

Pyomyositis associated with diabetes mellitus and liver cirrhosis

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ABSTRACT

Pyomyositis is a primary infection of the skeletal muscle, occurring most commonly in tropical countries. Adults who develop the disease have, in most cases, associated comorbidities that compromise the immune system, including *diabetes mellitus* and liver cirrhosis.

Keywords: pyomyositis, *diabetes mellitus*, liver cirrhosis.

INTRODUCTION

Pyomyositis is a disease of skeletal muscle. It can affect any muscle group by contiguity or hematogenous spread from a distant focus. A predilection for muscle groups of the trunk and lower limbs is observed. *Staphylococcus aureus* is usually the etiologic agent found in cases described in literature.^{1,2}

A delay regarding the diagnosis of pyomyositis is usually observed due to the nonspecific clinical signs at onset. Pyomyositis can possibly be mistaken for bone or joint infectious processes, thrombophlebitis, panniculitis, or systemic diseases.³

CASE REPORT

Female, 42 years old, with a history of hepatitis C virus cirrhosis and type 2 *diabetes mellitus* was admitted to the Rheumatology Service reporting pain in lateral face of right thigh for 20 days. Initially, the pain was sudden and of high intensity, progressively worsening, and irradiating to entire right leg, getting worse with walking. The patient also reported measured fever of 38°C and asthenia. On physical examination, she was prostrated, pale, jaundiced; blood pressure 100 x 70

mmHg; heart rate of 100 beats per minute; axillary temperature of 38.6°C; pain on palpation of lateral face of right thigh; and pain on rotation of internal and external right hip joint, without signs of inflammation or joint blockage.

The patient underwent additional tests: complete blood count showed hemoglobin 9.8 mg/dL, hematocrit 29%, WBC 2500/mm³ with neutrophils 72%, eosinophils 2%, lymphocytes 10%, monocytes 16%, and platelets 23.000/mm³; C-reactive protein (CRP) 20.07 mg/dL; erythrocyte sedimentation rate (ESR) 52mm; C3 and C4 decreased; absent cryoglobulins; creatine phosphokinase (CPK) 40UI / L; creatinine 0.8 mg/dL; IgE 64 ng/mL; albumin 2, 4 g/dL; prothrombin time activation 17.1 s; INR 1.6; activated partial thromboplastin time 31.4 s; prothrombin activity 43%; serum glucose 187mg/dL; total bilirubin 3.2 mg/dL; direct bilirubin 1,3 mg/dL; indirect bilirubin 1.9 mg/dL; blood culture positive for group B beta-hemolytic *Streptococcus*. Radiography of right hip joint showed no change; ultrasonography showed presence of edema in thigh muscle and absence of collections suggestive of abscess; nuclear magnetic resonance (NMR) showed collection areas within gluteus muscle and peritrochanteric region (Figure 1). Muscle biopsy showed debridement product of gluteus

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region with acute and partly exudative inflammatory process in fibrous connective and fat tissues.

Given the results found on NMR, pyomyositis was diagnosed, with indication for open surgical drainage (Figure 2), biopsy, and collection of material for culture.

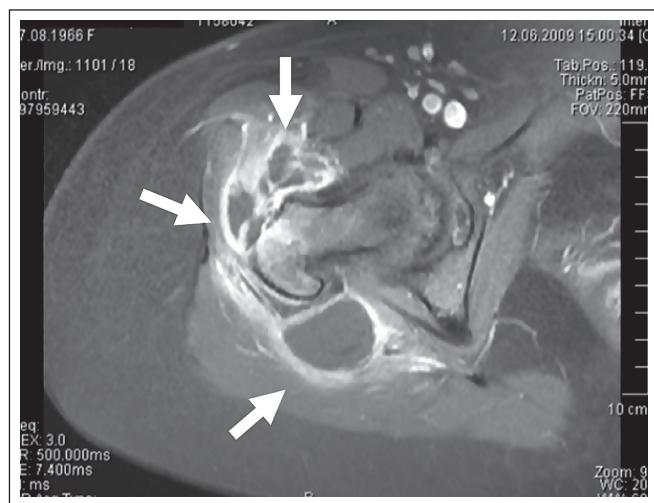


Figure 1
NMR of right hip joint, demonstrating blurring in subcutaneous tissue of lateral region of right hip; irregular presence of multiple images, hyperintense on T2/stir, located in soft tissues adjacent to the femoral neck and major femoral trochanter to the right in the topography of gluteal muscles, which shows peripheral enhancement after intravenous contrast injection, suggestive of collection (white arrows).

