

## Pubic Symphysis Osteomyelitis Due to Acupuncture - A Rare Case Report and A Review of Literature

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### Abstract

Osteomyelitis of the pubic symphysis is a rare diagnosis, representing less than one percent of all cases of osteomyelitis reported. The risk factors from the literature review have been identified to be young athletes and females undergoing gynaecological or urological surgery. Diagnosis is usually difficult and is based on multitude investigations such as blood tests and radiological imaging like a computed tomography (CT) scan and a magnetic resonance imaging (MRI) scan. The aetiological organisms include *Staphylococcus aureus*, Gram negative and polymicrobial agents. The management is multi-disciplinary and consists of antibiotic regime with symptomatic control. A 64-year-old female presented to the Emergency department with a 6-week history of worsening right lower abdominal, groin and buttock pain. There was no obvious trauma but the patient felt she had sustained a groin injury whilst moving boxes at home. When the pain failed to resolve with analgesia, she decided to try acupuncture to this area. The acupuncture initially settled the abdominal and groin pain, but the pain soon recurred along with right buttock pain. On presentation to the hospital, she was afebrile with moderately elevated inflammatory markers. Clinical examination revealed tenderness on palpation over the right lower quadrant and towards the suprapubic region with no evidence of herniae or masses. Her mobility was significantly reduced at the right hip due to severe pain. Neurological examination confirmed tenderness over the L2-3 dermatomal distribution and reduced hip flexion due to pain. Computed Tomography (CT) of chest, abdomen and pelvis highlighted changes of pubic symphysis osteomyelitis; she was promptly started on empirical antibiotic treatment after blood cultures were taken. She went on to have MRI of the pelvis which confirmed the diagnosis of pubic symphysis osteomyelitis as well as pyomyositis extending in both adductor muscle compartments. On advice of the Microbiology team the patient had intravenous cefuroxime and metronidazole.

**Keywords:** *Osteomyelitis; Pubic symphysis; Acupuncture*

## 1. Introduction

Osteomyelitis of the pubic symphysis is rare (less than 1%) and presenting symptoms can be non-specific pointing towards various abdominal and pelvic pathology [1]. Radiological signs and changes may not appear in the early stages of the disease. This makes the diagnosis difficult and hence can be overlooked. We describe a novel case of osteomyelitis of the pubic symphysis caused due to acupuncture. This case highlighted the importance of good history taking whilst maintaining a high level of clinical suspicion.

## 2. Case presentation

A 64-year-old female presented to the Emergency department with a 6-week history worsening right lower abdominal, groin and buttock pain. There was no obvious trauma but the patient felt she had sustained a groin injury whilst moving boxes at home. When the pain failed to resolve with analgesia prescribed by her General Practitioner (GP), she decided to try acupuncture. The treatment regimen consisted of percutaneous needles on her lower back and lumbo-sacral region. This initially settled the abdominal and groin pain, but the pain soon returned in the right buttock region. This pain was severe and significantly affected her mobility.

On presentation to the Emergency department, she was afebrile but had elevated inflammatory markers with white cell count of 16.3 (normal range  $4-11 \times 10^9/L$ ) and CRP was 142 (normal less than 5). Abdominal and clinical examination revealed tenderness in the right lower quadrant and the suprapubic region. There was no evidence of hernia or masses. Neurological examination confirmed tenderness over the L2-3 dermatomal distribution and reduced active hip flexion due to pain suggesting pathology in the pubic symphysis. Computed Tomography (CT) of chest, abdomen and pelvis highlighted changes of pubic symphysis osteomyelitis; she was promptly started on empirical antibiotic treatment after blood cultures were taken. A magnetic resonance imaging (MRI) scan of the pelvis (with gadolinium contrast) confirmed the diagnosis of pubic symphysis osteomyelitis as well as pyo-myositis extending in both adductor muscle compartments (FIG. 1). On advice of the Microbiology team the patient had intravenous cefuroxime and metronidazole.

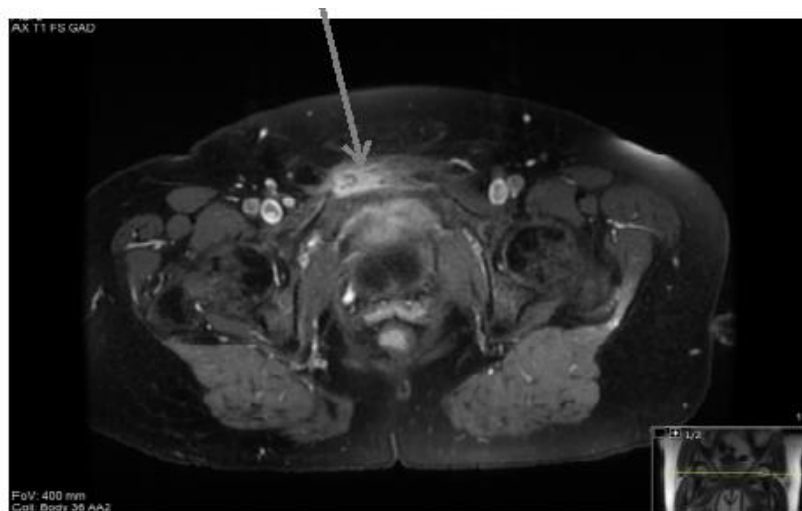


FIG. 1. Area showing enhancement of osteomyelitis and associated reactive changes seen on the right pubic symphysis (on MRI Gadolinium sequence).

