Review Article

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Hydatid Cyst in Breast: A Rare Case Report with Review Literature

Alankrita Madhur[1], Alpana Jain[2], Alka Mittal[3]

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Abstract

Background: Hydatid disease is a widespread parasitic infection, particularly endemic among communities engaged in sheep rearing activities. Although it commonly affects the liver and lungs, rare cases of cysts found in the breast have been reported. It is a challenge to distinguish these lesions from other breast tumours.

Case report: A 37-year-old female presented with a painless lump in the right breast since three years. On ultrasound of the breast, multiloculated thick-walled cystic lesion was seen in the lower part of the right breast, raising suspicion of hydatid cyst. The patient underwent an excision biopsy. On gross examination, a cystic structure was seen, with multiple pearly white cysts on opening.Histopathological features of hydatid cyst scolex were identified, with adjacent breast parenchyma showing foreign body giant cell reaction.

Discussion: Typically, patients with breast hydatid cysts present with a painless lump in the breast, which gradually increases in size without involvement of regional lymph nodes. The presentation may mimic other breast conditions such as fibroadenoma, phyllodes tumors, chronic abscesses, or even carcinoma. Therefore, breast hydatid cyst should be considered in the differential diagnosis of breast lumps, particularly in endemic areas.

Conclusion: Although rare, the presence of multiloculated cysts in the breast tissue should raise the suspicion of hydatid disease in differential diagnosis of breast lumps for patients living in endemic areas.

Keywords: Hydatid cyst; Echinococcus granulosus; Scolex; Multiloculated cyst.

INTRODUCTION

Hydatid disease, caused by the larval form of Echinococcus granulosus, is prevalent among communities engaged in sheep-raising activities. This parasitic infection is widespread across various geographic regions, spanning circumpolar, temperate, subtropical, and tropical zones on all continents. Human cystic echinococcosis remains particularly endemic in pastoral communities.[1]

The liver and lungs are the most frequently affected organs in hydatid disease, accounting for approximately 75% and 15% of cases, respectively, while only about 10% occur in other parts of the body.[2,3] Infestation of the breast is exceptionally rare, constituting a mere 0.27% of all infections.[4] While typical findings of the disease are well established, reports regarding its complications and presentation in unusual anatomical locations are scarce.[5] Although rare, cases of hydatid cysts in the breast have been documented in medical literature. Typically, patients present to medical

Author Affiliation: [1]Senior Resident, [2]Associate Professor, [3]Assistant Professor, Department of Pathology, Sawai Man Singh Medical College, Jaipur 302004, Rajasthan, India.

Corresponding Author: Alpana Jain, Associate Professor, Department of Pathology, Sawai Man Singh Medical College, Jaipur 302004, Rajasthan, India.

E-mail: alpana.jain@gmail.com

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facilities with a painless, palpable lump in the breast.[6] Distinguishing this condition from other breast tumoursposes a challenge, and the majority of cases are diagnosed post-operatively. Radiological investigations alone are insufficient for a definitive diagnosis of hydatid cysts of the breast. Only a handful of case reports document confirmed preoperative diagnoses of hydatid disease of the breast.[7] Herein, we present a case of primary isolated breast hydatid cyst.

REVIEW OF LITERATURE

There are a few reports of patients with hydatid cyst lesions in the breast across the last few years.

Masroor I *et al* (2010) reported that a 20-year-old woman had presented with a painless lump in the left breast since the last 3 years, which gradually increased in size. Ultrasonography showed a breastcyst with thick echogenic debris at the bottom of thecyst and multiple swirling membranes within the lesion.The cyst was surgically removed intact, and pathological examination was done. It was a white membranous cyst, with clear fluid inside. On histopathology, densely-staining laminated chitinous material was seen. There were daughter cysts and brood capsules with scolices seen.[8]

The findings of Alamer A *et al* (2013) documented a case of hydatid cyst of the breast in a 66-year-old lady. The diagnosis was confirmed pre-operatively by doing a core needle biopsy of the breast mass after the imaging on ultrasound and computed tomography raised the suspicion of hydatid cyst in the patient.[7]

A study by Kumar A *et al* (2015) reported findings of a 31-year old woman with a painless lump in the right breast since a year. During surgery, the gross appearance was mimicking that of a liver hydatid cyst, which was confirmed on pathological examination. The cyst was oval in shape with size of 5x4.5x3cm. When opened, it was found to contain endocysts. The study concluded that hydatid cyst of the breast, though uncommon, should be considered in the differential diagnosis of breast lumps for patients in endemic areas.[2]

