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## Introduction

Pyomyositis is a purulent infection of skeletal muscle commonly caused by Staphylococcus Aureus with muscle suppuration, abscesses, and hematogenous spread. It's divided into tropical and temperate forms affecting different demographics. While the tropical form affects healthy individuals, the temperate variety patients are typically immunocompromised. Risk factors include skeletal muscle trauma, IV drug use, malnutrition, and immunodeficiency. Pyomyositis presents with fever, pain, and single muscle group cramping, most commonly in the lower extremity.

The vast majority of pyomyositis cases are caused by Staph Aureus. Less common causative agents include gram negative bacilli, streptococcus species, E.Coli species, meningococcal species, and mycobacterium species. In patients with comorbid DM, pyomyositis may be polymicrobial. Tropical pyomyositis arises in otherwise healthy patients without comorbidities in a bimodal distribution, affecting children 2-5 years old. and adults from 20-45 years old. In the temperate variety however, patients are typically immunocompromised with risk factors including muscle trauma, and IV drug use. We present the case of a 55 year old male with small cell lymphocytic lymphoma lugano stage IV who transferred from the medical floor to the rehabilitation unit with a streptococcus dysgalactiae pyomyositis in the left adductor magnus and vastus lateralis.

## Admission Physical Exam

**GENERAL:** The patient is noted to be an appropriately developed male, who appears his noted age. He is very pleasant and cooperative. Follows commands well.

**HEENT:** Examination reveals no gross asymmetry. Patient is quite pale. He is wearing his eyeglasses. Oral mucosa is moist. Hearing appears functional.

**NECK:** Supple, with no bruit noted over the carotids.

**HEART:** Regular rate and rhythm, without gallop noted during my brief auscultation.

**LUNGS:** Clear to auscultation bilaterally. Comfortable on room air. Breath sounds are symmetrical. No conversational or exertional dyspnea is noted after manual muscle strength testing.

**ABDOMEN:** Soft, nondistended, nontender, with positive bowel sounds.

**EXTREMITIES:** Examination of the extremities reveals a decline in the medial aspect of the left arm. Patient has compression stockings on the bilateral legs, knee-highs. petechial hemorrhages noted in the skin of the bilateral pretibia. patient complained of left lower extremity pain on hip flexion with the knees in extension while in the seated position. He did not have similar complaint in the right lower extremity as he did with the left lower extremity. At least mild pitting edema is noted in the bilateral legs. Mild pitting edema is noted in the left ankle, moderate in the right side. The patient also started complaining of bilateral lower extremity discomfort in the calves on passive dorsiflexion of the bilateral ankles just before reaching the neutral position. No such pain or discomfort was reported by the patient on range of motion of the upper extremities.

**NEUROLOGICAL:** functional strength in bilateral upper extremities without asymmetry. Sensation to touch intact in the bilateral distal upper and lower extremities. Muscle strength +4/5 in B/L LE

## History and Medical Course

We present a 55-year-old male with a past medical history of malignant melanoma of the right scapula with recent diagnosis of small lymphocytic lymphoma (Lugano stage IV M+, high CD38, Del 11q, Del 17p) admitted with a several-day history of weakness, dizziness, and bilateral lower extremity pain, left greater than right. He was diagnosed with severe anemia, and septic shock with blood cultures positive for Streptococcus dysgalactiae. MRI of his left thigh with/without contrast was obtained revealing "diffuse edema in the left vastus lateralis and anterior portion of the adductor magnus with peripherally enhancing fluid collections predominately in vastus lateralis. Imaging characteristics are concerning for pyomyositis." Broad spectrum IV antibiotics were initiated. The cause of his lower extremity swelling and pain was presumed secondary to bacterial seeding from sepsis. He continued to improve medically over the next few days.

Due to his significant deconditioning, weakness, and pain impacting his function, he was admitted to the acute inpatient rehabilitation unit. During the patient's stay in the Acute Rehabilitation Center, in addition to the rehabilitation team, the patient was also followed by Internal Medicine. Additionally, the patient was also followed by Infectious Disease and Hematology/Oncology.

During his stay in the acute rehabilitation center, the patient continued on cefepime for the febrile neutropenia. He finished the clindamycin but remained on prophylactic acyclovir, micafungin, and Lactobacillus rhamnosus during his stay in the Acute Rehabilitation Center. The patient also continued on ibrutinib during his stay in the Acute Rehabilitation Center.

In therapies, the patient progressed well. By the time of discharge, he was documented to be independent for bed mobility, modified independent for transfers; standby assistance to negotiate full flights of stairs while using 1 handrail and a single-point cane; ambulating 400 feet independently while using a single-point cane on level ground. He is likewise documented to be independent for self-care activities of daily living except for being modified independent for lower body dressing and toileting.

By the clinic visit 1 month later, He had returned to work full-time, doing well with this. However, he did note some cognitive fatigue and feeling memory difficulties that he has noticed over the last few weeks. He did not feel memory is limiting his day-to-day however he did note he wants this monitored.

