



## Primary Chest Wall Hydatid Cyst, Case Report & Review of Literature

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### Abstract

Chest wall cysts in general are uncommon. Among the pathologic processes that may involve the chest wall includes congenital/developmental, post-traumatic, post-treatment (surgery, radiotherapy etc.), infectious/inflammatory (e.g. tuberculosis) and neoplastic. The Chest wall is an unusual location for primary *Echinococcus* disease. We report a case of primary chest wall Hydatid Cyst (HC) in a 36-year-old woman who presented with left chest wall mass.

**Keywords:** H. cyst; Chest wall; *E. granulosus*

### Introduction

Hydatid disease has been a well-known entity since the era of Hippocrates. There are more than six species but three species of the tapeworm are of clinical importance in human hydatid disease; *Echinococcus granulosus*, *Echinococcus multilocularis* and *Echinococcus vogeli*. The most common causative organism for hydatid disease and the only one that cause HC is *E. granulosus* [1-3].

*E. granulosus* is distributed throughout the world. The infestation is common in sheep-farming areas of Greece, Turkey, the Middle East, Australasia, Sub-Saharan Africa, parts of America, and India [1-3]. The disease is also endemic in Ethiopia. Studies conducted at west & east part of the country showed high overall prevalence of hydatidosis in Ethiopia which indicates that HC is among most common infestations in the country [6-8]. Dog is the primary host while sheep is an intermediate host. Humans are only accidental hosts and do not play part in the life cycle of the parasite. Humans may contract the infection either by direct contact with a dog or by ingestion of foods or fluids contaminated by the eggs, which are contained in the feces of the dog. After ingestion, the eggs are freed from their coating and larva penetrate the mucosa of the jejunum reaching through the venous and lymphatic channels to every region of the body where they transform into small cysts which gradually enlarge [9].

HC can affect any age group and in any part of the body, except the hair and nails [10]. HC mostly affects the liver (75%) and lung (15%). It occurs in only 10% cases in other regions of the body. Skeletal muscle or subcutaneous tissue involvement by primary HC is uncommon and represents 0.5-4% of patients [1-3,9]. Primary chest wall hydatidosis is very rare, even in countries where echinococcosis is endemic & its diagnosis is easily missed because of its unusual presentation unless be kept in mind. We report a case of primary chest wall HC that was misdiagnosed as benign chest wall mass.

### Case Presentation

A 36-years old housewife from rural part of Ethiopia presented to our hospital with the compliant of left anterior upper chest wall swelling of 2years duration. The swelling was slowly progressing with associated dragging pain. She had contact with dogs and cats at home. She had no history of similar illness in the past. She had no cough or chest pain. Physical exam revealed an eight by six centimeter cystic, non-tender mass over the left infraclavicular area which is mobile (not fixed to the skin or underlying structure). She was investigated with Ultrasound of the left chest wall which showed left anterior chest infraclavicular subcutaneous hypoechoic mass & concluded as left anterior chest subcutaneous cystic mass (Figure 1). Fine Needle Aspiration(FNA) diagnosis index was left upper chest wall lymphangioma. Complete blood count was normal

Excisional biopsy was decided with the diagnosis of benign chest wall mass and patient was prepared. Under general anesthesia the mass was explored through transverse incision following the skin crease & cystic mass was found subcutaneously which was excised completely & there was

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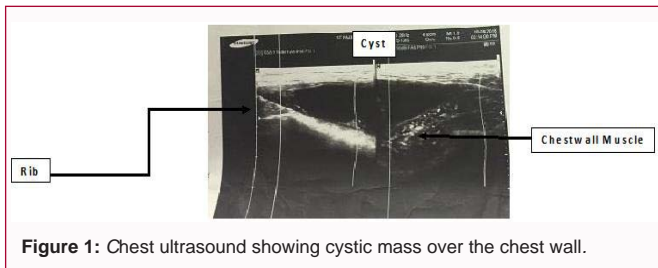
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**Figure 1:** Chest ultrasound showing cystic mass over the chest wall.

no leak. After completion, the cyst was opened & revealed multiple daughter cysts with the characteristic germinal layers and ectocyst. With a clinical diagnosis of subcutaneous chest wall HC specimen was sent for histopathology and confirmed the diagnosis (Figure 2). In the post op period she was worked up for possible other site involvement with abdominal US and chest x-ray which were non revealing

Patient's postoperative course was uneventful. She was started on Albendazole & discharged on the firsts post op day. In the next 6 months She was seen 3 times on follow up and had smooth course & showed no signs of recurrence.

