



Case 15211

Osteomyelitis pubis with bilateral muscle abscesses

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Section: Musculoskeletal System

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Patient: 55 year(s), male

Clinical History

A 55-year-old man, with known type 2 diabetes mellitus, presented with increasing pubalgia since 2 weeks.

Laboratory examination revealed moderately elevated ESR, CRP and white blood cell count.

Imaging Findings

Radiographs of the pelvis showed widening of the pubic joint and subchondral bone erosions (figure 1a and 1b), which were confirmed on subsequent CT of the pelvis (figure 2a and 2b). In addition, CT showed soft tissue swelling adjacent to the symphysis in the adductor and rectus abdominis muscles (figure 2c and 2d). MRI of the pelvis revealed bone marrow oedema in the iliopubic rami (figure 3a and 3b). After administration of gadolinium contrast, bilateral rim-enhancing collections extending from the symphysis pubis were seen along the adductor and rectus abdominis muscles (figure 3c, 3d and 3e). The shape of collections along the adductor muscles resembled a butterfly (figure 3a and 3b).

Discussion

Osteomyelitis pubis is an infection of the pubic bone and joint, most frequently caused by *S. aureus* (1). It's a rare condition accounting for less than 1% of all cases of osteomyelitis (1).

The exact pathogenesis is unclear, but the infection usually arises from hematogenous dissemination and more rarely by extension of an adjacent infectious focus (2, 3). This condition has also been called septic arthritis of the symphysis pubis, but osteomyelitis a more correct term, because the primary site of infection is the pubic bone adjacent to the joint. The infection starts in one pubic bone and later crosses the joint to affect the contralateral pubic bone, analogous to the course of spondylodiscitis.

Potential risk factors are invasive pelvic procedures, pregnancy or delivery, gracilis-adductor tendinopathy and the presence of infectious foci elsewhere in the body which can spread hematogenously (1, 2).

The presenting symptoms and signs are nonspecific (3). The patient complains of gradually increasing pubic pain, radiating to the groin, perineum, buttock or genital region (2). Antalgic gait may be present as hip motion aggravates the pain (1, 3). Inflammatory parameters are usually elevated, but their absence does not exclude the diagnosis (2). Bacteraemia may be present (2).

Pelvic radiographs are insensitive and are normal in the early stages of the disease (1, 3). Diastasis of the symphysis and progressive bony destruction will initially appear in one pubic ramus, while the process crosses the joint space at a later stage (3). Diastasis is suspicious for abscess formation in the joint (3). CT scan is more sensitive, but its false negative rate remains 10% (2). MRI is the imaging modality of choice, with a sensitivity that approaches 100% (2). Typical findings are joint surface irregularities, subchondral bone destruction, bone marrow oedema in the iliopubic rami, soft tissue oedema adjacent to the pubic symphysis and pus in a widened symphysis (1, 2). After administration of gadolinium contrast, there is enhancement of the infected pubic bone and joint surface. In later stages, a soft tissue abscess will appear as a collection with peripheral enhancement. The abscesses in the adductor muscles may have a characteristic butterfly morphology (1).

Therapy of osteomyelitis pubis consists of long term intravenous administration of antibiotics (1). In case of failure of conservative treatment, surgery may be indicated (4, 5). Follow-up imaging is often required (3).

Our patient was successfully treated with antibiotics and follow-up was uneventful. No surgery was required.

Final Diagnosis

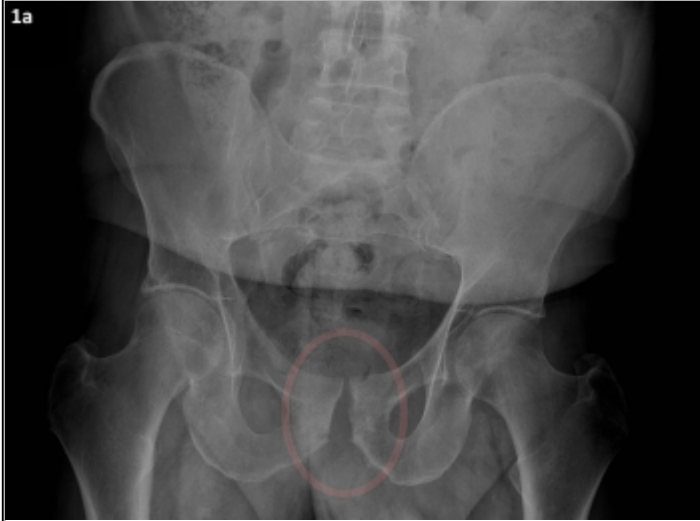
Osteomyelitis pubis with bilateral hip adductor and rectus abdominis abscesses.

