

Primary Hydatid Cyst of the Chest Wall Mimicking as a Breast Lump Diagnosed By Fine-Needle Aspiration Cytology: A Rare Case Report

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Abstract

Hydatid disease is a zoonotic parasitic infection caused by Echinococcus species, most commonly involves liver and lungs. Primary hydatid cyst of breast is an exceptionally rare entity and often poses a diagnostic challenge by mimicking benign breast lesions clinically and radiologically. We report the case of an 18-year-old female who presented with a painless, freely mobile left breast lump. Ultrasonography of right breast - benign breast lesion (BI-RADS II), fibroadenoma. Left breast shows hydatid cyst.

Fine-needle aspiration cytology (FNAC) yielded clear fluid, and microscopic examination revealed numerous protoscolices, confirming the diagnosis of hydatid cyst. Further evaluation showed no evidence of hepatic or other systemic involvement, suggesting a primary hydatid cyst. The patient was treated with oral albendazole; surgical excision was advised but declined. On follow-up after two months, there was a significant reduction in the size of the swelling. This case highlights the importance of considering hydatid disease in the differential diagnosis of cystic breast lump lesions, particularly in endemic regions. FNAC is a rapid, minimally invasive, and reliable diagnostic tool that enables accurate preoperative diagnosis and appropriate patient management.

Keywords: Hydatid cyst, Echinococcus, Breast hydatid cyst, Breast lump, Fine needle aspiration cytology (FNAC), Chest wall hydatid disease.

List of abbreviations

FNAC-fine needle aspiration cytology,USG-ultrasonography,BIRADS-Breast imaging reporting and data system,0/E-On examination,MRI-Magnetic resonance imaging.

Introduction

Hydatid disease is a zoonotic parasitic infection caused by Echinococcus species include granulosus and multilocularis[1]. It primarily affects the liver(60%)[2] . Disease may involve unusual sites such as lungs, spleen, kidney, spinal column, muscle ,bones ,heart, brain and more rarely chest wall [3]. Disease is extensively distributed worldwide, but is endemic in sheep raising regions, especially Mediterranean areas, south America, North Africa and Australia [4].

Parasitic life cycle mainly involves dogs which are the definitive host. Sheep, pigs, goats and horse are intermediate host . Humans are accidental hosts. According to WHO 1,00,000 people are affected annually[5]. Infection occurs after oral ingestion of infective eggs from stool of definitive host to intermediate host such as human. Ingested eggs hatch in small intestine, penetrate mucosa enter the blood circulation and migrate to various organs. Hydatid cysts are spherical, fluid filled, unilocular vesicles consisting of internal cellular(germinal)layer and an outer acellular laminated layer.Parasitic cyst gradually expands and causes a granulomatous host reaction leading to development of fibrous tissue layer (pericyst) [3]. Definitive diagnosis requires a combination of imaging, serologic and immunological studies.Hydatid cyst remains asymptomatic even in advanced stage and the clinical manifestations depend on site,size and load of cyst [6]. Specific diagnosis based on microscopic examination of cyst fluid and by demonstrating various hydatid elements such as protoscolices , hooklets or fragments of laminated membrane and occasional multinucleate giant cells. Presence of hooklets is diagnostic of hydatid cyst [1].

Case Report

Clinical history

An 18 –year- old Nursing student hailing from Palakkad presenting with bilateral painless breast swelling of 2 month duration.Swelling gradually increased and not associated with pain,fever,nipple discharge, skin changes or recent trauma.There is no history of weight loss or constitutional symptoms. On examination 3 x 3 cm ,firm ,mobile lump was palpable in both breasts. Overlying skin and nipple -areola complex unremarkable. There was no clinically evident axillary lymphadenopathy.

Imaging

USG–Heterogenously hypoechoic lesion in both breasts, BIRADS II. Well defined cystic lesion with echogenic rim in intramuscular plane of left breast measuring 2.8x0.7x2.3cm (Figure 1) [7].



Figure 1. USG left breast- Well Defined Cystic lesion with echogenic rim in Intramuscular plane of Left breast m/s 2.8 x 0.7 x2.3 cm

Fine needle aspiration yielded approximately 3ml of clear fluid .Smears revealed Cystic Lesion with scattered protoscolices of Echinococcus - Consistent with hydatid Cyst.Based on cytological findings,further evaluation was advised to exclude disseminated disease. Right breast FNA done simultaneously given as Fibroadenoma . Abdominal ultrasonography did not reveal hepatic involvement or any other significant abnormality.

