

The Boy with his Heart Exposed. A Case Report of Blastomycosis Treated with Anterior Eloesser Flap and ECMO

Kristin Colling; Kristin Colling, University of Minnesota; Catherine Heath, University of Minnesota; Robert Acton, University of Minnesota; Daniel Saltzman, University of Minnesota

Background: Blastomyces dermatitidis is an endemic fungus found in areas of the United States and Canada, primarily in the Great Lakes area and the Mississippi and Ohio River Valleys. Primary lung infection is the most common presentation of blastomycosis, (60-75% of cases) but rarely, the disease can become disseminated leading to infection of the skin, bone or other organs.

Hypothesis:

Methods:

Results: Case: A 15 year old boy with history of obesity and marijuana abuse presented to his primary care clinic with dyspnea. He was treated for asthma and an atypical pneumonia without resolution. Nine months after initial presentation, he presented to clinic with a right chest wall mass. A CT scan demonstrated a large subcutaneous abscess with air-fluid level. (Image 1) He was admitted to an outside hospital and treated with broad spectrum antibiotics and amphotericin B after serum antibodies were positive for Blastomycosis. Surgical exploration was performed and in addition to the abscess, sternocostal osteomyelitis and a necrotizing pneumonia were also found. Debridement and a partial right upper lobe wedge resection was performed, but complicated by a severe bronchopleural fistula. He was transferred to our institution in septic shock and severe respiratory failure. Single lung ventilation was trialed but led to increased hypoxia and high intrapulmonary pressures. Therefore the decision was made to initiate venovenous ECMO therapy. His hypoxia and hemodynamics improved and he underwent serial debridements of his chest wall, requiring resection of the upper sternum, ribs 1-3 and the medial right clavicle, leaving a defect 15cm in diameter and 6 cm deep. An anterior Eloesser flap was created with his heart and right lung open to air draining the fistula (Image 2). Bronchial blockers were placed in the upper lobe to control the bronchial fistula, allowing the fistula to close. ECMO was weaned and decannulated after a 10 day course. Granulation tissue formed over his pericardium and lung and then a negative pressure VAC dressing was used for wound healing. 43 days later, he was discharged to rehab weaning from the ventilator with a tracheostomy. One month post discharge, his wound had decreased to 8cm in diameter and 4cm in depth, his tracheostomy had been removed and he was back home.

Conclusions: Blastomycosis can present in a variety of ways and treatment can be difficult. ECMO and extensive surgical interventions were required to manage this case of disseminated disease, but led to full recovery.

Severe Lumbar Necrotizing Soft Tissue Infection Originating from a J-Pouch Fistula

Theodore Delmonico, Brown University; Theodore Delmonico; Andrew Stephen, Brown University; Charles Adams, Jr., Brown University; Stephanie Lueckel, Brown University; Daithi Heffernan, Brown University

Background: Necrotizing soft tissue infection (NSTI) is a rapidly progressive infection characterized by tissue necrosis, septic shock, and potentially death. Key aspects of successful treatment are early recognition and urgent surgical source control by drainage and debridement. NSTI can occur from traumatic injuries, but also from include ischemic, hematogenous, or rarely gastrointestinal routes. We report a case of severe back NSTI arising from a pouch fistula in a patient with inflammatory bowel disease.

Hypothesis:

Methods: Record Review and Case Report.

Results: A 62 year old male with a history of ulcerative colitis and ileal J pouch presented with two weeks of lumbar pain and malaise and one day of acute severe cellulitis of the lower back. He denied changes in bowel habits. On exam he was afebrile, tachycardic (HR 120) and normotensive. There was extensive erythema, tenderness and induration from his buttocks to mid-thoracic region. Hemorrhagic blistering and palpable crepitus was noted in his lower back. Labs were notable for a leukocytosis of 21,500, 14% bands, CRP 364 mg/L and a sodium 129 mEq/l. A LRINEC Score of 9 was calculated. CT scan showed extensive inflammatory changes, multiple intramuscular abscesses in the paraspinal and gluteal musculature and an enterocutaneous fistula from a loop of bowel in the pelvis. Discussion regarding operative approach concluded debridement of infected necrotic tissue was paramount to diminish the inflammatory burden and to offer egress for the paraspinal abscesses. It was elected to forego a transabdominal approach at this time. In the OR he underwent extensive debridement of necrotic soft tissue and muscle from his gluteal and paraspinal region to the lower scapula superiorly and deep to the level of the bony spine. After stabilization and repeat debridement, he underwent pouch endoscopy which confirmed a fistula. Two days later a diverting ileostomy was performed. Once source control and full wound debridement was achieved, negative pressure therapy and eventual skin grafting were undertaken. The patient was discharged on antibiotics for pelvic and spinal osteomyelitis. He is recovering well with excellent wound healing.

