

11-1-2015

Case 1: An 11-year-old girl with bilateral hip and groin pain

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Citation of this paper:

Sangha, Gurinder, "Case 1: An 11-year-old girl with bilateral hip and groin pain" (2015). *Paediatrics Publications*. 1656.

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Case 1: An 11-year-old girl with bilateral hip and groin pain

An 11-year-old girl presented to the emergency department with a one-month history of progressive bilateral inguinal pain, especially with hip movement. Initially, her pain was mild, intermittent and associated with exercise. In the past two weeks, it had become constant and interfered with ambulation. The pain was not worse at night and there was no history of fever.

On presentation, vital signs were all within normal limits, including a maximum temperature of 37.8°C. Examination of the hips revealed bilateral inguinal canal pain with hip movement, specifically with flexion, and internal and external rotation. The patient had a restriction in internal and external rotation of approximately 10°. She experienced significant difficulty with

ambulation, with a shuffling, antalgic gait. There was also a macular-papular rash in the perioral region, which spread to cover her entire face. It reportedly developed two to three days before presentation and was now resolving, but still evident.

Investigations at the time of presentation included a complete blood count and differential, electrolyte and creatine kinase levels, hip/pelvic radiograph and urinalysis, all of which were normal. The patient had an elevated erythrocyte sedimentation rate of 62 mm/h and C-reactive protein level of 57.5 mg/L. The patient underwent pelvic and abdominal ultrasounds, which did not detect any joint effusions or pelvic pathology. A further diagnostic test yielded the diagnosis.

CASE 1 DIAGNOSIS:

INTRA-ABDOMINAL PYOMYOSITIS

Multiplanar, multisequence gadolinium-enhanced magnetic resonance examination of the abdomen and pelvis (Figures 1 and 2) was performed, revealing extensive pelvic floor and perineum cellulitis, including extensive extension into the hip abductor muscles, predominately to the obturator externus, with multiple small fluid pockets; this confirmed the diagnosis of intra-abdominal pyomyositis. There was also an abscess posterior to the symphysis pubis (Figure 3). The blood culture was subsequently positive, growing methicillin-sensitive *Staphylococcus aureus*.

Pyomyositis is defined as an infection of striated muscle; it is often associated with abscess formation. The classic presentation is a child with hip pain and limp, with or without fever (1). The differential diagnosis is broad, including septic arthritis, osteomyelitis, transient synovitis, Perthes disease, slipped capital femoral epiphysis, malignancy and fracture. Because pyomyositis is uncommon and presents with nonspecific symptoms, the diagnosis is challenging. It is important for health care providers to be aware of the diagnosis to prevent delay in treatment and unnecessary investigations.

Left untreated, pyomyositis progresses through three stages. The first stage may appear benign and is characterized by vague muscle pain and, occasionally, a low-grade fever, and lasts from one to 10 days (2). The second stage is associated with abscess formation, and patients experience increasing pain and fever. In the third stage, patients can develop septicemia or septic shock and may require intensive care management. Stages two and three can appear from two to three weeks from onset of symptoms (1,2).

Abdominal pyomyositis is endemic to tropical climates. One study revealed 13% of deaths in a Nigerian emergency department were due to abdominal pyomyositis, and results similar to this have been documented in many tropical areas. Pyomyositis is relatively uncommon in temperate areas, but the incidence may be increasing (1). It is believed to be caused by seeding of a transient bacteremia.

