

Case Report of Iliac Osteomyelitis in A Child, Presenting as Septic Arthritis of the Hip

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What to Learn from this Article?

Differentiation between pelvic osteomyelitis and hip septic arthritis in a child

Abstract

Introduction: Osteomyelitis of the pelvis can be a difficult condition to diagnose and can present in a number of different ways. The ilium is the bone most frequently affected and staphylococcus aureus is the organism most commonly responsible.

Case Report: This case report describes a six year old girl, who presented with right sided hip pain, fevers and altered weight bearing. She was initially diagnosed with septic arthritis of the hip and underwent open joint washout. A magnet resonance imaging scan was subsequently performed which confirmed the diagnosis of iliac osteomyelitis with abscesses of the iliopsoas and iliacus. The patient underwent further operative debridement and required prolonged antibiotic therapy but she eventually made a full recovery.

Conclusion: Pelvic osteomyelitis can present very similarly to hip septic arthritis and early magnetic resonance imaging is beneficial in diagnosing the condition. Surgical intervention can be required if there is abscess formation, although recovery is usually very good and the incidence of long term complications is rare.

Keywords: Pelvic osteomyelitis; Iliac osteomyelitis; Hip septic arthritis.

Introduction

Osteomyelitis of the pelvis is uncommon but can be associated with significant diagnostic difficulty [1,2,3]. It is usually caused by haematogenous spread of organisms; in most cases staphylococcus aureus but multiple other organisms have also been identified as causative agents [4].

The disease can mimic many different pathologies including the acute abdomen, septic arthritis, typhoid fever, nephrolithiasis, osteomyelitis of the proximal end of the femur, discitis and neoplasia [1,3]. This case report highlights the similarity in presentation of iliac osteomyelitis to septic

arthritis of the hip.

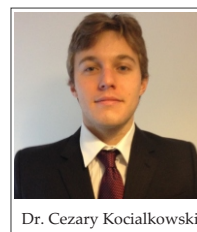
Case Report

A six year old girl presented to the Orthopaedic department with a five day history of right hip pain, fevers and difficulty weight bearing. There was no history of trauma or any recent illness. The patient was of Somali origin but there was no recent history of travel or infectious contacts and no significant past medical history.

On examination she had a temperature of 39.5 degrees Celsius and the right hip was held in flexion, with localised anterior joint

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Author's Photo Gallery



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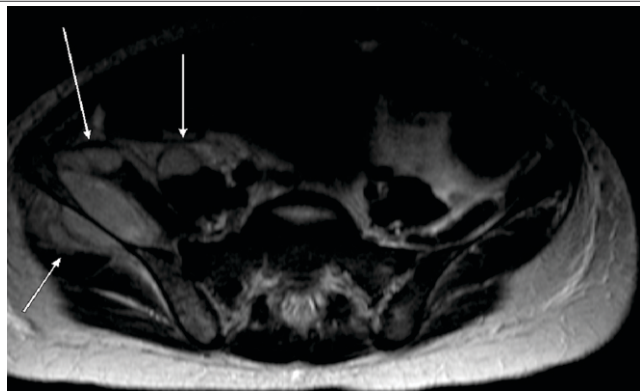


Figure 1: T1 weighted axial MRI image demonstrating collections of the right iliacus and distal right iliopsoas and a collection on the other side of the iliac wing extending into the gluteus minimus and medius. There is also abnormal marrow signal in the right iliac wing consistent with osteomyelitis

line tenderness. Both passive and active movements of her hip were painful and restricted. Examination of her left hip, knees and ankles was normal. Examination of her abdomen revealed mild tenderness in the right iliac fossa.

Blood tests showed a neutrophilia with left shift and a raised C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). Sickle cell screen was negative and initial pelvic x-rays were normal. She was diagnosed with hip septic arthritis and an open washout of the hip joint was performed. Two millilitres of blood stained fluid was aspirated and the patient was commenced on intravenous (IV) antibiotics. The following day the patient remained pyrexial and the CRP and ESR continued to be raised. A second open washout of the right hip was performed but no pus or fluid was aspirated.

