Case Report

A Case of Pyomyositis in a Healthy 11-Year Old Boy with Need of Surgical Drainage

Alina Frolova MD [1], Joana Freitas MD [1], Rui Martins MD [1], Jorge Coutinho MD [1]

Abstract

Pyomyositis is an uncommon clinical entity predominantly affecting the pediatric population. It presents with diffuse muscle involvement, mostly in the lower limb, with occasional abscess formation. Surgical drainage in indicated along with appropriate antibiotic therapy.

In this article, we present a case of a previously healthy 11-year-old boy with acute onset of hip pain and fever, as well as elevation in blood leukocyte count and C-reactive protein. Magnetic resonance imaging showed oedema of internal obturator, external obturator, adductors and quadratus femoris muscles, with an intra-muscular abscess in the obturator externus muscle. After two attempts at percutaneous drainage, the patient progressed to sepsis needing open surgical drainage through a transgluteal approach. Concomitantly, a deep venous thrombosis was diagnosed.

After the drainage and a prolonged antibiotic regimen, the patient recovered fully without apparent sequelae.

Keywords: Pyomyositis, External obturator, Muscle abscess, Transgluteal approach

Dr. Alina Frolova

Dr. Joana Freitas

Dr. Rui Martins

Dr. Jorge Coutinho

Address of Correspondence
Dr. Alina Frolova,
Department of Pediatric Orthopedics, The University Hospital Centre São João, Alameda Prof. Hernâni Monteiro, 4200-319 Porto Portugal.
E-mail: alina.frolova.238@gmail.com

Department of Pediatric Orthopedics, The University Hospital Centre São João, Alameda Prof. Hernâni Monteiro, 4200-319 Porto Portugal.

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Introduction

Pyomyositis (also known as tropical myositis, infective myositis, pyogenic myositis and bacterial myositis) is a rare deep bacterial infection involving skeletal muscles, most commonly caused by Staphylococcus aureus. Previously it was associated with tropical climates, though in the last decades there has been increased incidence in temperate regions. It most commonly affects children [1], being frequently associated with immune deficiency. Lower limb involvement is more common, including pelvic muscles [1-10].

It is important to consider this diagnosis in a child with acute onset of fever, antalgic gait or inability to bear weight, after exclusion of the more common hip septic arthritis.

We present a case of a previously healthy 11-year old boy with a diagnosis of external obturator pyomyositis with muscular abscess complicated with sepsis, deep venous thrombosis and the need for open surgical drainage with full recovery.

Epidemiology

Pyomyositis (also known as tropical myositis, infective myositis, pyogenic myositis and bacterial myositis) is a rare deep bacterial infection involving skeletal muscles, most commonly caused by Staphylococcus aureus. Previously it was associated with tropical climates, though in the last decades there has been increased incidence in temperate regions. It most commonly affects children [1], being frequently associated with immune deficiency. Lower limb involvement is more common,

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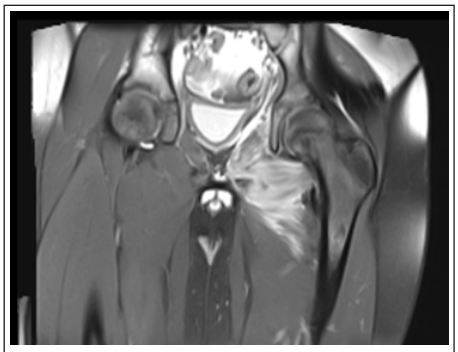

Figure 1: MRI showing a gadolinium-enhanced external obturator abscess (T1 weighted)

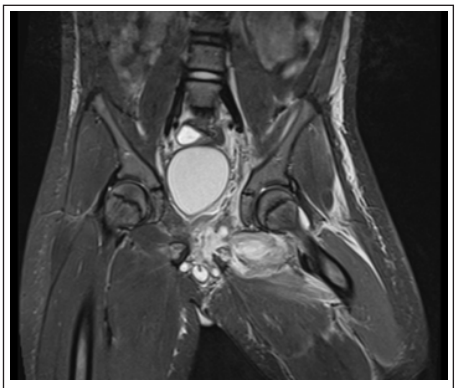

Figure 2: MRI showing an increase of the previous abscess (T2 weighted)

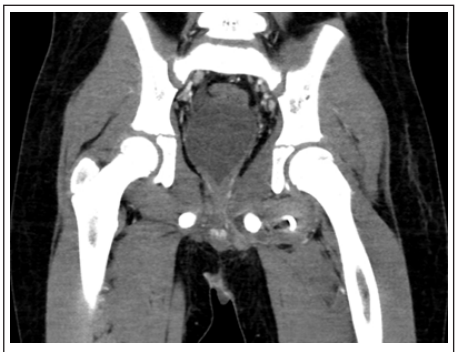

Figure 3: CT scan in soft tissue window showing the abscess with a draining tube

including pelvic muscles [1-10].

