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Case Report

Intramuscular Hydatid Cyst- A Rare Case Report

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Abstract: Hydatid disease, caused by the *Echinococcus* species, commonly affects the liver and lungs. Muscular involvement is rare, accounting for less than 5% of cases due to factors such as muscle contractility and lactic acid content that make it an unfavourable environment for the parasite. Intramuscular hydatid cysts are often misdiagnosed due to their rarity and nonspecific presentation. In this study we report a rare case of a 64 year-old male patient presenting with a slowly enlarging, painless swelling in the antero-lateral aspect of thigh region. Imaging studies including ultrasound and MRI revealed a cystic lesion with features suggestive of a hydatid cyst. Serological testing supported the diagnosis. The patient underwent surgical excision of the cyst with care to avoid spillage, followed by antiparasitic therapy with albendazole. Histopathological examination confirmed the diagnosis.

Keywords: Intramuscular Hydatid Cyst, Echinococcus, Soft Tissue Cyst, Rare Case, Surgical Excision.

INTRODUCTION

Hydatid disease (echinococcosis) is a parasitic infection caused by the larval stage of *Echinococcus granulosus*, most commonly transmitted to humans via the fecal-oral route from definitive hosts such as dogs. It is a significant public health issue in endemic regions, particularly in parts of the Middle East, South America, Africa, and the Mediterranean.

The liver (60–70%) and lungs (20–30%) are the most frequently involved organs due to their filtering role in the portal and pulmonary circulation. In contrast, involvement of the musculoskeletal system is extremely rare, accounting for less than 5% of all hydatid disease cases. Primary intramuscular hydatid cysts are particularly uncommon due to the mechanical activity of muscles and the unfavourable biochemical environment for parasite survival.

When present, intramuscular hydatid cysts can pose a diagnostic challenge due to their atypical location and resemblance to other soft tissue tumors or abscesses. Misdiagnosis can lead to inappropriate interventions, including aspiration or biopsy, which risk cyst rupture and anaphylaxis.

In this report, we present a rare case of a primary intramuscular hydatid cyst located in the anterolateral aspect of thigh, discussing its clinical presentation and imaging features.

CASE PRESENTATION

A 64-year-old male presented with a gradually enlarging swelling on the anterolateral aspect of right thigh region, which has been progressing over the past two years. Initially painless, the swelling has recently become painful. The pain occurs intermittently and worsens with physical activity.

On examination, the patient's vital signs were within normal limits. Local examination of the right thigh revealed a large, oval-shaped palpable mass on the anterolateral aspect, measuring ~ 7 x 5 cm. The mass was firm and tender to touch, with an increased local temperature. No enlarged lymph nodes were detected.

An ultrasound was performed, revealing a well-defined cystic lesion located within the intramuscular plane of the upper anterolateral thigh. The main cyst measured approximately 7.5 x 4.7 cm. Additionally, several smaller adjacent cysts of varying sizes were observed, consistent with a hydatid cyst containing multiple daughter cysts, the largest measuring 10 x 8 mm.

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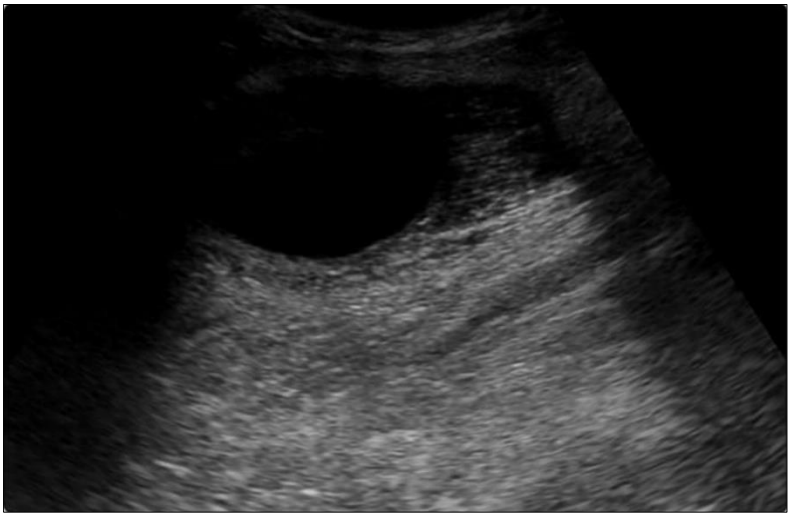
MRI revealed a well-defined, lobulated, oval-shaped cystic mass located within the vastus intermedius muscle, measuring approximately 8 x 4.9 cm. The lesion extended to involve the underlying femoral periosteum. Multiple small cysts with homogeneous contents were observed surrounding the main lesion. These MRI findings reinforced the diagnosis of a hydatid cyst.

