

## AN UNUSUAL CASE OF PRIMARY ISOLATED INTRAMUSCULAR HYDATID CYST - DIAGNOSTIC DILEMMA ON FINE NEEDLE ASPIRATION CYTOLOGY

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### ABSTRACT

Hydatid disease (HD) is a zoonotic infection caused by *Echinococcus granulosus*. Isolated musculoskeletal hydatidosis without visceral involvement is a rare entity and reported to be only 0.5%. Primary intramuscular hydatid cyst presents a diagnostic problem. There is also paucity of literature where intramuscular hydatid cysts are reported on FNAC. Herein we present a case of intramuscular hydatid cyst diagnosed on fine needle aspiration cytology and later confirmed by histopathological examination.

#### Key words:

Zoonotic, echinococcus, hydatidosis.

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### INTRODUCTION

Hydatid disease (HD) is a zoonotic infection caused by the cestode *Echinococcus granulosus*. It has a global distribution and causes high morbidity and mortality in endemic countries. Isolated musculoskeletal hydatidosis without visceral involvement is rare and reported to be only 0.5%.<sup>1</sup> Presence of high levels of lactic acid and mechanical factors such as contractile activity make muscle an unfavourable site for infestation.<sup>2</sup> Primary intramuscular hydatid cyst presents a diagnostic problem not only because of the unusual location and low prevalence, but also because it simulates bone and/or soft tissue tumor.<sup>3</sup> In such rare cases, FNA cytology (FNAC) facilitates rapid and swift diagnosis.

#### Case History:

A 30 year-old female presented in the Surgery OPD with complaints of swelling in the medial aspect of right thigh for a period of 6 months (Fig.1). Initially the swelling was the size of a betel nut and painless. But it was progressively increasing in size to reach the present size and the patient developed pain since last three months. There was no history of trauma, fever or weight loss. On physical examination, a diffuse soft irreducible swelling measuring about 5x4 cm was noted in the postero-medial aspect of right thigh. The swelling was warm and tender. It was not fixed to the overlying skin. There was no change in skin colour or scar. Limb distal to the swelling was normal.



Fig 1 Patient having swelling in right mid thigh

Blood investigations were within normal limits. Radiograph of the right hip with thigh showed a hypoechoic lesion involving the medial aspect of the thigh. Bone shadows were normal and adjoining areas showed heterogenous well defined soft tissue. Thus, a clinical diagnosis of soft tissue tumor was made and the patient was advised fine needle aspiration cytology without any clinical suspicion of hydatid cyst.

The swelling was aspirated using a 23-gauge needle and 5 ml of clear watery fluid was aspirated. Smears prepared were stained with Leishman stain and studied under light microscope. Microscopic examination showed large number of degenerated inflammatory cells comprising neutrophils, lymphocytes, histiocytes, macrophages, plasma cells and eosinophils (Fig.2). There were numerous variable sized

acellular well-defined plate-like lamellated structures in a background of amorphous granular debris (Fig. 3(A) & 3(B)). In view of this, a cytological diagnosis of an infected parasitic cyst favouring intramuscular Hydatid Cyst was made.

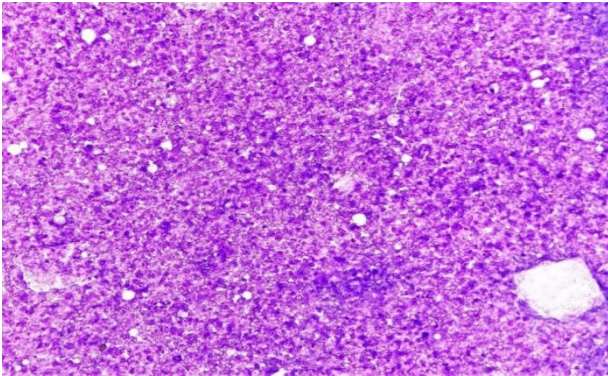


Fig. 2 FNAC showing degenerated inflammatory cells in Leishman stained smear (200X)

