Case Report

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Isolated Hydatid Cyst of the Breast: A Rare Pseudotumor of the Breast

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ABSTRACT

Although rare, a hydatid cyst of the breast represents a mammary pseudotumor. We present the case of a 49-year-old woman with no significant medical history, who was diagnosed with an isolated hydatid cyst of the breast confirmed by histopathological examination. This patient consulted for breast asymmetry and a feeling of heaviness in the left breast, with no clinical signs of systemic hydatidosis. The diagnosis was suggested by echo-mammography and confirmed postoperatively by histopathological examination. Although rarely reported, primary hydatid cyst of the breast can cause symptoms that mimic neoplasia. Surgical excision alone proved effective in treating this type of breast cyst.

Keywords: Hydatid cyst; breast, echo-mammography; surgery; wide excision; histopathology

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Key Points

- Hydatid cyst of the breast presents a distinct challenge in breast pathology.
- Isolated hydatid cyst of the breast is very rare.
- Its clinical presentation, imaging characteristics, and management is essential for accurate diagnosis and effective treatment.

Introduction

Although rare, a hydatid cyst of the breast presents a distinct challenge in breast pathology due to its ability to mimic other benign or malignant conditions (1-3). This disease, resulting from the larval stage of the tapeworm Echinococcus, generally targets organs such as the liver and lungs but can also affect the breast (4). Therefore, a thorough understanding of its clinical presentation, imaging characteristics, and management is essential for accurate diagnosis and effective treatment. In this study, we report the case of a hydatid cyst of the breast.

Case Report

A 49-year-old woman from a hydatid cyst endemic area presented with breast asymmetry and a feeling of heaviness in the left breast. The patient reported a progressive increase in the size of her left breast over the past few months. She had no family history of breast cancer, and no significant medical or surgical history. There were no clinical signs of systemic hydatidosis. She was a homemaker with no specific contact with animals. Examination revealed a soft, partially resilient nodule in the upper inner quadrant of the left breast measuring approximately 10 cm, mobile, with well-defined limits, without any inflammatory signs or adenopathy. The right breast was normal. The rest of the clinical examination was unremarkable.

An echo-mammography was performed, revealing a heterogeneous liquid lesion in the upper inner quadrant of the left breast measuring 82 x 24 mm with irregular contours, containing serpiginous membranes and peri-lesional fluid, suggesting a ruptured hydatid cyst of the breast (Figure 1).

The diagnosis of a hydatid cyst of the breast was suggested by this radiological appearance. However, hydatid serology was negative, and no additional hydatid lesions were detected on abdominal-pelvic ultrasound and chest X-ray. The patient underwent surgery for the excision of the left breast mass. The cyst was removed with a wide excision of the adjacent breast tissue through a curvilinear peri-areolar incision, followed by extensive lavage of the residual cavity with

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hypertonic serum and two-layer closure. The histopathological report showed the histological appearance of a hydatid cyst of the left breast with healthy margins (Figures 2, 3, 4, and 5). The patient underwent a thoraco-abdominal-pelvic computed tomography (CT) scan, which confirmed the absence of lesions suggesting a hydatid cyst of the lung or liver. The patient did not experience any recurrence within eight years following the surgery.

Consent was obtained from the patient for publication of the case.

Discussion and Conclusion

A hydatid cyst, also known as echinococcosis, results from a parasitic infection caused by the larvae of the tapeworm *Echinococcus granulosus* (2). It is typically found in organs such as the liver and lungs, though it can also occur in other organs, including the breast (1). Isolated breast involvement is very rare, with a reported incidence rate of 0.27% (2).

