

## **Primary Intramuscular Hydatid Cyst of the thigh Muscle – a Rare Case Report**

Radhey Sankhala<sup>1</sup>, Sangeeta Saxena<sup>2</sup>, Dharmraj Meena<sup>3</sup>, Harsh vardhan khokhar<sup>4</sup>, Devendra Khatana<sup>5</sup>

<sup>1</sup>Resident, Department of Radiodiagnosis, Govt. Medical College and Associated Group of Hospitals, Kota

<sup>2</sup>Professor and Head, Department of Radiodiagnosis, Govt. Medical College and Associated Group of Hospitals, Kota

<sup>3</sup>Associate Professor, Department of Radiodiagnosis, Govt. Medical College and Associated Group of Hospitals,

<sup>4</sup>Assistant professor, Department of Radiodiagnosis, Govt. Medical College and Associated Group of Hospitals, Kota

<sup>5</sup>Resident, Department of Radiodiagnosis, Govt. Medical College and Associated Group of Hospitals, Kota

---

**Abstract:** 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.

**Key words:** Daughter cyst; echinococcosis; hydatid; infestation; intramuscular; scolices.

---

### **I. Introduction**

Hydatidosis is a zoonotic infection caused by *Echinococcus granulosus*. Human cystic echinococcosis is still endemic in some areas of the Rajasthan. Muscular localization of the hydatid cyst is very rare and is usually secondary to hepatic or pulmonary disease, and can cause a variety of diagnostic problems. These cysts appear as slow-growing masses of the soft tissue. A hydatid cyst has three layers. The outer pericyst is composed of modified host cells that form a rigid protective zone only a few millimeters thick. The middle, acellular laminated, about 2 mm thick membrane resembles the white of a handboiled egg and is easily ruptured. It permits the passage of nutrients but is impervious to bacteria. Disruption of the laminated membrane predisposes to infection. The inner, germinal or germinative layer is thin and translucent. It produces the laminated membrane and the scolices that represent the larval stage.

### **Case Report**

Fourty two year female presented with a progressively increasing swelling in the left thigh since one year, came to surgical outdoor patient department (OPD), Medical college hospital, Kota. On physical examination, there was a localized intramuscular swelling occupying the anterior medial compartment of left mid thigh. It measured 10 cm x 7 cm, cystic in consistency. The clinical possibilities of soft tissue sarcoma and hematoma of muscle were kept. Then patient came to radiodiagnosis department for ultrasound of those thigh swelling. There were no other positive clinical findings. The Ig-enzyme-linked immunosorbent assay (Ig-ELISA) test and fine needle aspiration cytology (FNAC) were not done. Other routine laboratory tests were normal. On ultrasound examination a solitary, well-defined rounded cystic lesion having internal daughter cysts, in muscle planes of left thigh, suggestive of hydatid cyst. Chest X-ray and abdominal ultrasound ruled out the presence of hydatid cyst of lungs and abdominal viscera. Thus, the diagnosis of primary echinococcosis of left thigh was made. On computerized tomography (CT) examination fluid attenuating cystic lesion with septations and daughter cysts was visualised. The cyst was shown hyperattenuating internal septae; representing a spoke wheel pattern of a cyst. On magnetic resonance imaging (MRI) examination the left thigh lesion on T1 weighted images was shown mixed low signal and T2 weighted images intense high signal loculated daughter cysts with septae.

The patient was operated on the basis of possible diagnosis of a hydatid cyst. On exploration, a solitary mass within adductor magnus muscle of left thigh with pearly white muscle free wall was found and it was excised. The left cavity was thoroughly irrigated with hypertonic saline solution for ten minutes. On section and gross examination of mass were seen as multiple pearly white translucent cysts with gelatinous material. Histologically, the thigh lesion was characterized by a conglomerate of small vesicles and cysts demarcated by a thin laminated layer with an inner germinative layer.

## II. Discussion

The hydatidosis is a parasitic disease; that occurs by members of the tape worms (cestodes) parasites. Those are caused by *Echinococcus granulosus* and *multilocularis* infestations<sup>[1]</sup>. The parasite may affect any organ; however, skeletal muscle is supposed to be an unfavorable site for infestation because of its high lactic acid concentration<sup>[2]</sup>. Primary involvement of skeletal muscles is very rare; it has been reported in about 2%–3% of all patients<sup>[3]</sup>. The parasite has to cross pulmonary and hepatic barriers to reach the muscles. Hydatid cysts gradually grow intramuscular and may mimic a soft tissue tumor<sup>[4]</sup>; thus, the diagnosis of soft tissue hydatid cysts is very suspicious. Ultrasonography of the abdomen still remains the good noninvasive screening tool to find the primary site of the disease and may confirm the diagnosis of hydatid disease by demonstrating the pathognomonic daughter cysts<sup>[5]</sup>. The CT appearance of the hydatid cyst is not diagnostic as it may mimic malignant and benign conditions such as congenital cyst, pseudocyst or hematomas<sup>[6,7]</sup>. However, the presence of daughter cysts, germinal epithelium detachment and calcification may confirm the diagnosis. Similarly, MRI can reveal a cystic mass containing daughter cysts, with rim sign and —water lily sign<sup>[8]</sup>. The different type of serological tests like indirect haem-agglutination test (IHA), latex agglutination and enzyme-linked immunosorbent assay (ELISA) are used to establish the diagnosis and postoperative follow-up of the disease with a specificity of 97 %, with IgG-ELISA being the most sensitive with a sensitivity of 83.5%. Similarly, eosinophilia is detected only in 50% of the patients; however, the best way to establish the diagnosis is the direct visualization of parasitic elements in the surgically resected pathological specimen<sup>[9]</sup>.