Differential Diagnosis List

Gracilis-adductor tendinopathy (aka Osteitis Pubis"), Subpubic cyst

Figures

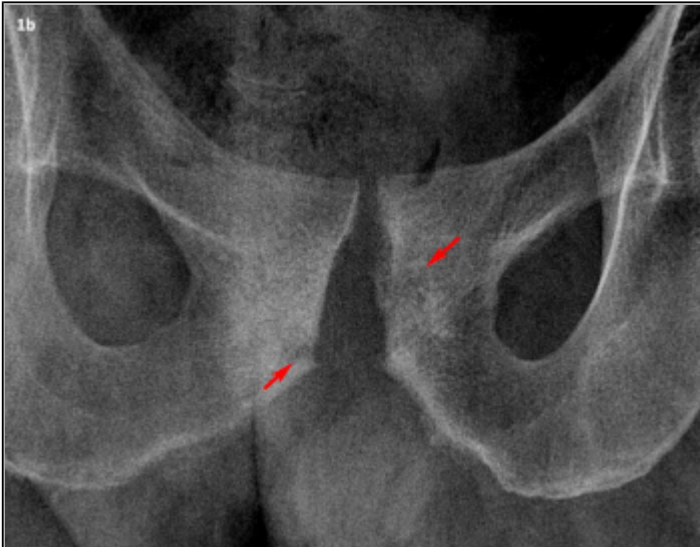
Figure 1 Pelvic radiograph



Widening of the symphysis (red circle).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint;
Imaging Technique: Conventional radiography;
Procedure: Diagnostic procedure;
Special Focus: Arthritides;



Erosions in both pubic bones, larger at the left side (red arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint;
Imaging Technique: Conventional radiography;
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Figure 2 Contrast-enhanced CT of the pelvis





Widening of the symphysis. Subchondral erosion in the left pubic ramus (pink arrow).

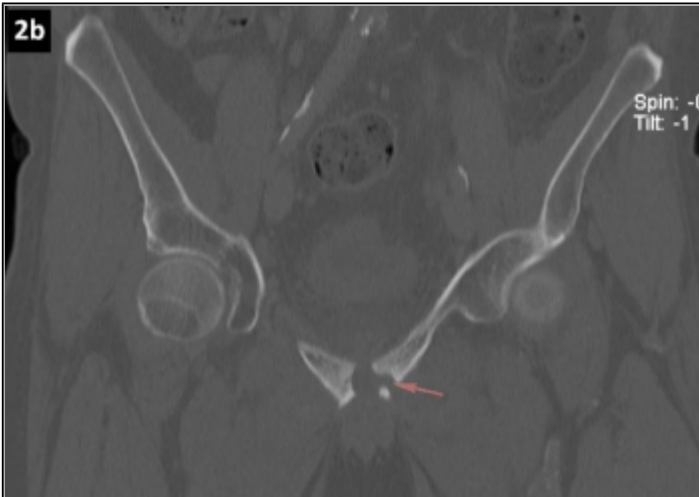
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Area of Interest: Musculoskeletal bone; Musculoskeletal joint;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

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Widening of the symphysis. Subchondral erosion in the left pubic ramus (pink arrow).

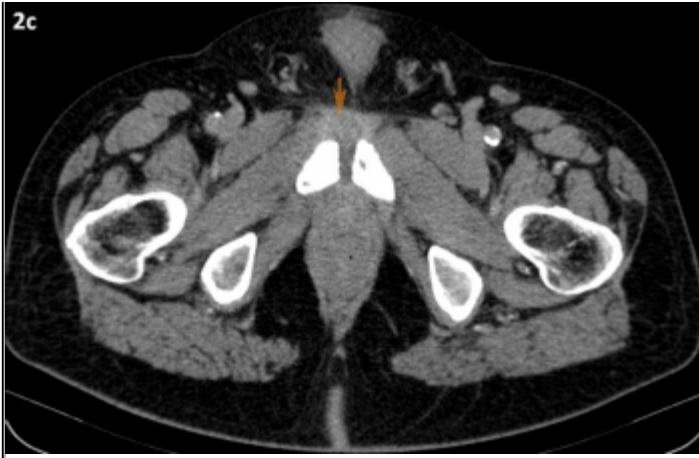
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Area of Interest: Musculoskeletal bone; Musculoskeletal joint;

