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Case Report

Hydatid Disease of the Sacroiliac Joint: Diagnostic Challenges and Imaging Features

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Abstract

Hydatid disease of the sacroiliac (SI) joint is a rare manifestation of *Echinococcus granulosus* infection, presenting with nonspecific symptoms and challenging imaging findings. We report a 60-year-old male with progressive left pelvic pain radiating to the leg, difficulty walking, and occasional numbness over 8 months. Laboratory tests were largely unremarkable, except for positive *Echinococcus* IgG serology. Radiographs showed lytic lesions in the left iliac bone, while MRI revealed multiloculated cystic lesions with T1 hypointense and T2 hyperintense signals, demonstrating the "water lily sign". The patient underwent surgical debridement and albendazole therapy, with uneventful recovery. MRI is essential for accurate assessment, and early recognition allows timely surgical and medical management to reduce recurrence.

Keywords: *Sacroiliac Joint; Hydatid Disease*

Introduction

Hydatid disease, or echinococcosis, is a parasitic infection caused by *Echinococcus granulosus*. While the liver and lungs are the most commonly affected organs, osseous involvement is rare, accounting for only 0.5 - 2.5% of cases [1]. Within the skeletal system, the spine and pelvis are preferentially involved due to their rich vascular supply, with sacroiliac joint involvement being exceptionally uncommon. Bone hydatid cysts develop insidiously, lacking a pericyst layer, which allows them to infiltrate trabecular bone and extend into adjacent soft tissues [2]. Clinical presentation is often nonspecific, including chronic pelvic pain, limping, or neurological symptoms from sacral nerve compression, making early diagnosis challenging. Imaging, particularly MRI, plays a pivotal role in detecting cystic lesions, delineating their extent, and guiding surgical and medical management. Early recognition is essential to reduce recurrence and improve patient outcomes in this rare but potentially debilitating condition [3].

Case Report

A 60-year-old male patient with no significant medical history presented with progressive left-sided pelvic pain radiating to the lower limb over the past 8 months. He also reported difficulty walking and occasional numbness in the right leg. There was no history of trauma, fever, or weight loss.

On physical examination, the patient exhibited localized tenderness over the left sacroiliac joint, with limited range of motion and antalgic gait. No cutaneous lesions or systemic signs of infection were observed.

Laboratory results were unremarkable, with a normal white cell count and mildly elevated ESR. Serologic testing for *Echinococcus* IgG was positive.

Pelvic radiographs revealed irregular lytic lesions involving the left iliac bone near the SI joint. MRI of the pelvis demonstrated multiloculated cystic lesions with hypointense rims on T1 and hyperintense signals on T2, centered on the SI joints (Figure 1 and 2).

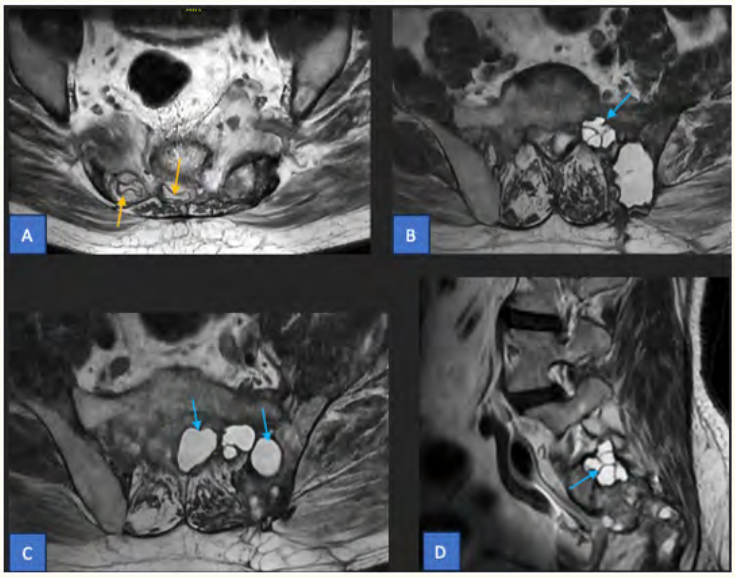

Figure 1: *Axial (a-c) and sagittal (d) T2-weighted MRI images demonstrating bilateral hyperintense, multilobulated cystic lesions involving the sacroiliac joints (blue arrows). On the right, the presence of the characteristic water lily sign is noted (yellow arrows), corresponding to the detachment of the endocyst membrane and its floating within the cystic fluid.*