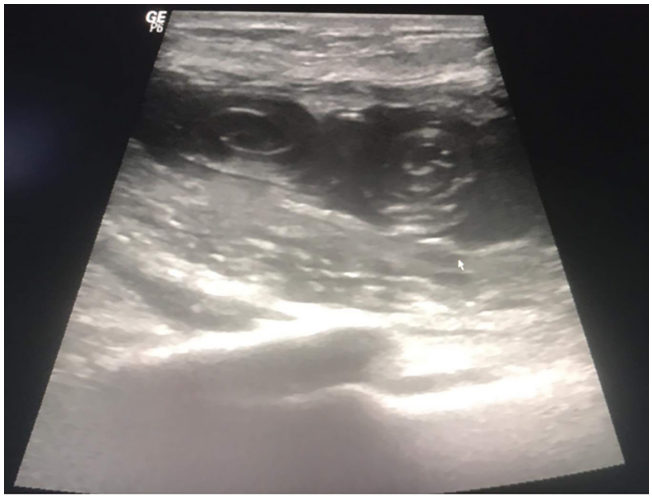

Figure 1. Breast ultrasound revealing a heterogeneous liquid lesion in the upper inner quadrant of the left breast measuring 82 x 24 mm with irregular contours, containing serpiginous membranes and peri-lesional fluid, suggesting a ruptured hydatid cyst of the breast

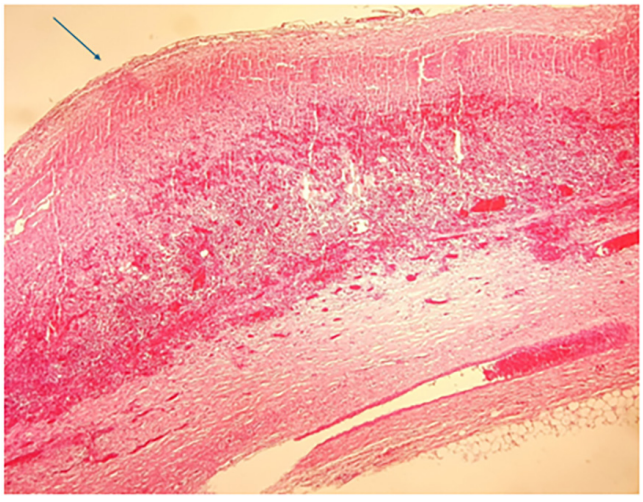

Figure 2. H&E x40

Echinococcosis is primarily contracted by humans through ingestion of *Echinococcus granulosus* eggs, commonly found in the feces of infected dogs. These eggs contaminate soil, water, or food sources, and once ingested, hatch into larvae in the human digestive tract. These larvae migrate to various organs, forming cysts, and eventually develop into adult tapeworms. Alternatively, direct contact with infected animals, such as handling contaminated fur or organs, can also transmit the infection to humans (4). These cysts gradually develop over years, often remaining asymptomatic until they reach a considerable size (2). If untreated, they can lead to severe complications, such as rupture, infection, or even anaphylactic shock (4). Treatment generally involves the surgical removal of the cyst (4).

Imaging findings suggestive of a hydatid cyst of the breast typically reveal a well-defined, round or oval mass with clear borders on mammography, sometimes with a fluid-air level (2). On ultrasound, the cyst appears as a fluid-filled structure with an anechoic content enclosed by a thin wall (2). The Gharbi classification system is used to categorize hydatid cysts based on their ultrasound appearance. It was developed by radiologist Gharbi and colleagues in 1981 (5). The classification includes five types:

Type I: a purely anechoic cyst with a well-defined wall, representing a simple cyst.

Type II: a cyst with a detached endocyst membrane floating in the cystic fluid, creating a "water lily sign" or "daughter cyst".

Type III: a cyst containing multiple daughter cysts, giving a heterogeneous or "honeycomb" appearance inside the cyst.

Type IV: a cyst with a heterogeneous internal structure, with solid or semi-solid components, debris, or membranes.

Type V: a complex cyst with a completely solid appearance, showing no cystic components.