A report by Moazeni-Bistgani M *et al* (2016) documented a case of isolated hydatid cyst of the breast that developed after breast feeding. The findings were of a 61-year-old female who had a painless lump in the right breast since more than 25 years with insidious increase in size. The lady initially considered it a sequel to breastfeeding which then did not subside. The team decided to operate based on clinical and radiological suspicion of hydatid cyst. Total mass excision was performed without any spillage, and the procedure was uneventful. When the cyst was opened, endocysts were found, thus confirming it as a hydatid cyst, so the frozen examination not performed. The pathology report revealed eosinophilic membranes with a laminated appearance and massive calcifications, which are characteristic of a hydatid cyst of the breast.[5]

The study by Parooei F *et al* (2017) described a 32-year-old married lady who referred to hospital and had a mass in the left breast. On ultrasound, it was seen that there was a cystic lesion with a specific area of 22 mm x 29 mm inthe left upper quadrant. The study found that hydatid cyst requires precise examination when it isfound in an unusual organ, and these cysts must be differentiated from cysts of the origin of neoplasm and other lesions.[4]

A series of six cases over ten years was written by Tavakoli M *et al* (2018) describing hydatid cyst of the breast in an endemic region of Iran. The mean age was 32 years with a range from 25 to 52 years. All cases presented with unilateral painless mobile breast lumps. The common finding on mammography was awell-circumscribed oval mass having smooth margins and homogenous density, without any lymph node involvement. The study concluded that, although rare, hydatid cysts should be considered in the diagnosis of cystic lesions of the breast, particularly in endemic areas.[6]

The findings of El Moussaoui K *et al* (2020) documented a 59-year-old lady who presented with a lump in the right breast since many months which recently was associated with pain. On ultrasound and mammography, cystic lesions were seen with echogenic content. A fine needle aspiration of the cyst only showed the presence of altered polynuclear cells, without evidence of tumor cells. Surgical excision was done and pathological examination confirmed the diagnosis of breast hydatidosis.[10]

Meshram N *et al*. (2021) in a case report titled Hydatid cyst of Breast unwelcome guest at unusual site mentioned about primary isolated hydatid cyst of the breast in a 21-year-old female diagnosed on fine needle aspiration cytology. The report emphasized that infective etiology like Hydatid cyst should be considered in the differential diagnosis in case of breast lump with fluid aspirate. It also reiterated the fact that FNAC though feared with possibility of anaphylactic reaction is safe procedure and provides diagnosis in clinically unsuspected cases.[3]

Al Sharei A *et al* (2023) found a rare presentation of bilateral hydatid cyst of the breast that was diagnosed preoperatively. The 38-year-old lady presented with a painless lump, on ultrasonography and mammography a 3.2×3×3cm cystic mass was found in the left breast and also a right breast mass which measured 1.1×0.7×1cm. Histopathological testing showed mixed cystic and solid components with the acellular laminated wall of the cyst confirming the diagnosis of hydatid disease.[13]

CASE REPORT

A 37-year-old female presented with a painless lump in the right breast since three years. There was no history of pain, fever, discharge or skin discolouration. There was no association with variation in menstrual cycle. An ultrasound of the breast was performed which showed multiloculated thick-walled cystic lesion measuring 30x37x44mm in the lower part of the right breast which raised the suspicion of hydatid cyst.

