Pyomyositis of Gluteus medius: A case report and review of the literature

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Abstract

Introduction: We present a case of 12 year old boy presented with right hip pain, fever and antalgic gait. Inflammatory markers were raised at presentation. The pelvic radiograph and ultrasound scan of right hip joint did not detect any abnormality. The Magnetic Resonance Imaging (MRI) scans revealed inflammatory oedema in the right gluteus medius muscle. He was treated with intravenous Flucloxacillin for 10 days and later 6 weeks of oral Flucloxacillin. At the 6 weeks follow up patient was asymptomatic with normal gait. MRI at 6 weeks did not show any fluid collection in gluteus medius.

Conclusion: Pyomyositis is rare in temperate countries. It must be considered as one of the differential diagnosis in a child presenting with hip pain, fever and raised inflammatory markers.

Keywords: Gluteus medius, hip, Pyomyositis.

Learning Points for this Article:

Pyomyositis is uncommon in temperate climates. It must be considered as one of the differential diagnosis if a child presents with a fever, muscle pain, elevated CRP, ESR and leucocytosis. Early diagnosis is crucial to prevent morbidity and mortality. MRI is the investigation of choice.

Introduction

Pyomyositis is an acute intramuscular bacterial infection of the skeletal muscle, secondary to haematogenous spread of a microorganism, which is neither secondary infection of adjacent skin, soft tissue, or bone, nor due to penetrating trauma [1,2]. The incidence is higher in warmer climates, hence the alternative nomenclature “tropical pyomyositis”. It commonly affects the muscles around the hip joints and can mimic a range of acute paediatric disorders such as septic arthritis or appendicitis [3]. Diagnosis is often delayed as a result of ambiguous presentation, non-specific differential diagnosis, a variety of clinical presentations, its relative rarity, and the unfamiliarity of physicians with the disease [4].

Case Report

12 year old Caucasian male was referred by his general practitioner to the orthopaedic department with a suspected septic arthritis of hip. He had a 2 day history of right hip pain, pyrexia, and difficulty in weight bearing during this period. There was no history of trauma or any infection in the preceding 3 months.

On examination, he had an antalgic gait. His core temperature was elevated at 38.0° C. There was no erythema, swelling or localized temperature change at the thigh or gluteal region. His hip was non-tender to passive rotation or flexion, but he reported pain on active hip flexion beyond 90°. Laboratory investigations revealed white cell count of 9.20×10⁹/L and C reactive protein (CRP) of 93 mg/L. Blood culture revealed staphylococcus organism sensitive to Flucloxacillin. Immunocompromised state had been ruled out by the Pediatric team of doctors. Radiograph of pelvis (Fig.1) and ultrasound scan of the left hip showed no abnormality but subsequent magnetic resonance imaging (MRI) scan of pelvis showed septation and phlegmon formation along with inflammatory fluid and edema in the right gluteus medius muscle. (Figs 2 and 3). Patient was allowed to mobilize partial weight-bearing with crutches for a week and later mobilized with full weight bearing at discharge. No splints were used to immobilize the affected limb. The patient was treated with intravenous Flucloxacillin for 10 days and later 6 weeks of oral Flucloxacillin. At the 6 weeks follow up patient was asymptomatic with normal gait. MRI at 6 weeks did not show any fluid collection in gluteus medius.

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Flucloxacillin 25 mg/kg every 6 hourly for 10 days. By this stage, CRP had fallen to 5 mg/L, and he was discharged on oral Flucloxacillin 500mg QDS for 4 weeks, with subsequent outpatient review at 2 weeks and 4 weeks. At 2 weeks, his hip pain had fully resolved, and he demonstrated a full range of painless active hip movement, although he continued to use crutches when walking. There was no tenderness over the gluteal or trochanteric region. At 4 weeks, he was permitted full weight bearing without any support. His CRP was < 3 mg/L. A repeat MRI scan at 6 weeks showed no evidence of any oedema or fluid collection in and around right gluteus musculature (Figs 4 and 5).

Discussion:
Scriba first described Pyomyositis in 1885 [5]. It is an endemic disease in tropical regions especially in parts of Africa and South Pacific, hence the alternative name tropical pyomyositis. It is rare in countries with a temperate climate [6]. The first case in the UK was reported in 2010 [7].