Subsequently, more elaborate classifications have been used for hydatid cysts, including the standardized classification by the World Health Organization (6). Ultrasound aids in the characterization and management of hydatid cysts, helping clinicians assess the severity and complexity of cystic lesions (6).

CT plays a limited role in the evaluation of hydatid cysts of the breast. It may be used in specific cases, particularly when there is diagnostic

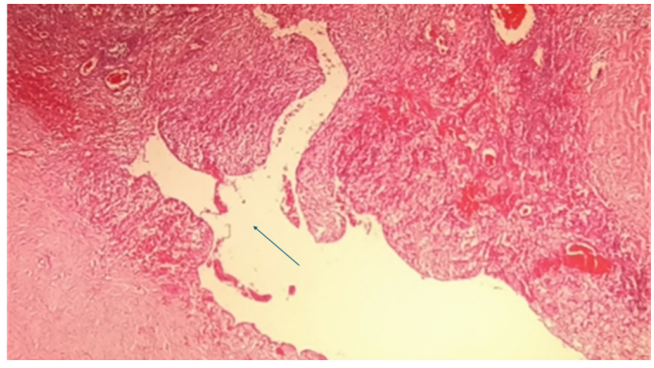

Figure 3. H&E x100

Figures 2 and 3. These microphotographs show the hydatid cyst wall (arrow) surrounded by fibro-hyalinized and inflamed pericyst with a polymorphous inflammatory infiltrate containing lymphocytes, plasma cells and numerous histiocytes associated with congestive vessels

