

Case Report: Osseous and Soft Tissue Hydatid Disease of the Hip in a 31-Year-Old Patient

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Abstract

Case Report

This case report describes a rare presentation of musculoskeletal hydatid disease in a 31-year-old patient with extensive osseous and soft tissue involvement of the left hip. MRI demonstrated multiloculated cystic lesions affecting the iliac bone, femoral head, and surrounding musculature. Diagnosis was confirmed based on imaging features and epidemiological context. The patient was managed with preoperative albendazole and scheduled for radical surgical excision. This report highlights the value of MRI in detecting and characterizing hydatid disease and discusses differential diagnoses and management strategies.

Keywords: Hydatid Disease, Echinococcus Granulosus, Musculoskeletal Hydatidosis, MRI, Pelvis, Osseous Involvement, Soft Tissue Cysts.

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INTRODUCTION

Hydatid disease, caused by the larval form of *Echinococcus granulosus*, is a parasitic infection endemic in many regions, particularly in South America, Australia, the Mediterranean basin, and Central Europe. While the liver and lungs are the most common sites of involvement (60–70% and 20–30%, respectively), osseous hydatidosis is rare, accounting for only 0.5–4% of cases. The disease may spread to bone hematogenously, and osteoarticular involvement is often infiltrative, slowly progressive, and can be locally destructive. Diagnosis is often delayed due to nonspecific symptoms.

CASE PRESENTATION

A 31-year-old male presented with progressive left hip pain and discomfort over several months. The patient reported no significant medical history and denied any recent trauma. Clinical examination revealed preserved general condition, afebrile state, and a mild limp. Local pressure over the left hip and buttock region elicited pain. Neurological examination showed no motor deficits but mild signs of radicular irritation.

Imaging Findings

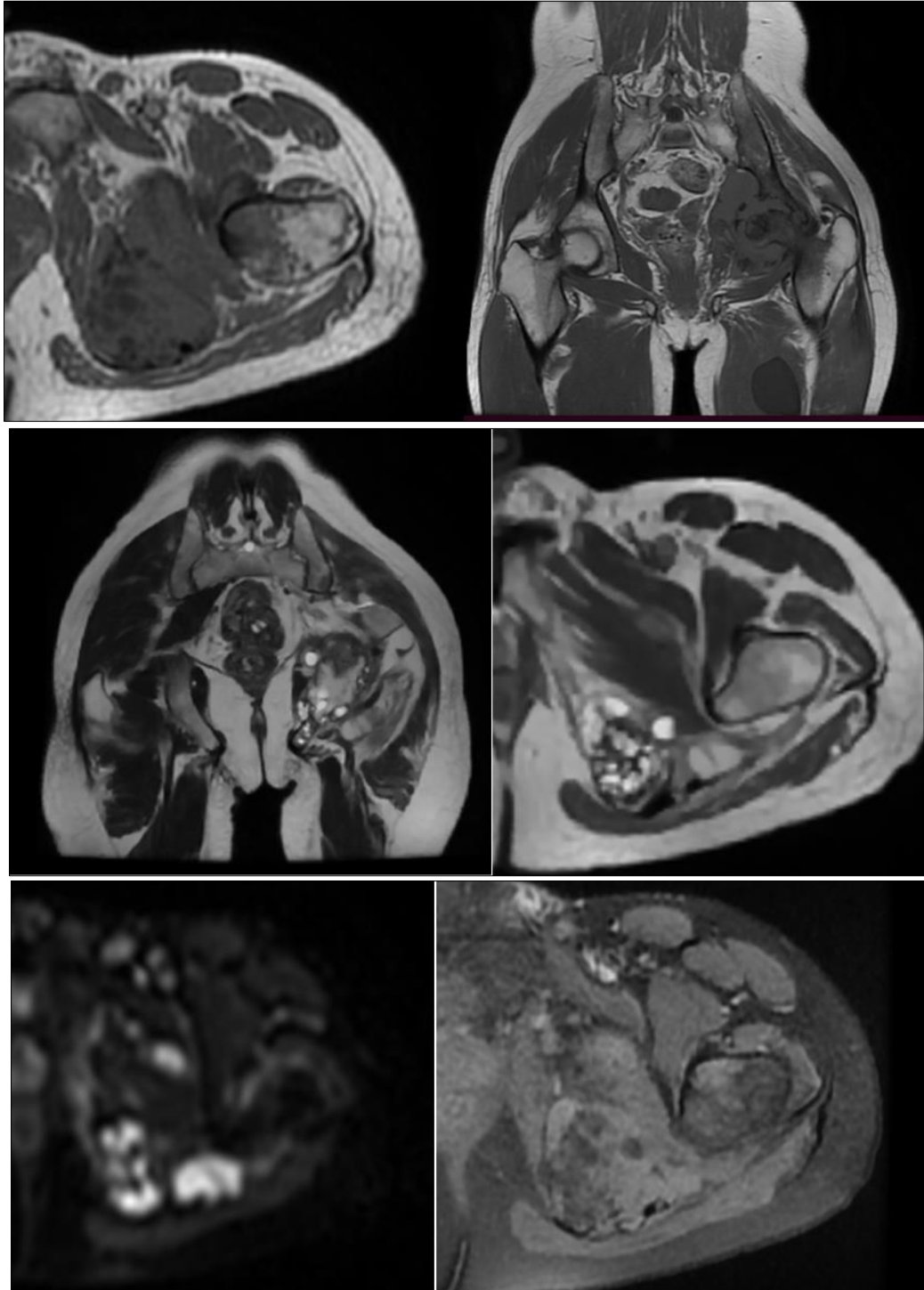
MRI findings demonstrate an extensive osteoarticular hydatid involvement centered on the left

hip joint, with spread to the ischiopubic and iliac branches, the left iliac wing, and the head and neck of the ipsilateral femur. T1-weighted images show hypointense signal, while T2 and STIR sequences reveal multiloculated cystic lesions with heterogeneous hyperintensity. Post-contrast sequences show peripheral enhancement without central enhancement, consistent with parasitic cystic components.