Cytological Findings

FNAC smears of clear cystic fluid demonstrate numerous protoscolices of Echinococcus , seen as slender, curved and highly refractile structures ,diagnostic of hydatid disease. Laminated membrane appearing as fragments of acellular material.No cytological evidence of malignancy identified in the aspirated material. (Figure 2,3,4)

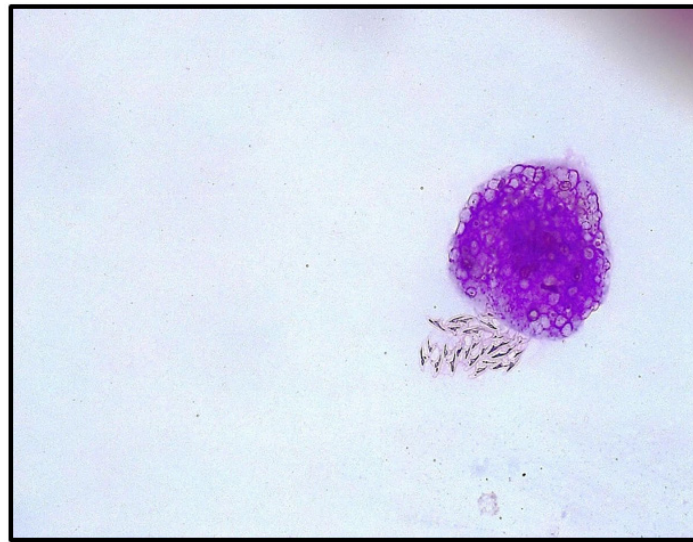


Figure 2. Left Breast FNA cytology- photomicrography showing a fragment of laminated hydatid cyst wall with adjacent refractile hooklets [MGG x400]

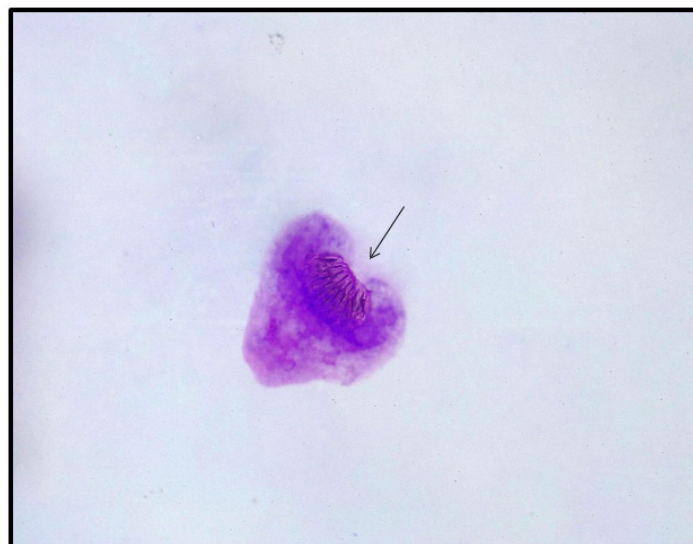


Figure 3. Left breast FNA shows aggregate of refractile hooklets(marked with) [MGGX400]

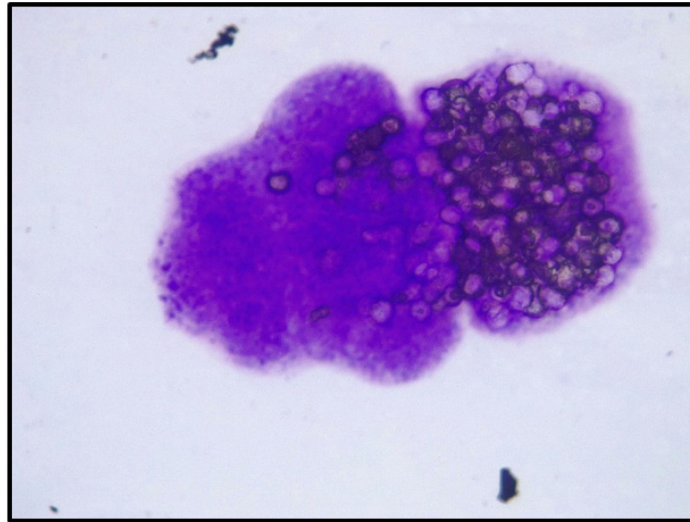


Figure 4. Photomicrography showing laminated membrane fragments with numerous rounded vacuolated structures representing brood capsule (MGG Stain, x1000)

Discussion

Hydatid disease of the chest wall is rare and breast can be primary localization or secondary to systemic spread. Chest wall Incidence is reported between 0.09%-3.4% in large studies. Clinical examination and imaging are frequently inconclusive because these lesions resemble benign breast masses.

Mammography and USG are often non specific and may not establish a definitive diagnosis of hydatid breast disease. Consequently a definitive preoperative diagnosis is challenging. The diagnosis of hydatid cyst is made by the observation of the scolices, hooks, or pieces of lamellar membrane. Scolices are long oval structures. Hooks contain black central cores and lamellar membrane.

Present case highlights the value of FNAC in establishing diagnosis. Demonstration of protoscolices in aspirated material is pathognomonic of hydatid disease. Following cytological diagnosis imaging of abdomen was done to exclude hepatic involvement, suggesting isolated breast disease. Medical therapy with Tab Albendazole 400mg. Surgical excision was advised but declined by the patient. On follow up after two months, swelling had reduced in size.

Conclusion

Conventionally chest wall hydatid cyst by FNAC is not easily done as it can be overlooked, but in this case we got adequate material to diagnose the condition. Hydatid cyst should be considered in the differential diagnosis of cystic breast lesions, particularly in endemic region.

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