

## Case presentation of axillary swelling as hydatid cyst

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### ABSTRACT

Hydatid disease is induced most commonly due to infestation of the parasitic organism, *Echinococcus granulosus*. Lack of personal and communal hygiene increases the chances of contracting this infection. Zoonotic organisms are typically seen in the liver; they occasionally move to the brain, lungs and kidneys; they are seldom found in muscle, eye, vagina, bone or heart. A 36-year-old male patient was shown predominantly with right axillary swelling for three months which was painless and gradually progressive in nature. On investigations by ultrasonography (USG) and fine needle aspiration cytology (FNAC), it was diagnosed as a case of a hydatid cyst of muscle. The infection was treated with the administration of antiparasitic therapy combined with total cystectomy and instilled scolicidal agents with follow-up monitoring with the surgeons.

**Keywords:** Total cystectomy, albendazole, axillary swelling, hydatid cyst

### 1. INTRODUCTION

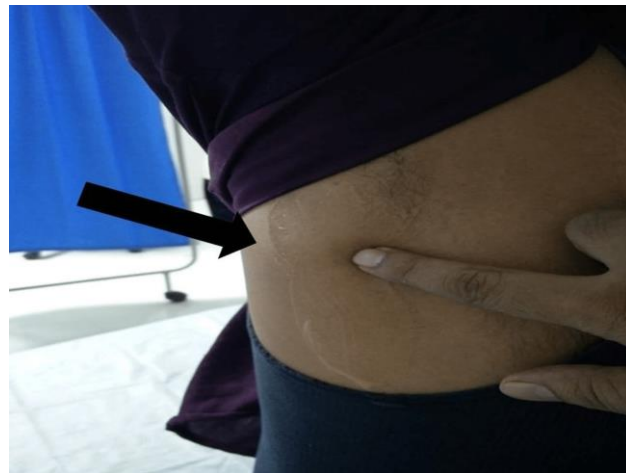
The infective stage of cystic echinococcosis for man is the embryonated egg in the feces of sheep or dogs. These animals accidentally consume anything contaminated with the parasite (Unal et al., 2001). Eggs hatch in the intestine and form a larva, which penetrates the intestinal wall, enters blood circulation and then settles most commonly in the liver and less commonly in the lungs, kidney, heart, bone and muscle (Dehkordi et al., 2019). The axilla is a common site for metastatic breast deposits of ductal carcinoma and a less common zone for a hydatid cyst (Dehkordi et al., 2019; Trombetta et al., 2021). Cystic swelling can be categorized into nonparasitic conditions or parasitic conditions. The non parasitic involvement can be witnessed in diseases like ganglionic cysts, inclusion cysts and cystic hygroma, while parasitic conditions are toxoplasmosis, filariasis and echinococcosis (Zhang et al., 2017). It is substantial to characterize the swelling in terms of depth (cutaneous, subcutaneous or deep) to determine the location and staging of the infection (Gupta and Das, 2022). The presence of axillary swelling as a hydatid cyst is relatively infrequent (Unal et al., 2001). The patient described below presented with swelling in the right axillary region, which was non tender and approximately 10x6 cm in scope.

### 2. CASE PRESENTATION

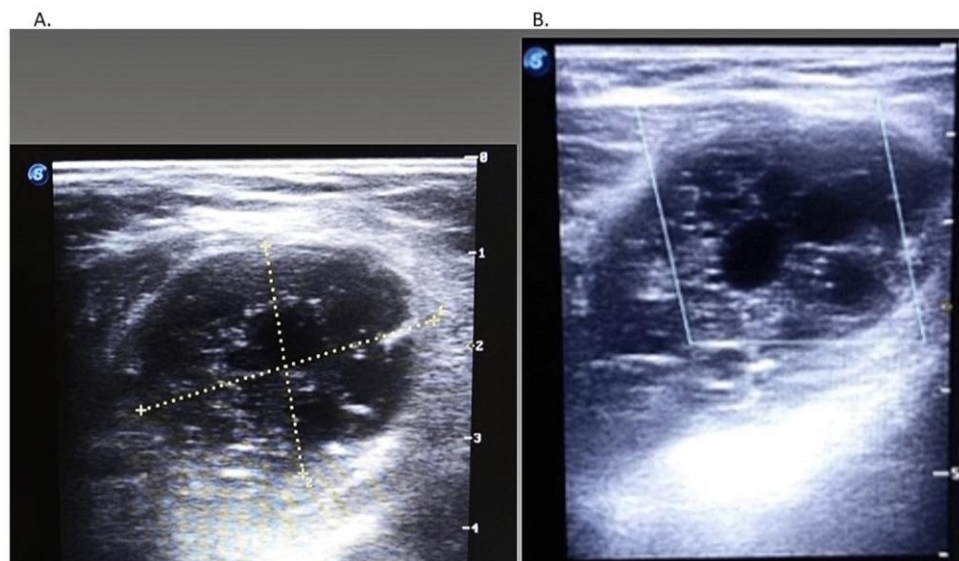
A 36-year-old male patient, a farmer by occupation, illustrated with single,

