CR01.
Capnocytophaga meningitis, bacteremia and septic shock following a dog bite in an asplenic patient

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Background:

Overwhelming post-splenectomy infection (OPSI) is an uncommon occurrence but carries a high risk of mortality following splenectomy, especially with delayed recognition and/or treatment. The majority of cases of OPSI are due to *Streptococcus pneumoniae* for which a vaccine has been recommended for use following splenectomy by the CDC since the early 1980s. Other common causative encapsulated organisms for which vaccine administration is recommended following splenectomy include Meningococcal and *Haemophilus influenzae* type b. Although no preventative therapies available, there are several reported cases of *Capnocytophaga* causing bacteremia in asplenic patients who have suffered a dog bite or had recent contact.

Hypothesis:

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Methods:

50-year-old male with significant surgical history of splenectomy (at the age of 14 following trauma in late 1970's) presents to clinic the morning after sustaining dog bite and is offered antibiotics and receives tetanus shot. The following evening the patient, not feeling well, goes to an urgent treatment center, found to have temperature of 102.9^{o}F, otherwise normal vitals, is sent to the emergency department for further work-up and treatment. He was found to have altered mental status, fever, shock, worsening respiratory status, acute kidney injury, anion gap metabolic acidosis, diffuse petechial rash of bilateral lower extremities and disseminated intravascular coagulopathy, which precluded him from having a lumbar puncture. Imaging revealed effacement of sulci concerning for meningitis. Patient was intubated, received appropriate blood products, and started on empiric antibiotics, pressors, and CRRT. Blood cultures obtained ultimately reveal *Capnocytophaga canimorsus* and received 3 weeks of deescalating beta lactam therapy (ultimately ceftriaxone). His course was complicated by bilateral profound sensorineural hearing, but otherwise made a full recovery. He was discharged to long term care facility after 22 day course.

Results:

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Conclusions:

Following splenectomy or intervention resulting in functional asplenia, preventative vaccines should be administered as appropriate per CDC guidelines along with targeted education regarding infection risk. Patients who became asplenic prior to the widespread use of vaccines should be screened to ensure compliance with vaccine schedule including boosters. Following exposure to dogs or dog bites in this patient population and presentation with infectious symptoms should warrant high suspicion of *Capnocytophaga* involvement.

CR02.
Coccidioides immitis Causing Septic Arthritis of an Ankle in the Setting of HIV

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Background:

Septic arthritis is a well-known disease process. The incidence quoted in the literature ranges from 0.034% to 0.13% for nongonococcal arthritis. Predisposing conditions for non-traumatic septic arthritis are diabetes, RA, SLE, and HIV. The most common joints affected are the knee and hip. Fungal-caused septic arthritis is typically not seen other than in immunocompromised hosts, with Candida species being the most common. Coccidiomycosis is an infection endemic to the Southwestern United States. It typically induces pneumonia-like symptoms with severity correlating to the amount of endospores inhaled and host immune factors.

Hypothesis:

N/A

Methods:

This is a 42-year-old male with HIV who has been off his anti-retrovirals for four months. His CD4+ count upon admission was 37cells/μ with a viral load of 134,000 copies/ml. His previously negative coccidioides antibody increased to 1:8. He presented to the ER with dyspnea and was admitted for bilateral lower lobe infiltrates and suspected pneumonia. He complained of right Achilles pain for the last 3 weeks without any known injury. On his initial history and physical it was noted that he did have a decreased range of motion to his ankle. Five days after admission orthopedics was consulted for abscess versus septic arthritis. Upon aspiration of the right ankle 15 cc of purulent material was removed.

Results:

A medial approach to the ankle was performed. A rush of purulent material was elucidated after opening the capsule, which was cultured. The wound was irrigated with normal saline prior to skin closure leaving the joint capsule open. Cultures grew *C immitis* from both the aspirate and the intra-operative samples. The patient also had *C immitis* in a brain abscess. Fluconazole was started the day of his irrigation and debridement. The duration of his hospital stay was 15 days. He did re-present with ankle pain one month later and was found to have immune reconstitution syndrome. He did not require another irrigation.

