning, the family owned three cats that often scratched the patient, who was also tasked with cleaning the litter box. Of note, one female cat recently had a litter of kittens that all died of unknown cause. Labs demonstrated an isolated eosinophilia of 1386 cells/µl, and an elevated IgE of 1964 kU/L. Initial toxoplasma IgM was negative, but repeat testing was positive. Bartonella IgM was negative, but IgG was positive at a 1:64 ratio. The patient improved after being treated with azithromycin for 5 days, rifampin for 14 days for Bartonella, and albendazole for 5 days for concurrent Toxocariasis.

Discussion

This case illustrates the importance of obtaining a careful history regarding animal exposures. While the presence of two concurrent zoonotic infections is uncommon, this case highlights the potential in the presence of risk factors. Enlarged lymph nodes with systemic symptoms in pediatric patients require thorough work-up; however, providers must remember the value in a thorough history and physical and broad differential.

Abstract #110: SYMPTOMATIC CONGENTIAL EPULIS REQUIRING EXCISION

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Introduction

Congenital Epulis (CE) is a benign granular cell tumor with a worldwide incidence estimated at 6 per 100,000 live births. Of the infants born with CE, 10% have been found to have more than one mass. CE is characterized by a 9:1 female to male ratio. Due to the female predominance, it is believed that the etiology of the tumor may be hormonal in nature. Spontaneous regression often occurs. However, CE may cause clinically significant symptoms including failure to thrive due to difficulty feeding and asphyxiation. This case illustrates a circumstance that necessitates surgical intervention due to functional difficulties.

Case Description

A 2-week-old girl was referred to otolaryngology for evaluation and treatment of an oral cavity mass. The child was born at 39w2d at 8lb 1oz via spontaneous vaginal delivery without complications. She was noted to have two right-sided maxillary soft tissue masses at birth that did not affect breastfeeding at that time. Subsequent follow-up revealed difficulty feeding and weight loss without difficulty breathing. Examination of the oral cavity demonstrated a pedunculated 2x2 upper right-sided gingival mass with the appearance of CE. No other congenital abnormalities were present. The patient underwent excision of the mass without complications. The patient resumed breastfeeding immediately post-operatively without difficulty. The mass was subjected to histopathologic examination and demonstrated a 1.8 x 1.1 x. 0.7 cm mass of ovoid tan tissue from the alvelolar bridge. Microscopic examination exhibited cells positive for CD68 and negative for S100, desmin, smooth muscle actin, and pankeratin. This was consistent with diagnosis of congenital granular cell epulis.

Discussion

CE is a rare, benign granular cell neonatal oral tumor. These tumors have immunohistochemistry consistent with granular and interstitial cell lineage and differ from adult granular cell tumors. The tumors often appear pedunculated and covered by oral mucosa on the upper jaw, particularly on the right side at the alveolar ridge. They do not involve the incisors or canine teeth. CE varies in size and is often a single mass. The decision to undergo surgical intervention is often made in the presence of larger masses. Larger masses can cause functional difficulty and potentially life-threatening complications. Smaller masses often cause no functional complications and will spontaneously regress. There is no evidence of recurrence in CE after surgical intervention or spontaneous regression. Our patient suffered difficulties with feeding and weight gain secondary to CE. Removal of the tumor allowed return to normal function.

Abstract #122: ACUTE PARALYSIS AND HYPOKALEMIA AS AN INITIAL PRESENTATION OF GRAVES' DISEASE THYROTOXICOSIS

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Introduction

Graves' disease is an autoimmune disease that affects multiple systems, including the thyroid, skin, and eyes. The most common cause of Graves' disease is hyperthyroidism, which affects almost all patients with the disease over time. It is caused by thyrotropin stimulating receptor autoantibodies, which activate the receptors and stimulate excessive thyroid hormone synthesis and secretion. Thyrotoxicosis is when the hyperactive thyroid leads to symptoms that develop gradually over time, such as tachycardia, weight loss, diarrhea, pretibial myxedema, proptosis, and even electrolyte abnormalities, such as hypokalemia. Initial treatments includes symptomatic care with beta blockers, such as Atenolol until thionamides can be started, or radioiodine ablation or surgery can be performed.

Case Description

A 16-year-old previously healthy male with no significant past medical history presented to the emergency department with complaints of acute upper and lower extremity paralysis upon waking. Vital signs were significant for tachycardia with a heart rate of 130 bpm and hypertension with a blood pressure of 149/96. Initial laboratory screening revealed a potassium level of 2.3, which was replaced intravenously and patient was subsequently admitted to the children's hospital for further work-up and management. On admission, thorough history revealed that patient had frequent school absences due to diarrhea and chills. Physical exam revealed a well-appearing male with tachycardia, but no other abnormal findings. Further evaluation of electrolytes, renal function, and thyroid studies revealed a significantly decreased TSH (<0.01), elevated Free T4 (2.8) and increased anti-thyroglobulin (>1000), thyroid peroxidase (378), and thyroid stimulating antibodies (19.5), in the setting of normal renal function and electrolytes. Pediatric Endocrinology was consulted and recommended thyroid imaging in addition to starting Atenolol 100 mg daily. Thyroid ultrasound revealed hypervascularity without thyroid nodules and thyroid uptake scan showed elevated iodine uptake, confirming the diagnosis of Graves' disease.

Discussion

Graves' disease is an autoimmune disease that affects multiple organ systems in the body, and can have varying clinical manifestations. Hypokalemia is a potentially life-threatening, but reversible medical emergency, and should be corrected prior to obtaining thyroid studies. Hypokalemia in other studies of acute paralysis in the setting of thyrotoxicosis are caused by intracellular shifts of potassium initiated by thyroid hormone sensitization of Na+/K+ ATPase. Thus, this patient's presentation with acute paralysis and hypokalemia was atypical, but the cause of his hypokalemia and acute paralysis was a result of increased thyroid hormone secretion from his thyrotoxicosis.

Abstract #141: UNMASKING HEREDITARY HEMOCHROMATOSIS WITH CFTR MODULATOR THERAPY

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Introduction

Cystic fibrosis (CF) is a genetic condition affecting the excretion of chloride, resulting in multisystem organ damage. Triple CFTR modulator therapy (elexacaftor/tezacaftor/ivacaftor) represents a promising option for many patients with CF. Pre-marketing trials reported about a 10% incidence of elevations in liver transaminases, warranting close monitoring. This report reviews a case in which the workup of unusually elevated liver enzymes uncovered an underlying disease process, altering the management of CF in this patient.

Case Description

A 16-year-old male with CF (F508Del/Q493X CFTR mutations) was started on triple CFTR modulator therapy. Prior to starting treatment, it was noted that he had mild transaminitis with AST 69, ALT 120, Total bilirubin 0.4. At Week 8 of therapy, he complained of abdominal pain, body aches, and fatigue with AST 170 and ALT 416 and creatinine kinase elevated at 12-times previous. A dose reduction led to a decrease in AST (68) and ALT (128), but elevated total bilirubin (2.2mg/dl) and direct bilirubin (0.5mg/dl) warranted a liver ultrasound and biopsy. Pathology showed fatty liver and hepatocyte iron deposition, but no indications of cirrhosis. Iron studies and genetic testing confirmed a diagnosis of HH (Homozygous HIS63ASP gene mutation). After stopping triple CFTR modulator therapy, AST and ALT continued to rise and his lung function dropped significantly back to baseline. Persistent transaminitis prompted evaluation, with hematology attributing elevated ferritin to chronic inflammation and hepatology ruling out other causes of elevated transaminases and confirming HH diagnosis. Recommendation was for the patient to restart therapy at a modified dose to help improve his diminished lung function and titrate up as tolerated by his liver, maintaining Child-Pugh score below level C.

Discussion

Hereditary hemochromatosis gene mutations have been shown to modulate CFTR gene mutations, affecting the CF disease phenotype and negatively affecting pulmonary function and gastrointestinal disease. In this case, the introduction of a new medication instigated further work-up of unusually elevated liver enzymes, leading to the discovery of a critical underlying genetic disorder in this patient. Although elevated hepatic transaminases can be expected from basic CF liver involvement and CFTR modulator therapy, further investigation may be indicated in patients with persistent elevations despite medication adjustments. This workup may lead to discovery of underlying liver disorder and further important considerations relating to the balance of liver function with lung function.