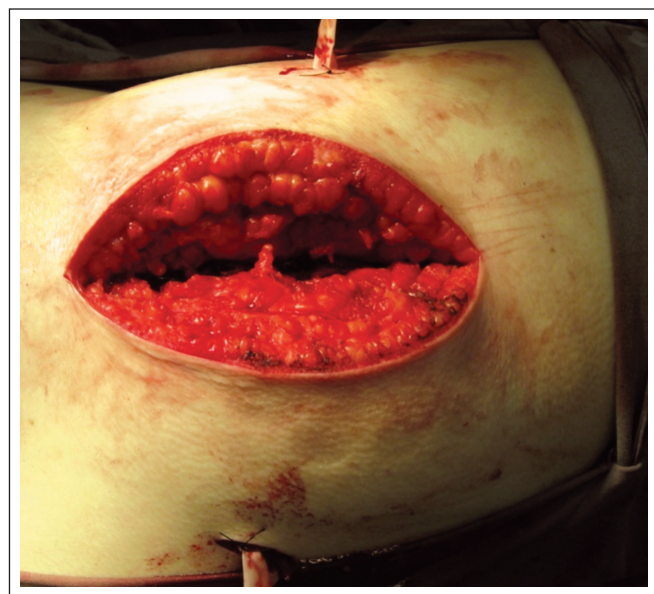


Figure 2
Open surgical drainage of collection on topography of peritrochanteric and gluteal muscles.

In our case, we chose to start oxacillin (2 g intravenously every 6 hours) and antibiotic therapy, taking into account the high prevalence of *Staphylococcus aureus* as the main agent, which is consistent with reports in literature. However, we observe growth of group B beta-hemolytic *Streptococcus* in both blood culture and secretions collected during surgery and, therefore, after the outcome of the new antibiogram, antibiotic therapy was changed to cefepime (1 g every 12 hours).

On the ninth day of treatment with cefepime, the patient developed fever and, even showing no signs of inflammation or formation of new collection on surgical site, we decided to change the antibiotic. As a result of the antibiogram, the patient was treated with sulbactam (1 g intravenously every 6 hours) and ampicillin (2 g intravenously every 6 hours) for 21 days. Patient's general condition was improved, there was a decrease in CRP value reaching 2.76 mg/dL and ESR decreased to 38 mm. However, the pancytopenia persisted, probably attributed to hypersplenism secondary to cirrhosis unrelated to the infection condition. During the course of evolution, CPK levels remained within normal limits.

DISCUSSION

According to Marques *et al.*, Scriba was the first to report pyomyositis in 1985. It is a disease that preferentially affects individuals in the first and second decades of life, with prevalence in men.⁴ Adults above 30 years of age who develop the disease, in 50% of the time, have an associated comorbidity.¹ Associations reported in literature include patients with the human immunodeficiency virus, *diabetes mellitus*, cancer, liver cirrhosis, kidney failure, transplant recipients and users of immunosuppressive agents.^{5,6}

The pathogenesis of primary pyomyositis remains unclear, although the role of trauma and immune impairment are questioned as predisposing factors.^{7,8}

In our case, the patient had comorbidities such as hepatitis C virus and *diabetes mellitus*, both involved in reducing the immune response.

Laboratory findings are nonspecific, but blood count can reveal everything from leukopenia to leukocytosis with left shift, depending on the etiologic agent and the individual immune response. Eosinophilia may be found in patients with concomitant parasitic infection.⁹ There may be increased inflammatory evidence, and CPK usually does not change.^{1,5} NMR is the gold standard for pyomyositis diagnosis, since it is possible to detect early findings of muscles diffuse inflammation.¹

The etiology of pyomyositis is attributed mainly to *Staphylococcus aureus* (85% to 95%), followed by *Streptococcus* sp. (1% to 5%) and, rarely, by enterobacteriaceae.¹⁰ Blood cultures are positive in less than 40% of patients and secretion cultures are positive in only 21-41% of cases.¹ Pyomyositis usually affect only one muscle, but 11% to 43% of patients may have widespread outbreaks in various muscles. The primary muscle involved is the quadriceps, followed by gluteal and iliopsoas muscles.¹¹

According to literature, the infection whose etiologic agent is *Streptococcus* sp. can be very aggressive, causing extensive muscle necrosis and septicemia, while infections whose etiologic agent is *Staphylococcus aureus* tend to present better evolution.¹⁰ Our objective in reporting this case is to alert about the need for early diagnosis and prompt introduction of therapy for patient to obtain a better clinical outcome.

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