Blood and joint fluid cultures were subsequently positive for staphylococcus aureus. A magnetic resonance imaging (MRI) scan of the right hip was performed which showed collections of the right iliacus and distal iliopsoas, with abnormal marrow signal in the right iliac wing consistent with osteomyelitis (Fig 1).

The patient was diagnosed with iliac osteomyelitis and transferred to Manchester Children's Hospital where she underwent exploration of the right iliopsoas abscess. This revealed a large collection of pus and some necrotic muscle, which was thoroughly washed out and debrided.

She gradually made a recovery and was eventually discharged home after a total of 30 days. Oral antibiotics were continued on an outpatient basis for a further 28 days.

On follow-up, one month later she had made a full recovery, with a normal gait and a full range of movement of her right hip.

Discussion

Pelvic osteomyelitis is an uncommon condition but accounts for approximately 1% to 11% of haematogenous osteomyelitis [5,6]. The most common location is the ilium due its larger size and abundant blood supply [3,5]. The average age of onset tends to be between 7 and 14 years, with a slight male preponderance [1,2,3,5,7]. The most frequent causative organism is staphylococcus aureus, present in 38% to 46% of cases, but other organisms include salmonella, streptococcus pneumoniae and gram negative bacilli [1,2,3,5,7].

Clinical features associated with pelvic osteomyelitis include hip or thigh pain, present in 98% of cases, fever present in 57% and altered weight bearing in 46% [1,2,5,7]. In addition there is often tenderness on palpation of the sacro-iliac joint, decreased straight leg raising and pain on lateral pelvic compression. Flexion of hip may occur as a result of irritation of the iliopsoas muscle by abscess formation [8].

Passive movement of the hip joint is usually preserved, with pain solely at the extremes of motion [1,6]. Right iliac fossa tenderness can also occur secondary to spread of inflammation from the inner cortex of the pelvis [6].

Blood tests typically show raised inflammatory markers, with an elevated ESR present in 90% of cases and a raised white cell count in 59% to 66% of cases [1,2,3,5]. Blood and tissue cultures are positive in only 50% to 78% of cases and negative cultures do not exclude infection [1,3,5].

Initial radiographs are usually normal, as the typical radiographic features of osteomyelitis usually take two to three weeks to become visible [5,9]. Ultrasound scans can demonstrate deep soft tissue swelling in pelvic osteomyelitis [7] and radionuclide bone scans can indicate pyogenic infection at an early stage [1,3,5].

Computed tomography can also allow early diagnosis, demonstrating the site and extent of infection, as well as the presence of lytic lesions, sequestrum or traumatic fractures [2,5,10].

MRI is, however the gold standard investigation and is reported as being 97% sensitive and 94% specific for the diagnosis of pelvic osteomyelitis. It is able to demonstrate marrow oedema and hyperaemia of the infected bone early in disease onset, as well as the presence of soft-tissue and intra-osseous abscess [9,10].

Treatment of pelvic osteomyelitis usually consists of IV antibiotics alone, as the good blood supply to the pelvis means the risk of sequestrum is reduced and the ligamentous structure minimises the spread of infection [1,5,10]. Surgery is generally only advocated if there is extensive osseous involvement, failure to respond to antibiotic therapy or abscess formation requiring drainage [1,5,10].

Prognosis is normally good with prompt treatment, with 95% to 97% of patients making a full recovery [3,5]. Complications can, however occur if treatment is delayed and include the development of chronic osteomyelitis, growth arrest, fusion of the sacro-iliac joint and irregularity of the acetabulum [5,9].

Conclusion

This case report highlights the difficulty in diagnosing pelvic osteomyelitis and the similarity in presentation to septic arthritis of the hip. The most common clinical features of pelvic osteomyelitis include hip or thigh pain, fever and altered weight bearing. MRI is the gold standard investigation and can diagnose the disease at an early stage. In general antibiotic therapy alone is adequate but if there is abscess formation then this will require operative debridement.

Clinical Message

Pelvic osteomyelitis can be difficult to diagnose and can mimic several different conditions, including hip septic arthritis. A high index of clinical suspicion is required and MRI scanning should be performed early to prevent delays in diagnosis.

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