Psychiatry

Abstract #50: SEIZURE RELATED PSYCHOSIS IN PREGNANCY – A CASE REPORT

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Introduction

Treating psychosis is complicated when there is a co-occurring seizure disorder and treating both in pregnancy is even more complex. Postictal psychosis (PIP), an episode of psychosis occurring after a cluster of seizures, is common and may be associated with significant morbidity, including chronic psychosis. Symptoms often involve a range of psychotic symptoms, including hallucinations, and disorders of thought process. PIP is characterized by an episode of psychosis occurring within one week after a cluster of seizures.

Case Description

Ms. Z is a 19-year-old G1P0, 7-month pregnant female who presented for her 7th involuntary psychiatric hospitalization in the past 6 months for psychosis and a recent EEG finding of epileptiform seizure activity. She was admitted for disorganized behavior, harm to self, harm to others and harm to her unborn baby. Testing and laboratory data—30 minute EEG was abnormal with seizure foci in the parietal lobes most predominantly the left parietal lobe. CT Head was unremarkable. CBC, CMP, TSH, EKG and UA were unremarkable, UDS negative, HCG positive and consistent with current trimester. Symptoms were new onset 7 months ago, that occurred after she fell and hit her head roughly 1 year ago. During prior hospitalizations, her psychosis was treated adequately; however, her seizure disorder was not adequately treated with anti-epileptic medication until the 7th hospitalization. During the hospital course, she presented with what appeared to be prolonged post-ictal activity by evidence of altered mental status with amnesia. She exhibited intense aggression, where she hit other staff members and would repeatedly punch her unborn baby requiring 1:1 staff monitoring. Psychosis, seizure and aggressive symptoms were stabilized with Zyprexa 10 mg BID and Lamictal 100 mg daily. Baby was delivered safely without complications 2 months later and Ms. Z was able to stay out of the hospital for roughly a year after this hospitalization.

Discussion

Untreated seizures in pregnancy increases risk of mortality for both the mother and fetus. Untreated psychosis increases the risk of harm to the mother and the fetus. Ms. Z required multiple hospitalizations related to not having both her seizures and psychotic symptoms adequately treated. This was complicated by Ms. Z's initial refusal of treatment, questionable compliance with medications and poor adherence to outpatient follow-up. During pregnancy, it is important to treat women with epilepsy and psychosis with an appropriate med regimen while weighing risks vs. benefits.

Abstract #69: MEDICAL COMORBIDITIES FOLLOWING COMPLEX CHILDHOOD TRAUMA

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Dr. Tara Buck – OU-TU School of Community Medicine, Department of Psychiatry

Introduction

Adverse childhood experiences (ACEs) are common. ACEs such as physical abuse, sexual abuse, and neglect can predict potentially severe long-term sequelae, including the development of medical conditions and chronic somatic concerns at higher rates than peers that did not experience ACEs. It can be difficult for physicians to distinguish troubling but benign functional conditions from more serious medical conditions that require further evaluation and treatment.

Case Description

An 18-year-old female who first presented to psychiatric care at age 7 and was subsequently diagnosed with ADHD, complex PTSD, conversion disorder, and reactive attachment disorder. Her trauma exposure began as an infant when her mother burned their home down, leaving her inside. She later sustained repeated physical and sexual abuse by family members after her mother temporary regained custody following her release from incarceration for arson. Her genetic load of psychiatric illness is high as both of her biological parents reportedly have bipolar disorder. From the time of her presentation to the present, she has developed a number of medical conditions, including asthma, recurrent abdominal pain, STIs, seizures, narcolepsy, and cataplexy. Given significant daytime somnolence, polysomnography with multiple sleep latency test confirmed narcolepsy, which has been well controlled with Adderrall. She has also experienced sudden falls with transient loss of consciousness consistent with cataplexy that have improved with citalopram. She has had multiple presentations to the emergency department for abdominal pain; all GI and gynecologic exams, laboratory studies, and imaging have been reassuring. Moreover, she underwent a neurological evaluation after experiencing seizure-like activity. Video EEG findings contributed to the diagnosis of psychogenic non-epileptic seizures (PNES), likely secondary to conversion disorder. She is currently doing well and has a good psychiatric prognosis. Her resiliency can likely be attributed in part to her long-standing engagement with psychiatric and medical care, as well as psychotherapy; her psychological mindedness; her intelligence; and a strong support system since her adoption at age 12.

Discussion

This case demonstrates how ACEs predict the development of medical conditions that may undermine one's psychiatric stability and necessitate markedly increased healthcare utilization. This population most commonly seeks medical attention for gastrointestinal, endocrine, and dermatologic conditions. Healthcare costs as adults are also positively correlated to the number of ACEs sustained. Future research should work to optimize recognition and early intervention of somatic complaints that may represent medical conditions in young people with ACEs.

Abstract #93: URINARY RETENTION IN CATATONIA: AN ATYPICAL PRESENTATION

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Introduction

Catatonia is a disease that has multiple atypical presentations. The more common and hallmark symptoms of catatonia are waxy flexibility, mutism, grimacing, posturing, stupor, cataplexy, negativism, echopraxia, and echolalia. However, there are also multiple symptoms not usually thought to be associated with catatonia, including agitation, excitement, bizarre behaviors, and, in this case, urinary retention. Urinary retention is an understudied symptom of catatonia, which, if severe enough, can lead to confusion in detecting some of the more traditional signs of catatonia, including verbigeration, mutism, echolalia, stupor, posturing, and grimacing. These symptoms can be sometimes diminished or eliminated due to the patient responding to pain, or mistakenly attributed to the patient's pain response.

Case Description

A 59-year-old Caucasian male with no past psychiatric history presented with new onset of depression and psychosis defined by nihilistic delusions. The patient was also refusing to eat or drink, and was reported to have a restricted affect at home. However, on initial exam, he was grimacing and writhing in pain due to abdominal pain with diffuse tenderness. After his bladder was drained of 1.2 L of urine, the patient did not have abdominal pain, but continued to exhibit repeated urinary retention requiring intermittent catheterization, restricted affect, increased sleep, and decreased appetite, along with continued nihilistic delusions, despite a three trial of sertraline and quetiapine for presumed major depressive disorder with psychosis. He then responded to a lorazepam challenge, clarifying the diagnosis of catatonia. He responded well to a daily regimen of lorazepam, along with continuation of the sertraline and quetiapine. He was more active, able to eat and urinate without difficulty, and did not have nihilistic delusions after the lorazepam was added and titrated to an effective dose. His urinary retention resolved after initiation of lorazepam, and he was discharged without residual symptoms on Ativan 1.5 mg PO TID.

Discussion

Catatonia can present with a wide array of symptoms. However, some of these symptoms can be masked by a patient's response to pain. In patients presenting with significant pain and inability to communicate the origin of that pain, it is important to keep catatonia on the differential. Furthermore, certain causes of pain can be symptoms of the patient's catatonia, such as urinary retention. Therefore, all patients with catatonia should be screened for urinary retention, and all patients with altered mental status and urinary retention should be screened for catatonia.

Abstract #111: A CASE REPORT OF ACUTE PHENIBUT TOXICITY AND WITHDRAWAL

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Introduction

Phenibut (β-Phenyl-γ-Aminobutyric Acid) is a nootropic, GABAB receptor agonist, analogous to Baclofen. It is prescribed by several European countries for a variety of mood and anxiety disorders. It is not approved for clinical use in the United States, but easily obtainable from supplement stores via the Internet. There are growing numbers of case reports describing Phenibut toxicity, dependence and withdrawal. At this time, there are no established management guidelines. Thus, treatment depends on review of the literature and what case studies are available. We present a case of acute Phenibut toxicity and management of Phenibut withdrawal with Baclofen in a young adult male.

Case Description

Mr. P is a 21 year old male being treated by a psychiatrist for Major Depressive Disorder, Generalized Anxiety Disorder and Post-traumatic Stress Disorder. He was prescribed Phenelzine, Zolpidem, Armodafinil for these conditions. He also has an established history of abusing stimulant, opiate and sedative medications. The patient had not been sleeping and was intermittently agitated and erratic. He was brought to the hospital by EMS. En route to the hospital, the patient attempted to gouge his eyes out and required Valium and physical restraints. His agitation resolved and the patient admitted to using Phenibut in combination with his prescribed medication. According to the family, the patient had been taking these substances rectally. The patient estimated taking 3 g of Phenibut daily for weeks-months. He was started on Baclofen 5 mg three times a day, and tapered over the course of five days. The remainder of his hospital course was uneventful, and he completed the taper in the outpatient setting.