It is important to consider this diagnosis in a child with acute onset of fever, antalgic gait or inability to bear weight, after exclusion of the more common hip septic arthritis.

We present a case of a previously healthy 11-year old boy with a diagnosis of external obturator pyomyositis with muscular abscess complicated with sepsis, deep venous thrombosis and the need for open surgical drainage with full recovery.

Case report

A previously healthy 11-year-old boy was admitted with a 48-hour history of fever (maximum of 40°C) and left groin and anterior thigh pain that worsened during internal hip rotation. There was no history of preceding trauma. No significant findings concerning any other potential sources of infection were noted and the patient was stable. There was an increase in leukocyte count (13570/μL), raised C-reactive protein (CRP) (260 ml/L), as well as erythrocyte sedimentation rate (44 mm). Initial blood cultures showed methicillin-susceptible Staphylococcus aureus (MSSA). Pelvic magnetic resonance imaging (MRI) showed gadolinium-induced oedema of internal obturator, external obturator, adductors and quadratus femoris, with a 63 x 19 mm intramuscular abscess of the external obturator muscle (Figure 1) and no evidence of intra-articular fluid. Intravenous antibiotic treatment with flucloxacillin was initiated and an ultrasound-assisted drainage of the external obturator was performed, with isolation of MSSA in the fluid. Clindamycin and piperacillin/tazobactam were added to the antibiotic regimen. Repeat blood cultures were negative and cardiac ultrasound evaluation showed no evidence of endocarditis.

Due to persistent fever and progressive increase in leukocyte count as well as CRP, the MRI was repeated which revealed an increase of the intra-muscular abscess (75 x 46 mm), extending to the ischial tuberosity and the iliopubic ramus, with gadolinium-induced enhancement of the bone (Figure 2), as well as a small reactive hip joint effusion. The ultrasound-guided drainage was repeated despite which the patient began to progress to sepsis, with persistent fever, elevation of blood leukocyte count and CRP, as well as thrombocytopenia and

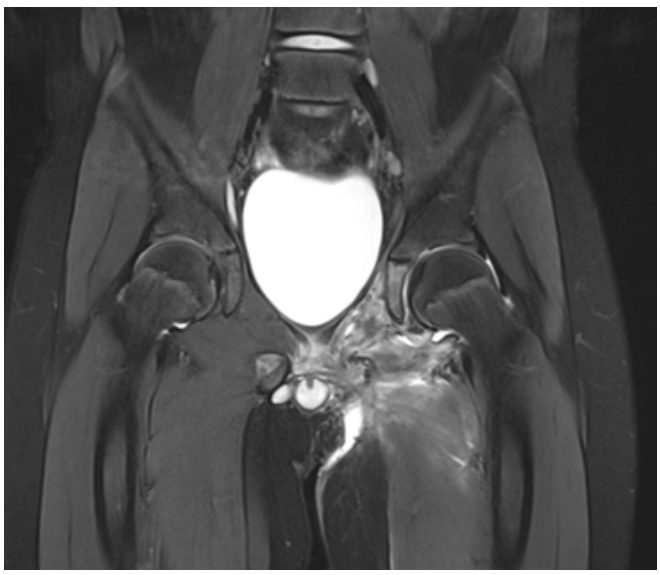

Figure 4: MRI showing a smaller area of diffuse enhancement without any abscess (T2 weighted)

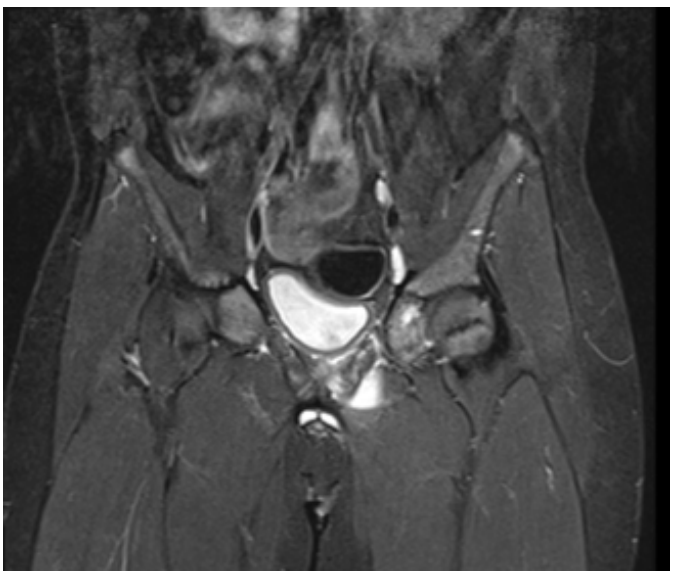

Figure 5:MRI showing a residual enhancement of ischial tuberosity (T2 weighted)