Conclusions:

This is a case of reactivation of *C immitis* causing septic arthritis of the ankle. This case demonstrates that hematogenous seeding of joints, even atypical fungal agents that cause respiratory infections, can seed and affect any joint. The initial treatment did not change from typical septic arthritis and this patient has done well. It is important to involve infectious disease colleagues, especially in atypical presentations, for planning and decision making regarding therapeutic agents and duration of therapy.

CR03.
Cutaneous Mucormycosis in a Chronic Immunocompromised State

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Background:

Mucormycosis is a fungal infection known to rapidly invade and kill human hosts, and oftentimes it is mistaken for the more common necrotizing soft tissue infection. *Rhizopus*, *Absidia*, and *Mucor* are the three fungal species most commonly seen to cause these infections; first, they produce a necrotic eschar commonly seen in the nose, and eventually go up through the cribriform plate to seed the brain. However, this classic pathway is not seen in all patients, especially those who have a suppressed immune response. Therefore, cutaneous forms of this infection can start anywhere and rapidly destroy tissues and vessels. The lack of immediate amphotericin therapy makes this such a fatal infection. Clinicians should keep Mucormycosis on the differential list of soft tissue infections, especially in patients who are experiencing some degree of immunosuppression.

Hypothesis:

The severity of an infection may be undermined, as Mucor is not the most common of soft tissue infections seen clinically, leading to unchecked spread and early fatality.

Methods:

We present a patient who developed cutaneous Mucormycosis, which was rapidly fatal due to his use of intravenous drugs and past medical history of malignant melanoma. We performed a literature review using New England Journal of Medicine, Journal of the American Medical Association, and PubMed to find and review other cases of cutaneous fungal infections, specifically Mucormycosis.

Results:
Mucor is often missed on the differential of possible soft tissue infections, thus treatment is never empiric and more commonly delayed resulting in rapid progression and death

Conclusions:

Unfortunately, many of sources stated that diagnosis of Mucormycosis in the operating room is very difficult. However, if clinical suspicion is high and live specimens are examined under microscopy, it may be possible to detect and differentiate this infection early. Particularly, the use of fluorescence such as Blankophor and Calcofluor White could make Mucormycosis an easier diagnosis; however, this has yet to be implemented in healthcare facilities nationwide. Thus, with the technology currently used, the best way to treat any patient suspected of a potentially fatal cutaneous infection is with constant surveillance, initiation of a variety of intravenous antimicrobials, and generous surgical debridement in the operating room.

CR04.
Lower extremity necrotizing soft tissue infection following foreign body ingestion

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Background:

A 64-year-old male presented with complaints of worsening right lower quadrant pain for three months and debilitating right-sided leg pain over several days. Physical exam revealed tenderness and crepitus of the right lower quadrant and right leg. Computed tomography scan demonstrated gas in the right psoas, iliacus, right medial thigh and calf. Given his overall clinical presentation there was high suspicion for necrotizing soft tissue infection (NSTI). After receiving immediate broad-spectrum antibiotics and fluid resuscitation, the patient was taken for emergent exploration, washout, and debridement of the right lower quadrant and the right lower extremity.

Hypothesis:

Lower extremity NSTI can track down the femoral sheath from an intra-abdominal source.

Methods:

There are no methods to report for this case report.

Results:

A 6cmx3mm wooden foreign body was extracted from the peritoneal cavity. No frank perforation was noted but there was significant inflammation around the cecum. Months prior to presentation, the patient swallowed a toothpick leading to eventual cecal perforation and displacement of the foreign body in the peritoneal cavity. Intra-operative cultures showed a polymicrobial infection including E. coli, Prevotella buccae, Strep, and Staph species, including MRSA. Post-operatively, he developed septic shock with multi-organ failure requiring prolonged intubation and inotropic support. Re-exploration was too high-risk given his hemodynamic

instability. His post-operative course was also complicated by cardiopulmonary arrest, development of an enterocutaneous fistula, and multiple diffuse ischemic infarcts noted on CT head. The patient eventually succumbed to his illness and expired.

