BANGLADESH JOURNAL OF RADIOLOGY AND IMAGING 2024; VOL. 32(2): 158-160

Intramuscular Hydatid Cyst: Report of an Unusual Case

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Introduction:

Hydatid cysts are parasitic diseases transmitted to humans through dog feces; they are prevalent in countries wherein agriculture and livestock breeding are practiced. *Echinococcus granulosus* is the most common causative agent, while *Echinococcus alveolaris* is rare. Hydatid disease can be found any part of the body, although the most involved are the liver (75%) and lungs (15%). The lungs and liver are simultaneously affected in 5%-13% of the patients.[1,2] Moreover, hydatid cysts may affect several organs. Hydatid cysts affecting the muscles account for approximately 1%-5% of all hydatid cysts.[3] Intramuscular hydatid cyst attacking a single muscle is an unusual condition as the skeletal muscle contains high lactic acid concentration and contractile activity-like mechanical factors. The diagnosis of a hydatid cyst should be ruled out, particularly in patients from endemic regions, before undergoing biopsy-aspiration to evaluate a possible abscess, hematoma, or tumor in the muscle. The present study aimed to describe a patient with intramuscular hydatid cyst and emphasize the need to consider hydatid cysts in the differential diagnosis of patients presenting with muscle swelling and pain.

Case Report:

A 36-year-old male patient was admitted to the hospital with swelling in the medial aspect of the left thigh. Laboratory tests revealed no abnormal findings.

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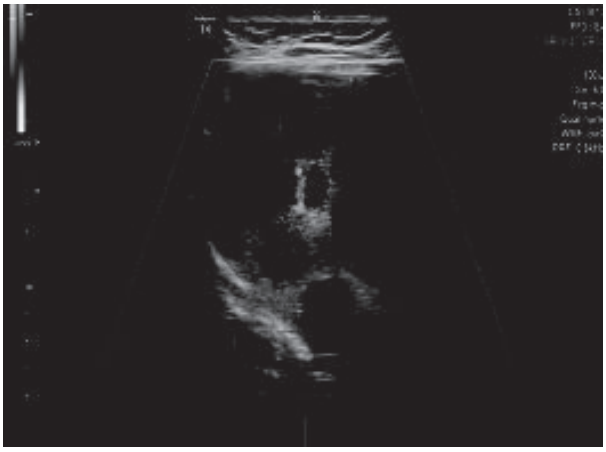

Fig.-1: *Showing Ultrasound image of a hypoechoic lesion having multiple anechoic areas within it.*

Ultrasonogram revealed a huge lobulated hypoechoic lesion at medial aspect of thing having different size cystic areas within **(Figure 1).**

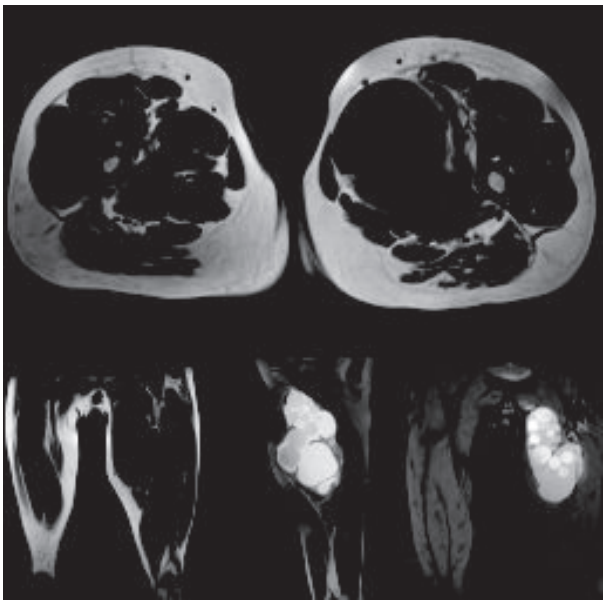

Fig 2: *Axial T1WI and coronal T1WI and T2WI image showing large cytic lesion having multiple daughter cysts within.*

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Received: 10 October 2023 **Revised:** 30 December 2023 **Accepted:** 17 March 2024 **Published:** 01 July 2024

MRI revealed a large cystic lesion with membranous structures within the adductor muscles. The lesion was hypointense on T1-weighted images and hyperintense on T2-weighted images having multiple daughter cysts within it, indicating a hydatid cyst diagnosis, which was confirmed with histopathological examination after surgical excision. **(figure 2).**

No hydatid foci have been reported in any other site of body.