Imaging Technique: CT;

Procedure: Diagnostic procedure;

Special Focus: Arthritides;



Widening of the symphysis. Intra-articular collection extending anteriorly into the soft tissues, with subtle enhancement at the margins of the collection (orange arrow).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: CT;
Procedure: Diagnostic procedure;
Special Focus: Abscess; Arthritides; Infection;



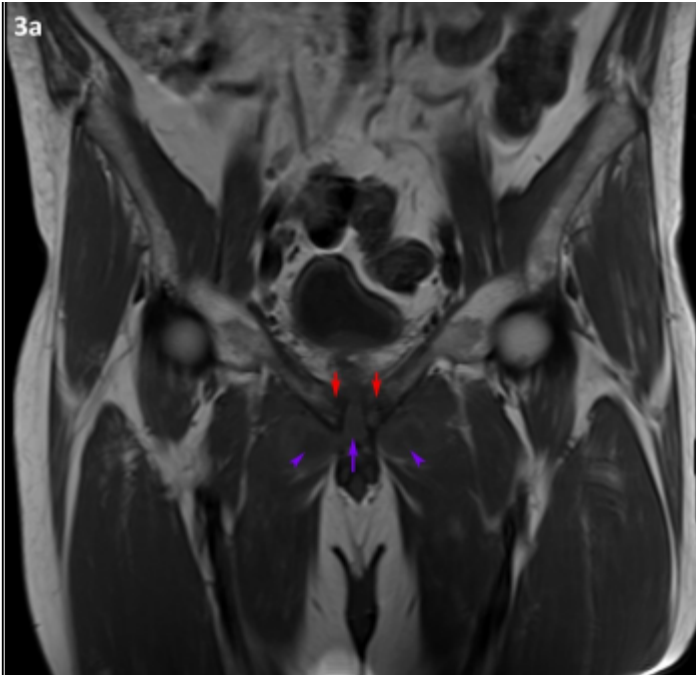
Bilateral collections along the adductor muscles with butterfly morphology and subtle rim enhancement (orange arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: CT;
Procedure: Diagnostic procedure;
Special Focus: Abscess; Arthritides; Infection;

Figure 3 MRI of the pelvis





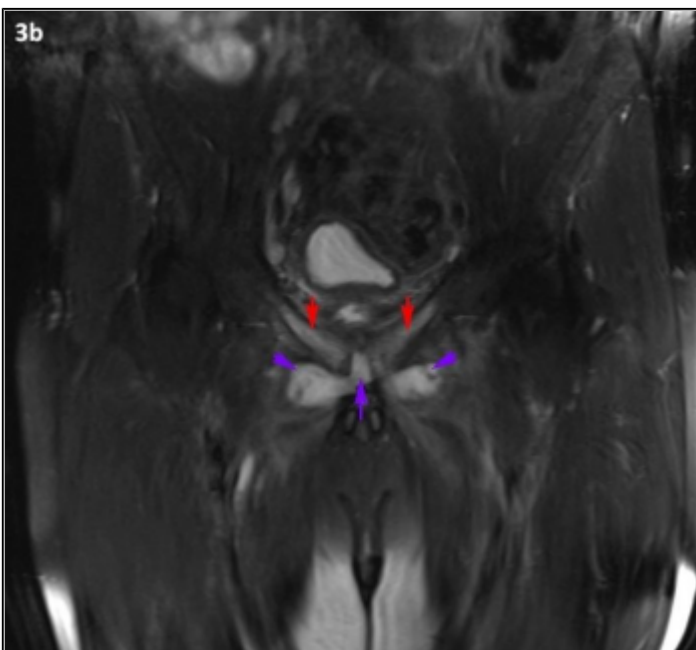
T1. Widening of the symphysis. Low T1 signal intensity in the pubic rami (red arrows) representing bone marrow oedema surrounding the erosions. Soft tissue extension along the adductor muscles (purple arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: MR;

Procedure: Diagnostic procedure;

Special Focus: Abscess; Arthritides; Infection;