hypoalbuminemia. An emergency computerized tomography (CT) scan was performed (Figure 3), with evidence of external obturator intramuscular abscess and no reduction compared to the previous MRI. There was evidence of left external iliac vein thrombosis requiring non-fractionated heparin therapy and substitution of clindamycin to vancomycin.

An emergent surgical drainage was performed through the transgluteal approach, with debridement extending to the ischial tuberosity. A drain was placed and removed four days later. MSSA was isolated in the intra-operative tissue samples.

There was a brief elevation of serum creatinine and a diffuse rash; both improving after vancomycin was discontinued.

A repeat MRI revealed a decrease of the obturator abscess (Figure 4). CRP and blood leukocyte count decreased as well, associated with clinical and functional improvement. Oral sulfametoxazole/trimethoprim was administered for a total duration of 10 weeks.

Four months after the initial presentation, a further MRI showed no abscess (Figure 5), though some signal change in the ischial tuberosity remove hypersignal persisted. Clinically the patient showed full recovery with no apparent sequelae.

Discussion

Pelvic pyomyositis is a fairly uncommon condition, encountered more frequently in tropical climate, though reports from temperate climate countries are on the rise [1, 3]. It appears to be more frequent in males and individuals in the first and second decade of life [1, 2, 3, 8, 9]. Several conditions predispose to pyomyositis including HIV, tumors, diabetes mellitus, malnutrition, auto-immune diseases and other causes of immune compromise [1]. Healthy children are less commonly affected [3-8, 11].

This clinical entity affects lower limb muscles, though upper limb involvement has been described [2].

The clinical presentation usually consists of fever, pain in the hip joint, antalgic gait or inability to bear weight, with elevation of CRP and blood leukocyte count. At this stage other differential diagnoses such as transient hip synovitis, hip septic arthritis, and appendicitis should be excluded. A reactive hip joint effusion can also appear in a case of pyomyositis. The symptoms can have an acute or subacute onset which could delay reaching the correct diagnosis and instituting appropriate management.

The most commonly described causative agent is MSSA, whereas other agents, such as methicillin-resistant staphylococcus aureus (MRSA), Group A Streptococcus and other Streptococcus spp, Escherichia coli, Enterococcus spp, Klebsiella spp have also been identified [1, 2, 9, 11].

The etiology of pyomyositis is unknown, though on rare occasions there is a previous history of local non-penetrating trauma or preceding viral infections [1-3, 5-8, 11].

Plain radiographs are usually normal. CT scan can identify intramuscular abscesses. Ultrasonography may not readily reveal deeper focal intramuscular lesions. MRI is the imaging method of choice, showing increased signal intensity in T2-weighted images, indicative of diffuse muscle inflammation or intramuscular abscesses [2].

The initial approach is intravenous antibiotic treatment, which usually resolves the diffuse infection. In case of an intramuscular abscess, drainage can be performed percutaneously with ultrasound or CT guidance or through an open surgical approach. In our case, after two unsuccessful attempts at percutaneous drainage, open surgery became necessary. The Pfannenstiel or ilioinguinal approach were preferred earlier, though the transgluteal approach is less extensive, with fewer complications [12, 13].

Currently, duration of antibiotic treatment is decided based on the course of disease and associated conditions. Generally, at least 7 – 10 days of intravenous antibiotic followed 3 – 4 weeks of oral antibiotics should be administered [2, 3].

Some of the complications associated with pyomyositis include septic arthritis of the hip, compartment syndrome, osteonecrosis of the femoral head, sepsis and septic embolization leading to shock and death [4, 6]. In our case, the patient progressed to sepsis with hypoalbuminemia and thrombocytopenia, which improved after surgical drainage. Deep venous thrombosis can also be a consequence of sepsis.

Conclusion

Although pyomyositis is rare, it is important to bear in mind in the differential diagnosis of an infant with fever, hip pain, inability to bear weight and signs of systemic infection. If pyomyositis is not diagnosed and treated at an early stage, it can progress to septic shock. With appropriate management, the prognosis is overall good with full recovery.

Declaration of patient consent : The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal his/her identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

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