Pyomyositis most commonly occurs in the large muscles of the thigh and surrounding the pelvis, such as the quadriceps and iliopsoas. However, there are now increasing case reports of pyomyositis in smaller muscles, such as the internal obturator and piriformis. Pyomyositis is most often caused by *S aureus*, which is the causal

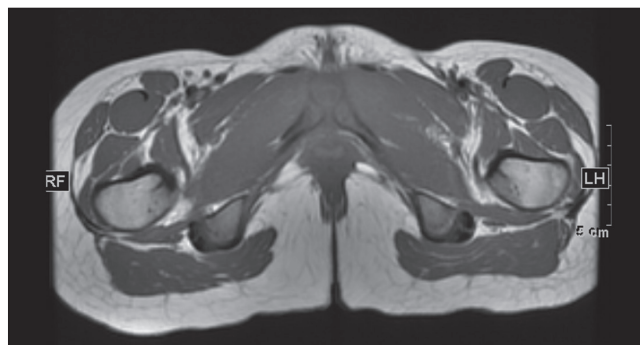


Figure 1) Magnetic resonance image of pelvis and upper thighs (AX T1 weighted)

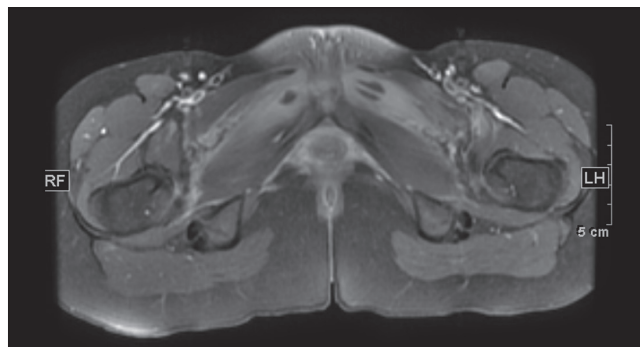


Figure 2) Magnetic resonance image of pelvis and upper thighs (AX T1 FS with gadolinium) with special attention to the obturator externus

agent in 70% of cases (in nontropical areas), followed by *Streptococcus pyogenes* and *Escherichia coli* (2).

The diagnosis of pyomyositis is confirmed with diagnostic imaging. Computed tomography and ultrasound can be used for diagnosis; however, magnetic resonance imaging (MRI), with gadolinium enhancement, is the best modality. The classic MRI findings include increased signal intensity and discrete abscesses within the skeletal muscles (3).

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Case 1 accepted for publication May 7, 2015

The exact nature of treatment depends on the stage at presentation. Treatment with empirical antibiotics must include coverage for *S aureus*. It is also important to consider risk factors for methicillin-resistant *S aureus* when implementing antibiotic therapy. With the rise of methicillin-resistant *S aureus*, there has been an increase in the number of pyomyositis cases in children. Based on the literature, the choice of antibiotic is variable, as is the duration of treatment. Intravenous antibiotics, when used, range from one to six weeks and oral treatment up to six weeks. In some cases, it may be necessary to surgically drain abscesses (3).

CLINICAL PEARLS

- Abdominal pyomyositis is an infection of striated muscle. The presentation is nonspecific, including hip or groin pain and limp, which makes this a diagnostic challenge.
- The diagnosis is confirmed with imaging, MRI with gadolinium is the optimal modality.
- Management includes antibiotic treatment that has activity against *S aureus*, with or without surgical drainage of associated abscesses.

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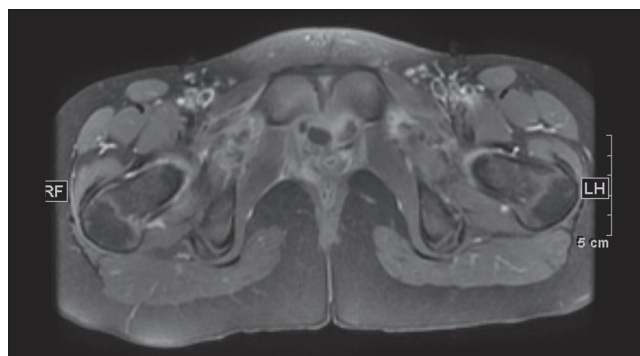


Figure 3 Magnetic resonance image of pelvis and upper thighs (AX T1 FS with gadolinium) with special attention to symphysis pubis abscess and continued involvement of obturator externus

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