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Hydatid Cyst in the Skeletal Muscle: A Case Report

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ABSTRACT

Hydatid cyst is a parasitic infection caused by Echinococcus granulosus that primarily affects the liver but can also affect the lung, spleen, heart, brain, muscle, bone, etc. The incidence of intramuscular cysts is 0.5-4.7%. It produces symptoms either due to a mass effect or complications. Treatment for incidentally detected and asymptomatic cases is anthelminthic therapy and surgery is reserved for drug failure cases and complicated cases. Here, we report an incidentally diagnosed case of a hydatid cyst in the anterior abdominal wall in a 10-year-old girl and evaluate the representative features that a prudent physician should be aware of.

INTRODUCTION

Hydatid cysts (HCs) are formed when tapeworm larvae are consumed through contaminated food or water. It primarily affects the liver; however, the lung, kidney, heart, spleen, brain, muscles and bones can also be affected[1]. The symptoms are specific to the size of the cyst and the organ of involvement. A small cyst may go unnoticed for years. Ultrasonography (USG), computed tomography (CT) and magnetic resonance imaging (MRI) all have a very specific role in diagnosing HC at typical as well as atypical sites[2]. Surgical removal of the cyst is the usual course of treatment for intramuscular HC; anti-parasitic medications are often given in addition to prevent recurrence. This article presents the diagnostic difficulties and surgical management of intramuscular HC in a 10-year-old girl, along with a brief review of the literature.

Case Report: A 10-year-old girl came to our department complaining of a lump-like sensation in the upper abdominal wall for the last three months, for which she was being treated locally in her hometown. There were no other symptoms, not even localized pain or discomfort. She also had an USG, which identified a benign multilocular cystic space occupying a lesion (SOL) measuring 4.1×2.5 cm in the anterior abdominal wall with little vascularity. We further investigated the patient by magnetic resonance imaging (MRI) of the anterior abdominal wall, which showed cystic SOL (3.5x2.4x2.1 cm) is surrounded by a thick, soft tissue wall. Multiple cyst-like structures of varying sizes are noted in the SOL. However, no intraperitoneal communication was noted, suggesting lymphatic malformation. Importantly, during close observation and preparation of the patient for any interventional procedure, the lesion neither reduced nor increased in size and no other lesion or additional symptoms developed. The blood hemogram, which included urea and creatinine, was also within the normal range. Based on medical history, clinical symptoms and radiological findings, we diagnosed the cyst as a benign cystic lesion and proceeded with its excision. The surgery was conducted under sedation with a bilateral subcostal block added to a left-sided transversus abdominis plane (TAP) block. On exploration, we identified the cyst within the cyst (a daughter cyst), signifying the intramuscular Echinococcus lesion. We carried out a complete excision of the cyst and sent the specimen for microbiological and histopathological examination, which confirmed the diagnosis. The patient was discharged the next day and instructed to take oral albendazole for a minimum of six months, with two weeks of a drug-free interval in between.

DISCUSSION

The definite hosts of Echinococcus are various carnivores, while sheep and cattle are intermittent hosts. Humans act as the dead end for the parasite since they are unable to carry the disease further. Humans can get infected by eating contaminated food or milk or by direct contact with dogs. About 65% of HC occurs between the ages of 5 and 10 years and our patient was a 10-year-old and was from a poor socioeconomic rural area. In children, the liver (55% to 70%), the lung (18% to 35%) and the spleen (2-4%) are the common sites of HC[3]. In about 8-10% of cases, HC can occur in unusual sites like the kidney, peritoneal cavity, skin, the heart, brain, vertebral column, ovaries, pancreas, gallbladder, thyroid gland, breast, muscles

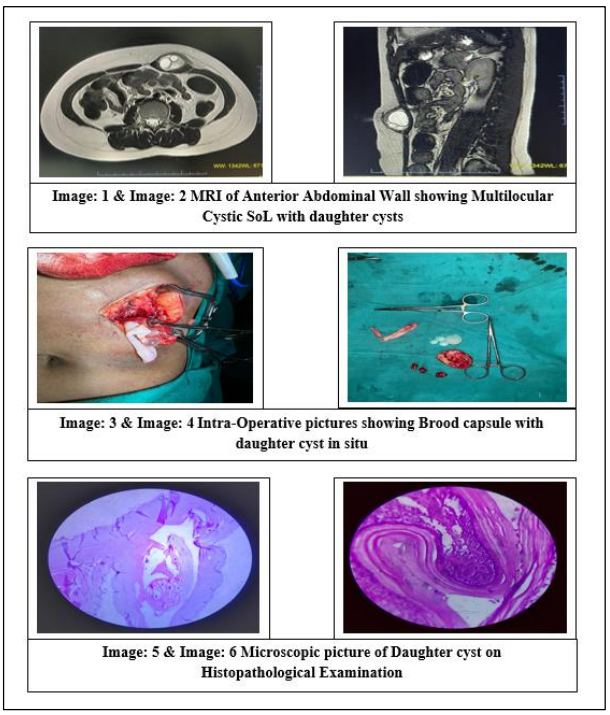

Image: 1 & Image: 2 MRI of Anterior Abdominal Wall showing Multilocular Cystic SoL with daughter cysts

Image: 3 & Image: 4 Intra-Operative pictures showing Brood capsule with daughter cyst in situ

Image: 5 & Image: 6 Microscopic picture of Daughter cyst on Histopathological Examination

and bones[4]. Following the primary hepatic hydatid rupture, the cyst contents seed, resulting in extrahepatic abdominal HC (6%-11%). While hematogenous or lymphatic spread will develop HC in the retroperitoneal (1.1%), brain (2%), intra-muscular (0.7% to 0.9%), heart and bone[5].

Primary intramuscular HC is extremely rare; it is often found to be secondary to primary liver HC. HC is uncommon in skeletal muscles because of the frequent muscular contractility and high lactic acid concentration in the muscles. The diagnosis of HC in any rare site is extremely difficult unless there is a definite primary focus in the liver, consistent imaging evidence, and, most importantly, the clinician should have a high level of suspicion[6]. The USG remains an essential diagnostic tool for this condition as it identifies the daughter cyst and "double line sign." It also aids in guiding therapeutic interventions. The CT is superior to USG for the assessment of bone invasion, extrahepatic abdominal and chest HC. On the other hand, MRI is reserved for the HC in atypical sites, soft tissue invasion, excluding other possible etiologies and for surgical planning. The characteristic sign for intramuscular HC is the rim sign, which can be found in MRIs in addition to the presence of cystic mass-containing daughter cysts and the Water Lilly sign[7].

The management strategy of HC depends on its location, size, affected organs and the presence of comorbidities. Currently available options include surgery, percutaneous puncture, anti-infective therapy and "watch and wait." Postoperative albendazole medicine was given to our patient following surgery. A short course of anthelminthic treatment (starting at least 4 days prior to surgery) is recommended in patients to reduce the parasitic burden and the risk of anaphylactic shock or dissemination, as well as relapse rates[8]. In patients with respectable musculoskeletal HC, radical resection of the affected tissue is the treatment of choice (as it is the only way to get rid of the larva). Our patient neither had a history of trauma or exposure to dogs or symptoms of hepatic HC nor had strong radiological evidence and we diagnosed the intramuscular HC intraoperatively. However, complete excision of the cyst was possible in our case and albendazole was advised in the postoperative period. A complete excision of the unruptured cyst is advised (whenever feasible) to prevent local recurrences that may require further surgery and long-term treatment with parasiticidal agents[9,10].

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