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ATYPICAL LOCATION OF THE HYDATID CYST

Radiodiagnosis

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ABSTRACT

Hydatid cyst is caused by the larval stage of the tapeworm, Echinococcus Granulosus. The most common site of involvement is the liver followed by lungs, kidney, bones and the brain. Many Hydatid disease cases are asymptomatic for years and its diagnosis continuous to be challenging due to lack of pathognomic clinical findings. For this reason, Hydatid disease is frequently underdiagnosed and detected only when complications arise or by chance. Hydatid disease of the skeletal muscle is rare and accounts for 3–5% of the cases, while splenic Hydatid disease constitutes 4% of all abdominal Hydatid disease. The muscle is an unfavourable site for hydatid disease due to its high contractility and lactic acid concentration, as the cyst uses oxygen for its growth. Here, we present a rare and interesting case of hydatid cyst of the thigh with an incidental hydatid cyst in the spleen of a patient. Using ultrasonography and magnetic resonance imaging we were able to demonstrate its classical features.

KEYWORDS

Hydatid cyst; Echinococcus; Muscle; Thigh

Case report –
A 32 year-old female patient from Shimoga, Karnataka, India presented with complaints of progressive swelling over the medial aspect of middle third of left thigh since 1 year. The swelling had gradually increased in size and was associated with dull pain on walking for the past 1 month. There was no history of trauma or fever. On examination a solitary swelling was noted which was cystic to firm in consistency with smooth surface and regular margins.

Ultrasonography (USG) showed a large encapsulated anechoic cystic lesion measuring 68 x 35mm in the intramuscular compartment of the medial aspect of the thigh. The cyst had hyperechoic walls with mildly hypoechoic central layer. There was evidence of multiple thin internal septations to the periphery, which represent the walls of the daughter cysts. The daughter cysts separated by the hydatid matrix had a "wheel-spoke pattern". The lesion showed multiple fluid-fluid levels. There was no evidence of echogenic debris within the lesion. Probable diagnosis of intramuscular hydatid cyst (Type II) was made. In view of this, an USG screening of the abdomen was done. The liver did not show any lesions but the spleen showed a similar encapsulated anechoic cystic lesion with daughter cysts, reaffirming the possibility of hydatid disease.

Following this, a contrast enhanced MRI was done which showed a well defined thick-walled multiloculated cystic lesion along the posterior surface of sartorius muscle with enhancement of the walls. Multiple small cysts (daughter cysts) were noted within. Enhancement was also noted in the adjacent muscles and intermuscular plane - findings suggestive of Hydatid Cyst. Limited study of the abdomen also revealed the splenic hydatid cyst.

The patient was then taken for cyst enucleation from the left thigh which showed multiple clear hydatid cysts of varying sizes. The splenic hydatid was not excised and a follow-up was suggested.

Histopathological examination confirmed the diagnosis of hydatid cyst. Microscopic sections showed part of muscle tissue with extensive inflammatory response around cyst wall composed of inner germinal layer, outer thick eosinophilic lamellated cuticular layer and focal attachment of scolices to the inner germinal layer. Post-surgery the patient was symptomatically better.

DISCUSSION -
Cystic echinococcosis (CE), an endemic parasitic infection caused by Echinococcus Granulosus remains a major health issue in developing countries like the middle east, Africa, Asia, South America, and Australia. CE results in severe and life-threatening complications, with estimated mortality rates of 2–4% per 100.000 inhabitants. (1) The possible causes attributed to this are the lack of strict control programs to prevent the transmission of this infection, a high population of stray dogs, illegal butchering of animals, and poor public education about the disease. Adult Echinococcus Granulosus tapeworms infect dogs and other canines, the eggs of which are then shed in the feces of infected animals. Human beings are infected by accidentally ingesting these eggs. (2)

The liver and lungs are the two most frequently affected organs in humans. During the life cycle of the organism, the swallowed eggs hatch in the intestines and are transported by the portal system to the liver. The localization of hydatid cyst in muscle is rare even in endemic areas, possibly due to the high lactic acid content and muscle contraction which impedes cyst growth within the striated muscle. However, when seen, the cysts are more inclined to grow in the muscles of the trunk, neck, and legs because of relatively less muscle contraction and more vascularization of these areas.

The patients with hydatid disease of the muscle usually present with localized painless soft tissue swelling. Serology for Hydatid disease has a low sensitivity/ specificity, leading clinicians to consider it an approach with little value. Therefore, imaging modalities like USG, CT, and MRI are used in the evaluation of these slow-growing cystic masses in the musculoskeletal system. Confirmation of hydatid cyst with these imaging modalities plays a vital role as it helps to prevent detrimental cystic puncture and its complications like local dissemination and potentially fatal anaphylactic shock. Endo-vesicular daughter cysts seen in imaging modalities are specific for the disease. MRI is the investigation of choice in case of suspicious hydatid disease due to its ability to depict most features of hydatid adequately. Multiplanar imaging and excellent soft-tissue contrast provide valuable information about the extent of the disease.