Etiology
Staphylococcus aureus is the responsible organism in up to 95% of cases [7, 8]. Other rare bacterial causes of pyomyositis include group A β-hemolytic streptococci, α-hemolytic streptococci and non-hemolytic streptococci Streptococcus pneumoniae, Staphylococcus epidermidis, Staphylococcus pyogenes, Streptococcus pyogenes, coliiform, Fusobacterium, Haemophilus influenzae, Escherichia coli, Neisseria gonorrhoeae, Klebsiella, Yersinia enterocolitica, Pasteurella species and Pseudomonas species [9, 10, 11, 12, 13, 14, 15]. Predisposing factors include Diabetes [8, 16], Hematological disorders [17, 18], AIDS [10, 19] and connective tissue disorders [20, 21].

Stages of Pyomyositis:
Pyomyositis has three discrete stages of presentation. The early “invasive” stage is characterized by pain and swelling of the involved muscle, with or without fever. The second “suppurative” stage occurs 10-21 days after the onset. This stage is characterised by abscess formation. Symptoms of fever and malaise are commonly noted. It may be possible to palpate a fluctuant muscle swelling, and there will be a marked leukocytosis and elevated sedimentation rate. About 90% of patients will present during this stage. The third “septicemic” stage is associated with multiple metastatic abscesses formation. Lower limb and trunk are the most common sites involved [10].

Investigations:
The laboratory findings in Pyomyositis are non-specific. A rise in Erythrocyte sedimentation rate (ESR) is commonly found, and a leucocyte left shift (an increase in the number of immature leucocytes) may be suggestive [23]. Blood cultures were positive in only < 5% of cases in reported tropical climates [9]. Plain radiograph may be rarely helpful in the diagnosis but it helps to exclude any bony pathology [24]. Cross-sectional imaging may be the most valuable investigation. Ultrasound scan of the hip can exclude septic arthritis (an important differential diagnosis). MRI is preferred over computed tomography (CT), as the former is better in identifying soft tissue abnormalities. MRI will classically show diffuse fluid collection in the muscle with a rim enhancement if an abscess is present [7].

Differential Diagnosis:
Pyomyositis must be differentiated from septic arthritis, osteomyelitis, Perthes disease, juvenile rheumatoid arthritis, discitis, appendicitis, deep vein thrombosis, synovitis, perinephric abscess and soft tissue sarcomas [3].

Diagnosis of pyomyositis is often delayed as the patients usually present late, the condition is rare and many physicians are unaware of the entity [9, 24].

Treatment:
In the early stages or pre suppurative phase intravenous antibiotics are the treatment of choice. Variable recommendations have been given regarding the choice of antibiotics [7]. Bickles et al. recommend cloxacillin with the addition of aminoglycoside in an immuno compromised patient and in sepsis [25]. Zimbelman et al. advised clindamycin with or without penicillin [26]. If an abscess is present, it may be necessary to consider either open incision and drainage or percutaneous catheter drainage under CT or Ultra-sonographic guidance [7].

Results
If the condition is recognized early and managed aggressively, the majority of patients show complete recovery with no long-term complications [9, 26]. If the disease is allowed to enter the later stages, complications may include cause extended hospital stay, local extension into adjacent bone or joint, compartment syndrome, remote infection such as pericarditis, endocarditis, myocarditis, lung and brain abscesses, renal failure, septicemia and death [9, 27, 28, 29]. Mortality rates between 0.9% and 10% have been reported [27, 28, 29].

Conclusion
Early recognition is a key to the management of this rare condition. Appropriate intravenous antibiotics should be given at an early stage. Incision and drainage or guided percutaneous drainage will be required if an abscess has formed. The vast majority of patients show excellent recovery without any long term sequelae, but complications may result from delayed presentation and failure to make appropriate diagnosis.
Pyomyositis is uncommon in temperate climates. It must be considered as one of the differential diagnosis if a child presents with a fever, muscle pain, elevated CRP, ESR and leukocytosis. Early diagnosis is crucial to prevent morbidity and mortality. MRI is the investigation of choice.

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