right-sided swelling in the axillary region for three months which was painless and gradually progressive in nature. There was no record of the previous swelling on either side of the axilla, hydatid disease, fever, change in appetite, weight gain or loss, temperature intolerance, cough, abdominal discomfort or concussion. On general examination, the patient was oriented to person, place and time and had normal vitals with no pallor, icterus, clubbing, cyanosis, lymphadenopathy or edema.

On local examination, a single projection of size 10x6 cm was smooth in texture and was mobile, not affixed to the skin and underlying structure (Figure 1). The swelling was partially mobile in one direction, the temperature was normal, it did not transilluminate and the skin over the swelling was normal. Differential diagnoses for this presentation included metastatic carcinoma, granulomatous conditions, lipoma, fat necrosis, epidermal inclusion cyst, hematoma and lymphadenopathy. Blood examinations indicated eosinophilia and biochemical examinations were unremarkable. Ultrasonography (US) and color Doppler were conducted to demarcate if the mass was superficial or deep, solid or cystic, vascular or not and to imply interval followup and biopsy. The US displayed a well-defined, wider-than-taller, predominantly-solid hypoechoic mass of about 4x2 cm in the muscle plane, with regular, narrow margins; few cystic changes with internal echoes were also seen within the lesion and no evident calcification or vascularity was monitored (Figure 2) Cysts involving single compartment were noticed.

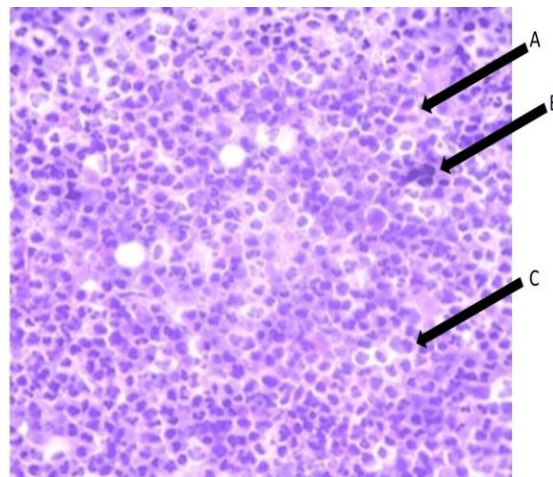


**Figure 1** Clinical presentation of well-defined, mobile, right-sided axillary swelling



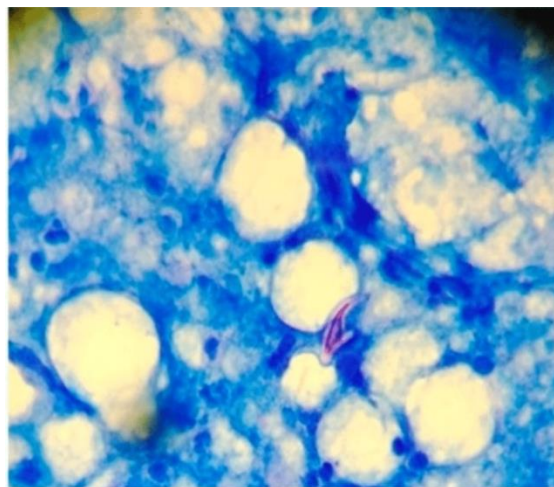
**Figure 2** Ultrasonography: (A) well-defined, solid hypoechoic mass of about 4x2 cm in the muscle plane, with regular thin margins, (B) cystic changes with internal echoes within the lesion

Fine needle aspiration cytology (FNAC) was done. On aspiration, purulent material was released and pap, giemsa and Ziehl Neelsen (ZN) staining were done. On microscopy of Pap smear, moderately cellular smears showed polymorphonucleocytes, plasma cells, sheets of macrophages and scattered adipocytes in a necrotic background. These cytomorphological features suggested an abscess (Figure 3).



**Figure 3** Pap-stained photomicrograph showing (A) polymorphonucleocytes, (B) cell debris and (C) plasma cells in a necrotic background (40 xs)

On microscopy of the ZN stain, semitransparent, refractile, sickle shaped acid fast hooklets with an inner semi-transparent core of similar shape, suggestive of the organism *Echinococcus granulosus*, were observed (Figure 4).