Discussion

Phenibut is an easily accessible substance with a demonstrated potential for abuse, dependence and withdrawal. It is most often used for its sedating and euphoria-inducing properties. Withdrawal has been reported by users after only a few days of consecutive use and has been described as similar to withdrawal from alcohol. Various medications have been used to manage Phenibut withdrawal including Gabapentin, Phenobarbital, benzodiazepines and Baclofen, chosen for their GABA-ergic properties. In this case we chose Baclofen, whose chemical structure is closely analogous to Phenibut. This patient's course was uneventful, but adds to the growing literature of Phenibut abuse, and raises the question of whether the distribution of this nootropic should be more closely monitored and regulated.

Abstract #137: LITHIUM: TO CONTINUE OR DISCONTINUE WITH END STAGE RENAL DISEASE

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Introduction

Lithium is first line treatment for Bipolar Disorder since 1970, but has potential side effects that require frequent laboratory monitoring. Lithium is eliminated through the kidneys and long term use can lead to renal damage. The prevalence of end stage renal disease in patients on lithium is 1.5%. Risk factors include increase duration of lithium, age, lower initial eGFR, female gender, cumulative lithium dose, lithium toxicity, and use of other nephrotoxic medications.

Case Description

A 77 year old male stable on lithium for Bipolar Disorder for many years presented to the hospital. At 65 years old, the patient's kidney function started to deteriorate with an increase in creatinine to 1.4 mg/dL and his outpatient psychiatrist transitioned him from lithium to another mood stabilizer. With other medication trials, the patient experienced a manic episode that lead to a serious suicide attempt. The patient was restarted on lithium and his mood symptoms resolved. The patient was educated on the risks of continuing lithium to his renal function and ultimately chose to continue for purpose of mood stability. Over time his creatinine increased and at 77 years old it jumped to 4.73 mg/dL. He was started on hemodialysis for end stage renal disease. The inpatient Psychiatric Consultation-Liaison team was consulted to determine if lithium should be continued. The patient had intermittent episodes of sedation and confusion that raised concern for possibility of lithium toxicity occurring between dialysis sessions. There were no significant physical examination findings. The decision was made to discontinue lithium and monitor closely for mood instability. The patient was on olanzapine and this was continued as primary medication for mood stability.

Discussion

The current recommendations for lithium renal monitoring is measurement of serum creatinine and eGFR at the start of treatment, with dosage changes, and subsequently at three to six month intervals when on a stable dose. It is recommended patients have further work up if a rise in creatinine occurs on three or more occasions. Further work up should include a urinalysis for hematuria and proteinuria, a review of the medical history for cardiovascular, urological and current medications, and an assessment of blood pressure control. Current research suggest to dose lithium post dialysis with daily monitoring of lithium levels for at least 2 weeks when beginning dialysis. Further research is needed to establish guidelines with lithium use and dialysis in regards to treatment and lithium level monitoring.

Surgery

Abstract #46: USE OF DAMAGE CONTROL LAPAROTOMOY IN BLUNCT TRAUMA, AN UNUSUAL INJURT PRESENTATION

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Dr. Jeremy Carrico – OU-TU School of Community Medicine, Department of Surgery

Introduction

Damage control laparotomy (DC) is an operative strategy used in the most severely injured patients. In the case presented, DC was performed on a patient who had been involved in a motor vehicle crash (MVC). The injuries identified at the initial operation included massive abdominal hemorrhage, avulsion of the sigmoid colon, and a complete ureteral transection. This is an unusual injury in that complete ureteral traumatic disruption occurs in less than 1% of blunt force trauma victims. We will discuss the role of DC to identify and stabilize injuries in the patient, as well as the operative management of the right ureteral injury.

Case Description

A 37-year-old male presented to the ED following a high speed MVC. During primary survey his airway was patent, breath sounds were clear bilateral, he was tachycardiac, and his GCS score was 15. He was taken emergently to the OR suite for a DC, at which time a 6cm complete ureteral transection midway between the right renal pelvis and insertion of the ureter into the bladder was identified. During the initial procedure, the right ureter was clipped to control urine leakage. Additional procedures included control of muscular bleeding from the massive destruction of the abdominal wall and resection and staple off of the left colon. The patient was left in discontinuity, the abdomen was temporarily closed, and he was taken to the ICU. After resuscitation and correction of the acidosis, the patient was taken back to the OR for definitive repair. The long gap and missing ureter segment made it impossible for a primary repair via ureteroureterostomy, his bladder was too small for a Boari flap, and the abundant other traumatic injuries and high likelihood of complications made him a poor candidate for transureteroureterostomy and ileal ureteral substitution graft. A lengthy discussion with the family led to the decision for a right nephrectomy.

Discussion

DC is a surgical procedure used in trauma surgery to identify abdominal injuries, control bleeding and contamination, then allow for correction of physiologic derangements such as acidosis, hypothermia, hypoxemia and hypotension. In the case presented, we were able to identify a very uncommon injury pattern of a blunt force ureteral transection. A discussion with the patient's wife followed regarding a complex ureteral diversion procedure vs a right nephrectomy. Due to the significant trauma burden and the complicated ureteral reconstruction techniques required to salvage the right kidney, a nephrectomy was selected.

Abstract #59: COMPLEX CARCINOMA OF THE THORACIC ESOPHAGUS SUCCESSFULLY TREATED WITH IVOR LEWIS ESOPHAGECTOM

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Dr. Geoffrey Chow – OU-TU School of Community Medicine, Department of Surgery
Dr. Stuart Reynolds – OU-TU School of Community Medicine, Department of Surgery

Introduction

The Ivor Lewis Esophagectomy was the first operation designed to resect diseased esophagus. While today it can be accomplished minimally invasively, it is classically a transthoracic (TTE) surgical approach which involved laparotomy, right thoracotomy and right thoracic esophagogastric anastomosis. It is used for cancers in middle and distal esophagus. While esophageal adenocarcinoma is more common in the US, esophageal squamous cell carcinoma (SCC) comprises 90% of esophageal cancer worldwide. Major risk factors for SCC include smoking and alcohol abuse while common presenting symptoms are dysphagia and weight loss. Initial imaging and testing should include EGD with biopsy, CT chest and abdomen with contrast, PET scan, and endoscopic ultrasound. TNM staging is used to determine treatment.

Case Description

A 63 year old man with past medical history significant for alcohol abuse and smoking presented with 2.5 months of dysphagia. CT revealed circumferential thickening of the proximal thoracic esophagus. EGD with biopsy showed a 3 cm, ulcerating, partially obstructing mass 22 cm from incisors. Pathology analysis determined T3N0M0 invasive moderately differentiated SCC of esophagus. PET scan revealed hypoechoic mass in proximal esophagus measuring 2 x 1.8 x 2.4 cm with infiltration into adjacent fat. Patient was started on neoadjuvant chemotherapy and radiation which he completed in three months. One week after completion of neoadjuvant therapy the patient was hospitalized for an esophageal perforation which was treated nonoperatively. Patient recovered and underwent Ivor Lewis Esophagectomy three months later. The abdominal portion of the case was completed minimally invasively while the thoracic portion required a conversion to an open approach due to dense lung adhesions presumably from the previous perforation. Post-operative pathology showed no margin involvement and poorly differentiated SCC in the muscularis propria with no serosa involvement and no lymph node involvement (obtained 15). While the post-operative course was complicated by acute hypoxic respiratory failure, the patient was treated and discharged eight weeks later in good condition.

Discussion

Esophagectomy for cancer is a relatively rare (high volume national centers perform only 12 per year), potentially life-saving operation which carries significant perioperative risks. Despite the development of alternative approaches the proportion of esophagectomies performed via the Ivor Lewis approach is still high (62.4%) due to its benefit of the lowest risk of an anastomotic leak. This case highlights an interesting, successful surgery which is rarely performed in Tulsa. It can be referenced for help in management of future patients.