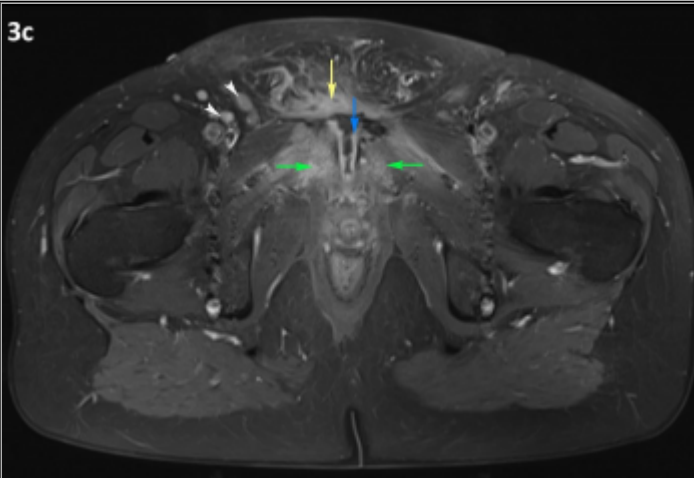


T2 PD, TSE, fs. Widening of the symphysis. Bone marrow oedema in the pubic rami (red arrows). Pus in the symphysis pubis, extending along the adductor muscles (purple arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: MR;

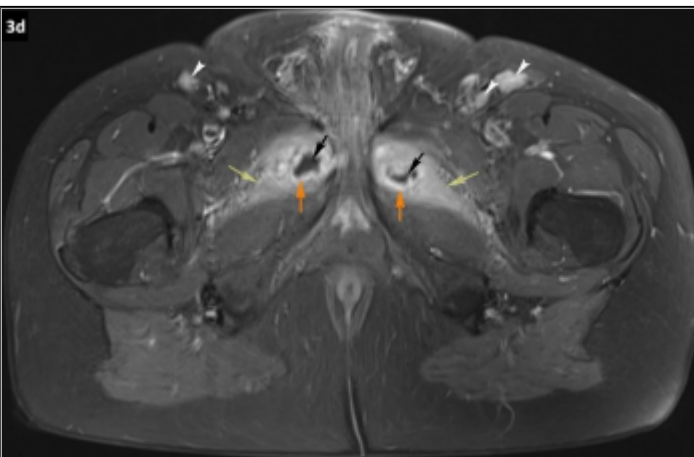
Procedure: Diagnostic procedure;



T1, fs, Gd. Contrast enhancement of the articular surface (blue arrow), both pubic rami (green arrows) and the soft tissues (yellow arrow). Lymph nodes (small white arrows).

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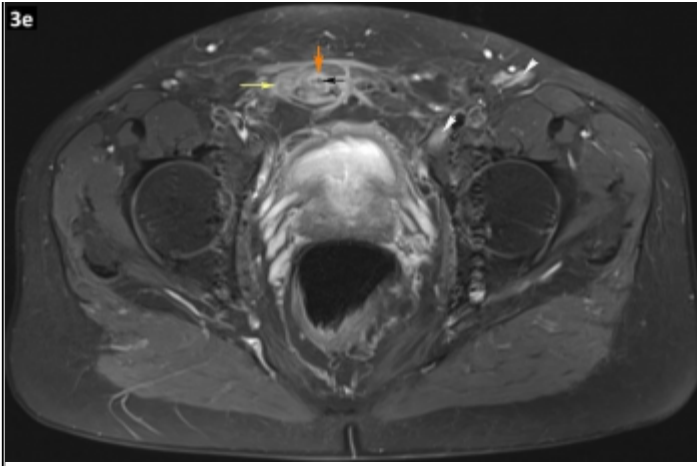
Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Arthritides; Infection; Inflammation;



T1, fs, Gd. Bilateral adductor muscle abscesses (black arrows) with rim enhancement (orange arrows). Enhancement of the adjacent muscle tissue (yellow arrows). Enlarged inguinal lymph nodes (small white arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Infection; Inflammation;



T1, fs, Gd. Subtle rim-enhancing abscess (black arrow) in the right rectus abdominis muscle (orange arrow). Enhancement of the adjacent muscle tissue (yellow arrow). Enlarged inguinal lymph nodes (small white arrows).

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Area of Interest: Musculoskeletal bone; Musculoskeletal joint; Musculoskeletal soft tissue;
Imaging Technique: MR;
Procedure: Diagnostic procedure;
Special Focus: Abscess; Arthritides; Infection;

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Citation

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