Conclusions:

Necrotizing soft tissue infections pose a high risk of morbidity and mortality to patients and constitute a major challenge to surgeons. When bowel perforation is the source of the infection, a formal exploratory laparotomy during the initial operation may be in order to identify bowel injury, even without the presence of frank perforation. When NSTI are diagnosed in the lower extremities, an intra-abdominal source should be considered. Psoas or iliacus infections can track down to the lower extremity through the femoral sheath given the point of insertion of these muscles. As seen in our case, ensuring proper source control is essential. The difficulty in attaining full source control likely contributed to our patient's persistent state of septic shock and ultimately to his mortality.

CR05.
Infected Urachal Cyst: An Unusual Cause of Small Bowel Obstruction in a Two-Year-Old

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Background:

Urachal cysts typically remain asymptomatic unless they become infected. They present most commonly in children as a painful periumbilical mass. We report a case of an infected urachal cyst presenting as a small bowel obstruction.

Hypothesis:

Case Report.

Methods:

A two-year-old male presented with abdominal pain, nausea, vomiting, and obstipation. On exam, his abdomen was distended and a modest erythematous bulge was noted along the inferior margin of the umbilicus. Laboratories demonstrated a normal WBC and elevated CRP. An ultrasound showed a heterogeneous, echogenic mass just deep to the mid abdominal wall. CT imaging was interpreted as demonstrating an incarcerated umbilical hernia versus an infected urachal remnant. He was taken to the operating room for abdominal exploration, where an infected urachal cyst was discovered. Small intestine was tethered to the inflamed peritoneum overlying the cyst, resulting in a bowel obstruction. The obstruction was relieved and the cyst resected. The patient recovered uneventfully.

Results:

Contemporary management of an infected urachal cyst typically involves antibiotic therapy and percutaneous drainage, followed by interval excision. The case presented here required urgent surgical intervention due to the presence of a small bowel obstruction. The culprit was ultimately found to be an infected urachal cyst with small bowel adherent to the overlying peritoneum. Bowel obstructions due to mechanical compression from an urachal remnant are rare, but have been reported previously in both adults and children. Obstruction due to peritoneal inflammation from an infected urachal cyst has been documented in adults, but has not previously been reported in the pediatric population.

Conclusions:

An infected urachal cyst is a rare cause of small bowel obstruction that should be considered in the differential diagnosis for a pediatric patient presenting with the appropriate signs and symptoms.

CR06.
Perforated duodenal diverticulitis causing pseudoaneurysm of the pancreaticoduodenal artery

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Background:

Duodenal diverticula tend to be asymptomatic incidental findings, however, a limited number of patients with duodenal diverticulitis have been published and in rare cases surgical intervention was required.

Hypothesis:

Duodenal diverticulitis usually responds to antibiotics but secondary complications may require interventions.

Methods:

A 66-year-old Caucasian man with a past medical history of gastroesophageal reflux disease presented to our emergency room with a two days history of continuous right-sided abdominal pain, chills, tachycardia, nausea and emesis. His white blood count, lactic acid and bilirubin were elevated. Computed tomography scan revealed an inflammatory process involving the gallbladder, the second portion of the duodenum and ascending colon and a soft tissue mass in the mesentery.

Results:

A 2cm diverticulum of the second portion of the duodenum was also visualized. He was admitted and antibiotics were started. He improved clinical over the next 36 hours when a repeat triple contrast CT-scan showed that the soft tissue mass was a hematoma and the bleeding source was identified as a 2cm pseudoaneurysm of an inferior pancreaticoduodenal collateral artery. The inflammatory changes had significantly improved and the patient had no tachycardia or hypotension. Non operative management was continued and the patient was essentially symptom free with normalization of WBC and CRP. Repeat scan 3 days later demonstrated interval increase in size of the pseudoaneurysm and he was scheduled for angiography. The celiac access was cannulated and access through the gastroduodenal artery was attempted, hwoever, inflow to the pseudoaneurysm was predominantly from inferior pancreaticoduodenal artery. On cannulation of the superior mesenteric artery, a replaced rightbehpatic artery was found. Multiple attempts to advance the guidewire to the branch feeding the pseudoaneurysm failed and therefore the patient was transferred to a higher level of care facility. On first attempt there again the branch could not be accessed, however, on a second attempt successful embolization of the pseudoaneurysm was done. The patient recovered without any complication form this rare condition.

