Hydatid Cyst of the Calf - a Rare Pathology that May Be Overlooked

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ABSTRACT

Hydatid disease is caused by an infestation with the tapeworm Echinococcus. Each parasite can produce thousands of eggs with oncospheres that can migrate to the liver or lungs and rarely to other sites, including muscles. The aim of this case study is to describe a rare case of a patient with an atypical hydatid cyst location and to raise awareness of this condition. We present the case of a 28-year-old female patient admitted in our clinic with a lump in her right calf who underwent surgical excision, hydatid cyst being suspected due to the aspect of the thin cyst wall membrane, confirmed by hystopathological examination. The post-operative course was uneventful and the patient was discharged five days later with medical treatment with albendazole. In conclusion, hydatid disease must be kept in mind as a differential diagnosis when facing a muscle cystic mass, even though it is very rare, and a good medical and surgical management may determine a permanent cure.

Keywords: echinococcus, muscle hydatid cyst, albendazole

INTRODUCTION

Hydatid disease is caused by an infestation with the tapeworm Echinococcus. Four species of Echinococcus cause infection in humans of which E. granulosus and E. multilocularis are the most common (1). The life cycle of this parasite includes a permanent host (canine species) and an intermediate host (usually herbivores), whereas humans are incidental hosts as they do not have a role in its evolution cycle. Each parasite can produce thousands of eggs, which after ingestion hatch into oncospheres. After they penetrate the intestinal wall mucosa, they enter into blood or lymphatic system and can migrate to the liver or lungs due to their physiologic role as capillary filters with a vast capillary volume (2,3). Other sites are found in less than 15% of the patients, with the involvement of the skeletal system in 1-4% of all cases. Voluntary muscles are a very rare affected, counting for less than 1% (4).

Cystic hydatidosis represents a worldwide significant public health problem, common in the Eastern Mediterranean and Middle East, sub-Saharan African countries, western China, and the former Soviet Union (5,6), with a prevalence rate of 2-6% or higher in endemic rural areas (7).
Diagnosis relies on a combination of serological and imaging studies. Nonspecific leukopenia, thrombocytopenia, and liver function abnormalities are reported, but eosinophilia can appear if there is an antigen leakage (less than 15% of cases) (8).

Hydatid cysts may be visualized and evaluated with ultrasonography, computed tomography (CT), or magnetic resonance imaging (MRI). Ultrasonography has a sensitivity of 90-95% (9) while MRI has no major advantage over CT for evaluation of abdominal or pulmonary hydatid cysts, being superior in defining changes in the intra- and extrahepatic venous system with a sensitivity of 95-100% (10-12).

The aim of this case report is to present a rare case of a patient with an atypical hydatid cyst location and to raise awareness of this condition.

**CASE REPORT**

A 28-year-old Caucasian female, urban area resident, with no prior medical history, presented to our clinic’s outpatient department for mild muscle pain and swelling in the middle area of the right calf for 4 months, and a lump in this area that appeared and grew in size the last couple of months. Also the patient affirmed that she might be pregnant. On physical examination, a 4.5x4 cm non fluctuant mass was located in the middle area of the right calf with no other associated tenderness, and it did not reduce in size or disappear upon flexion and mobilisation of the lower limb. Ultrasonography raised the suspicion of an atypical Baker’s cyst, laboratory test (complete blood count, serum glucose, liver enzymes, serum creatinine and urea) being within normal ranges. The pregnancy test was negative with untraceable levels of βHCG. Abdominal ultrasound, chest X-ray, and ECG were normal.

The patient was scheduled for surgical excision. Spinal anaesthesia was given and the surgery started with the patient in the prone position. A single 4x3 cm fluctuant white clear cyst was found in a cavity made in the gastrocnemius muscle and was excised hole, without spillage (Figure 1). Upon histopathologic examination the diagnosis of hydatid cyst was suspected due to the aspect of the thin cyst wall membrane, clear liquid content. The diagnosis was confirmed by microscopic examination of a wall fragment (Figure 2, 3).

**DISCUSSION**

Soft tissue hydatid disease is a rare condition even in endemic areas, and it is rarely life-threatening. Intramuscular lesions with the absence of liver and lung manifestations are most uncommon (13). Most cases described in literature presented quadriceps and biceps femoris (14), gluteus (15) and biceps brachii (16,17) muscle involvement. Muscle hydatosis involving the gastrocnemius muscle is very rare with
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FIGURE 3.

only a few cases being described (18). Although the patient’s epidemiological history, and physical examination did not raise any suspicion, the soft tissue ultrasound made possible a theoretical differential diagnosis with a hydatid cyst. Intramuscular hydatid disease can be a diagnosis challenge, especially in the absence of typical radiologic findings. However many imaging studies can be performed depending on the organ involved. Even though usual laboratory test may be normal such as in our case, serological diagnosis assays like ELISA (enzyme-linked immunosorbent assay) and IEP (immunoelectrophoresis) have very different sensitivities and specificities depending on the Echinococcus species and disease progression (19).

To this day permanent cure is achieved by surgical treatment, that includes excision of the primary lesion, daughter cysts if they exist and exclusion of communicating fistulas, if there are any, combined with anthelmintics and scolicidal drugs (20).

CONCLUSION

In conclusion, hydatid disease must be kept in mind as a differential diagnosis when facing a muscle cystic mass, even though it is very rare, and a good medical and surgical management can have a permanent cure. Furthermore fine needle biopsy should be avoided in cases of uncertain diagnosis.

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