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Intramuscular Hydatid Cyst Involving the Hamstring Muscles: A Rare Localization

Fusun Zeynep Akcam,[1] Elif Akkus,[1] Zekai Emre Sevgilioglu,[2] Onur Kaya[1]

[1]Department of Infectious Diseases and Clinical Microbiology, Süleyman Demirel University Faculty of Medicine, Isparta, Türkiye
[2]Department of Radiodiagnostics, Süleyman Demirel University Faculty of Medicine, Isparta, Türkiye

ABSTRACT

Background: Echinococcosis is a parasitic zoonosis that predominantly affects the liver and pulmonary system. Isolated involvement of skeletal muscle in the absence of visceral disease is exceptionally rare, accounting for approximately 1–3% of cases. Owing to nonspecific clinical manifestations and overlapping imaging characteristics, muscular hydatid cysts may be misinterpreted as neoplastic lesions or abscesses, thereby complicating the diagnostic process.

Case Report: A 64-year-old woman presented with a painful mass in the posterior aspect of her thigh that had gradually increased in size. Magnetic resonance imaging revealed a well-circumscribed cystic lesion containing detached internal membranes, consistent with World Health Organization (WHO) stage 3a cystic echinococcosis (CE3a) and indicative of an active transitional hydatid cyst. Serological testing was strongly positive, and no evidence of hepatic or pulmonary involvement was detected. The patient was treated with albendazole therapy followed by a percutaneous puncture–aspiration–injection–reaspiration (PAIR) procedure, resulting in cyst regression without complications.

Conclusion: In endemic regions, hydatid disease should be considered in the differential diagnosis of atypical soft-tissue masses, even in the absence of visceral organ involvement or a clear history of exposure.

Keywords: Atypical presentation, echinococcosis, hydatid cyst, muscular mass.

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Address for correspondence:
Fusun Zeynep Akcam. Department of Infectious Diseases and Clinical Microbiology, Süleyman Demirel University Faculty of Medicine, Isparta, Turkiye
Phone: +90 246 211 9326
E-mail:
fusunzeynepakcam@gmail.com

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INTRODUCTION

Echinococcosis, caused by cestodes of the genus *Echinococcus*, most commonly involves the liver and lungs, which together account for more than 90% of cases.[1] Imaging modalities, including ultrasonography and magnetic resonance imaging (MRI), in combination with serological assays, are essential for establishing an accurate diagnosis and guiding appropriate treatment planning.[2]

This rarity has been attributed to the unfavorable microenvironment of muscle tissue for parasite development, including high lactic acid concentrations, continuous muscle contractions, and rich vascularization.[3] Clinically, muscular hydatid cysts may mimic soft-tissue tumors or abscesses,

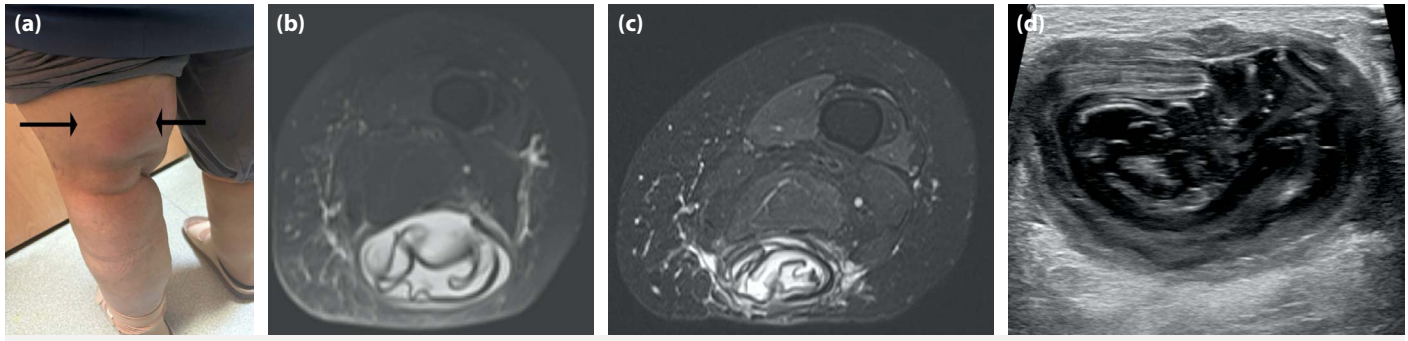

Figure 1. Image features of a hydatic cyst in the left thigh. **(a)** Physical examination findings at the time of admission. **(b)** Pre-procedural axial fat-suppressed T2-weighted magnetic resonance imaging (MRI) demonstrates a cystic lesion with a detached germinative membrane, classified as World Health Organization (WHO) cystic echinococcosis (CE) stage 3a. **(c)** Post-procedural axial fat-suppressed T2-weighted MRI demonstrates an 81% reduction in cyst volume, with further accentuation of detachment of the germinative membranes. **(d)** Post-procedural ultrasound image obtained using a linear transducer demonstrates the cystic lesion and the germinative membranes.