Abstract #72: POSTPARTUM PSYCHOSIS FOLLOWING TRAUMATIC POSTPARTUM HEMORRHAGE REQUIRING HYSTERECTOMY

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Introduction

Women are at increased risk of developing psychiatric illness in the postpartum time period, including exacerbation of a previous diagnosis or a new psychiatric diagnosis. Postpartum psychosis is one of the illnesses that can emerge and is a true psychiatric emergency. The incidence is 1-2 cases per 1000 births. The etiology of postpartum psychosis is not fully understood and there is little research into this condition when compared to other psychiatric conditions. It has been hypothesized that lack of sleep, previously undiagnosed bipolar disorder, hormone fluctuations, and genetic predisposition can lead to the development of postpartum psychosis. Early identification and treatment of this disorder is essential to the care of patients in the postpartum interval.

Case Description

The patient is a 27-year-old female who presented to the ED with altered mental status. She presented after a recent hospitalization following vaginal delivery complicated by profound postpartum hemorrhage requiring emergent hysterectomy. The patient experienced postoperative PEA, was resuscitated, and underwent exploratory laparotomy with ligation of a uterine vein. She underwent subsequent laparotomies for right colectomy, and a ileum to transverse colon re-anastomosis, and experienced multiorgan failure. Ultimately the patient's organs recovered, she began physical therapy and was discharged home with her husband. The patient subsequently presented to the ED 1 day after discharge for evaluation of delirium in the form of emotional lability, hallucinations, and aggression. The patient's family denied any previous history of psychiatric illness outside of depression previously treated with an SSRI. Patient was followed by psychiatry throughout admission. Medical causes of mania or psychosis were excluded. Patient was started on several psychiatric medications including a benzodiazepine, antipsychotic agents, and lithium. Inpatient psychiatric facilities were full state-wide complicating her care. Over the course of two weeks, the patient's psychosis achieved remission and she became stable enough for discharge home with outpatient psychiatric follow-up.

Discussion

Postpartum psychosis is a high-risk condition with associated suicidality and infanticide when left untreated. This patient was admitted to hospital within 1 day of development of severe symptoms and in that short time was a significant danger to herself and her family. Her complicated surgical course and organ failure may have contributed to the psychosis or masked symptoms before her initial discharge. There is a need for increased research into the etiology of postpartum psychosis to improve the identification of these patients early in the disease course- prior to severe symptom development.

Abstract #80: TENDON AND NERVE REPAIR IN HAND'S "NO MAN'S LAND" USING SURGICAL MICROSCOPE

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Introduction

Flexor tendon injuries between the distal palmar crease to just beyond the proximal interphalangeal joint (zone II) have fascinated hand surgeons for decades. This area of the hand was termed "no man's land" as it was thought that no surgeon should attempt a repair in this area due to the formation of postoperative adhesions in the narrow synovial sheath which invariably led to the loss of finger flexibility. Modern approaches to tendon repair involving meticulous primary repair and early mobilization have led to greatly improved outcomes. Furthermore, processed nerve allografts have recently come into use and they provide an exciting new option for peripheral nerve repair.

Case Description

A 59-year-old male presented with a laceration to the right ring finger after a circular table saw injury. The patient complained of pain, the inability to flex his finger, and numbness. The patient was taken to the operating room. Wound exploration revealed a zone II injury of the flexor digitorum superficialis (FDS) and flexor digitorum profundus (FDP) tendons. Both digital nerves were also cut. The flexor tendons were both retrieved in the proximal incision. The FDS was cut proximally and excised. The FDP was threaded back through the flexor tendon sheath and retracted to allow for nerve repair. The microscope revealed a gap in the digital nerves that could not be primarily repaired. The decision was made to repair the nerves with an Avance 1-2 mm processed human nerve allograft. Proximal and distal repairs were performed with a series of 9-0 nylon interrupted sutures using standard microsurgical techniques. The microscope was brought off the field. The FDP was repaired using a 4-strand core suture tendon repair technique within zone 2. The laceration was then repaired. The patient tolerated the procedure well and there were no complications.

Discussion

This is an interesting case which demonstrates both the repair of a flexor tendon injury that was previously deemed inoperable while also highlighting a nerve repair that uses contemporary biotechnology. The Avance nerve graft was released in 2008 and is currently the only FDA approved processed nerve allograft. Nerve allografts (cadaveric or donor) have been around since 1885, but they were not widely used because of the need for immune suppression therapy after the operation. Avance grafts are novel because they undergo enzymatic processing which kills most of the graft's immune triggering cells while also maintaining its microarchitecture which is critical to nerve regeneration.

Abstract #82: A RARE CASE OF IDIOPATHIC COMMON CAROTID ARTERY ANEURYSM

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Introduction

Extra-cranial carotid artery aneurysms (ECCAs) are uncommon and commonly occur due to trauma, neck interventions or spontaneous. ECCAs may exhibit severe clinical manifestations due to complications and in case of rupture, it can be fatal. We present a case of idiopathic ECCA which was treated surgically

Case Description

Our patient is a 56 year old female with history of hypertension and hyperlipidemia presented to the clinic with right neck pain. She denied any trauma or neck intervention. On examination, she had a right neck mass which was pulsatile with no skin changes. Computerized tomography angiogram (CTA) demonstrated a right internal carotid artery (ICA) aneurysm. To better understand the anatomy, she underwent a cerebral angiogram for operative planning followed by open right neck exploration with neuromonitoring, resection of the ICA aneurysm and primary reconstruction of the ICA. Post-operatively patient remained neurologically intact. Follow up duplex at one month demonstrated patent right ICA

Discussion

The incidence of true ECCAs is generally less than 1% which manifest a due to increase in size of the mass, cranial nerve dysfunction or neurological symptoms. There are five types of ECCA based on location and extend. The treatment of aneurysm depends on the type of the aneurysm which include resection of the aneurysm with primary repair or interposition repair with vein or graft. Endovascular treatment is not well established for repair of true aneurysm but for pseudo-aneurysms. Complications include bleeding, cranial nerve injury, and stroke Ligation of the carotid artery can also be an option in selected cases.

Abstract #83: HYBRID REPAIR OF COMPLEX AORTIC DISSECTION POST OPEN THORACIC ABDOMEN AORTIC REPAIR WITH CERVICAL DEBRANCHIN

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Introduction

Aortic disease (dissection and aneurysm) can extend from thoracic to abdomen aorta which may require emergent treatment. Even after open surgical intervention, there may occur the aortic degeneration and propagation of dissection and aneurysm. We present a case of patient treated with open thoracicabdomen aortic repair for aneurysmal disease, presenting with acute aortic dissection.

Case Description

A 55 year-old male with HTN, HLD, h/o smoking, seizure disorder, history of thoracic aortic aneurysm at outside facility with open TAAA repair with chronic left sided weakness secondary to the surgery admitted with severe back pain. Thoracic and cervical computed tomography angiography (CTA) revealed 5cm aneurysmal degeneration with ulcerated plaque of the thoracic aorta and bovine aortic arch. The patient underwent staged complete debranching of the brachiocephalic arteries, first with right to left carotid-carotid bypass and left carotid to subclavian bypass followed by staged Thoracic Endovascular Aortic Aneurysm Repair (TEVAR) and left subclavian artery coil embolization. Completion angiogram demonstrated total exclusion of the dissection with endograft and left subclavian artery coil embolization, with preservation of the aortic arch vasculature via complete debranching. Follow-up CTA at 1 month demonstrated remodeling of the aorta with no endoleak.

Discussion

There are several classifications of aortic dissection, with Stanford classification commonly utilized. Stanford Type A dissection describes any aortic dissection that involves the ascending aorta, while Stanford Type B is confined to the descending aorta. Urgent open surgical repair of the ascending aorta is recommended for Type A aortic dissection, while medical management with blood pressure control is the mainstay treatment for Type B aortic dissection. Surgical intervention for reserved for complicated aortic dissections, including aneurysmal degeneration. Our patient developed dissection at the anastomotic site of his previous open repair and failed medical management. Endovascular repair involves adequate coverage of the intimal tear, as well as seal zones proximally and distally, including adequate coverage of the aneurysmal aorta. This may require debranching of the brachiocephalic arteries to maintain flow to the extremities and brain. Hybrid debranching involves the utilization of both open surgical and endovascular techniques. Employing hybrid surgical techniques improves the morbidity of the surgery, as well as overall patient quality of life.