Conclusions: Fistulization from the GI tract is a rare but potential source of NSTI. It is not necessary to address the fistula during the initial operation but should be done promptly after the patient stabilizes. Prompt surgical debridement of infected soft tissue as source control remains the cornerstone of the index operation.

CR03

Splenic Pseudocyst and Abscess: A Rare Complication of Chronic Pancreatitis

Joshua Sumislawski; Joshua Sumislawski, University of Colorado; Robert Torphy, University of Colorado; Ana Gleisner, University of Colorado; Lisa Ferrigno, University of Colorado

Background: Despite its proximity to the pancreas, the spleen is rarely affected in chronic pancreatitis. Splenic pseudocysts have been reported but seldom with superimposed infection. We present a splenic pseudocyst and abscess that resulted from decompression of a strictured pancreatic duct in a patient with chronic pancreatitis.

Hypothesis: (Not applicable)

Methods: A 57-year-old male with chronic pancreatitis presented with a one-week history of epigastric pain that resembled previous exacerbations except that it radiated to his left flank and shoulder. He was afebrile but tachycardic with left upper quadrant tenderness, a leukocytosis of 20.7, and a normal lipase. Computed tomography suggested a splenic injury with a fracture and subcapsular hematoma (image 1). With no preceding trauma, endoscopic retrograde cholangiopancreatography was performed to evaluate the pancreatic duct, which was strictured and had decompressed into the subcapsular space of the spleen (image 2).

Results: After splenic artery embolization, the patient underwent distal pancreatectomy and splenectomy. The spleen was enlarged with multiple purulent fluid collections, which grew *Aggregatibacter aphrophilus*, *Klebsiella pneumoniae*, and *Prevotella* species. The patient was discharged home on postoperative day 6 and completed a three-week course of intravenous antibiotics.

Conclusions: Although pancreatic pseudocysts are not uncommon in chronic pancreatitis, extension into the splenic parenchyma is rare and can present with superimposed infection requiring surgical drainage.

CR04

Recurrent Necrotizing Soft Tissue Infections and Atypical Organisms: Manifestations of the Opiate/Opioid Crisis

Mayur Narayan; Jackly Juprasert, NewYork-Presbyterian Hospital/Weill Cornell Medical Center and Weill Cornell Medicine; Caitlin Finn, NewYork-Presbyterian Hospital/Weill Cornell Medical Center and Weill Cornell Medicine; Philip Barie, NewYork-Presbyterian Hospital/Weill Cornell Medical Center and Weill Cornell Medicine

Background: America is in the midst of an OC. More than 90 Americans die daily from overdoses. Injection drug use (IDU) is a major risk factor for NSTI by inoculating pathogens into soft tissues. Recurrent infection and atypical pathogens may be tangible manifestations of OC

Hypothesis:

Methods: Report of two unusual cases of NSTI with IDU and review of pertinent

international literature.