Associated findings include:

- Large joint effusion in the left hip, suggesting synovial reaction.
- Cortical erosion of the acetabulum and femoral head with signs of protrusion acetabuli.
- Extension into the soft tissues, particularly the left gluteal region, with cystic infiltration of the obturator internus muscle and adductor magnus.
- Multiple well-circumscribed intermuscular cystic lesions, near the gluteal space.

These findings are highly suggestive of hydatid disease due to the characteristic multiloculated appearance, lack of solid tissue, and simultaneous osseous and muscular involvement.



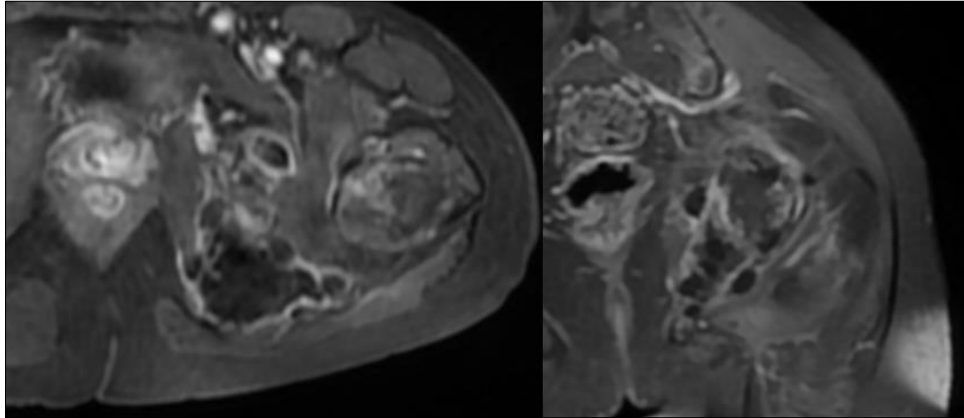


Figure 1: MRI of the pelvis and proximal thighs showing osseous and soft tissue hydatid disease of the left hip
 (A) Axial STIR image: multiloculated hyperintense cystic lesions involving the left iliac bone, ischium, and femoral head.
 (A, B) Axial and Coronal T1-weighted image: hypointense lesions centered on the left hemipelvis and femoral head without periosteal reaction.
 (C, D) Axial and Coronal T2-weighted image: cystic lesions with high signal intensity in the left gluteal region and obturator internus muscle (“grape cluster” appearance).
 (E) Axial diffusion-weighted image (DWI): marked hyperintensity of the cystic lesions, reflecting restricted diffusion due to high internal protein content.
 (F) Axial T1-weighted image with fat saturation (T1 FS): cysts appear hypointense with surrounding soft tissue edema.
 (G, H) Post-contrast T1-weighted images with fat saturation: peripheral rim enhancement of the cysts, without internal solid components, supporting the diagnosis of hydatid disease.

Management

The patient was started on preoperative albendazole therapy. Surgical resection was planned with the goal of achieving radical excision of cystic lesions. Intraoperative precautions were taken to avoid spillage of cyst contents to prevent dissemination.

DISCUSSION

Osseous hydatid disease poses significant diagnostic challenges due to its rarity and nonspecific clinical presentation. Radiographically, the typical appearance includes well-defined lytic lesions with a multiloculated 'honeycomb' or 'soap bubble' appearance, usually without periosteal reaction or surrounding sclerosis. On CT, the lesions appear as hypodense cystic areas with possible internal septations or calcifications. MRI provides superior contrast resolution and is critical for delineating the extent of the disease, especially for soft tissue involvement. T1-weighted sequences usually show hypointense lesions, while T2-weighted images reveal hyperintense cysts with internal septations or daughter cysts, sometimes showing the detached membrane sign, a hallmark of hydatid disease. The involvement of adjacent muscles and joints, such as the gluteal region and adductor magnus, is more accurately assessed with MRI. Post-contrast sequences may show rim enhancement without significant internal enhancement.

Differential diagnosis includes:

- Chronic osteomyelitis: May also present with lytic bone lesions, but often associated with

sequestrum, involucrum, and periosteal reaction.

- Bone tumors such as giant cell tumor, aneurysmal bone cyst, or metastatic lesions: These can mimic hydatid disease radiologically but typically show different enhancement patterns and clinical behavior.
- Tuberculous arthritis or osteitis: Especially in endemic areas, TB of the hip or pelvis may present similarly, but often shows synovial thickening and systemic symptoms.
- Synovial sarcoma or soft tissue tumors: May present as soft tissue masses, but lack the multiloculated cystic morphology seen in hydatid cysts.

Accurate imaging interpretation, in conjunction with clinical and serological findings, is crucial for diagnosis. In endemic regions, imaging findings consistent with hydatid disease should prompt confirmatory serology and surgical planning.

Osseous hydatid disease is challenging to diagnose and manage. The imaging hallmark includes multiloculated cystic lesions with a honeycomb-like appearance on radiographs and CT, and characteristic T2 hyperintense lesions with daughter cysts on MRI. Absence of periosteal reaction and regional osteopenia help differentiate it from neoplastic lesions. MRI remains the best modality to assess the extent of soft tissue involvement and to plan surgery.

CONCLUSION

Musculoskeletal hydatidosis, although rare, should be considered in patients from endemic regions presenting with atypical bone and soft tissue lesions. MRI provides crucial information for diagnosis and surgical planning. Multidisciplinary management including antiparasitic therapy and surgical excision is essential to optimize outcomes.

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