H&E : Haematoxylin and eosin stain

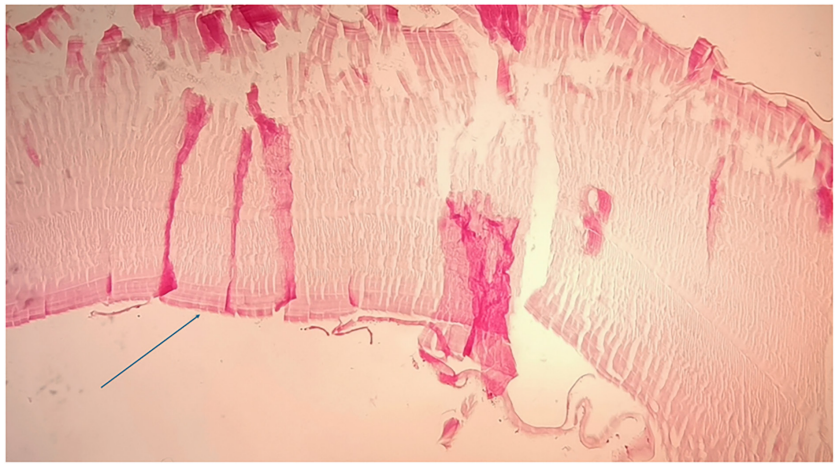

Figure 4. H&E x100

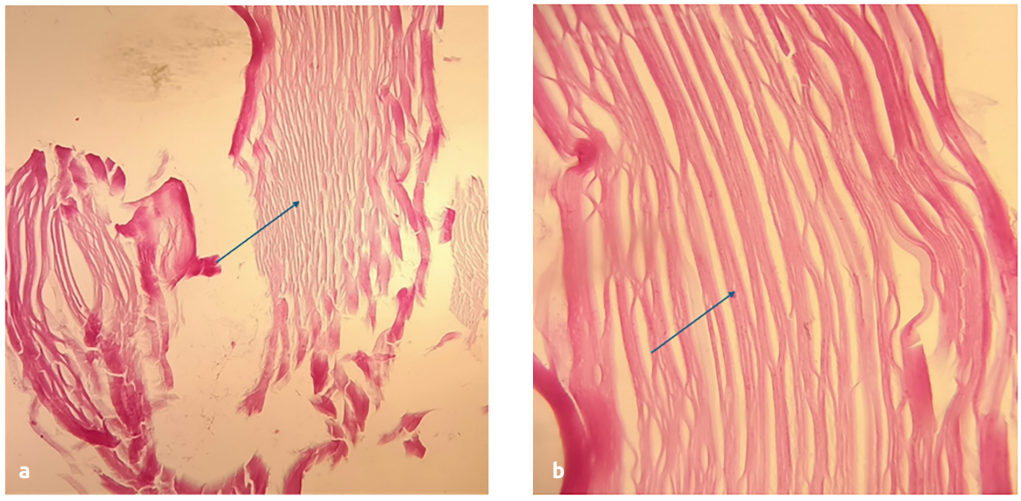

Figure 5. a: H&E x100, b: H&E x400

Figures 4 and 5. These microphotographs show the acellular laminated layers with parallel striations (blue arrow) typical of a hydatid cyst

H&E : Haematoxylin and eosin stain

uncertainty or to assess potential complications, such as cyst rupture or involvement of adjacent structures (7). Magnetic resonance imaging may provide additional details to further characterize the lesion and evaluate its relationship with adjacent breast tissue, typically depicting the cyst as a well-defined lesion with low signal intensity on T1-weighted images and high signal intensity on T2-weighted images (7, 8).

Histopathological examination of a hydatid cyst typically reveals distinctive features. These include a laminated hyaline cyst wall, forming the outer layer and acting as a protective barrier against the host's immune response. Beneath this layer is the germinal layer, where the parasite proliferates, characterized by numerous protoscoleces capable of developing into adult tapeworms. The cyst's interior contains clear fluid as well as daughter vesicles or hydatid sand. In addition, the surrounding host tissue often shows signs of chronic inflammation and fibrosis in response to the presence of the cyst. These histopathological findings are key for confirming the diagnosis of a hydatid cyst (9).

The presence of hydatid cysts in the body can cause various symptoms, depending on the size, location, and number of cysts. Symptoms can range from asymptomatic to severe, such as pain, fever, and potentially life-threatening complications if the cyst ruptures or become infected (10). Typically, a hydatid cyst of the breast presents as a generally non-painful mass, may be resilient or not, and of variable size but slowly increasing over time (11). Although the majority of breast hydatid cysts are identified during surgery and afterward, there are a few rare instances reported in the literature where the diagnosis was verified prior to surgery after a cyst puncture (12). By offering important details on the type of lesion and directing the proper course of treatment, cyst puncture might be crucial in the diagnosis and treatment of hydatid cysts of the breast. To reduce the chance of problems and prevent the infection from spreading, it must be performed carefully (11, 12).

The treatment of choice remains surgical excision, especially if the cyst is large or causes symptoms, such as pain or discomfort. Surgical intervention aims to completely remove the cyst while preserving as much breast function as possible (13). Early diagnosis and intervention are essential to manage this potentially life-threatening condition (10).

It is important to note that hydatid cysts can sometimes recur after initial treatment, although this is relatively rare with appropriate management. The recurrence rate varies from 1% to 11% postoperatively (14). Once the cyst is removed, antiparasitic treatment can be administered to reduce the risk of recurrence (13).

Although rare, a hydatid cyst of the breast is important to recognize, as it can sometimes be a differential diagnosis for breast cancer. The diagnosis can be suggested based on clinical context, history, and lifestyle habits, but it is generally challenging and requires radiological examinations. Mammography combined with breast ultrasound can diagnose certain hydatid cysts by the presence of pathognomonic signs, but diagnosis can sometimes be difficult. The treatment is surgical, and the diagnosis confirmation is histological.

Ethics

Informed Consent: Consent was obtained from the patient for publication of the case.

Footnotes

Authorship Contributions: Concept: B.B.; Design: B.B.; Data Collection or Processing: M.R., D.C.; Analysis or Interpretation: M.R., D.C., A.B.A., M.M., S.B.; Literature Search: I.B.; Writing: I.B.

Conflict of Interest: No conflict of interest was declared by the authors.

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