Abstract #86: THE RADAR (RADIAL ARTERY DEVIATION AND REIMPLANTATION) FISTULA

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Introduction

End stage renal disease (ESRD) is a chronic kidney failure requiring dialysis or kidney transplant. Majority of the patients with ESRD undergo hemodialysis (HD). Arteriovenous fistula (AVF) creation using autogenous vein provides an access point with a low risk of infection and is preferred over catheters and graft AVF. Multiple types of autogenous fistula can be created using end of vein to side of artery configuration for the anastomosis. We present a new approach for fistula creation with radial artery deviation and re-implantation (RADAR) technique.

Case Description

A 70 male with history of hypertension, Paroxysmal Nocturnal Hematuria, obesity, myeloproliferative disorder causing ESRD on HD was evaluated in clinic for AVF creation. He underwent pre-operative vein mapping and his wrist cephalic vein and radial artery were adequate. After nerve block and sedation anesthesia, his radial artery and cephalic vein were dissected at the wrist and the cephalic vein was not disturbed from it positon. The distal radial artery was ligated, moved to the cephalic vein, and the end of the radial artery was anastomosed to the side of the cephalic vein. The distal cephalic vein was also ligated. Post operatively there was excellent thrill in the fistula and follow up duplex in clinic demonstrated adequate flow in the fistula and excellent palpable thrill.

Discussion

Patients undergoing hemodialysis require reliable vascular access. Cimino (end of cephalic vein to side radial artery) fistula at the wrist is the first choice for AVF creation if the artery and vein are adequate. Juxtaanastomotic stenosis is believed to be the main cause for failure of forearm fistula. The primary reason for this was development of neo-intimal hyperplasia due to flow changes in the swing site of the cephalic vein in traditional cephalic vein to radial artery fistula. With the RADAR fistula, there is minimal manipulation of the cephalic vein and the radial artery is manipulated and re-implanted. RADAR technique provides excellent rates of fistula maturation and patency without significant adverse impact.

Abstract #87: CECOSTOMY FOR REFRACTORY OGILVIE SYNDROME: A CASE REQUIRING SURGICAL INTERVENTION

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Introduction

Ogilvie Syndrome (OS), also called acute pseudo-colonic obstruction, has a relatively low incidence, accounting for only 100 per 100,000 hospital admissions. This disease preferentially impacts patients with chronic disease and advanced age. Management is intriguing, as the approach is tailored to each patient. This case report will review an instance where the determined best treatment was placement of cecostomy tube.

Case Description

A 79-year-old female inpatient presented with two days of increasing abdominal pain and distension. Her symptoms were unresolved by a trial of nasogastric decompression. Medical history included Parkinson disease with associated dementia limiting her ability to communicate. On physical exam she had significant abdominal distension, tympany on percussion, and obvious discomfort on palpation. CT abdomen/pelvis noted large volume gas and fecal material within the colon and distention of the right colon up to 12 cm, favoring a diagnosis of OS. After failure of conservative management, decompression colonoscopy was attempted, also without resolution. Due to her comorbidities, she was a poor candidate for anticholinergic therapy and had high risk of mortality with aggressive surgical intervention; therefore, the patient underwent exploratory laparotomy with cecostomy tube placement. Post-operatively, the cecostomy tube was managed with twice-daily flushes, and the patient had a resolution of her abdominal pain and obstipation, without the need for colonic resection.

Discussion

OS presents similarly to a bowel obstruction, with abdominal distension and pain, and imaging is vital in determining which diagnosis is more likely. The etiology of OS is unknown, but the prevailing theory is an imbalance in nervous system signaling to the gut causes the large bowel to become dilated and inactive, resulting in slow transit and buildup of air and fecal matter. Similar to a true obstruction, if left unresolved this can progress to bowel perforation or ischemia. Most commonly, OS will resolve with conservative management via nasogastric decompression, bowel rest, and fluids. If the pseudo-obstruction persists, a colonoscopic decompression is next line, and approximately 50% of patients will have resolution. Management then proceeds to either anticholinergics or invasive surgical intervention. Anticholinergics are highly effective, with an estimated 88% of patients recovering after therapy. However, the side effects of these medicines occasionally preclude their use. In those cases, surgical management becomes the mainstay with options including cecostomy tube placement, removal of large bowel, ileostomy and other more invasive solutions.

Abstract #88: RENAL ARTERY ANEURYSM DIAGNOSIS AND MANAGEMENT

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Introduction

Renal artery aneurysms (RAA) are rare and often found incidentally on imaging usually obtained for evaluation of unrelated pathology. Open surgical repair of RAA still predominates, there is an increasing trend towards endovascular strategies for treatment. We present a case of a RAA managed with endovascular intervention.

Case Description

This is a 61 year old female with history of hypertension, hyperlipidemia, and chronic obstructive pulmonary disorder with incidental findings of right RAA for which she underwent surveillance and found to increase in size to 2.7cm from 1.8cm one year ago. She was asymptomatic on examination. She underwent an aortic angiogram with access from the left radial artery with selective cannulation of the right renal artery which demonstrated a RAA majority of which was thrombosed with calcified wall and partially open at the bifurcation of the upper and lower pole renal artery. We then selectively cannulated the renal artery and then selectively placed coils in the aneurysm sac. Completion angiogram demonstrated preservation of the main renal artery along with branches and no filling of the aneurysm sac.

Discussion

The incidence of true RAA is estimated to be 0.3 to 2.5%. Predominantly these are incidental finding and asymptomatic. Female patients and patients with fibromuscular dysplasia have higher incidence and higher risk of rupture. RAA > 3cm, female with child bearing potential and increasing size are offered repaired. Treatment strategies are based on location and size of the aneurysm. Open repair techniques include aneurysm plication, resection and repair or bypass. Nephrectomy is an option in selective cases. Endovascular options include coil embolization with or without covered stent placement to exclude the aneurysm.

Abstract #90: ENDOVASCULAR MANAGEMENT OF SPLENIC ARTERY ANEURYSM

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Introduction

Splenic artery aneurysm (SAA) are rare and reported to be less than 1% of the general population and commonly occurring in women. The risk of rupture increases with increase in size and pregnancy. We present a case of a SAA which was increasing in size and treated with endovascular intervention

Case Description

Our patient is a 69 year old female with history of hypertension, hyperlipidemia, obesity, right bundle branch block, former smoker had an incidental diagnosis of SAA. On follow up computerized tomography angiogram (CTA) scan, the SAA had increased to 2.1cm (1cm increase in 1 year). She was asymptomatic on examination. She underwent a mesenteric angiogram with access from the left radial artery with selective cannulation of the splenic artery and then the aneurysm. We then selective placed coils in the aneurysm sac. Completion angiogram demonstrated preservation of the splenic artery and no flow in the aneurysm sac.

Discussion

Splenic artery aneurysm are the most common type of visceral aneurysm. Most of the SAA remain asymptomatic and therefore go undetected. Atherosclerosis is thought to be the most common cause. SAA greater than 3cm size, rapidly increasing (>0.5cm 6 months) or any size in pregnant women need to be treated. CT scan are the modality of choice for diagnosis. Treatment strategies are based on size and location of the aneurysm (proximal, middle or at hilum of the splenic artery). Splenectomy is also an option in certain cases. Open repair was practiced traditionally however; with evolution of endovascular treatments, coil embolization with or without covered stent placement to exclude the aneurysm is becoming the standard of care.

Abstract #95: A COMPLEX CASCULOPATH PATIENT: MANAGING PERIPHERAL ARTERY DISEASE AND ABDOMINAL AORTIC ANEURYSM

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Introduction

A Vasculopath patient is a patient with complex and multi-organ vascular disease that may affect cardiac, peripheral, and aortic systems. These patients often need a multidisciplinary and multi-modality approach. We present a case of a vasculopath patient with severe cardiac disease in addition to peripheral vascular disease and abdominal aortic aneurysm.