Results: Case 1: 42F with known history of IDU (heroin) presented with a NSTI of the proximal left upper extremity (LUE) with crepitus extending onto the chest wall. Her Laboratory Risk Indicator for Necrotizing Fasciitis (LRINEC) score was 5. Of note, she had a NSTI requiring debridement at another facility, 2 mos prior (same extremity, different [healed] site, microbiology unknown). Treatment was with vancomycin (V), piperacillin/tazobactam (P/T), clindamycin (C), and emergency debridement of necrotizing myositis of the triceps brachii. Culture revealed *S. anginosus* and *E. coli*. She eloped from the hospital with a large open wound after staff found a glassine envelope labeled “Black Friday” in her bed. She was lost to followup. Case 2: 22F with known history of IDU (heroin) presented with 5 d of LUE swelling and diffuse pain. LUE needle track marks and swelling from the elbow to the left chest were noted. LRINEC score was 6. Treatment included V, C, P/T, and emergency debridement. Cultures revealed atypical polymicrobial flora including *S. anginosus*, *Prevotella buccae*, and *Bilophila wadsworthia*. Her case was complicated by multiple bacteremias with other atypical organisms including *C. tropicalis*, *C. albicans*, *S. maltophilia*, *Abiotrophia defectiva*, *E. cloacae*, and *E. coli*. She also developed *P. cepacia* suppurative thrombophlebitis of her right cephalic vein requiring excision. The patient admitted ongoing IDU in hospital, and was diagnosed with Munchausen syndrome. She was discharged after a 2-mo hospital stay and multiple reconstructive procedures. Results: Lit review: Case 1 is the first case report of recidivism of NSTI. Only one other published case report describes Munchausen syndrome associated with NSTI. *P. cepacia* has not been reported previously with NSTI.

Conclusions: IDU with NSTI may pose increased risk for recidivism and infection with atypical organisms, mandating heightened awareness when managing patients with NSTI related to IDU. Additional co-existent behavioral health issues must also be considered.

CR05

Chronic Femoral Osteomyelitis due to *Cladophialophora* in an Immunocompetent Patient

Nirbhay Jain, Washington University in St Louis; Christopher Horn; Adrian Alejandro Coleoglou Centeno, Washington University in St Louis; John Mazuski, Washington University in St Louis; Obeid Ilahi, Washington University in St Louis; Grant Bochicchio, Washington University in St Louis; Laurie Punch, Washington University in St Louis

Background: Chronic osteomyelitis is a challenging condition to treat and is characterized by frequent relapses and long-term antibiotics. While gram positive cocci are the most common pathogens, fungal infections have been reported, usually in immunocompromised hosts. We present a case of *Cladophialophora* osteomyelitis in an immunocompetent patient.

Hypothesis:

Methods: A 70-year-old male presented to our emergency room with complaints of fever, right hip pain and purulent drainage. He had a medical history of spinal ependymoma and multiple spinal surgeries resulting in T10 paraplegia. He had previously sustained a right intertrochanteric hip fracture repaired with a plate and

lateral compression screws and subsequently developed a decubitus ulcer over the greater trochanter which was treated with a gracilis flap. Six months prior to presentation, he re-developed a greater trochanter ulcer with femoral osteomyelitis. He underwent hardware removal two months prior to admission. He denied immunosuppression, diabetes, recent trauma or recent burns. He endorsed significant weight loss and had an admission body mass index of 18kg/m². His labs showed a hypochromic, microcytic anemia and hypoalbuminemia. Computerized tomography showed chronic osteomyelitis and progressive destruction of the femoral head.

Results: He underwent a Girdlestone with placement of Negative Pressure Wound Therapy with Instillation-Dwell. He was noted to have a pathological fracture and extensive bony destruction. Soft tissue cultures grew *Pseudomonas*; bone cultures grew *Streptococcus dysgalactiae* and *Cladophialophora* species. Postoperatively he was started on broad spectrum antibiotics. Delayed partial primary closure (DPC) was done over a closed suction drain four days later with placement of topical negative pressure. The remainder of his hospital course was uneventful and he was discharged 6 days post-DPC. He underwent 7-weeks of antibiotics but received no dedicated treatment for *Cladophialophora* as the involved bone was completely resected. At his 2.5 month follow-up, he was healed.

Conclusions: The *Cladophialophora* genus consists of darkly pigmented molds that cause cerebral abscesses and cutaneous infections in immunocompetent and immunocompromised hosts. While there have been reports of osteomyelitis due to *Cladophialophora*, to our knowledge this is the first case of osteomyelitis in an immunocompetent host without concomitant cerebral abscesses. We hypothesize that his malnutrition resulted in functional immunocompromise.

