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CASE REPORT

Bacterial pyomiositis in pediatrics: case report

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Abstract

Introduction: The bacterial pyomyositis (BP) is a rare infectious disease that affects the skeletal muscle system and it is most often caused by S aureus. It affects one or several muscle groups and an early diagnosis is important, otherwise it may cause serious infectious conditions, including sepsis and long-term disabling sequelae and even limb loss. **Purpose:** To describe a case report of a patient with pyomyositis early diagnosed and good evolution. **Report:** 10-year-old patient with severe pain in the lower limbs and in the pelvic girdle and claudication for one day, that started after riding a bicycle for a long period of time. Patient denied fever or general symptoms. Laboratory tests showed an ongoing inflammatory process and blood culture was negative. X-ray and ultrasound of the hip and left thigh were normal, but MRI of the hip showed signs suggestive of bacterial pyomyositis. Intravenous antibiotics were started with fast improvement. Patient was discharged after 21 days of antibiotic therapy, without sequelae. **Conclusion:** The careful clinical history and the magnetic nuclear resonance confirmed the diagnosis of the disease and allowed early institution of the treatment, evolving with no sequelae.

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INTRODUCTION

Bacterial pyomyositis (BP) is a rare infectious disease that affects the musculoskeletal system. It can be unifocal or affect several muscle groups. The most common etiological agent is Staphylococcus aureus. The disease predominantly affects males between the first and second decades of life.[1-4] Initially described by Scriba in 1885 in tropical regions, it became known as tropical pyomyositis, although it has also been described in countries with temperate climates.[3-5]

The likely pathophysiology is bacteremia triggered by trauma or physical strain with muscle contusion, which may decrease muscle tissue's natural resistance to infection. Some adult patients with the disease develop it due to predisposition or immunosuppression. Immunosuppression is not common among children.[3,6]

In the initial stages of the disease, symptoms are generic and include non-localized pain. Only 2% of patients are diagnosed early on. As the disease progresses, patients develop intense localized pain and accumulation of intramuscular purulent secretion. Delays in diagnosis may cause the occurrence of septicemia and other serious complications such as pneumonia, empyema, osteomyelitis, septic, toxic or compartmental shock, kidney failure, and venous thrombosis.[4,6,7] Mortality ranges from 0.5 to 2%. Untreated patients may require limb amputation and suffer from osteoarthritis and gait disorders.[1,2]

The diagnostic imaging test of choice is magnetic resonance imaging (MRI). MRI scans must be ordered promptly to detect diffuse muscle inflammation and define the extent and degree of impairment.[6,8] Other laboratory or imaging tests may be needed to rule out other causes of infection, although they are not helpful for the early diagnosis of the disease.[1-3,6]

This report demonstrates the importance of capturing the patient's clinical history and ordering MRI scans early to prevent complications and sequelae from this rare condition in children. Furthermore, it aims to shed light on pyomyositis, build awareness among healthcare workers, and demonstrate how early intervention prevents potentially disastrous, incapacitating outcomes.

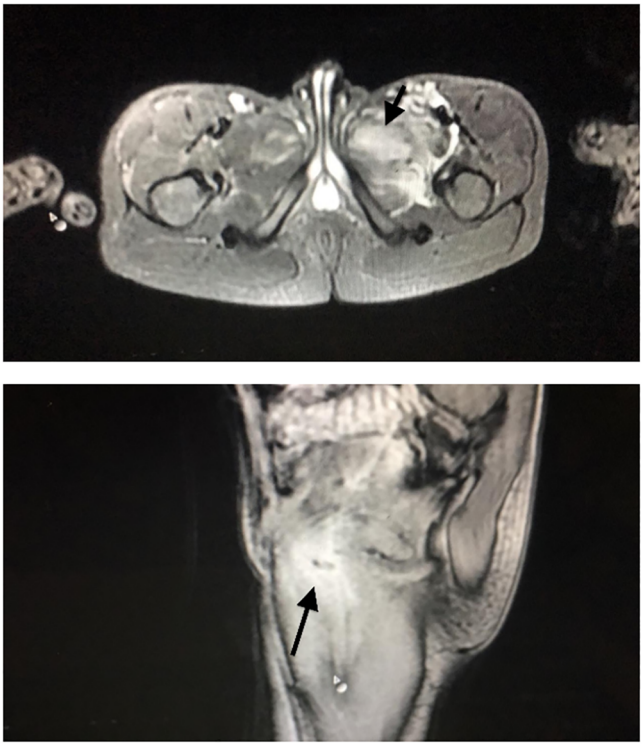
CASE REPORT

The patient's mother consented to the publication of this case report, and approval was obtained from the institution's Research Ethics Committee, as reflected in certificate no. 51973221.2.0000.5378.