Conclusions:

To the best of our knowledge this is the first case of duodenal diverticulitis causing a pseudoaneurysm of the pancreaticoduodenal artery. Ultimately antibiotic therapy together with percutaneous embolization of the lesion resulted in a good outcome.

CR07.
Metastatic gastointenstinal stromal tumor presentinlog as Acute Appendicitis

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Background:

Gastrointestinal Stromal Tumor (GIST) is an uncommon tumor of the GI tract usually seen in elderly patients, often difficult to diagnose because of it’s vague symptoms of non-specific abdominal pain and abdominal fullness.

Hypothesis:

GIST may metastasize to intraabdominal organs causing acute abdomen requiring emergent surgery.

Methods:

A 44-year-old female presented to the emergency room complaining of sharp pain in her RLQ shifting to the umbilicus for the past day, with associated nausea and vomiting. Clinically she

was positive for McBurney's, Rosving's, Psoas, and Obturator signs. WBC was elevated at 16.5. CT-scan showed signs of appendicitis but also soft tissue masses suspicious for malignancy.

Results:

Surgery was performed the same day for presumed appendicitis with possible perforation. Surgery included diagnostic laparotomy with biopsy, open appendectomy and excision of muliple masses in the terminal ileum and in the subfascial abdominal wall. Subsequently a narrow based Meckel's diverticulum was also discovered and removed with multiple nodular lesions. Pathology report identified appendicitis and serosal involvement of GIST in each of the specimens. CD68, CD117, and Vimentin were all positive. The patient was then started on Imatinib postoperatively.

Conclusions:

This case illustrates a rare presentation of GIST. Not only was the patient unusually young, but the GIST lesions simultaneously illicited both acute appendicitis and Meckel's diverticulitis.

CR08.
Necrotizing Myositis: Operative Technique and Decision to Sacrifice Limb in Order to Save Life

Jess Caine, DO, ;Ronit Bassa, DO, ;James Yon, MD, ;Sue Slone, MD, ;Philip McIntire, DO,

Background:

Early recognition and urgent operative management of necrotizing soft tissue infections are of critical importance to reduce morbidity and mortality of this rare but devastating condition. Extensive necrotizing myositis is the rarest and most devastating of all the necrotizing soft tissue infections.

Hypothesis:

The strategy of damage control surgery is employed with priority to preserve life and get ahead of a potentially fatal etiology while minimizing operative stress to an already taxed physiologic system.

Methods:

We present a case of fulminant necrotizing myositis circumferentially involving the left thigh in a patient on chemotherapy for endometrial cancer and supratherapeutic on coumadin for recent deep venous thrombosis. The final source of the patient's necrotizing myositis was found to be a diverticular perforation or perirectal abscess that was found to be decompressing through the patient's femoral canal.

Results:

Described is the recognition of disease, decision making, rapid anticoagulant reversal, damage control management at the index surgery with high above the knee amputation, supportive critical care, and reconstruction. The patient has left the hospital and is currently doing well in rehab.

Conclusions:

Extensive necrotizing myositis is the rarest and most devastating of all the necrotizing soft tissue infections. Early recognition and urgent operative management of necrotizing soft tissue infections are of critical importance to optimize patient survival and optimization of quality of life through reconstructive techniques.

CR09.
A unique communication/data tracking tool for surgical site infection in the community.

Corrine McIsaac, Health Outcomes Worldwide;Rosemary Kohr, Health Outcomes World Wide;James Craig, Health Outcomes World Wide

Background:

While post-op surgical patients are carefully monitored within hospital for infection, once discharged home, no consistent surveillance is maintained. Surgical site infections (SSI) are identified as occurring within 30 days of surgery or for any surgery requiring appliance insertion (e.g., Hip/knee replacement), an SSI can occur up to 365 days post surgery (Centre for Disease Control, 2015). Maintaining surveillance for this length of time is daunting. Yet it needs to happen, given up to 84% of SSIs occur post-discharge. Mortality rates for surgical patients are double that of non-surgical patients (and the mortality rate increases 4 fold with advancing age). While these factors alone should provide an impetus for improvement in SSIS, the staggering cost of more than 7 Billion dollars annually in the United States, related to hospital readmissions and post-discharge care for surgical wounds, is a reminder of the increased healthcare resources required to manage SSIs.