CR06

Acute abdomen after laparoscopic sigmoid colectomy revealing a surprise diagnosis

Walter Tabarelli, Liechtensteinisches Landesspital; Hugo Bonatti

Background: Acute abdomen after major colonic surgery always raises suspicion for an anastomotic leak. Surgical intervention is frequently necessary despite options to temporize the process using antibiotic therapy and interventional therapy such as percutaneous drain placement.

Hypothesis: Even in complex medical and surgical cases, acute appendicitis should always been considered in patients presenting with an acute abdomen.

Methods: A 55 year old male was diagnosed with a stenosing carcinoma of the sigmoid colon and underwent emergent colostomy placement to relief the obstruction. After recovery he underwent laparoscopic sigmoid colectomy with primary anastomosis and final pathology revealed moderately differentiated adenocarcinoma pT3N2aM0. The perioperative course was uneventful and he was started on FOLFOX chemotherapy per protocol. One week after the 4th cycle the patient presented with an acute abdomen to the emergency room.

Results: He had a rigid, distended abdomen, fever up to 39 centigrade and was

hypotensive; WBC and CRP were elevated. After resuscitation and stabilization and initiation of antibiotic therapy he underwent CT-scan showing free air and free fluid in the right lower quadrant, dilated bowel loops and some colonic wall thickening. He was emergently taken to the operating room. The abdomen was accessed with a 10mm Hassan trocar and pneumoperitoneum was established. On exploration, foul smelling pus and stool was found and the abdomen was rinsed with normal saline. Due to poor visualization a lower abdominal midline incision was made: the anastomosis was found intact, however, a necrotic perforated appendix was found and appendectomy was done. The patient was continued on antibiotics and quickly recovered from surgery. Four weeks later chemotherapy was restarted and after the 12th course, he underwent uneventful closure of the protective colostomy. The patient was well without evidence for recurrent cancer at his one year follow up.

Conclusions: This is an unusual presentation of a perforated appendicitis in a colon cancer patients and may have been triggered by chemotherapy.

CR07

Hot Rock Syndrome: Acute Appendicitis Presenting as Small Bowel Obstruction

Peter Kim; Michael Jureller, Jacobi Medical Center

Background: All general surgeons learn that small intestinal obstruction can be caused by a plethora of intra-abdominal processes. Acute appendicitis as the primary cause of small bowel obstruction is only rarely reported in the literature. In 1894, Dr. Francis Markoe, as presented to the New York Surgical Society, where he described a perforated appendix laying across the cecum and adherant to the terminal ileum.

Hypothesis: Since then, this pathology of appendicitis with small bowel obstruction is seen rarely in the literature, and only as case reports. Curiously, no identified source in the literature reports this pathology to be associated with an appendicolith. Thus, we propose the term “Hot Rock Syndrome,” which we define as a presentation of small bowel obstruction due to acute appendicitis with impacted stone of feces as an inflammatory source of extrinsic bowel obstruction and likely associated ileus.

Methods: We present a 26-year old male without past surgical history who arrived in sepsis due to acute appendicitis with a large fecalith (Figure 1a). Small bowel was grossly dilated with the transition point pinpointed to the inflamed appendix (Figure 1b). The patient was treated successfully with laparotomy and appendectomy. This case report, along with a review of the literature, leads our group to the conclusion that laparotomy is a safe and effective primary treatment modality to address patients suffering with Hot Rock Syndrome.

Results: The patient was treated successfully with laparotomy and appendectomy. This case report, along with a review of the literature, leads our group to the conclusion that laparotomy is a safe and effective primary treatment modality to address patients suffering with Hot Rock Syndrome.

Conclusions: Appendicitis should be considered in the differential diagnosis for patients that don't resolve their small bowel obstruction with non-operative therapy.