A CT scan of the thorax and abdomen was subsequently performed, which showed no evidence of involvement of other organs.

The excised specimen was sent for histopathological analysis, which revealed a thick fibrous cyst wall. Inside the cyst, a germinal membrane and non-viable scolices were identified, confirming the diagnosis of a hydatid cyst.



Ultrasound image reveals a well-defined, oval-shaped cystic lesion, accompanied by several smaller adjacent cystic lesions located within the muscle tissue

MRI T2-weighted images — A: sagittal and B: axial — demonstrate a well-defined cystic lesion within the vastus intermedius muscle, containing a floating internal membrane and accompanied by several smaller adjacent cystic lesions

DISCUSSION

Hydatid disease is a parasitic zoonosis most commonly caused by *Echinococcus granulosus*. Humans act as accidental intermediate hosts, usually infected through ingestion of parasite eggs shed by carnivores such as dogs. After ingestion, the embryos penetrate the intestinal mucosa, enter the portal circulation, and commonly localize in the liver and lungs. However, in rare cases, the larvae can bypass these filters and reach atypical sites such as the muscles, bones, heart, brain, or kidneys.

Muscle involvement in hydatid disease is rare, with an incidence of 1–5%, and primary intramuscular

localization without involvement of other organs is even more unusual. Several factors contribute to the rarity of muscular hydatid cysts, including continuous muscle contractions, high lactic acid levels, and an effective local immune response, all of which are believed to hinder the growth of the larval cyst.

Clinically, intramuscular hydatid cysts usually present as slow-growing, painless masses. They may remain asymptomatic for years, mimicking soft tissue tumors such as lipomas, fibromas, or abscesses, thus complicating the diagnostic process. In our case, the patient presented with a gradually enlarging mass in the anterolateral aspect of thigh, with no systemic symptoms or history of hydatid disease elsewhere.

Imaging plays a crucial role in the diagnosis. Ultrasound can detect cystic lesions and may show daughter cysts or a "double wall" sign suggestive of hydatid disease. MRI and CT provide more detailed information about the cyst structure, location, and surrounding tissue involvement. Serological tests (e.g., ELISA, indirect hemagglutination) can support the diagnosis, but false negatives may occur, especially in isolated muscular cases.

The mainstay of treatment is surgical excision, with careful handling to avoid cyst rupture and dissemination, which can lead to local recurrence or anaphylactic shock. Pre- and postoperative antihelminthic therapy with albendazole is recommended to reduce the risk of recurrence and kill any remaining scolices. In our case, complete en bloc excision was achieved without intraoperative spillage, and the patient was started on albendazole postoperatively with a good clinical outcome.

This case underscores the importance of considering hydatid disease in the differential diagnosis of soft tissue swellings, especially in endemic areas. A high index of suspicion, appropriate imaging, and cautious surgical planning are essential for effective management.

CONCLUSION

Hydatid disease is a parasitic infection that can be difficult to diagnose due to its ability to mimic other conditions. Involvement of the thigh is a rare presentation, typically identified through MRI, with definitive treatment achieved through complete surgical removal.

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