

Painful leg in a diabetic patient: an unusual cause (pyomyositis)

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Pyomyositis, a rare condition can involve perfectly healthy individuals but is generally a disease of immunocompromised like diabetic patients. Probably, the result of transient bacteraemia characteristically involve muscles of lower limbs. Clinically to begin with, can mimic other non-infective musculoskeletal disease which often result in the delay of diagnosis.

Keywords:

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Introduction

Pyomyositis, a devastating suppurative bacterial infection of the skeletal muscles not necessarily secondary to a contiguous infection from regional area, is relatively common in tropical regions and accounts for 4% of all hospital admissions.

Most of the patients with this condition are immunocompromised but may also affect healthy young individuals [1,2]. Often patients present with tender indurated muscle swelling that ultimately progresses to involve the overlying tissue. Muscles of the pelvic area and lower extremities are most commonly affected. An abscess of thigh, quadriceps, and iliopsoas muscles is relatively common [3]. Early in its course, the differential diagnosis includes musculoskeletal aches, osteomyelitis, septic arthritis, muscle hematoma, muscle rupture, thrombophlebitis, or deep venous thrombosis. A delay in the diagnosis may result in compartment syndrome, sepsis, and death. Long-term sequelae of pyomyositis include osteomyelitis of adjacent bones, muscle scarring, prolonged hospitalization, and significant functional impairment [4].

Case report

We report a patient with type 2 diabetes of 10 years duration who presented to us with history of increasing pain in the posterior aspect of the right thigh with systemic features of malaise, fever, and rigors.

There was no history of trauma. Physical examination revealed a temperature of 102°F, pulse 120 bpm, blood pressure 120/76 mmHg, and respiratory rate of 20 breaths/min. Local examination showed tense and swollen right thigh with tenderness and induration. There was no erythema or regional lymphadenopathy. The swelling progressed over the next 2 days and

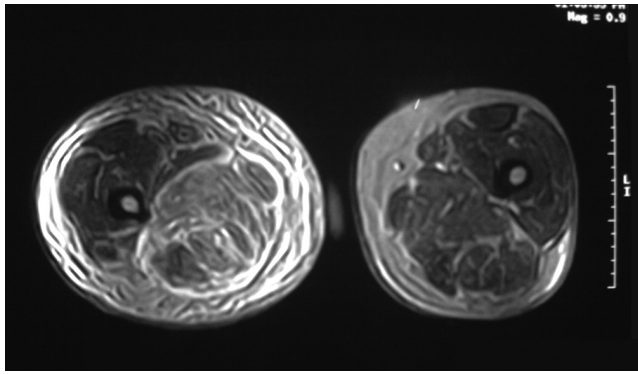
involved the whole right lower limb distally, above the ankle joint and proximally up to the right inguinal ligament going up to the right flank of abdomen. Peripheral pulsations and neurological examination were normal.

Laboratory results showed a total leukocyte count of 10 500/mm³; differential leukocyte count showed neutrophilia (78%) with left shift; C-reactive protein was 250 mg/l; and creatinine kinase was 456 U/l. Random blood glucose was 480 mg/dl on the first day of admission, which was controlled within a range of 110–140 mg/dl. Serum urea was 80 mg/dl, serum creatinine was 1.3 mg/dl, SGOT serum was 32 U/l, and serum glutamic aspart transaminases (SGPT) was 63 U/dl. Radiograph of knee and thigh was normal on the day of admission. HbsAg, anti-hepatitis-C virus, and HIV serology were nonreactive. Two sets of blood cultures grew methicillin-sensitive *Staphylococcus aureus* within 48 h. There was no suggestion of deep venous thrombosis on 2-D color Doppler. MRI of the right lower limb showed myofascitis in the posterior and medial compartment of thigh with areas of necrosis with associated cellulitis (Figs. 1 and 2). Computed tomography of abdomen showed right lateral and posterior abdominal wall myofascitis and cellulitis with extension into the right hip region and the left lateral abdominal wall and bilateral pleural effusion with right-sided basal atelectasis (Fig. 3). The patient was treated with antibiotic (piperacillin-tazobactam, vancomycin, clindamycin) and insulin infusion for glycemic control (Fig. 4).