Hypothesis:

A Canadian-based software technology company has developed a unique approach to surveillance of surgical wounds—with a focus on the post-operative homecare setting.

Methods:

Surgeons and their patients both have unique identifiers to link to a secure Cloud-based site where patients enter information and a photo of their surgical wound. The surgeon can then track and manage their patients who have been discharged home.

Results:
The ability to follow the progress of a wound once the patient is discharged, gives surgeons quicker response-time when infection is suspected, as well as the opportunity to provide reassurance to patients and their families.

Conclusions:

Giving patients and their families peace of mind in a stressful experience such as surgery (and the post-surgical recuperation) through using this simple and effective communication and assessment tool supports the concept of patient-centred quality care, while ensuring accurate SSIS occurs.

CR10.
A New Bacteria, Lactobacillus Acidophilus, Causing Necrotizing Fasciitis: A Case Report And Review Of The Literature

Jennifer Hubbard, ;Walid Saad, ;Inam Shaikh, ;Bhavik Jariwala, ;Ashley Hill, ;Arjet Gega, ;Alexander Palesty,

Background:

First described by Hippocrates in 500BC and popularized by Joseph Jones in 1871, Necrotizing Fasciitis (NF) is a severe necrotizing infection of the soft tissue.

Hypothesis:

Spreading along the fascial planes, the disease is rapidly progressive and can involve any part of the body[1,2,3,4,5]. Type I and type II are the most common types of NF[2,3,5,6,7]. Type I is usually multi-microbial and includes at least one streptococci facultative anaerobe and one or more enterobacteriacae organism[2,3,5,6,7]. Type II necrotizing fasciitis is most commonly monomirobial caused by group A streptococcus with or without a staphylococcal aureus infection[2,3,4,5,6,7].

Methods:

The diagnosis is clinical and alarming physical exam findings include sloughing of skin, skin discoloration, crepitus, blistering, intense pain with palpation, and easy separation of the fascial planes[3,4,5,7].

Results:

The gold standard of treatment for NF is early surgical debridement plus or minus a planned second look operation[3,4,5]. Broad spectrum antibiotics while awaiting cultures and intensive care admission for close hemodynamic monitoring is extremely beneficial for the patient[3,4,5,7].

Conclusions:

We present a case of a 59-year old female, found to be in diabetic ketoacidosis, with a left labial abscess which progressed to an abdominopelvic NF requiring multiple debridements and prolonged hospitalization. Interestingly, the causative organism for our patient's NF was

lactobacillus acidophilus, which has not been reported as a species to cause NF. This is followed by a review of the literature.

CR13.
Precipitant or Treatment: AGEP vs Wound Infection

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Background:

Acute generalized exanthematous pustulosis is a drug-related rash commonly caused by penicillins and over-the-counter pain relievers. Due to it being a less commonly known drug reaction, it is commonly mistaken for an infection, thus prolonging the course and increasing the severity of the rash.

Hypothesis:

Treating AGEP with cessation of antibiotics and administration of steroids may worsen a wound infection, and treating a wound infection with additional antibiotics may worsen AGEP.

Methods:

We performed an online medical journal search to discover how a drug-related reaction, specifically AGEP, can be delineated from a wound infection or necrotizing soft tissue infection. Additionally, we examined treatment protocols for both, realizing that treatment of one would exacerbate the other; this endorses the notion that understanding the cause of skin changes and rashes are vital to appropriate treatment.

Results:

Biopsy is the best method to determine whether a rash is due to a drug reaction or due to a wound infection, if systemic signs and symptoms are absent. Additionally, recognizing that AGEP is a drug reaction that can be caused by commonly administered is essential to preventing morbidity and mortality.

Conclusions:

Acute generalized exanthematous pustulosis, a potentially severe drug reaction, should be considered with patients presenting with a weeping, pustular rash without classic signs of an infection.