**Figure 4** Ziehl Neelsen-stained photomicrograph showing hooklets of *Echinococcus granulosus* (100 xs)

The patient was delivered treatment for cysts within a single compartment and diameter of more than 5 cm, which comprised drug therapy; it is a useful adjunct to surgery and percutaneous treatment. Preoperative therapy with albendazole 400 mg, twice daily for a week, to reduce the risk of recurrent disease by inactivating protoscolices, softening the cyst and facilitating its removal, followed by total cystectomy was executed. The patient was managed successfully without complications and discharged within three days after surgery. Drug therapy of albendazole 400 mg, twice daily for four weeks following surgery, was instructed. Further, follow up was done every fifteen days for three months and then once in three months for a year. After follow-up, no recurrences of the infection or adverse effects were witnessed.

### 3. DISCUSSION

Hydatidosis is a zoonotic disease caused by *Echinococcus granulosus*. The definitive host for the cycle is the dog; sheep, cattle and horses are the intermediate host, while man is the accidental host (Botezatu et al., 2018; Unal et al., 2001). Parasite circulates in the blood in larval form and cyst formation occurs in the internal tissues, in this patient, the axilla (Acioz et al., 2021). The cyst phase is when the organism can be interpreted. The disease is difficult to diagnose without suitable diagnostic tools; in many circumstances, the cyst rupture and leads to an anaphylactic reaction (Sayek and Onat, 2001). As cited above, the patient was diagnosed incidentally on fine needle aspiration (FNA); the patient illustrated axillary swelling on the right flank with no manifestation on the opposite side. No previous documented cases of axillary swelling suggesting a hydatid cyst were detected in that area lately. All the

significant diagnostic investigations that were required, like ultrasonography (USG) of the axilla for understanding the character of swelling and USG of the abdomen to examine for any changes in the soft tissues that are typically involved in hydatidosis were observed, like liver and lungs and the investigation reports are provided. Some investigations like computed tomography (CT) scans and magnetic resonance imaging (MRI) can also be conducted. Laboratory investigation like the Casoni test was positive. Blood tests demonstrated eosinophilia and serological tests like enzyme linked immunosorbent assay (ELISA): Immunoglobulin G (IGG) ELISA was negative, indirect haemagglutination (IHA) and latex agglutination test were also unremarkable that was performed for detection of antibodies to diagnose the hydatid cyst (Unal et al., 2001). The serological tests were negative in the axillary region cyst, as no hepatic or pulmonary involvement symptoms were monitored (Huertas et al., 2022). On histological examination of the surgically excised cyst, distinct layers of endocyst and ectocyst were noticed (Dehkordi et al., 2019; Trombetta et al., 2021).

The mainstay management for uncommon sites of echinococcal infection is complete resection of the mass without impairing the normal part of the internal tissue (Unal et al., 2001). The treatment regimen for cysts less than 5 cm is drug therapy alone with albendazole. However, in the case presentation, the cyst size is more than 5 cm, drug therapy alone is usually counterproductive and total cystectomy was conducted (Dehkordi et al., 2019). The most common drug administered to the infected individual is albendazole, which is harmful in individuals with significant liver disease or bone marrow suppression. The drug is furthermore avoided in pregnancy due to its teratogenic outcome. In place of albendazole, drugs like mebendazole or praziquantel can be an alternative therapy (Lotsch et al., 2016). Drug treatment is appropriate for one month with albendazole or three months with mebendazole for incidental cyst rupture to decrease the risk of secondary echinococcosis from the seeding of protoscolices in the abdominal cavity. Albendazole can also be provided to patients that have not recovered after the surgery; the drug does not cure the disease but enhances the quality of life and possibilities of survival in those patients and therefore is the primary prescription in hydatid disease (Hans et al., 2019). During follow-up, laboratory monitoring, including complete blood count (CBC) and liver function tests (LFT), were surveyed every fifteen days for three months and onetime in three months for a year. The investigation intends to inspect cytopenia, eosinophilia, hepatotoxicity and other extreme conditions.

#### 4. CONCLUSIONS

Hydatid disease is most commonly due to insufficient communal as well as personal hygiene. The control of street dogs is a must to prevent infection from occurring. This case presentation demonstrates a hydatid cyst in the axillary region, an infrequent finding even for an endemic region. Disease prone areas are unaware of this clinical pattern. Individuals must be well versed in all classifications of diagnostic and treatment modalities. Additionally, there is a preliminary necessity for researching infrequent sites and their awareness.

#### **Informed Consent**

Written & Oral informed consent was obtained from all individual participants included in the study. Additional informed consent was obtained from all individual participants for whom identifying information is included in this manuscript.

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We thank the participants who were all contributed samples to the study.

#### **Author Contributions**

Details of contribution of each authors regards manuscript work & production.

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#### **Conflict of interest**

The authors declare that there is no conflict of interests.

#### **Data and materials availability**

All data sets collected during this study are available upon reasonable request from the corresponding author.

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