CE: Cystic echinococcosis; MRI: Magnetic resonance imaging; WHO: World Health Organization.

thereby complicating early diagnosis. Imaging techniques such as ultrasonography and MRI, together with serological testing, play a crucial role in diagnosis and therapeutic planning.[2,4]

Herein, we describe a rare case of a primary isolated muscular hydatid cyst located in the posterior thigh, successfully treated with albendazole therapy followed by a puncture–aspiration–injection–reaspiration (PAIR) procedure. Written informed consent was obtained from the patient for publication of this report.

CASE REPORT

A 64-year-old woman with a history of hypertension presented with swelling in the posterior region of the left thigh that had been present for two years, with noticeable enlargement over the preceding 15 days. She reported moderate localized pain but denied fever, chills, or other systemic symptoms. There was no history of livestock exposure, pet ownership, trauma, invasive procedures, or insect bites. Physical examination revealed a firm, fixed 10-cm mass in the distal posterior thigh, accompanied by mild warmth and tenderness (Fig. 1a). Laboratory evaluation showed a leukocyte count of 7,900/mm^3, an erythrocyte sedimentation rate (ESR) of 35 mm/h, and a C-reactive protein (CRP) level of 3.1 mg/dL. All other biochemical parameters were within normal limits.

Magnetic resonance imaging demonstrated a 10 × 5.5 × 8.5 cm lesion located deep to the fascia lata and superficial to the semitendinosus and semimembranosus muscles. The lesion exhibited low signal intensity on T1-weighted sequences and high signal intensity on T2-weighted sequences, with clearly visible detached germinative membranes. These radiological findings corresponded to the World Health Organization (WHO) stage 3a cystic echinococcosis (CE3a) (Fig. 1b). The presence of floating internal membranes reflects a transitional stage between active and inactive hydatid disease, thereby reinforcing the clinicoradiological correlation between imaging findings and the WHO cystic echinococcosis staging system. The indirect hemagglutination assay was positive at a titer of 1:2560. Thoracic and abdominal imaging revealed no evidence of visceral involvement.

Albendazole therapy (400 mg twice daily) was initiated, and in the third week of treatment, the patient underwent a PAIR procedure performed by interventional radiology. No complications occurred, and follow-up imaging demonstrated regression of the cyst (Fig. 1c–d).

DISCUSSION

Hydatid cysts arising primarily within skeletal muscle represent an uncommon manifestation of echinococcosis, comprising only a small proportion of reported cases (<4%). Isolated muscular involvement without concomitant hepatic or pulmonary disease, as observed in the present case, is considered exceptional. Previously reported sites include the thigh, gluteal region, paraspinal muscles, and psoas muscle.

Diagnosis is often delayed because muscular hydatid cysts typically present as slowly enlarging soft-tissue masses that may mimic neoplastic or infectious conditions.[5] Ultrasonography is commonly employed as an initial diagnostic modality, enabling visualization of characteristic features such as daughter cysts, floating membranes, or hydatid sand. Owing to its excellent tissue characterization capability, magnetic resonance imaging

plays a key role in evaluating cyst architecture, identifying internal membranes or septations, and differentiating hydatid cysts from other soft-tissue lesions.[1,4]

Diagnostic serological methods, including indirect hemagglutination and enzyme-linked immunosorbent assays, may provide supportive evidence for diagnosis; however, their sensitivity varies according to cyst location and biological activity. Seropositivity is generally higher in active or transitional cysts and may also assist in guiding treatment decisions. Management options include surgical excision, percutaneous interventions such as PAIR, and medical therapy with albendazole. The puncture–aspiration–injection–reaspiration technique has gained acceptance as a minimally invasive alternative for accessible cysts or for patients at increased surgical risk. Adjunctive albendazole therapy administered before and after PAIR reduces cyst viability, decreases intracystic pressure, and lowers recurrence rates.[6]

CONCLUSION

This case underscores the importance of considering hydatid disease in the differential diagnosis of any atypical soft-tissue mass in endemic regions, even in the absence of a clear exposure history or visceral involvement. Although rare, primary isolated muscular hydatid cysts should be considered when evaluating atypical soft-tissue masses in endemic areas.

Ethics Committee Approval: This is a single case report, and therefore ethics committee approval was not required in accordance with institutional policies.

Informed Consent: Written informed consent was obtained from the patient for publication of this report.

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