Case Description

Our patient is a 45 year old male with history of cocaine abuse resulting in severe coronary artery disease, congestive heart failure with ejection fraction of 20%, hypertension, and hyperlipidemia. In addition, he reported bilateral lower extremity rest pain and was found to have abdominal aortic aneurysm and occluded right common iliac artery. Given his medical issues, we decided to stage his treatment. For the first stage, he underwent a left to right femoral-femoral bypass and right femoral endarterectomy followed by AAA repair with aorto-uni-iliac device with renal artery snorkel. Both procedures were performed under sedation and local anesthesia. Post-operatively, the patient's rest pain resolved and he had palpable pedal pulses. He was able to participate in exercise therapy and EF improved to 55%. Follow-up scan demonstrated patent endograft repair, bypass, and no endoleak.

Discussion

The management of a vasculopath patient can be challenging given the multi-organ vascular disease burden. These patients require a multi-disciplinary approach with coordination between cardiology, vascular surgery, vascular medicine, and anesthesiology. Vasculopathy is a vicious cycle of disease processes, as deterioration in one organ system leads to deterioration of another. These patients need focused lifestyle medication, pre-operative optimization, novel anesthesia strategies, and innovative surgical strategies. Our patient had worsening cardiac disease exacerbated by his inability to walk, which was due to severe rest pain from peripheral vascular disease. After lifestyle modification (medical therapy and drug cessation), the patient was able to receive our treatment for peripheral artery disease, improve his ability to exercise and subsequently improve his cardiac function, and ultimately be treated for his abdominal aortic aneurysm.

Abstract #99: V TO T ROTATIONAL FLAP FOR FOOT RECONSTRUCTION AFTER PARTIAL AMPUTATION

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Introduction

Large plantar wound deficits lead to residual wound or extensive loss of foot function ultimately leading to amputation and limb loss. Rotational flaps allow for limb salvage with improved functionality. We present a case of a patient with diabetic foot infection treated with reconstruction.

Case Description

This is a 49-year old male with a past medical history of uncontrolled diabetes and hypertension who presented with a left foot infection with gangrene and leukocytosis. He underwent left foot debridement and trans-metatarsal amputation for infection control. Once the infection was controlled, he underwent revision and reconstruction with a rotational V to T flap with tissue rearrangement. Post-operatively, he continued to be non-weight bearing on the left foot and on follow-up after the incision healed and undergoing rehabilitation.

Discussion

Diabetic foot infections are usually complex and potentially limb and life-threatening. Source control of infection requires extensive foot debridement usually as the infection tracks along the fascial plains. Post-surgical intervention foot reconstruction can be challenging given the degree of tissue loss. The options for wound care include negative pressure wound vac therapy with potential skin grafting which takes a long time or higher amputation or complex flap reconstruction. Creative flap reconstruction V to T helps close complex wound with re-approximation of the soft tissue and helps to reduce the time to wound healing, prevents risk or recurrent infections, improves patients' quality of life, and helps in early ambulation preventing higher amputation.

Abstract #102: BRACHIAL ARTERY PSEUDOANEURYSM POST FISTULOGRAM: REPAIR AND RECONTRUCTION

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Introduction

Pseudoaneurysms are false aneurysms caused by damage to the arterial wall, resulting in locally contained hematoma. The most common clinical presentation of a pseudo-aneurysm is following access for endovascular procedure. We present a case of brachial artery pseuodoaneurysm post a fistulogram requiring surgical intervention.

Case Description

Our patient is a 63yo female with history of tobacco abuse, Stage IV Chronic kidney disease, diabetes mellitus, hypertension, peripheral artery disease previous left arterial venous fistula with Acuseal graft (brachial artery to axillary vein). She had a left upper extremity fistulogram and axillary vein stent placement at an outside facility and was evaluated in clinic and complained of left arm swelling and pain. A duplex ultrasound demonstrated a large pseudo-aneurysm of the graft. She underwent urgent surgical intervention, and found to have a circumferential avulsion of the left brachial artery and ruptured arterial anastomosis. The graft was ligated and then brachial artery was reconstruction using an interposition graft. Post operatively she well and had palpable pulse in the hand.

Discussion

Pseudo-aneurysms typically result from access from catheter-based interventions. Patients present with a painful, pulsatile mass. Duplex ultrasonography remains the gold standard for diagnosis. Treatment is based on the size, location and symptoms of the patient. Options for management include observation, ultrasound-guided compression, ultrasound-guided thrombin injection, and surgical repair. In our patient, the pseudoaneurysm was at the anastomotic site of the brachial artery which required ligation of the fistula graft and reconstruction of the artery.

Abstract #108: SAVE A LIMB, SAVE A LIFE: COMPLEX ENDOVASCULAR TREATMENT FOR LIMB SALVAGE

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Introduction

Patients with critical limb ischemia (CLTI) typically have multi-vessel lower extremity arterial disease. Revascularization of such advanced artery disease can be challenging. These patients often have concomitant cardiovascular disease making them high risk for surgical intervention. We present a case of high risk patient with CLTI managed with endovascular treatment

Case Description

This patient is a 60 year old female with history of hypertension, hyperlipidemia, diabetes, former smoker, peripheral artery disease with critical limb ischemia with left leg great toe wound. She also had a recent cardiac catheterization with cardiac stents 2 weeks prior to presentation. Her ankle brachial index was 0.4 with occluded left superficial femoral artery (SFA) with monophasic pedal signal. She underwent a left 1st toe amputation for infection control. Post that she underwent left leg angiogram with access from the right common femoral artery and retrograde left anterior tibial artery. We recanalized the chronically occluded SFA with a through and through wire. We then performed balloon angioplasty and stent placement of the left SFA. Patient had triphasic pedal signal in the foot and the foot wound was closed which healed well

Discussion

Patient with CLTI can be managed with open bypass with autogenous vein or graft if they have suitable inflow and outflow target and if they can tolerate the stress of surgery. Given the advancement in endovascular therapies, patients with multi-level disease are approached from antegrade contra-lateral femoral artery and retrograde from the pedal artery Simultaneous femoral and pedal access seems to have a high success rate. The majority of cases involves successful crossing from the pedal access and externalization of the wire from the antegrade access with a snare or catheter. Special catheters known as re-entry catheters can be used to help cross the lesion and enter into the true lumen. This technique helps to achieve optimal result with minimal morbidity and mortality in complex patients.

Abstract #109: CLOSURE OF GASTRIC FISTULA FOLLOWING POSTOPERATIVE INTRABDOMINAL ABSCESS

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Introduction

A fistula is an abnormal communication between epithelialized surfaces that forms in relation to inflammatory processes such as bowel injury, anastomotic leak, foreign body erosion, or gastrointestinal perforation. After initial perforation, subsequent inflammatory changes result in abnormal communication between adjacent structures forms which spontaneously decompresses any fluid collection that formed at the site. We present a patient that formed a gastric fistula between the distal body of the stomach to an abscess cavity that was controlled with percutaneous drainage.

Case Description

The patient is a 76-year-old female with history of hypertension, hyperlipidemia, chronic pulmonary embolism, protein-calorie malnutrition, and rectal adenocarcinoma treated with neoadjuvant chemoradiation then low anterior resection with diverting ileostomy. Her postoperative course was notable for intraabdominal abscess that was treated with percutaneous drainage. This abscess was found to have a gastric fistula. An additional percutaneous drain was placed and cross-sectional imaging demonstrated complete drainage of the peritoneal collections. The patient was taken to the OR for EGD with nasojejunal feeding tube placement and endoscopic closure of the fistula. Intraoperatively, there was a gastric fistula just larger than the size of the endoscope in the distal body of the stomach along the greater curvature, a healed subacute ulcer in the body of the stomach, and evidence of a healed prior ulcer in the duodenum. The abscess cavity was visualized with a drain in close proximity to the external wall of the stomach. The gastric mucosal edges were closed using 4 endoscopic clips. The case was completed without event or complication. She was discharged in stable condition with enteral nutrition through the enteric tube. Subsequent CT and barium swallow demonstrated closure of the prior gastric defect. After initiation of oral diet, the drain output remained low without any ongoing fistula and the drain was removed.

Discussion

Laparoscopic or open omental patch repair is the mainstay of treatment for acute gastric perforation, however, several approaches for closure exist. Given the unique inflammatory and post-surgical circumstances leading to the formation of the patient's fistula, traditional surgical repair would not be recommended in this subacute post-surgical timeframe. Primary endoscopic repair using clips offered a novel and effective method of closure while also allowing for placement of enteric feeding access distal to the site of gastric leakage. This case demonstrates the value of advanced surgical endoscopy and novel use of existing devices to treat challenging post-surgical gastrointestinal leakage and fistula.