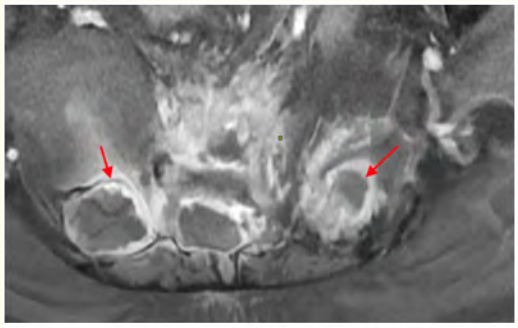

Figure 2: *Axial contrast-enhanced T1-weighted image demonstrating peripheral enhancement of the cystic lesions (red arrows).*

The patient was started on oral albendazole and underwent surgical debridement and curettage of the affected bone. Postoperative recovery was uneventful, and he was advised to continue antiparasitic therapy for at least six months with regular follow-up imaging to monitor for recurrence.

Discussion

Hydatid disease, or echinococcosis, is a parasitic zoonosis caused by *Echinococcus granulosus*, with humans acting as accidental intermediate hosts. Although the liver and lungs are the most commonly affected organs, osseous involvement is rare, accounting for only 0.5 - 2.5% of cases. Within the skeletal system, the spine and pelvis are preferentially involved due to their rich vascular supply, with sacroiliac (SI) joint involvement being particularly uncommon [3].

Hydatid cysts in bone develop insidiously and without a pericyst layer, allowing them to infiltrate trabecular bone and spread along medullary cavities. In the sacroiliac joint, this leads to gradual cortical destruction, joint space widening, and eventual extension into adjacent soft tissues [4].

The clinical presentation of sacroiliac hydatidosis is often nonspecific and can mimic other infectious, neoplastic, or inflammatory conditions. Patients may experience chronic lower back or pelvic pain, limping, or neurologic symptoms due to sacral nerve compression. Constitutional symptoms are typically absent or minimal [5].

Radiologic diagnosis is challenging due to the rarity of the condition and its non-specific imaging features. Plain radiographs may show lytic lesions with poorly defined margins, while CT imaging is more sensitive in revealing cortical destruction and intraosseous extension. MRI is considered the gold standard for evaluating hydatid disease involving the SI joint, as it provides superior soft-tissue contrast and can delineate cystic structures with hypointense rims on T1-weighted and hyperintense signals on T2-weighted images [6].

Definitive diagnosis is based on imaging findings supported by histopathological confirmation. Serologic tests may be helpful but are not always conclusive [3].

Surgical resection remains the cornerstone of treatment, often supplemented with prolonged antiparasitic therapy (typically albendazole) to reduce recurrence [4]. Complete excision is challenging due to the complex anatomy of the sacroiliac region and the infiltrative nature of hydatid disease. Recurrence rates remain high, particularly when complete resection is not possible [5,6].

Conclusion

This case underscores the importance of considering hydatid disease in the differential diagnosis of sacroiliac joint lesions, particularly in endemic regions. Given its rare osseous presentation and nonspecific clinical and radiologic features, early identification through advanced imaging and serologic testing is essential. Prompt diagnosis followed by appropriate surgical and medical management can help reduce recurrence and improve patient outcomes in this uncommon but challenging parasitic infection.

Statement of Ethics

The patient has consented to publish this case. The study is conducted ethically in accordance with the World Medical Association Declaration of Helsinki.

Patient Consent

Subject have given verbal informed consent to publish the case.

Declaration of Competing Interest

We wish to confirm that there are no known conflicts of interest associated with this publication and there has been no significant financial support for this work that could have influenced its outcome.

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