The conventional treatment of muscular hydatid cysts is surgical; however, it may require an extensive surgical resection, and a need of general anaesthesia is inevitable. Preoperative medical treatment may sterilize the cyst cavity and might decrease the intraoperative complication of spillage and consequential anaphylaxis. Intraoperative irrigation of 0.5% cetrimide, 15% hypertonic saline and 0.5% silver nitrate solution, previous to cyst opening may kill the daughter cysts and further reduces the risk of dissemination and anaphylactic reaction. Recently, percutaneous treatment of muscular hydatid disease has been carried out with great success<sup>[9]</sup>. Even though mortality directly due to echinococcosis is very low, it can produce a very disabling morbidity. A mortality rate between 0.29 and 0.6% has been reported<sup>[10]</sup>. The recurrence rate of this disease is still relatively high accounting for about 10%<sup>[10]</sup>.

## III. Conclusion

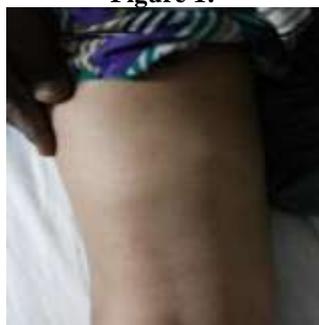
Hydatid disease can affect any organ in the body; the infestation may mimic a soft tissue tumor and therefore, we should be highly suspicious of this disease before making any other diagnosis as soft tissue mass or cystic neoplasm.

## References

- [1] Mirdha BR, Biswas A. Echinococcosis: Presenting as palpable lumps of breast. *Indian J Chest Dis Allied Sci* 2001; 43: 2.
- [2] Duncan GJ, Tooke SM. Echinococcus infestation of the biceps brachii. *Clin. Orthop* 1990; 261: 247-250.
- [3] Ammari FF, Khasawneh Z, Salem MK, et al. Hydatid disease of the musculoskeletal system. *Surgery* 1998; 124:934-7.
- [4] Sahni JK, Jain M, Bajaj Y, Kumar V, Jain A. Submandibular hydatid cyst caused by *Echinococcus oligarthus*. *J Laryngol Otol* 2000; 114: 473-476.
- [5] Niron EA, Ozer H. Ultrasound appearances of liver hydatid disease. *BJR* 1981; 54: 335-338.
- [6] Beggs I. The radiology of hydatid disease. *Am J Roentgenol* 1985; 145: 639- 648.
- [7] Czermak BV, Unsinn KM, Gotwald T, et al. *Echinococcus granulosus* revisite Radiologic patterns seen in pediatric and adult patients. *Am J Roentgenol* 2001; 177: 1051-1056.
- [8] Comert RB, Aydingoz U, Ucaner A, Arikan M. Waterlily sign on MR imaging of primary intramuscular hydatidosis of sartorius muscle. *Skeletal Radiol* 2003; 32: 420-423.
- [9] Zarzosa MP, Orduña Domingo A, Gutiérrez P, et al. Evaluation of six serological tests in diagnosis and postoperative control of pulmonary hydatid disease patients. *Diagn Microbiol infect dis*. 1999.
- [10] Chen WQ. Surgical management of complicated pulmonary hydatidosis. *ChungHsoa-Wai-Ko-Tsa-Chih* 1992; 30: 216-7;254-5

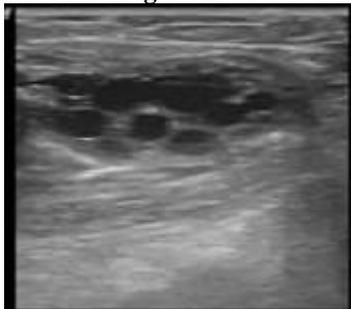
## Legends

Figure 1:



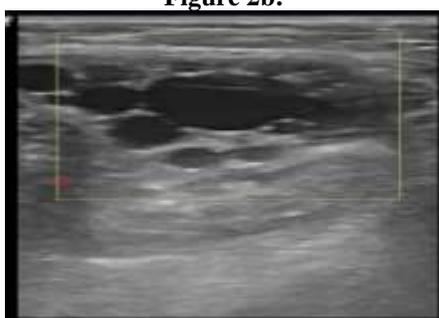
Photograph of left thigh showing cystic consistency localized swelling occupying the anterior medial compartment.