Abstract #115: SURGICAL DECOMPRESSION WITH FIRST RIB RESECTION FOR VENOUS THORACIC OUTLET SYNDROME

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Introduction

Thoracic outlet syndrome (TOS) is a condition with constellation of symptoms resulting from compression of the neurovascular structures (brachial plexus, or subclavian artery, or subclavian vein) traversing the thoracic outlet. The management of TOS is initially focused on providing symptomatic relief, and the definite treatment is treatment the underlying cause (developmental or anatomical abnormalities). We present a case of a patient with venous TOS to highlight the presentation (signs and symptoms) and management of patient with TOS.

Case Description

A 67 year old female presented to the emergency department with left arm swelling for five days associated with swelling and pain in the arm. She denied any numbness, tingling, weakness or lack of sensation. On examination, she had gross edema of the left arm, radial pulses were palpable bilaterally, and motor and sensation was intact with strength 5/5. Venous ultrasonography (US) scan was obtained which demonstrated thrombus in the left subclavian, axillary, brachial, cephalic and basilic veins. She was started on heparin drip and underwent central and left upper extremity venogram with pharmaco-mechanical thrombolysis with AngioJet Zelante catheter, and balloon angioplasty of the left subclavian and axillary vein (10 x 40 mm balloon). Postoperatively her symptoms improved. We treated the underlying cause with staged left first rib resection and external venolysis. Two month postoperatively, she underwent another venous US which demontrated no evidence of DVT in the left upper extremity. She was continued on anticoagulation, and had returned to her routine activities and remained asymptomatic at 3 months post procedure.

Discussion

Thoracic Outlet syndrome can be neurogenic (most common), venous or arterial in origin. It commonly affects younger patients and females. Venous TOS is the thrombosis or severe stenosis of the subclavian-axillary vein due to anatomic anomalies, chronic repetitive motion or secondary to trauma. It can lead to pulmonary embolism and upper extremity venous gangrene. Diagnosis is based on physical examination, high clinical suspicion and imaging modalities (ultrasound, CT scan). The optimal treatment for venous TOS is debatable. Management includes anticoagulation, thrombolysis and surgical decompression with or without vein reconstruction.

Abstract #126: COMPLEX ENDOVASCULAR REPAIR OF CHRONIC AORTIC DISSECTION WITH AORTIC ANEURYSM

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Introduction

Endovascular surgical interventions are the standard of care for aortic dissections and aneurysms according to current guidelines1,2. Postoperatively, aortic remodeling can occur causing endoleak and weakening of the vessel wall, termed: aortic degeneration. This means there is incomplete thrombosis of the false lumen which can result in an endoleak3. This must be repaired. We present a case of aortic dissection initially treated with endovascular intervention, however; due to aneurysmal degeneration, it required repair of the abdominal and thoracic aorta.

Case Description

A 58-year-old male with a history of significant HTN, HLD, DM, obesity, previous smoker, occluded left common carotid artery, and abdominal aortic aneurysm, underwent thoracic endovascular aneurysm repair (TEVAR) for a Type B aortic dissection. During follow-up surveillance, computed tomography angiography (CTA) revealed persistent endoleak from the TEVAR, degeneration of the thoracic aorta, and enlarging aortic aneurysm. The patient underwent coil embolization of the false lumen, TEVAR, and endovascular aortic aneurysm repair. Completion angiogram demonstrated a reduction in the endoleak, realignment of the true lumen, and exclusion of the abdominal aortic aneurysm. Follow-up CTA at 1 month demonstrated a decrease in endoleak and aneurysm size, with the remodeling of the aorta.

Discussion

Aortic dissections are approximately 3/100,000 cases3. The goal is to cover the primary tear in the vessel, allowing complete thrombosis of the false lumen and vessel remodeling, which diverts blood flow into the true lumen. When there is incomplete false lumen thrombosis, this is a complex dissection which necessitates repair. Management of aortic dissection can be challenging since endoleak and aortic degeneration can occur. And endovascular therapy is a technically feasible and effective method to treat this complex vascular pathology.

Abstract #128: ACUTE MESENTRIC ISCHEMIA SECONDARY TO SUPERIOR MESENTERIC ARTERY OCCLUSION

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Introduction

Acute mesenteric ischemia (AMI) is sudden onset of intestinal hypo-perfusion due to reduction or cessation of arterial inflow due to embolic or thrombotic event. Thromboembolic occlusion of the superior mesenteric artery (SMA) is the most common cause of AMI. We present a case of AMI with Aortic and SMA thrombus

Case Description

Our patient is a 41 year old male with paraplegia, multiple abdomen surgeries with cecostomy for colonic inertia presented with acute abdomen pain. On examination he had abdomen tenderness and computerized tomography angiogram (CTA) demonstrated aortic thrombus and occlusion of the SMA. He was started on systemic heparin anticoagulation and underwent an emergent exploratory laparotomy with lysis of adhesions from previous surgery, fogarty thrombectomy of the SMA and patch angioplasty. Small intestine and colon was viable and did not require resection. He underwent a second look surgery and the bowel remained viable and abdomen was closed. He was subsequently discharged on oral anticoagulation. On follow up in clinic, CTA demonstrated resolved aortic thrombus and patent SMA artery.

Discussion

Embolism followed by thrombosis are common reasons for acute mesenteric ischemia. Embolism occurs due to dislodged thrombus from cardiac source or proximal aorta. Arterial thrombosis occurs due to progression of atherosclerotic disease. Initial management of these patients includes anticoagulation and resuscitation. Open surgical intervention is the treatment of choice which includes thrombo-embolectomy with or without patch angioplasty or bypass. Endovascular treatment can be considered in patients who are hemodynamically stable without clinical signs of advanced ischemia. These include phramacomechanical thrombectomy with or without angioplasty and stent placement. Revaluation of the intestine post revascularization is critical and all ischemic bowel is resected. These patients routinely need multiple surgeries before the abdomen can be completely closed. Work up for embolic source is very important and they are discharged on life-long anticoagulation.

Abstract #132: FILLET-O-HALLUX FLAP FOR FOOT RECONSTRUCTION AND LIMB SALVAGE

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Introduction

The immunosuppressive state and high glucose burden associated with diabetes mellitus impair wound healing and contribute to the development of chronic foot ulcers. Large plantar wound deficits can result in residual wounds or extensive loss of foot function, ultimately leading to amputation and limb loss. Rotational flaps allow for limb salvage with improved functionality relative to primary or secondary healing following surgical intervention. We present a case of patient with diabetic foot infection treated with reconstruction.

Case Description

Our patient is a 65-year old male with a past medical history of coronary artery disease, congestive heart failure, type II diabetes, and hypertension who presented with cyanosis of the right third and fourth toes, gangrene of the right fifth toe, and a weeping plantar ulcer at the metatarsophalangeal joint of the fifth toe. He underwent partial third, fourth, and fifth ray amputations for infection control. After source control, he further underwent revision debridement of the wound and foot reconstruction with a Fillet-o-hallux rotational flap using two skin flaps with intact vascular structures constructed from the hallux to reapproximate the wound margins. Post-operatively, he continued to be non-weight bearing on the right foot and on follow up after the incision healed he was ambulatory using the right foot.

Discussion

Primary wound closure after amputation for diabetic foot infection is rarely attempted due to impaired healing processes and the lack of elastic skin for successful closure. Secondary wound healing is preferred, but it takes a considerably longer time, requires long periods of non-weight-bearing, and increases the risk for recurrent infection and subsequent higher amputation. In contrast, creative flap reconstruction reduces the time to wound healing, increases functionality, allows for early ambulation, and prevents higher amputation, thereby providing an advantageous alternative to primary or secondary intention healing following surgical intervention for diabetic foot infections.

Abstract #134: ENDOLEAK AFTER ABDOMINAL AORTIC ANEURYSM REPAIR: MANAGEMENT AND TREATMENT

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Introduction

An abdominal aortic aneurysm (AAA) is a life-threatening condition that requires emergent treatment. Endovascular aneurysm repair (EVAR) is the mainstay of treatment for AAAs. Endoleaks are a common and known complication post EVAR and require additional intervention. However, some endoleaks require more intricate management than others. We present a case highlighting the management of a complex endoleak post EVAR.

