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Case Report

Unilateral Infectious Sacroiliitis Detected on Magnetic Resonance Imaging and Bone Scan

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ABSTRACT

Infectious Sacroiliitis is rare and so can be missed. Our patient was an otherwise healthy male who presented with symptoms mimicking sciatica. On presentation the patient was febrile and was noted to have tenderness of the lower back and limitation of hip movement. Inflammatory markers were raised, and the patient was started on antibiotics. MRI of pelvis was suspicious for osteomyelitis. Three phase bone scans were consistent with infectious sacroiliitis. The patient was successfully discharged home on oral antibiotics and on the follow up had an uneventful recovery.

Keywords: Infectious sacroiliitis; Tech scan; Magnetic Resonance Imaging (MRI); Scintigraphy

INTRODUCTION

Infectious sacroiliitis is uncommon and difficult to diagnose because fever and abnormal cultures are not always present. The infection is typically unilateral, and the leading causative organism is *Staphylococcus aureus*. Magnetic Resonance Imaging (MRI) can initially detect infectious sacroiliitis and joint aspiration can establish the causative organism. Scintigraphy can confirm MRI findings.

CASE REPRESENTATION

A 14-year-old boy presented with a 1-day history of left hip and lower back pain that radiated down to the knee. He was unable to bear weight on his left leg. He recalled a fall on a stairwell two months prior that hurt his buttocks. There was no recent history of eye, gastrointestinal, or urinary symptoms. The patient was born in Africa, and had been living in the United States for 12 years. He denied toxic habits. He was not sexually active [1]. His medical history included chronic rhinitis. There was no family history of malignancy. His only medication was ibuprofen for this pain. On physical examination, the temperature was 36.6°C, the blood pressure 114/68 mm Hg, and the body-mass index 17.77. He had tenderness in his left gluteal region and limited range of movement of his left hip. Straight-leg rising was limited to 45° on the left. Laboratory findings included a normal white blood cell count, erythrocyte sedimentation rate, and an elevated serum C-Reactive Protein (CRP) of 11 mg/l. Antinuclear antibody was negative. Urine microscopy was negative for hematuria. Blood cultures were negative. Computed tomography of the lower extremity and lumbar spine revealed a patent sacroiliac joint and no fracture. He developed labile temperatures (38.1-38.5°C) on the first two hospitalization days. MRI of the pelvis showed no abscess but demonstrated a small amount of fluid within the left sacroiliac joint with mild edema within the adjacent sacrum and iliac bone, suspicious for infectious sacroiliitis or osteomyelitis.

He was started on intravenous ceftriaxone, but the fever persisted until intravenous clindamycin was added on day 3. By day 5, the pain decreased with improvement in mobility. Technetium-99 methylene diphosphonate bone scintigraphy showed increased flow to the left sacroiliac joint in Figure 1 which favored infectious sacroiliitis over osteomyelitis. By day 8, the CRP decreased to 8 mg/l and the next day he was able to bear weight [2].

Sacroiliac joint aspiration was not done because the fluid appeared to be too small, and the patient also had improved significantly. He was discharged home after 12 days of hospitalization, and oral clindamycin was recommended for six weeks. Five years later he reported monthly left thigh pain.

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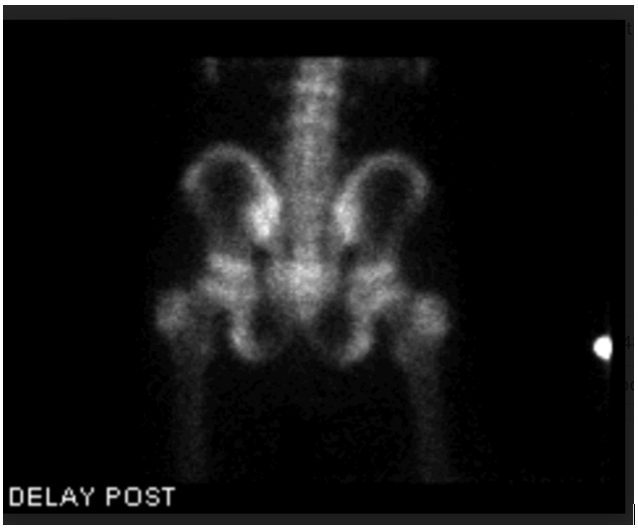

Figure 1: Technetium-99 methylene diphosphonate bone scintigraphy.

DISCUSSION

Infectious sacroiliitis most commonly presents as fever, antalgic gait, and buttock pain [3]. It can be unilateral or bilateral. However, unilateral presentation is more common with predilection for right side [4]. The physical examination is usually not reliable in making a diagnosis. Tests such as Gaenslen and FABER (flexion, abduction, external rotation, and extension) although helpful in localizing the pain, are inadequate in ruling out differentials of muscular pain, pelvic fracture, disk disease, or an intra-abdominal process [5]. In our literature research, we identified that patient's group at increased risk of pyogenic sacroiliitis included children, immunosuppressed patients, and patients with sickle cell disease [6]. Furthermore, trauma was found to be another significant predisposing factor contributing to 10% of all cases [7].

It's challenging to diagnose infectious sacroiliitis because no one test is specific. Common laboratory markers including WBC, CRP, and ESR may be entirely normal or elevated and are somewhat sensitive but not specific [5]. Blood culture is only positive in 45.5% of the cases. (4) Cultures of synovial fluid have a relatively high yield and are positive in 50% to 88% of cases. (3) However, this is an invasive procedure and also challenging to perform because of the deep-seated location of the joint, [8] it's not routinely performed [4]. Synovial Fluid Joints (SFJ) aspiration is limited to cases in which clinical and radiological suspicion is reliable, but blood cultures are negative and for cases that are refractory to antibiotic therapy [9]. Gram-positive bacteria (Staphylococcus being most common) are implicated in more than 80% of cases [5]. Gram-negative bacteria account for 17%. Other isolates, including *Streptococcus beta-haemolyticus*, *Haemophilus influenzae*, *and Escherichia coli* have also been reported in the literature. Despite the best attempts at diagnosis, 40% of reported cases have no identified primary source of infection [10]. Isotope bone scanning has good sensitivity in early disease and increases uptake can be seen as early as three days [11].

CT is useful in identifying bony pathology and guiding aspiration or biopsy. MRI with a sensitivity and specificity (95% and 100%) is the most useful imaging modality in diagnosing pyogenic sacroiliitis [12]. MRI can visualize fluid in the sacroiliac joint, bone marrow edema, and soft tissue abscess and plays a role in guiding surgical intervention in cases where abscess involves the spine [13,14]. The cornerstone of management of infectious sacroiliitis is early diagnosis and initiation of empiric antibiotic therapy targeting Gram Positive and Gram-Negative organisms. The duration of the treatment is still controversial; however, 4-8 weeks is recommended [8]. It's best if blood cultures are drawn before antibiotic therapy. Once the sensitivity is available, treatment can be tailored accordingly. Surgical intervention is warranted, especially in those patients with abscess formation, osteomyelitis, sequestrum of necrotic bone, and failure to respond to medical management [10]. In our patient, clinical presentation, physical exam findings, with supportive labs and imaging led us to suspect bacterial infectious sacroiliitis. Our diagnosis was further solidified with rapid clinical improvement after clindamycin therapy was initiated.

CONCLUSION

The differential diagnosis of acute onset of unilateral gluteal pain should include infectious sacroiliitis. The clinicians should be aware of the possibility of infectious sacroiliitis in the patients presenting with fever and antalgic gait. As timely interventions can prevent the long-term complications and disability. Prognosis can be favorable with early diagnosis and treatment.

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