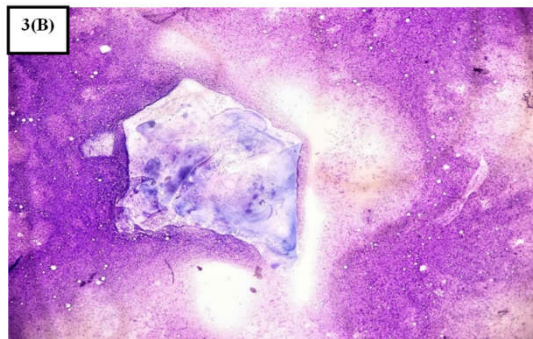
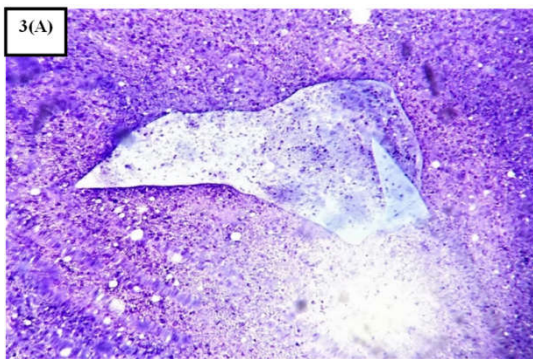


Fig 3(A) & 3(B) Leishman stained FNA smears showing acellular plate-like lamellated structures in a background of amorphous granular debris (200X)

Later, an ultrasound of the part involved revealed multiloculated thin walled well defined cystic lesion in the muscular planes on medial part of mid-thigh thus corroborating to our diagnosis of hydatid cyst. Ultrasonography of the abdomen and liver function tests were advised and were non-contributory.

The patient was put on antibiotics and antihelminthics for a period of 3 weeks after which the cyst was surgically removed and the specimen sent for histopathological examination. H and E stained sections examined showed cyst wall consistent with the diagnosis of hydatid cyst (Fig. 4). Adjacent muscle biopsy showed fibromuscular and adipose tissue infiltrated by histiocytes, multinucleated foreign body giant cells and chronic inflammatory granulation tissue (Fig. 5). This confirmed our earlier diagnosis of intramuscular hydatid cyst.



Fig 4 showing structure of cyst wall (endocyst) on H&E stain consistent with morphology of Hydatid Cyst (40X)

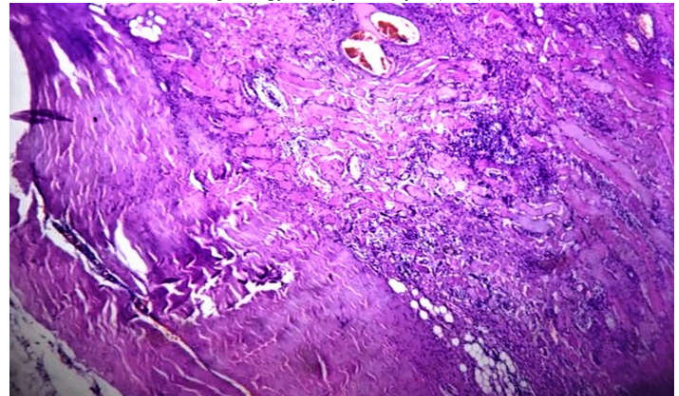


Fig. 5 H&E stained section of adjacent muscle tissue showing fibromuscular and adipose tissue infiltrated by histiocytes, multinucleated foreign body giant cells and chronic inflammatory granulation tissue. (40X)

## DISCUSSION

Hydatid Disease is a parasitic infestation caused by the genus echinococcus, the most common being *Echinococcus granulosus* and *multilocularis*. Dog is the definite host and sheep, goat and cattle are intermediate hosts. Human beings are infected accidentally by ingestion of food contaminated with eggs shed by dogs and thus become intermediate hosts.<sup>4</sup> Although any part of the body can be affected, the most commonly involved organs are liver (75 %), lungs (15.4 %) and spleen (5.1%). The other infrequent sites documented to be involved by hydatid cyst are peritoneal cavity, pancreas, thyroid glands, breast, gallbladder, thigh, kidney, brain, supraclavicular region, pericardium, diaphragm and pleural cavity.<sup>5</sup>

Diagnosis of hydatid disease is made by pathological and radiological examination, aided by serological tests. Also, in developing countries, serological tests being very expensive, are performed only when a cytological diagnosis of hydatid disease cannot be made.<sup>4</sup> Preoperative diagnosis is crucial because hydatid cyst carries the risk of rupture during surgery thus leading to local recurrence or anaphylaxis.<sup>2</sup>

## CONCLUSION

Primary hydatid disease of thigh being a rare entity should be considered as a differential diagnosis in any cystic swelling of thigh. Earlier it was cited that FNAC should be avoided in hydatid disease as it may lead to spillage of contents but this can be minimized to a great extent by use of small bore needle. In the present scenario, FNAC is an important tool for diagnosis as well as for minimizing complications during therapeutic surgical intervention. Our case was diagnosed on FNAC and no adverse complications were noted during or after the diagnostic procedure.

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