**Figure 2a:**



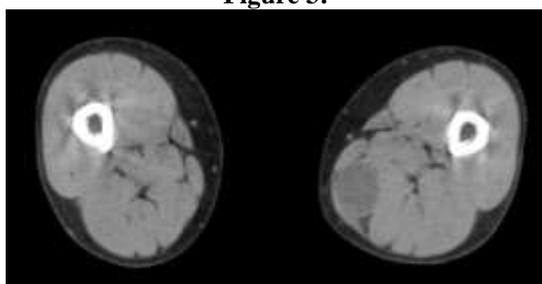
Ultrasound image showing a solitary, well-defined rounded cystic lesion having internal daughter cysts, in muscle planes of left thigh.

**Figure 2b:**



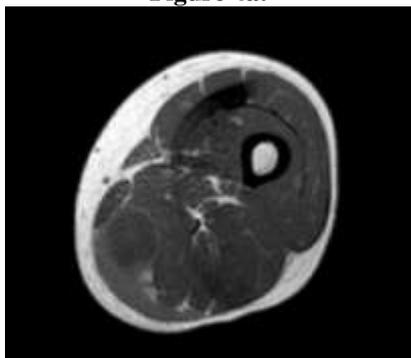
Color Doppler Ultrasound image showing no color flow within cystic lesion of left thigh.

**Figure 3:**



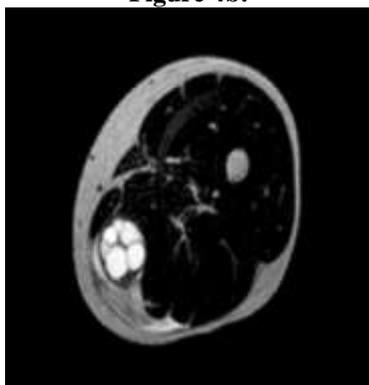
CT axial images of both thighs showing fluid attenuating cystic lesion with daughter cysts and contrast enhancing hyperattenuating internal septae, in muscle planes of left thigh.

**Figure 4a:**



T1 weighted MRI axial image left thigh lesion showing mixed low intense signal.

**Figure 4b:**



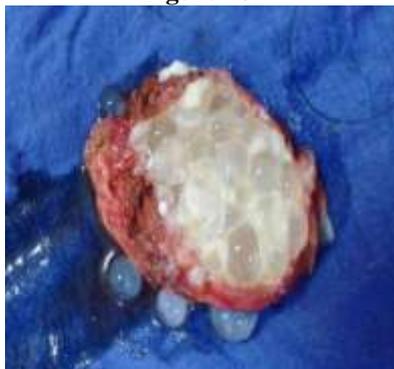
T2 weighted MRI axial image left thigh lesion showing hyper intense signal loculated daughter cysts with septae.

**Figure 5a:**



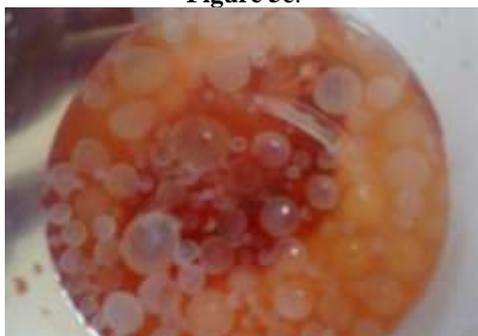
On exploration gross photograph showing a solitary mass within adductor magnus muscle of left thigh with pearly white muscle free wall.

**Figure 5b:**



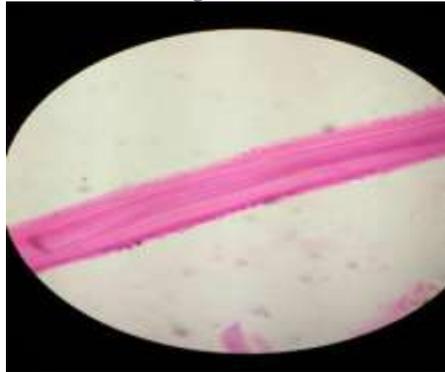
On gross section photograph showing multiple pearly white translucent cysts with gelatinous material.

**Figure 5c:**



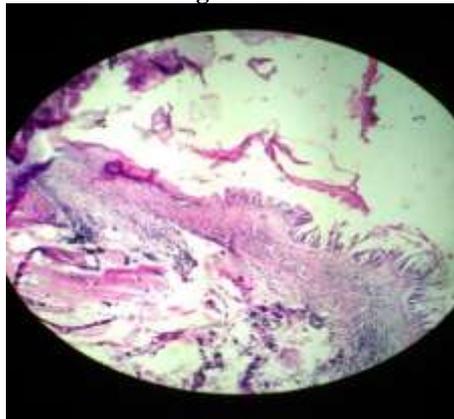
On gross section photograph showing multiple pearly white translucent cysts with gelatinous material.

**Figure 6a:**



Histological photograph showing conglomerate small vesicles and cysts demarcated by a thin laminated layer with an inner germinative layer.

**Figure 6b:**



Histological photograph showing conglomerate small vesicles and cysts demarcated by a thin laminated layer with an inner germinative layer.