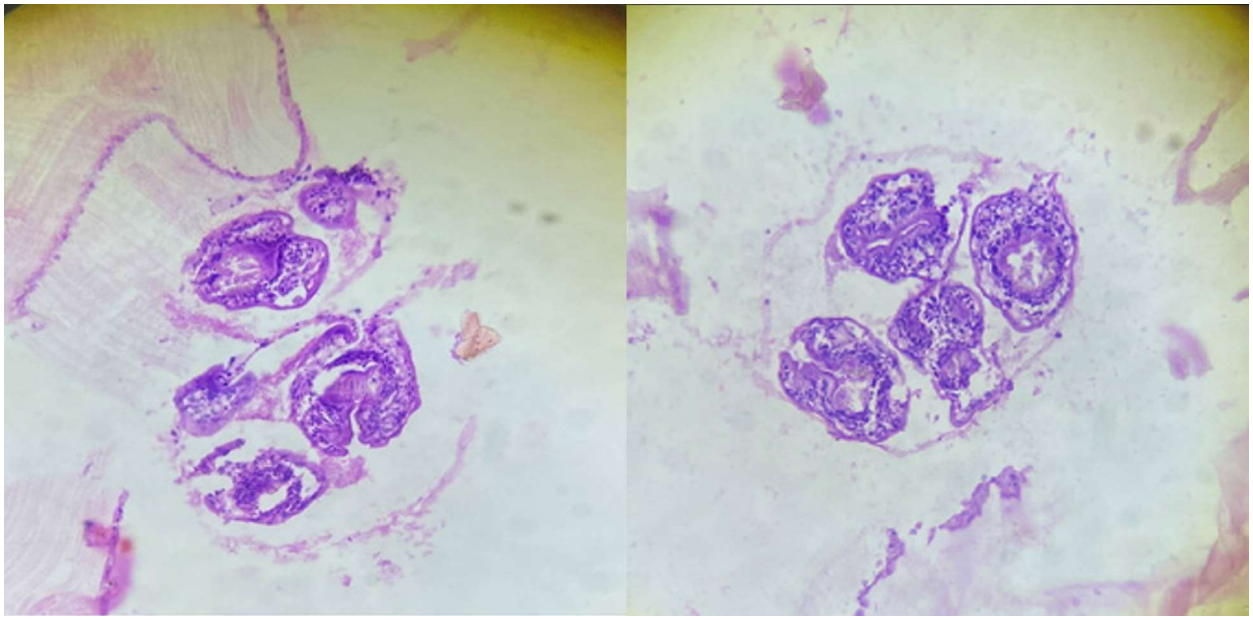

Fig. 1 & 2: Histopathology image of tissue section of a Hydatid cyst showing daughter cyst.

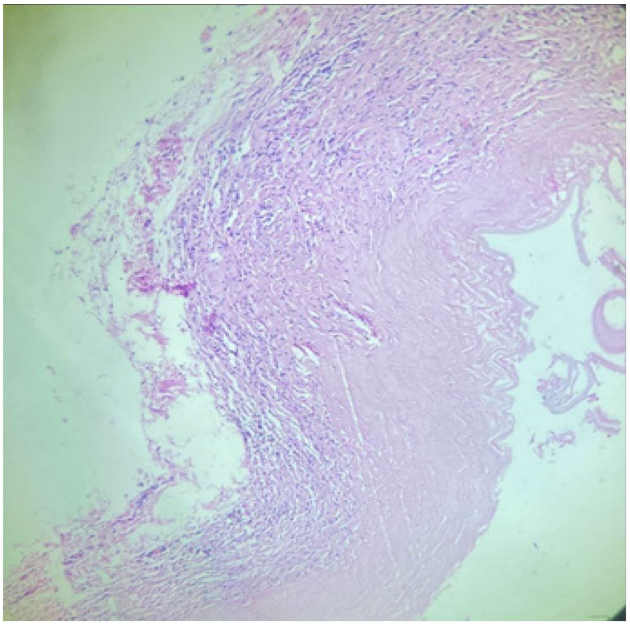

Fig. 3: Histopathology image of hydatid cyst wall consisting of a vascular, eosinophilic laminated membrane