Discussion

Pyomyositis is a rare process, which can affect perfectly healthy individuals; it is still generally a disease of the immunocompromised patients. Possibly, it starts as a result of a transient bacteremia. Characteristically, muscles of the lower body are most commonly affected,

Figure 1



MRI of right lower limb showed myofascitis in posterior and medial compartment of thigh with areas of necrosis with associated cellulitis.

Figure 3



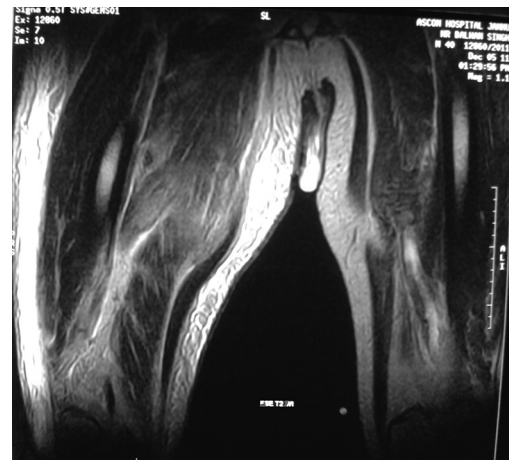
Computed tomography of abdomen showing right lateral and posterior abdominal wall myofascitis and cellulitis with extension into the right hip region and the left lateral abdominal wall and bilateral pleural effusion with right-sided basal atelectasis.

such as the quadriceps, gluteal, and iliopsoas. The most common organism is *S. aureus*, present in more than 75% of the cases. This is not a methicillin-resistant *S. aureus* infection, but it is usually methicillin-sensitive strain [5].

Diabetes is an important contributing factor to pyomyositis by predisposing the skeletal muscle to damage and increasing susceptibility to infections [6–8]. Review of the literature suggests that its incidence in diabetes has increased from 8% of cases in 1971–1991 [4] to 31% of cases in recent reports [9].

The pathogenesis of pyomyositis is confusing because intact muscle is usually resistant to infection. Curiously, many patients give history of trauma, seemingly minor in nature. It is generally considered secondary to a transient bacteremia. No characteristic source or

Figure 2



MRI of right lower limb showed myofascitis in posterior and medial compartment of thigh with areas of necrosis with associated cellulitis.

Figure 4



Clinical photograph of the patient.

portal of entry can be identified. The pathogenesis of pyomyositis is multifactorial. Transient bacteremia with concomitant muscle damage may be a causative factor. Rarer infectious agents include *Streptococcus pyogenes*, *Streptococcus pneumoniae*, *Escherichia coli*, *Mycobacterium avium*, and other gram-negative bacteria [3].

Pyomyositis progresses through three clinical stages [10]. The initial invasive stage begins with cramping and aches in the affected area associated with a low-grade fever. In stage 2, there is muscle abscesses formation with local and systemic manifestations. Stage 3 is characterized by signs of toxicity and septic shock.

Routine laboratory investigations are rarely helpful. Inflammatory markers such as C-reactive proteins may be elevated [3], and 50% of patients have leukocytosis [11]. Muscle enzyme levels are variable.

Blood cultures are positive in 5–31% of cases [4,11]. Plain radiography is often unremarkable and mainly used to rule out primary bone lesions. MRI is the imaging modality of choice, especially in the initial stages. It demonstrates diffuse muscle inflammation and abscess formation. Ultrasonography and computed tomography are useful in localizing intramuscular abscesses and guiding the needle for aspiration.

The mainstay of treatment is drainage of the abscess, coupled with prolonged antibiotic therapy. Percutaneous needle drainage may occasionally be successful, but often these patients require deep and extensive incision and drainage. The majority of misdiagnosed patients are probably first treated as nonspecific myofascial pain or simple cellulitis or as other nonspecific soft tissue entities before the abscess is obvious.

The duration of antibiotic therapy can range from a few days to a more prolonged course, as occurred in this case. The diagnosis of pyomyositis requires a high index of suspicion and should be considered in all patients with fever and muscle pain. This is particularly important in patients with diabetes. Successful treatment requires early recognition, appropriate use of antibiotic therapy, and debridement and drainage of the affected tissues.

Acknowledgements

Conflicts of interest

There are no conflicts of interest.

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