CR08

A Surgeon's Account of a Monkeypox Outbreak in the Central African Republic

Moustafa Moustafa; Rudolph Rustin, University of Virginia

Background: We present our experience with a nosocomial monkeypox outbreak in the Central African Republic (CAR) while on a humanitarian surgical mission trip in 2015-16. 10 patients (7 adult and 2 children) presented to the hospital with high fevers, myalgias, and the eventual development of the characteristic vesicular rash. Two children died. The index case was ultimately traced to villager contact with bush meat and subsequent infections transmitted in a linear fashion. Monkeypox is a rare infectious disease caused by monkeypox virus (MPXV), which belongs to the Orthopox genus of the Poxviridae family. The most notable member of this family is variola virus (VARV) or smallpox, which the WHO declared as eradicated in 1980 after an exhaustive global vaccination campaign. The end of routine vaccination however has left much of the world susceptible to other zoonotic orthopox infections, to which smallpox vaccination confers some cross-immunity. Other recent global outbreaks of monkeypox have been reported, the largest of which was in 2003 in the United States. We will discuss our experience with the outbreak as it played out in the CAR, as well as the etiology, natural history, and current treatment of monkeypox. The logistical challenges of managing and containing a viral outbreak in a low resource setting are also discussed.

Hypothesis: Case report

Methods: Case report Personal experience during outbreak. A brief literature review will be discussed.

Results: Case report 7 adults and 3 children were affected, 2 children died.

Conclusions: Case report Zoonotic orthopox infectious outbreaks are more likely in the absence of routine smallpox vaccination. There are many challenges to managing and containing such epidemics in the low resource setting.

CR09

Pediatric Surgical Care as a Model for Equity, Education, and Development: The Separation of Conjoined Twins In Haiti

Jamie Golden; Allison Linden, Children's Hospital Los Angeles; Michelle Morse, Brigham and Women's Hospital; Vanessa Rouzier, Les Centres GHESKIO; Aaron Jensen, Children's Hospital Los Angeles; Peggy Han, Weill Cornell Medicine; Jerry Bitar, Hopital Bernard Mevs; James Stein, Children's Hospital Los Angeles; Marlon Bitar, Hopital Bernard Mevs; Henri Ford, Children's Hospital Los Angeles; James Stein, Children's Hospital Los Angeles; Henri Ford, Children's Hospital Los Angeles

Background: Equitable surgical care for children is an essential component of basic human rights, but has largely been forgotten among the priorities of global surgery. The delivery of pediatric surgical care is inadequate in many low- and middle-income countries (LMICs) due to lack of specialty trained providers, health care resources, and infrastructure. Our team has worked closely with Haitian practitioners for 8 years to

provide advanced pediatric surgical care and to establish a collaboration to improve self-sufficient management of complex pediatric surgical patients.

Hypothesis: Building pediatric surgical capacity through multinational partnerships concentrating on education of local practitioners is essential for sustainable, self-sufficient healthcare in Haiti.

Methods: We discuss the successful delivery of advanced pediatric surgical and critical care in Haiti during the separation of conjoined twins as an example of an effective partnership.

Results: In September 2014 in Mirebalais, Haiti, a triplet pregnancy was diagnosed with two of the fetuses identified as omphalopagus conjoined twins. The three girls were delivered via cesarean section at 36 weeks gestation. As the conjoined twins grew and met their developmental milestones, a multinational interdisciplinary team of Haitian and US pediatricians, intensivists, surgeons, and anesthesiologists formulated a plan to separate the twins in Haiti at six months of age. Through meticulous pre-operative planning, intraoperative communication and teaching, and post-operative intensive care, the conjoined twin separation was performed in Mirebalais in May 2015. Our teams worked side by side with direct transfer of knowledge and skills during a 7 hour operation that was a success for the girls and a unique chance for Haitian practitioners to work alongside their American colleagues in an operation rarely performed in the most advanced hospitals in the world.

Conclusions: We illustrate the capacity to deliver safe, advanced surgical care and achieve the highest attainable standard of health within the constraints of a low-resource setting. The success of this operation was a great source of pride and symbolized the advancement of healthcare in a nation that had to rebuild itself from significant damage. It reflects the culmination of 8 years of capacity building and education to provide advanced pediatric surgical care in a country that has limited resources and lacks specialty trained pediatric surgeons.