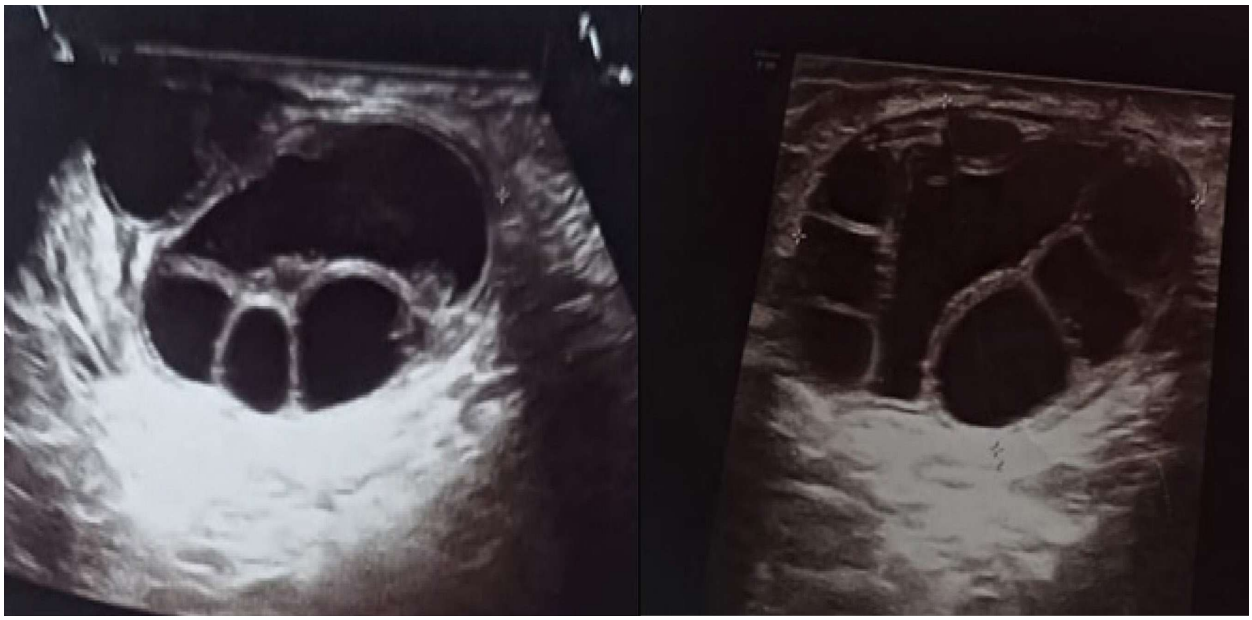

Fig. 4 & 5: Ultra-Sonography showing thick multiloculated cysts in breast.

The patient underwent an excision biopsy. On gross examination, a cystic structure was seen measuring 4cmx4cmx3cm. On opening, multiple pearly white cysts were seen with diameter ranging from 1cm to 3cm.

Histopathological features of hydatid cyst scolex were identified. The adjacent breast parenchyma was showing foreign body giant cell reaction.

Fig. 6: Gross picture of Hydatid cyst removed by surgeon from breast parenchyma.

DISCUSSION

Hydatid disease, classified as a cyclozoonosis, arises from the larval (metacestode) stages of cestodes, or flatworms, within the genus Echinococcus and the family Taeniidae.[8] This disease manifests in two primary forms: the larval stage (metacestode) and the adult stage (tapeworm or tenia). The parasites maintain their life cycles primarily with carnivores, including dogs and wild canines, serving as definitive hosts.[9] Humans, on the other hand, function as accidental intermediate hosts, often representing a dead-end in the parasite's life cycle. Animals, such as herbivores and omnivores, can act as both intermediate and definitive hosts in the transmission cycle.[10]

The adult form of Echinococcus granulosus, when infected, produces eggs that are excreted in the host's feces. These eggs can be ingested by intermediate hosts such as cows, sheep, and humans. Once ingested, the eggs hatch in the duodenum, releasing embryos that penetrate the intestinal mucosa and enter the portal circulation. As the embryos travel through the bloodstream, they encounter various filters within the body. The liver acts as the primary filter, intercepting approximately 75% of the embryos. The lungs serve as the secondary filter, stopping around 10% of the embryos. Only about 15% of the embryos evade filtration and are able to develop into cysts in other organs of the body.[11]

Typically, patients with breast hydatid cysts present with a painless lump in the breast, which gradually increases in size without involvement of regional lymph nodes. This condition predominantly affects women aged between 30 and 50 years.[12] The presentation may mimic other breast conditions such as fibroadenoma, phyllodes tumors, chronic abscesses, or even carcinoma. Therefore, breast hydatid cyst should be considered in the differential diagnosis of breast lumps, particularly in endemic areas.[13]

Preoperative diagnosis can be achieved through fine needle aspiration cytology, which may reveal scoleces, hooklets, or laminated membranes characteristic of hydatid cysts. This procedure is considered safe, with no reported complications in the literature. Additionally, radiological and serological methods can aid in diagnosis, although neither is definitive. Instead of computed tomography (CT) and mammography, sonography and magnetic resonance imaging (MRI) play significant roles in the preoperative diagnosis of breast hydatid cysts. Imaging may reveal a well-circumscribed mass, with characteristic ring-shaped structures inside the mass visible in over-penetrated views, strongly suggestive of a breast hydatid cyst.[14]

CONCLUSION

Although a rare presentation, the presence of multiloculated cysts in the breast tissue should raise the suspicion of hydatid disease in differential diagnosis of breast lumps for patients living in endemic areas.It is challenging to differentiate it from other tumoral lesions of the breast. Most of the reported cases have been diagnosed post-operatively.

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