## Discussion

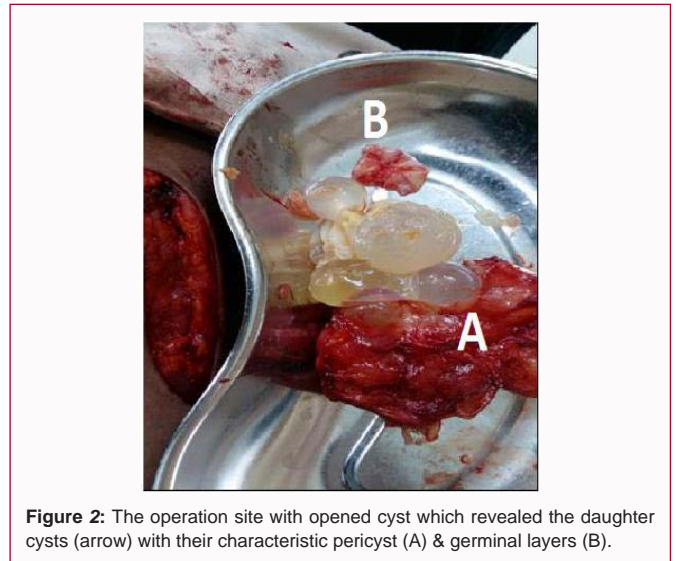
HC is caused by larval cestodes of the tapeworm *E. Granulosus* which results from haematogenic or lymphatic invasion of the body. The final localization of *Echinococcus* depends on anatomical and physiological characteristics of the host, as well as the species and strain of parasite. Ribs, sternum, or soft tissues of the thoracic wall may become a locus. Only a few cases of chest wall HC are reported in literature [1,2,5,8].

Two possible mechanism of primary hydatid cyst of the chest wall are mentioned on literatures. The first one is when the embryo passes through the duodenal wall into either the portal vein or the periduedonal and perigastric lymphatics which connect with the thoraco-mediastinal lymphatic and the thoracic duct and the second one when an intrathoracic extrapulmonary hydatid cyst lies in a neighborhood of bone structures it may result in bone destruction and chest wall involvement [10-12]. The former mechanism may explain the development of primary chest wall hydatid disease in our patient because of the absence of pulmonary or hepatic cysts.

Radiologic diagnostic techniques, dermal test, complementary fixation test and indirect hemagglutination test can be used for diagnostic purposes. The most reliable of these techniques is the radiologic diagnostic tests [4,5,9]. In our patient, US was done though it was not diagnostic because HC was not considered in the differentials. FNA is a controversial area in patients suspected to have HC due to the potential risk of anaphylactic shock [6,10]. In our patient FNA was done because HC was not considered, unfortunately the result was inconclusive. Definitive diagnosis in the presented patient was not possible based on preoperative clinical examination and radiological investigations. We confirmed diagnosis only by surgical exploration and histopathology examination.

This case and other case reports are good evidences to consider hydatid cyst in the differential diagnosis of any cystic mass in any part of the body especially in the endemic areas [1,3,6,10].

A 7.4% incidence of Intrathoracic extrapulmonary localization of thoracic cysts was reported. Among these, 14% were in the chest wall. Primary HC can be seen in the musculoskeletal system in 1–4% cases & chest wall involvement constitutes only 6% of them [1,2,9].



**Figure 2:** The operation site with opened cyst which revealed the daughter cysts (arrow) with their characteristic pericyst (A) & germinal layers (B).

Kavukcu et al. [3] reported 7 chest wall HC in 1,032 patients who were operated for pulmonary hydatid disease. There is only one chest wall involvement in the report of 842 hydatid cysts in the series of Qian. What makes our patient different is there was no evidence of pulmonary or intrathoracic HC. The cyst was completely in the subcutaneous tissue with no rib involvement.

The gold standard in the therapy of this disease is the radical resection of cyst and involved ribs [6,8,10]. In our patient we removed all parts of the cyst but no rib was involved. It has been suggested that better results would be achieved by combining surgery and chemotherapy (Albendazole) for pre and postoperative prophylaxis. Large doses of Albendazole over a long period of time (3-6months) would be a good clinical approach and may reduce the incidence of relapse whether the cyst is completely removed or not because of the possibilities of micro perforations [1,2,6-11]. Albendazole and mebendazole are the only antihelminthic drugs that are effective against cystic echinococcosis. Albendazole is the drug of choice against HC because its degree of systemic absorption and penetration into the cysts is superior to that of mebendazole. In our case the diagnosis was made intraoperatively & we put our patient on albendazole 800 mg/day for 3 months as postoperative prophylaxis and she has no sign of recurrence.

## Conclusion

HC should be considered in the work up of all patients presented with chest wall cystic mass especially in endemic areas.

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