Discussion:

Hydatid cysts are parasitic diseases caused by *E. granulosus* in 99% of cases and *E. multilocularis* in 1% of cases. Hydatid cysts are common in Southern Europe, Asia, Australia, Africa, and the Middle East. Animals such as dogs, wolves, and foxes are definitive hosts, and humans are intermediate hosts. The disease occurs after the consumption of food contaminated with live parasite eggs. Although hydatid cysts can be observed in almost all organs, they less commonly affect muscle structures. The thoracic wall muscles and pectoralis major, sartorius, psoas, quadriceps, and gluteus muscles are possibly affected by hydatid cysts. Psoas muscle involvement is reported as the most common intramuscular form of hydatid cysts.[4]

The pathogenesis of intramuscular hydatid cysts is not clearly understood. Two different theories have been proposed. The first theory suggests direct implantation owing to a dog bite, and the second theory suggests transportation through systemic circulation from the intestines to the skeletal muscle. Iatrogenic contamination of hydatid cysts can be considered if the musculoskeletal system and adipose tissues are involved after surgery.[5, 6]

The rare occurrence of hydatid cysts with primary muscle involvement is explained by the high lactic acid concentration in the skeletal muscles owing to its high activity, which prevents settling of the organism at this site.[7] Moreover, the barrier function of the liver and lungs is also important. It is considered that proximal muscles of the lower extremity are more commonly involved out of their large mass and rich blood supply.

The primary clinical sign of muscle hydatidosis is a localized and palpable mass. Additionally, patients can present with pain and restricted movement. Routine hemogram and biochemistry results are often normal. Although eosinophilia is anticipated in parasitic infections, it may not be observed in all patients.

The use of imaging methods such as ultrasonography (USG), computed tomography (CT), and MRI for the diagnosis of slow-growing cystic masses in the musculoskeletal system is important for accurate diagnosis. USG is the primary modality used to diagnose such patients. USG is a widely available, noninvasive, inexpensive and can be repeated. Cysts are classified according to the Gharbi criteria on USG[8]. According to this classification, type 1 is defined as a pure cystic lesion, type 2 is a detached germinative membrane within the cyst, type 3 is a multi-cystic lesion separated into septate, type 4 is a degenerated cyst with a pseudo-solid view, and type 5 is a calcified pseudo-solid cyst. Daughter cysts, separated membranes, and double-line signs are the most characteristic features of hydatid cysts on USG8. While it is known that USG can be valuable in detecting hydatid cysts in skeletal muscles, it is emphasized that MRI findings are much more valuable. MRI is an important imaging method for the detection and characterization of soft tissue masses. As the MRI findings of muscle hydatidosis have not been well described as those of liver hydatidosis, it can be difficult to define these lesions. Additionally, CT is superior in examining wall calcifications, bones, and their relationship with neighboring structures. The view of the hydatid cyst on CT varies, and it rarely shows typical characteristics.

The presence of hydatid cysts should be considered when evaluating the lesions involving the muscles. Slow-growing tumors, hematomas, myositis, and abscesses should also be considered for differential diagnosis.

Diagnostic biopsy and aspiration should be avoided in cases of suspected hydatid cysts to prevent rupture and spread. Total cyst excision is the primary treatment method. Disease relapse is prevalent after surgical treatment. Postoperative mortality has increased from 0.95% to 3.5% owing to repeated surgical operations and accompanying disorders.[9]

In conclusion, a hydatid cyst must be considered in the differential diagnosis of a cystic mass with well-defined margins refractory to medical therapy in the extremities of individuals from endemic regions.

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