

# Primary Intramuscular Hydatid Cyst of the Gastrocnemius Muscle – A Rare Case Report

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## ABSTRACT

Hydatid cyst disease has a world wide distribution and causes many health problems in endemic regions. Hydatidosis usually affects the hepatic and pulmonary systems. Muscle hydatidosis is rare and it is usually secondary in nature resulting from spread of larval tissue from some other primary site. Primary muscle hydatidosis is extremely uncommon condition.

We are describing a 45 year old female patient who presented with a swelling in her left calf region. The diagnosis of hydatid cyst was set intraoperatively. A postoperative CT-

scan of the thorax and USG abdomen revealed no signs of other echinococcal cysts. Thus, the case was considered as a primary hydatid cyst of the calf. Primary intramuscular hydatid cysts presents a diagnostic problem because of low prevalence in such unusual locations and also they may mimic a soft tissue tumour. It should be considered in the differential diagnosis of a cystic mass in the calf, especially in endemic areas because injudicious approach in the management of this rare presentation may cause systemic dissemination and anaphylactic shock.

**Keywords:** Echinococcosis, Skeletal muscle, Surgical excision

## CASE REPORT

A 45-year-old female patient presented to our surgical outpatient department, with a history of painless, slow growing swelling in posterior aspect of her left leg since 10 years. She complained of increase in the size of this swelling associated with mild dull aching pain since last 6 months. She had no history of prior trauma or fever or throbbing pain in the swelling. She had not taken any treatment in the past for the swelling. On physical examination, the swelling was non tender, measuring approximately 10 cm x 6 cm in size in the calf region of left leg. The swelling was globular in shape, with smooth surface and soft consistency. There were no signs of an acute inflammatory process. The swelling did not disappear or reduce on flexion of the knee joint and on making the calf muscles taut the swelling became less mobile. Transillumination test was negative. Fluctuation was present. Skin over the swelling was normal. Movements at the knee joint were normal. Routine laboratory tests were within normal limits. Plain radiographs showed only soft-tissue swelling with no bony destruction. A clinical diagnosis of a lipoma or a large sebaceous cyst was made and FNAC was done which was suggestive of suppurative inflammatory pathology. The differential diagnosis of a chronic abscess or a sebaceous cyst was made and patient was taken in the operating room

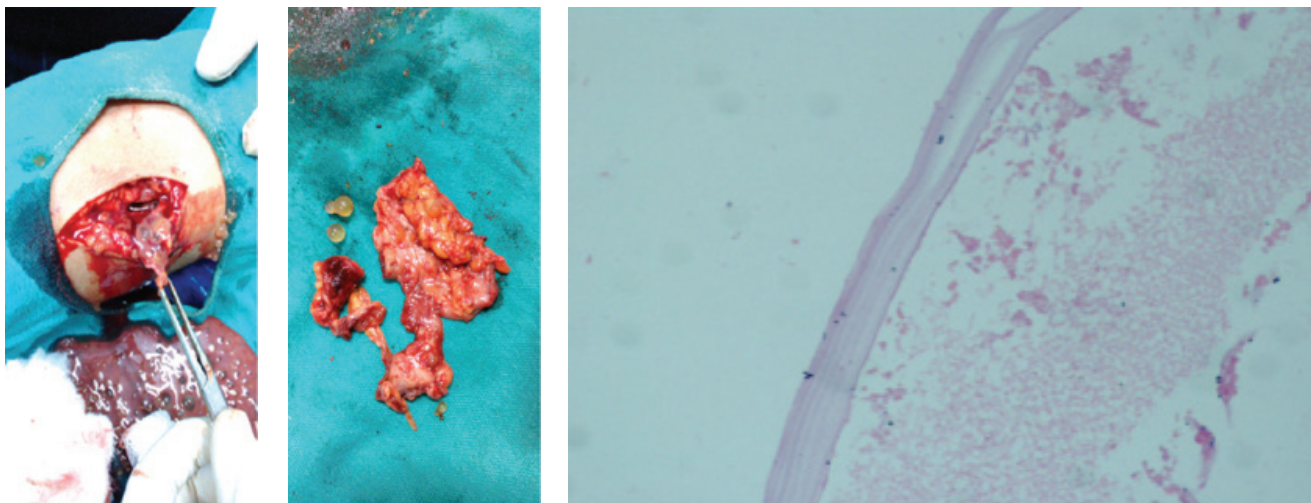
and under local anaesthesia incision was given but there was no pus, instead in the muscular plane an encapsulated cyst was identified which was densely adherent to muscles and on incising it turbid fluid along with numerous grape like small structures came out and hence an intraoperative diagnosis of hydatid cyst was made. The cyst wall was highly adherent to the muscles and it was removed piecemeal. The wound cavity was mopped with hypertonic saline. The diagnosis of hydatid cyst was confirmed by histopathologic examination of the excised cyst wall [Table/Fig-1-3]. Post operatively a chest CT and abdomen USG and CT were done which did not show any cystic lesion in the chest or in the abdomen. Post operatively the patient was started on albendazole and the post operative course of the patient was uneventful.