Typical ultrasound features can be a simple unilocular cyst or a cyst with multiple punctate echogenic foci. These foci represent hydatid sand which is a combination of fluid and protoscolices which have recently ruptured from the vesicle within the cyst. An endocyst detached from the pericyst may be seen as a well-defined cystic lesion within a localized split in the wall and "floating membranes within the cystic cavity". If there is complete detachment, ultrasound shows a water lily sign. Multilocular cysts often appear in a honeycomb pattern with multiple septations. Ultrasound has the highest sensitivity in detecting hydatid sand, septa, and membranes. (3)

Classic MRI findings include a multivesicular cyst with a low-intensity rim on T2 weighted images which is called the rim sign. The

pathognomonic sign is that of daughter cysts within larger cysts. (4) Cysts ruptured to the subcutaneous planes are associated with inflammatory changes that cause ill-defined edema of the tissues and reactive capsular enhancement of the native hydatid cyst on MRI.

Pericystectomy is the best surgical approach for the treatment of muscular hydatid cysts with no supra added complications. Pre and post-procedure chemotherapy has been recommended in the treatment module of hydatid cyst. (5)

CONCLUSION:

Hydatid disease remains a potentially serious, sometimes fatal condition. We propose that a primary muscle hydatid cyst should be considered as a differential diagnosis in painless cystic masses of the musculoskeletal system, especially in endemic areas so as to reduce the risk of complications. It requires adequate suspicion by the Radiologist as well as the clinician to prevent it from being overlooked. A thorough screening of abdominal visceral organs could be recommended especially in high disease density areas.

Acknowledgement

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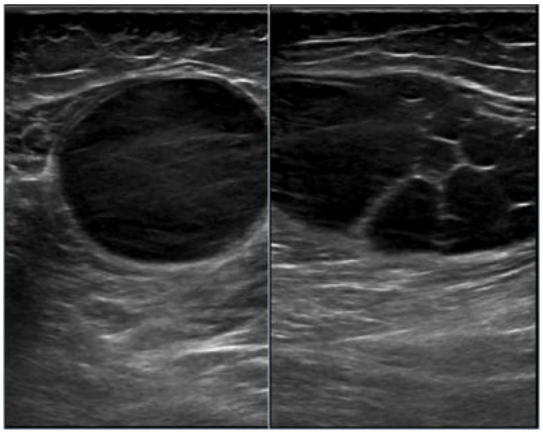
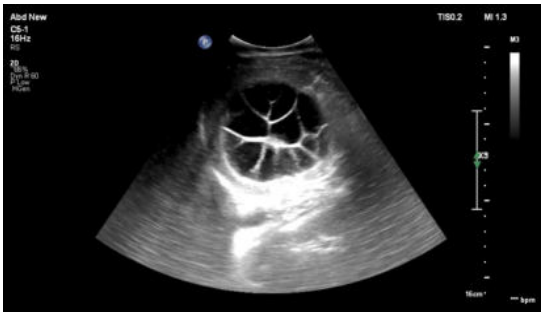
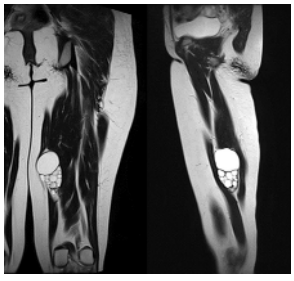


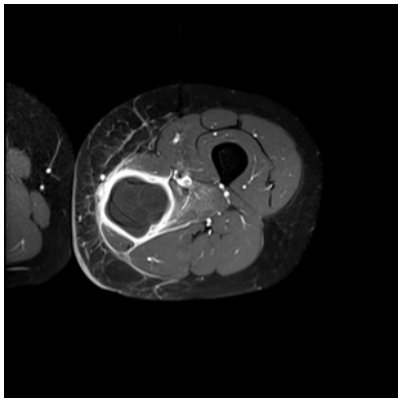
[Table/Fig - 1] USG of the medial aspect of left thigh reveals anechoic cystic lesion with multiple septations and fluid fluid levels.



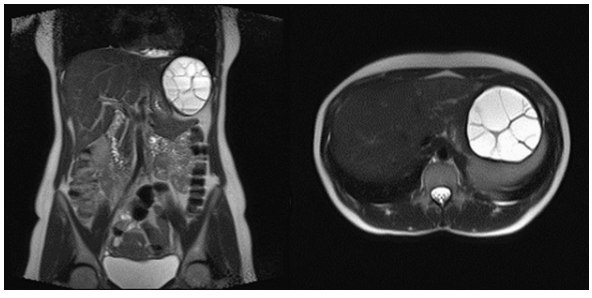
[Table/Fig - 2] Ultrasound image of the multivesicular cyst in the spleen



[Table/Fig -3] Non contrast T2-weighted MRI of the anterior thigh reveals a thick walled multiloculated cystic lesion in the intramuscular plane along the posterior surface of Sartorius.

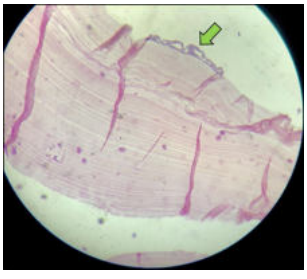


[Table/Fig - 4] Post contrast T1-weighted MRI of the thigh in axial plane shows intense enhancement of the walls of the cyst and perilesional fat planes



[Table/Fig - 5] Non contrast T2-weighted MRI showing multive sicular Splenic hydatid cyst

[Table/Fig -6] Post excision - Hydatid cyst containing daughter cysts with part of the surrounding Sartorius muscle.



[Table/Fig - 7] Microscopic picture showing focal attachment of scolices to the inner germinal layer

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