PYOMYOSITIS 101


Take home points:
1. Pyomyositis is uncommon in the U.S. but the incidence is rising, especially in patients with HIV; it is most often caused by *S. aureus*.
2. Usually due to prior muscle injury that becomes infected by transient bacteremia (usually *not* contiguous spread from cellulitis or osteomyelitis).
3. Diagnose by MRI (CT and U/S okay) and treat with antibiotics ± drainage, depending on stage of disease.

Pyo-myo-what?
- Pyomyositis is an uncommon and potentially life-threatening condition that is characterized by bacterial infection of skeletal muscle.

Microbiology and epidemiology:
- Most commonly seen in the tropics (especially Pacific islands), but increasingly seen in temperate climates such as the U.S. (especially in HIV infection).
- Tropical pyomyositis occurs in healthy, young patients (10-30 years old); temperate pyomyositis occurs mostly in immunocompromised patients who are somewhat older.
- *S. aureus* is the most common bug involved (90% of tropical cases, 70% of temperate cases) but many other bacteria have been described.

Why is pyomyositis so rare and how does it occur?
- Skeletal muscle is usually very resistant to infection, even in immunocompromised patients.
- Classic experiment: dogs injected with *S. aureus* did not get pyomyositis until muscle was traumatized.
- Therefore, most often, pyomyositis occurs due to both prior muscle injury (can be minor muscle injury) and transient bacteremia.
- In most cases, there is no prior history of skin breakdown or adjacent infection (e.g. cellulitis, osteomyelitis).

Other than immunosuppression, why are HIV patients more susceptible to getting pyomyositis?
- Neutrophils play an important role in the defense against pyomyositis, so decreased neutrophils (due to marrow infiltration by another disseminated infection) and decreased neutrophil dysfunction (common in HIV patients) leads to an increased risk of this disease.
- Antiretrovirals commonly cause myopathies which can render muscle susceptible to pyomyositis.
- HIV patients have increased colonization by *S. aureus*.

Who does pyomyositis present clinically?
- Usually occurs in the large skeletal muscles of the lower extremity.
- Stage 1: low-grade fever, local muscle pain; no pus in the muscle at this stage (just diffuse muscle infx)
- Stage 2: fever, severe muscle tenderness, edema, pus in muscle (most patients present at this stage).
- Stage 3: bacteremia, sepsis, endocarditis, renal failure, and other metastatic foci of infection (very high mortality at this stage).

Diagnosis:
- You have to have a high index of suspicion to detect pyomyositis as it may not be obvious by exam.
- MRI is study of choice, followed by aspiration of pus, but CT and ultrasound can be used.

Treatment:
- Stage 1: antibiotics alone; Stage 2-3: antibiotics plus drainage.
- Non-HIV patients: anti-staph coverage; HIV pts: broad spectrum antibiotics until you find organism.
For more information and resources developed by UCSF medical housestaff, please browse the following links:

**UCSF Department of Medicine, Housestaff Website:**
- Resources and information for our housestaff
- Location: http://medicine.ucsf.edu/housestaff/

**UCSF Department of Medicine Hospitalist Handbook:**
- Available free of charge for download to PDA
- Updated annually and written by UCSF medical residents
- Location: http://medicine.ucsf.edu/housestaff/handbook/

**UCSF Chief Medical Residents’ Cover Sheets:**
- Covering a wide array of topics that were discussed at morning report
- Location: http://medicine.ucsf.edu/housestaff/Chiefs_cover_sheets/

**UCSF HIV InSite:**
- Top-rated website by UCSF physicians on all aspects of HIV.
- Location: http://hivinsite.ucsf.edu