## Clinic Visit Exam (8/2020)

**General:** Alert and oriented, No acute distress.

**Eye:** Extra-ocular movements are intact, Normal conjunctiva without scleral icterus.

**HEENT:** Oral mucosa is moist. Normocephalic, atraumatic.

**Neck:** Trachea midline. No obvious thyromegaly.

**Respiratory:** Respirations are non-labored, normal respiratory effort.

**Cardiovascular:** Normal rate, extremities warm.

**Lymphatics:** No edema.

**GI:** Abd soft, non tender, non distended

**Psychiatric:** Cooperative, Appropriate mood & affect.

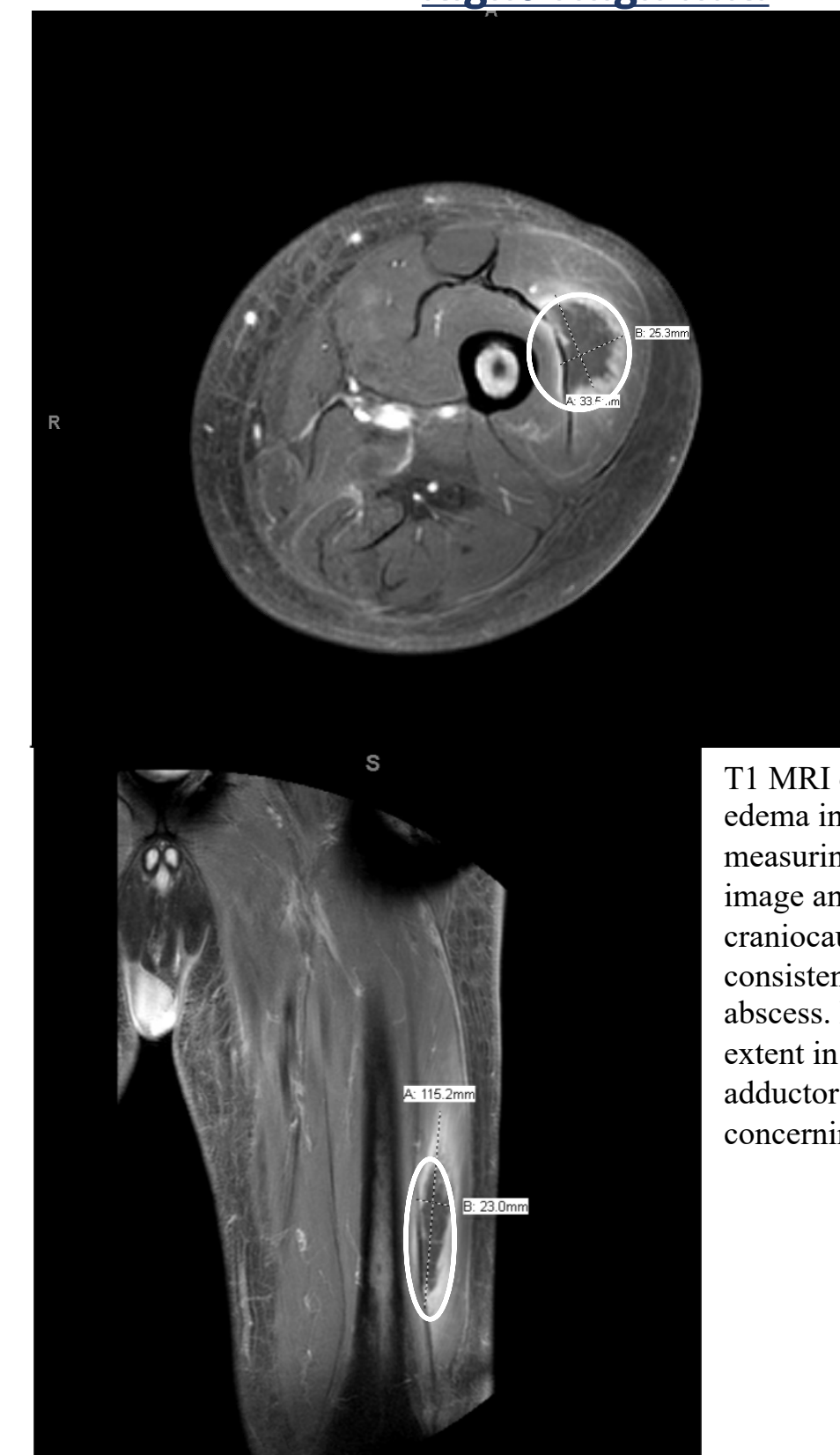
**Integumentary:** Substantial improvement in LE petechial rash

**Musculoskeletal:** Ambulating in the hallway without assistive device, no loss of balance, normal toe clearance, normal speed of ambulation. No ataxia

No tenderness over bilateral thighs/calves

**Neurologic:** No facial droop, symmetric facial expressions, no hoarseness, no dysarthria or aphasia noted

## Right Thigh MRI



T1 MRI of RLE displaying diffuse edema in patient's vastus lateralis measuring 3.4x2.5 cm on axial image and up to 11.5 cm craniocaudal on coronal images consistent with intramuscular abscess. Edema is seen to a lesser extent in patient's anterior adductor magnus. Findings concerning for pyomyositis.

## Discussion and Conclusion

Pyomyositis patients with immunocompromised status present a dilemma for rehabilitation physicians. Though medically complicated throughout his rehabilitation course, the patient was not severely limited. The only restrictions during rehabilitation were due to pain. Range of motion restrictions were considered, but no protocols existed for preventing seeding of pyomyositis in immunocompromised rehabilitation patients.

The presentation of pyomyositis can prove to be an obstacle in patients' rehabilitation course. Due to the common symptoms of significant weakness, fever, pain, and muscle cramping, participation in physical and occupational therapy is often limited. Furthermore, in patients such as the one we have presented, the presence of septic shock further complicates rehabilitation efforts. The rehabilitation course of this complicated patient is important for the future care of other patients with complicated pyomyositis. More evidence and data are needed when initiating a rehabilitation plan in a patient with septic shock related pyomyositis.

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