The patient was successfully discharged three weeks after initial admission with a six week course of oral co-trimoxazole and metronidazole and analgesia with planned follow up in 4-weeks' time and a repeat MRI in 8 and 24 weeks. There was complete resolution of symptoms and no ongoing features of infection on the last MRI scan performed.

### 3. Discussion

Pubic symphysis is the origin of hip adductor muscles and the insertion of abdominal muscles (rectus abdominis). Cases of inflammation and infection in this region have been documented in highly active individuals such as athletes and footballers. Repetitive over adduction is attributed to the development of the condition of pubic symphysis inflammation [2]. Patients usually present with pain on hip movements, pain on walking, pubic tenderness, difficulty in weight bearing and vague lower abdominal pain. In the absence of features of sepsis, this is usually diagnosed as osteitis pubis. Cases of septic arthritis affecting the pubic symphysis have been recorded in presence of pyrexia and positive blood cultures or aspirate [3,4]. *Staphylococcus aureus* is commonly identified in cases of septic arthritis of the pubic symphysis. It has been postulated that the repetitive microtrauma allows the initial seeding of *S. aureus* and then colonisation [5,6]. Early changes are difficult to spot on pelvic radiographs, making MRI scanning the most reliable choice of investigation. MRI helps delineate the anatomy of soft tissues, abscess, fistula tract and bony defects.

A literature search has provided no obvious cases of invasion into the surrounding peritoneal and visceral organs. A comprehensive review of one hundred cases highlighted the common presenting symptoms which included fever, pubic tenderness, antalgic gait and pain on hip movements (FIG. 2). Urological, gynaecological procedures, pregnancy, athletes, pelvic malignancy, degenerative / rheumatological disease and intravenous drug use have been implicated as predisposing factors in the development of septic arthritis and osteomyelitis of the pubic symphysis. Along with *S. aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Enterococcus sp*, *Mycobacterium tuberculosis*, *Salmonella spp* and *Streptococcus spp* have been reported in the literature [2,3]. Another important differential diagnosis of groin pain is osteitis pubis, which is a painful and inflammatory process involving the pubic symphysis and the surrounding structures. It is usually common in young athletes pursuing activities such as running, soccer, rugby, ice hockey and sprinting [7].

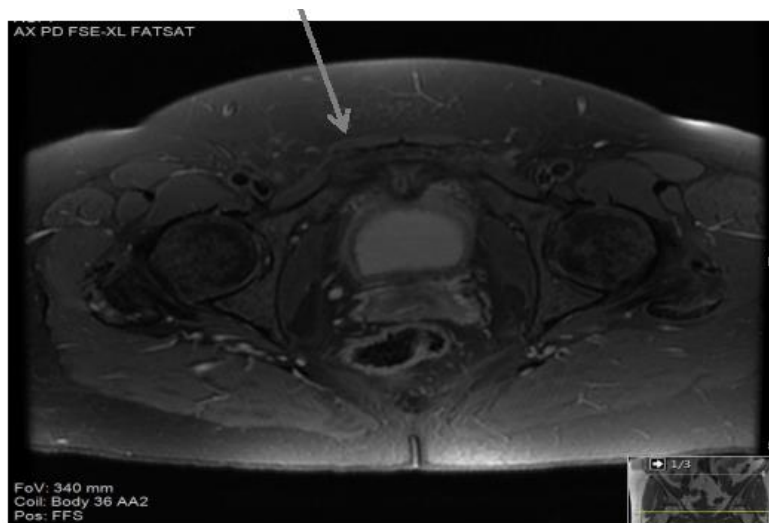


FIG. 2. Area showing resolution of osteomyelitis on the right pubic symphysis (on FAT SAT MRI sequence).

#### **4. Conclusion**

In our case, the patient did not have any of the previously mentioned risk factors. We believe that it was most likely that the acupuncture was the source of bacteraemia that led to the seeding of *S. aureus* in the pubic symphysis leading to osteomyelitis and the subsequent pyo-myositis. This is a unique case and has not been previously reported in the literature. Although the symptoms and signs were non-specific, high clinical suspicion prompted early investigations. Early CT scan and subsequent MRI scans confirmed subtle changes in the pubic symphysis and surrounding soft tissues. The appropriate treatment of IV antibiotics was started immediately. The take-home message is that the varied clinical presentation may be managed by physicians and surgeons with input from other specialties (radiologists and microbiology teams) making it a truly multi-disciplinary approach. A high index of suspicion is required in patients who present with groin or adductor pain associated with altered gait and mobility. The tardy course and varied presentation may mislead clinicians and failure to recognise can cause extensive osteo-cartilagenous destruction at the symphysis [8]. This can eventually lead to sacroiliac instability. In some cases, long course antibiotic therapy may be required with surgical debridement and stabilisation in rare cases.

#### **5. Ethics Approval and Consent to Participate**

Not applicable

#### **6. Consent for Publication**

Consent documented in patient hospital records

#### **7. Availability of Data and Material**

Not applicable

#### **8. Competing Interests**

None

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#### **10. Authors' Contributions**

SRG – Case report identification, writing the manuscript

JF – Writing the manuscript, literature research

SAS– Reviewing the manuscript, critical revision of the manuscript.

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None

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