Multifocal pyomyositis and meningitis after bone marrow biopsy in a diabetic patient

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SUMMARY: Multifocal pyomyositis and meningitis after bone marrow biopsy in a diabetic patient.

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Primary or tropical pyomyositis is a subacute infection of the skeletal muscle complicated by abscess formation. The disease is rare in the temperate climates and often misdiagnosed because of the vague clinical presentation. We herein report a case of a 38-year-old diabetic patient with a history of recent bone marrow biopsy presented multifocal primary pyomyositis complicated by meningitis.

INTRODUCTION

Tropical pyomyositis is a primary subacute bacterial infection of the muscle progressively leading to the formation of abscesses. The disease is rare in the temperate climates and often misdiagnosed because of the vague and nonspecific symptomatology. We present a case of a 38-year-old diabetic patient with multifocal pyomyositis of the gluteal, ilioptas, deltoid and quadriceps muscles complicated by meningitis after a bone marrow biopsy.

CASE REPORT

A 38-year-old man presented at the emergency department with a 6-day history of malaise, fever, lumbar and left hip pain. The patient had a history of minor mental retardation, diabetes mellitus type 2 and goiter. He underwent a left ilium bone marrow biopsy 15 days before in order to investigate a persistent anemia and eosinophilia. Physical examination revealed lumbar pain and painful limitation of the left hip joint. His temperature was elevated (39.8°C) and the relatives referred intense chills before the admission to the hospital. The blood pressure was 85/45 mmHg and the pulse was 110 bates/min regular. Remarkable laboratory findings included leukocytosis (WBC: 14700/ mm³ with 79% neutrophils, 11% eosinophils), C-reactive proteine: 7.34 mg/dl, Urea:163 mg/dl, Creatinine:1.8 mg/dl, hyperglycaemia (483 mg/dl) and high hemoglobin A1c (8.8%).

Plain X-ray series of the chest and the abdomen were normal as well as abdominal ultrasound scan. There was no sign of inflammation at or near the entry point of the previously performed bone marrow biopsy. Abdominal and pelvic computed tomography (CT) scan demonstrated multiple abscesses of the ilioptas muscles and of the left gluteus maximus muscle (Figs. 1, 2). Within the following 8 hours the abscess of the gluteus maximus was surgically drained. Cultures of the purulent material as well as blood cultures were positive for Methicillin-Sensitive-Staphylococcus Aureus (MSSA). Treatment with cloxacillin was initiated. Within the following 48 hours, the patient presented signs of meningeal irritation. The CT of the brain did not demonstrate abnormalities and lumbar puncture was carried out. Cerebrospinal fluid (CSF) was blurry and its cultures were also positive for MSSA. Ceftriaxone (2g) and dexametasone (10mg) were also administrated as a single boost dose. Within the following five days,
a clinical improvement was observed although pyrexia was still continuous. For that reason a surgical drainage of the iliopsoas abscess was performed. The patient remained without fever for the following three days.

On day 9 after admission, a swelling of the right shoulder occurred and a limitation of the passive and active movements of the joint was observed. A new CT scanning revealed a large abscess of the right deltoid muscle, another of the right quadriceps muscle (Figs. 3, 4) and a recurrence of the iliopsoas abscess. Amikacin was administrated and surgical drainage was performed for the deltoid and quadriceps muscle abscess. A clinical improvement was rapidly observed and the patient was discharged 26 days after the initial admission.

Discussion

Primary or tropical pyomyositis (PPM) is a rare subacute bacterial infection of the muscles that can lead to abscess formation. The disease commonly occurs in the tropics but constitutes an emerging and often misdiagnosed condition in the temperate climates (1).

Primary pyomyositis is most common in the first and second decade of life with a slight male predominance (1). Staphylococcus Aureus is the most commonly implicated organism while other infectious agents such as Streptococcus pyogenes, Streptococcus pneumoniae and Escherichia coli are rarely found in cultures of blood or purulent material (1). At the time of the diagnosis, positive blood cultures have been reported in 29-38% of all patients and positives cultures of purulent material range from 21 to 41% of the cases (1, 2). In our case S.aureus was identified in blood, in purulent material and in cerebrospinal fluid cultures.

PPM usually involves a single muscle, although 16% of patients suffer from multifocal pyomyositis (1). The most common site of infection is the quadriceps muscle (26.3%), followed by the iliopsoas (14%), gluteal
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Pyomyositis usually occur with three overlapping stages. The initial invasive stage begins with a cramping pain progressing in 'wooden stiffness' in a group of muscles with minimal signs of local inflammation. Low-grade fever, general malaise, mild leukocytosis and eosinophilia can also be found during this stage. By suppurative stage, surgical or percutaneous drainage with concurrent use of antibiotic therapy is imperative; just like in our case. In cases of meningitis due to MSSA, cloxacillin or vancomycin is usually effective (8). Intravenous administration of antibiotics is administrated for a period of 7 to 10 days because few days of clinical improvement or apyrexia do not mean definitive recovery, like in our case. For this reason, oral administration of appropriate antibiotic treatment is needed for a period of 5 to 6 weeks. Treatment of immunocompromised patients requires a longer period of intravenous and oral administration of antibiotics (1,9).

References

9. ((10.8%) and deltoid muscles (7.9%) (1). PPM of the iliopsoas is rare and the cases reported in the past were secondary infections due to adjacent tuberculosis of the spine or to iliac lymph nodes or associated with gastrointestinal or urinary tract infection (1). Initial involvement of iliopsoas muscle and gluteus maximus was the main cause of symptomatology in our case.

In our case, diabetes increases susceptibility to infections and the incidence of PPM in diabetic patients ranges from 8% to 31% of cases (2, 4, 5). Our patient was diabetic with a poorly controlled glycemic profile that contributed to increased susceptibility to the infection. Inflammation of the entry point of needle or to iliac lymph nodes or associated with gastrointestinal or urinary tract infection (1). Initial involvement of iliopsoas muscle and gluteus maximus was the main cause of symptomatology in our case.

Muscle enzymes levels are variable (5). In our case, the patient presented an unexplained eosinophilia and bone marrow biopsy was performed in order to investigate the hematologic disorder. It is not clear if the eosinophilia was a sign of a subacute staphylococcal infection and if the bone marrow biopsy caused a transitory bacteremia leading in abscess formation.

Magnetic resonance imaging (MRI) has the greatest diagnostic value but CT, U/S, technetium and gallium scintigraphy are also used (1). Percutaneous drainage of the muscle absceses can be achieved under U/S or CT guidance (1).