An otherwise healthy ten-year-old boy was admitted due to intense pain in the left leg and ipsilateral pelvic girdle and lameness. The symptoms started the day before. The pain radiated to the left iliac fossa and appeared after the boy went on a long bike ride. He was initially diagnosed with a traumatic injury. The patient was feverless and presented no other generic symptoms, but during hospitalization, the pain worsened, and the child was unable to walk. The symptoms described above were confirmed upon examination, and intense pain was felt upon the external left rotation of the hip. Laboratory tests revealed ongoing inflammation (CRP: 102 MG/DL, ESR: 61 mm). The patient had a normal complete blood count, CPK, and a negative blood culture. The X-ray images and ultrasound scans of the left hip and thigh were normal, but the patient continued to experience incapacitating pain. An MRI of the hip was then ordered, which showed enlarged adductor muscles with a highly heterogeneous signal, diffuse edema between muscle fibers, small intramuscular collections with signal attenuation on T2 with peripheral enhancement, confirming the diagnosis of bacterial pyomyositis with a small abscess on the left (Figures 1 and 2). The patient was started on intravenous clindamycin and ceftriaxone, which resulted in a rapid reduction of physical limitations and the resolution of symptoms after five days of treatment. CRP and ESR values decreased gradually. The boy was discharged after 21 days of antibiotic therapy without clinical or laboratory changes.

DISCUSSION

The age group with the highest occurrence of tropical BP varies substantially according to different studies. However,



Figures 1 and 2. Enlarged short and long left adductor muscles with signs of diffuse edema between muscle fibers and a small collection, with a strong signal on T2 and a weak signal on T1, with peripheral enhancement and a small collection visible after contrast injection, along with edema in the contralateral adductor muscles.

the most recent reports describe a higher prevalence in the first and second decades of life. The disease predominantly affects males, and in up to half of the cases, it is associated with trauma, intense physical exercise, and nutritional or immune changes.[3,4,6] Our patient presented with the typical signs of BP and reported intense physical exercise, which was likely what triggered the condition.

The most affected muscle groups are the quadriceps, psoas, glutes, and adductors, as in the case described. However, the disease may also involve the chest, gastrocnemius, soleus, paravertebral, and forearm muscles.[4]

The most common agent is S. aureus, followed by Streptococcus sp. and Gram-negative bacteria. Blood culture is negative in most patients, as in our case.[6] Clinical signs and symptoms vary depending on the affected site and stage of disease, with fever and pain being the most significant. Our patient may not have had a fever due to the prompt start of treatment and the early prescription of anti-inflammatory drugs for intense pain. The incapacitating nature of the symptoms calls for the inclusion of osteomyelitis, septic arthritis, synovitis, hematoma, and muscle contusion in differential diagnosis.[2,3] Initially, the patient presented with pain and severe range of motion restriction, but his condition gradually deteriorated. He was initially diagnosed with a traumatic injury, which is described in the literature as one of the conditions that need to be ruled out. MRI must be ordered promptly for patients failing to get better since it unequivocally and rapidly identifies cases of diffuse muscle inflammation and delimits the extent and degree of impairment.[6,8] X-ray images are usually normal in the acute phase of the disease and have little diagnostic value. CRP and ESR are usually elevated, and CPK is within the normal range, as seen in our patient.[6] Ultrasound and CT scans may identify collections and help in punctures and the placement of drains. Still, MRI is more specific and appropriate for identifying soft tissue infection in patients without changes in X-ray images and other tests.[4,6,9] Our patient had signs of disease only in inflammatory activity tests, and the MRI captured only images indicative of infection.

Intravenous antibiotic therapy against S. Aureus must be initiated and maintained until clinical improvement. Prescription may change according to culture findings but must be kept for two to six weeks. Patients diagnosed in the second and third stages of the disease must have their abscesses drained and undergo surgical debridement.[1,6] As described in the literature, patients with advanced disease are at high risk of complications such as septic shock, pneumonia with empyema, kidney failure, osteomyelitis, and limb resection.[3,7] Our patient was prescribed ceftriaxone and clindamycin, with good clinical and laboratory response. He was diagnosed with early-stage disease and treated promptly, and the small abscess the patient had did not require drainage. The patient improved without sequelae after showing an excellent clinical response, which could have been different if he had not been diagnosed with early-stage disease.

Considering the nonspecific nature of the symptoms, laboratory, and imaging tests, capturing the patient's clinical history in detail is essential in cases of muscle pain not associated with trauma suspected of BP. MRI is necessary for early diagnosis and must be ordered in cases suspected of BP to ensure an uncomplicated disease, decrease morbidity and mortality, and reduce hospitalization time.

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