Case Description

Our patient is a 61-year-old male with a history of a complex EVAR with renal stents performed at an outside facility. The patient presented to our clinic with an enlarging AAA. A computed tomography angiography (CTA) scan demonstrated a 6cm aneurysmal degeneration of the abdominal aorta, which had increased in size from 5.6cm 6 months prior. The patient received an angiogram that demonstrated a possible type III endoleak. Upon this finding, he underwent a procedure to realign the bilateral renal artery snorkels with stent grafts and extend the proximal graft with an aortic cuff. Following this procedure, a completion angiogram demonstrated no endoleak, and a follow up CTA also demonstrated no endoleak.

Discussion

Endoleaks are a known complication of EVAR and frequently require intervention. Some endoleaks resolve spontaneously, but if the aneurysm sac continues to enlarge, they require surgical intervention. The identification of the location and type is frequently challenging and requires an angiogram. The complexity and treatment strategy of endoleaks depend on the type of endoleak. Type I endoleaks are due to inadequate seal at the graft attachment site, type II leaks are due to branch vessels, type III leaks are due to the graft connection or graft defects, and type IV leaks are due to graft porosity. Types I and III result in the highest risk for rupture, making them the most urgent to treat, relative to types II and IV. Our patient had both a type III and type IA (proximal) endoleak, making this an urgent and complex situation. Realigning the bilateral renal snorkels with stent grafts and extending the graft proximally, along with balloon angioplasty of the previous stent graft resulted in the development of an adequate seal.

<u>Abstract #135</u>: PERFORATED JEJUNAL DIVERTICULA: A RARE CASE OF SMALL BOWEL DIVERTICULITIS

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Introduction

Small intestinal diverticula (SID) prevalence is 0.5-2.3% in the general population, with most cases asymptomatic. These are increasingly recognized as a cause of various chronic, nonspecific GI tract complaints, as well as a potential for serious complications. This case report will review a rare instance of perforated small bowel diverticulitis.

Case Description

An 80-year-old female presented with 2 days of acute, diffuse abdominal pain with associated nausea, vomiting, and anorexia. Her only prior abdominal surgery was an open cholecystectomy. On physical exam, her abdomen was moderately distended with diffuse tenderness to palpation throughout, and rebound tenderness in the mid-epigastrium consistent with localized peritonitis. CBC demonstrated a leucocytosis, and CT scan of the abdomen and pelvis with IV contrast demonstrated an area of small bowel wall thickening and enhancing in the left upper quadrant. There were surrounding inflammatory changes of the fat and pneumoperitoneum without evidence of abscess formation. These findings were consistent with a perforated small bowel diverticulum. At laparotomy, a one cm perforation of a small bowel diverticulum in the proximal jejunum was observed with surrounding inflammatory reactive tissue and spillage. The affected bowel was resected with a side-to side stapled anastomosis. Post operatively, she was monitored for return of bowel function, advanced to a soft diet, and was able to discharge home in stable condition.

Discussion

Unlike Meckel's diverticulum but similar to colonic diverticula, SID contain only mucosal and submucosal layers herniating through the muscularis layer. They are therefore classified as pseudodiverticula. The etiology currently accepted is increased localized intraluminal pressure creating areas of high pressure within the small bowel, possibly during periods of inflammation or intestinal dyskinesia. Approximately 90% of SID are asymptomatic and are typically found incidentally during imaging studies obtained for other conditions. Diverticulitis is most common complication of SID, though lifetime risk is unknown. Recognition can be challenging because it typically presents as an acute abdomen in a manner similar to more common conditions. Diverticula are characteristically located on the mesenteric side of the small bowel, and diverticulitis is often associated with focal inflammation of the adjacent mesenteric fat. The standard of care for treatment of SID is small bowel resection and primary anastomosis. However, nonoperative management in certain cases can be considered, consisting of broad spectrum antibiotics and close clinical observation in order to evaluate for development of perforation or other potential complications.

Abstract #139: MINIMALLY INVASIVE TREATMENT FOR MASSIVE PULMONARY EMBOLISM

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Introduction

Acute pulmonary embolism (PE) is a common condition with a variable clinical presentation and sometimes presents as a fatal disease. PEs can be classified as low-risk, sub-massive, and massive based on the severity of symptoms. This classification guides treatment, which is multimodal depending on the clinical condition of the patient. Treatment has traditionally included anticoagulation, systemic thrombolysis, and open surgical thrombectomy. However, these interventions are associated with significant risks of hemorrhage from systemic thrombolysis and recovery from open surgical thrombectomy. Recently, minimally invasive endovascular approaches to the treatment of PEs have been developed in order to minimize these risks. We present a case of minimally invasive thrombectomy for a patient with a massive PE.

Case Description

This is 62-year-old male with history of diabetes, hypertension, hyperlipidemia, and obesity admitted for left lower extremity deep venous thrombosis. He developed shortness of breath, tachycardia, and hypotension with elevated troponin and right heart strain. Computerized tomography angiogram (CTA) demonstrated PE. Given the condition of patient, he was scheduled for urgent surgical intervention. The left internal jugular vein was canulated in order to provide access to the pulmonary arteries. Central venogram was performed which demonstrated thrombus in bilateral main pulmonary arteries. Using the Penumbra suction thrombectomy device, we were able to perform suction thrombectomy. Completion venogram demonstrated resolution of the thrombus and a decrease in peak pulmonary artery pressure. Post-operatively, the patient remained hemodynamically stable and was saturating well on room air. He was discharged home on oral anticoagulation.

Discussion

Patients with PE present with a wide range of symptoms, the severity of which dictate the degree of treatment. Patients who have minimal symptoms can be treated with systemic anticoagulation alone. Those with respiratory compromise, hemodynamic instability, and evidence of right heart strain have traditionally required advanced therapy including systemic thrombolysis and thoracotomy with thrombectomy. However, with advances in technology, we are able to perform thrombectomy with a minimally invasive technique, which reduces risks associated with traditional treatment. In our case, we used the Penumbra thrombectomy device to enter the internal jugular vein, gain access to the pulmonary arteries, and remove the PE with suction. We had excellent results with minimal morbidity for the patient. This is a unique case using the Penumbra thrombectomy device for surgical management of massive PE highlighting how the use of minimally invasive interventions can be used to help improve patient care.

Abstract #140: A NOVEL ENDOVASCULAR ANEURYSM REPAIR TECHNIQUE WITH ENDOLOGIX ALTO: AN ALTERNATIVE TO ENDOVASCULAR AORTIC ANEURYSM REPAIR

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Introduction

Endovascular abdominal aortic aneurysm repair (EVAR) has become the standard modality for treatment and management of patients with abdominal aortic aneurysm (AAA). An effective sealing zone is critical to achieve optimal outcomes with the use of EVAR. Novel endograft therapies have evolved with the development of technological advancements, and these therapies allow us to effectively treat patients with anatomically challenging AAA. We present a case of a patient with AAA who was treated with a novel aortic endograft.

Case Description

The patient is an 85-year-old female with a history of hypertension, hyperlipidemia, tobacco use, and frailty. She presented with abdominal pain and was found to have a right renal mass concerning for renal cell carcinoma, as well as a 5.5 cm AAA. The patient was supposed to undergo chemotherapy followed by surgical intervention for the renal mass. However, due to the size and associated symptoms of the aneurysm, AAA repair was required. She underwent EVAR with the Endologix ALTO device, which utilizes integrated polymer rings for optimal sealing and exclusion of the aneurysm. On one-month follow-up, CTA demonstrated a patent graft in good position, without endoleak.

Discussion

The advent of endovascular therapy has immensely changed the treatment of aortic aneurysm, and new technologies continue to evolve. The main goals of endovascular aortic repair are to exclude the aneurysm with good seal proximally and distally, and to restore flow through the graft to the lower extremities. The Endologix ALTO is a novel aortic graft that received FDA premarket approval in March 2020. It employs unique polymer rings that provide optimal proximal seal. According to measurement data from 43,000 AAA CT scans, its low-profile graft delivery system allows for its use in 70% of the population with AAA. These factors make the Endologix ALTO an effective endograft for the repair of anatomically challenging AAA.