## DISCUSSION

Hydatid cyst disease is a zoonotic infection caused by larval forms (metacestodes) of tapeworms of the genus *Echinococcus*, found in the small intestine of carnivores and it still remains an important health problem in endemic regions [1].

The parasite has a “dog-sheep” cycle with man as an intermediate and accidental host [1].

In primary echinococcosis, the metacestodes may develop



**[Table/Fig-1]:** Intraoperative photograph showing grape like structure coming out from the cyst with turbid fluid **[Table/Fig-2]:** Photograph showing excised cyst wall and two cysts enclosing opalescent fluid with semi transparent layer **[Table/Fig-3]:** Photomicrograph showing cyst wall with laminated outer layer (Showing delicate laminations) with underlying fluid

in almost any organ. Most patients (up to 80%) have a single organ involved and harbour a solitary cyst, localized in approximately two-thirds of cases in the liver and in about 20% in the lungs and it rarely involves the brain, heart, bone or muscle [1].

Soft tissue hydatid disease is rare even in endemic areas, and a primary focus within muscle in the absence of pulmonary or hepatic involvement is most unusual [2]. Muscle hydatidosis accounts only for 3-5% of all cases [3]. Usually, intramuscular hydatid cysts are secondary, resulting either from the spread of cysts or viable larval tissue after spontaneous or trauma-induced cyst rupture or after operations for hydatidosis in distant regions [1]. The most common skeletal muscle sites include the hip, thigh and the shoulder regions [3]. Bone, including spine can also be affected [3]. Several factors would explain the exceptional nature of muscle localizations of hydatid cysts: Efficacy of the hepatic and pulmonary barriers, unfavourable muscle environment for the growth of hydatid larvae due to high lactic acid content and muscle's contractility which hinders intramuscular growth of cysts [3,4].

Primary intramuscular hydatid cyst presents a diagnostic problem because of the unusual location, low prevalence, less suspicion in the absence of hepatic or pulmonary involvement and also because complicated cysts may imitate other solid or complex mass lesions [5].

It is important to establish the diagnosis preoperatively in order to limit the risk of anaphylactic shock or dissemination of viable protoscolices in the event of puncture or accidental opening of the cyst during resection. Plain radiography, USG, computed tomography (CT), and magnetic resonance (MR) imaging are all can be used to depict hydatid cyst. Intramuscular hydatid

disease lacks any typical radiologic finding. Nevertheless, USG is the diagnostic tool of choice for the initial work-up [6]. Ultrasound may depict multiple cystic lesions in the muscles. CT shows similar cystic appearances, with faint peripheral contrast enhancement of the cysts [2]. The MR appearance of hydatid cyst is non specific and may mimic tumours or inflammatory conditions [5].

Immunodiagnosis can also play an important complementary role for primary diagnosis and also for follow-up of patients after surgical or pharmacological treatment. The enzyme-linked immunosorbent assay (ELISA), immunoelectrophoresis (IEP), and immunoblotting (IB) are the laboratory tests used for serological diagnosis [7].

Complete surgical excision offers best hope for permanent cure of muscle hydatidosis and should include excision of the primary lesion, the daughter cysts and the communicating fistulas as a whole specimen [1].

Prior injection of a scolicedal agent into the unopened cyst and mopping the operative field with sponges soaked in a scolicedal agent such as hypertonic saline, cetrimide (0.5%), chlorhexidine, ethyl alcohol (70-95%) reduce the chances of dissemination [1].

Concomitant drug treatment with anthelmintics such as albendazole or praziquantel reduces the risk of secondary echinococcosis and recurrence [1,8].

## CONCLUSIONS

Primary muscular hydatidosis is very a rare condition and it is difficult to diagnose due to lack of typical radiological findings. The possibility of hydatid disease should always be kept in mind in the differential diagnosis of a cystic mass in

the muscle especially in patients from endemic areas. USG is the main modality for an initial work up and surgical excision remains the treatment of choice.

The purpose of the present report is to alert the reader to this rare infestation so that an open biopsy will be avoided. Percutaneous needle biopsy is also not recommended because of the possibility of introducing scolices into the needle tract.

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