Costomammary Hydatid Disease: Imaging Findings

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Abstract

A suspicious non-calcified mass found during mammography that appears to be solid on sonography may represent a malignant lesion, such as an invasive ductal, mucinous or medullary carcinoma, or an uncommon benign lesion, such as a phyllodes tumour, tubular adenoma, fat necrosis, adenosis or haemangioma. We report a case of hydatid disease with rib and breast involvement. Breast MRI findings are discussed. To our knowledge there have been no previous reported cases of primary breast and rib hydatid disease in the English literature.

Keywords: Breast-hydatid disease, magnetic resonance imaging, rib-sonography, computed tomography.

Introduction

Echinococcus granulosus, the larva which causes hydatid disease, is endemic in some regions of the world (1). Most commonly, hydatid disease involves the liver and lungs; rib or mammary involvement is extremely rare and only a few case reports are available (1-3). In this report we share imaging findings of a case of primary breast and rib hydatid disease.

Case

A 48-year-old woman, living in a rural region, presented with a left breast mass and was referred to our mammography unit. On bilateral mammography, a giant (5x14x6-cm), well-demarcated, ovoid, radioopaque mass was found in her left breast. It was located deep in the breast tissue, involving the axillary tail and chest wall (Figure 1). Breast sonography showed huge, well-bordered, ovoid masses of heterogeneous echotexture with internal-curvilinear floating echogenic membranes (Figure 2). Breast magnetic resonance imaging (MRI) was acquired to evaluate the nature and extension of the mass. Breast MRI demonstrated multiple adjacent cystic lesions with thick, low signal membranes, extending from the breast tissue to the adjacent rib (Figure 3). There was wall enhancement after contrast administration (Figure 4). A CT scan was carried out in order to reveal the rib involvement of the cyst (Figure 5) and to exclude additional cystic lesions in the chest, particularly in the lungs. The liver was normal on abdominal sonography. The patient

Figure 1. On mediolateral oblique mammography (Mammomat Inspiration, Siemens, Germany) a giant, lobulated, well-demarcated, radioopaque mass is seen deep in the left breast.
was diagnosed with hydatid disease of the breast and rib. Surgical excision was performed, with no diagnostic interventional procedure performed before surgery. Histopathological examination confirmed the diagnosis (Figure 6).

![Image](image1.png)

**Figure 2.** Breast sonography shows internal linear echogenic membranes.

![Image](image2.png)

**Figure 3.** Breast MRI (Magnetom, Skyra; Siemens, Germany) demonstrates multiple adjacent cystic lesions with low signal membranes, extending from the breast tissue to the adjacent rib (sagittal T2-weighted turbo spin-echo image).

**Discussion**

Hydatid disease is a parasitic infection, mainly caused by the larva of Echinococcus granulosus. It is endemic in many parts of the world, typically in residents of rural areas (3). Humans are the accidental intermediate hosts of this organism. The liver and lungs are the most commonly affected organs (70% and 25%, respectively) and it is rare for the rib or breast to be the primary site (1,2). Pre-operative diagnosis is important to avoid unnecessary and potentially dangerous intervention.

![Image](image3.png)

**Figure 4.** Breast MRI (Magnetom, Skyra; Siemens, Germany) obtained in the prone position demonstrates multiple adjacent cystic lesions extending from the breast tissue to the adjacent rib (transverse fast low-angle shot (FLASH) 3D T1WI images). Image A, obtained at a more cranial level, shows the lesion invading the rib (curved arrow). Image B is at a more caudal level and shows wall enhancement after contrast administration.

![Image](image4.png)

**Figure 5.** Computed tomography (Somatom Definition Flash, Siemens, Germany), obtained in the supine position, shows rib involvement with destruction of the anterior cortex (solid arrow). The curved arrow indicates the cyst located between the pectoral muscle and the thoracic wall.
Figure 6 A and B. Histopathological examination confirmed the diagnosis of hydatid disease. Arrows indicate the lamellar structure. The arrow head points to granulation tissue surrounding the cyst (A.HEX200, B.PASX200).

Faber et al. reported a case of echinococcosis of the first rib in a young adult who presented with thoracic outlet syndrome. In this case, an aneurysmal bone cyst was the provisional diagnosis (2). Raut et al. reported a case of echinococcosis of the rib with epidural extension suggested by imaging in a young adult (4). Karaoglanoglu et al. reported a case of costal echinococcosis. This study emphasized that it is possible to diagnose the disease through the combined assessment of clinical, radiologic, laboratory, and anamnestic observations (2). Unal et al. reported a case of axillary hydatid disease in which MRI had demonstrated a lobular cystic mass in the pectoralis major muscle, not involving the peripheral soft tissue or bone structures and with no pulmonary or hepatic involvement (5). In their report, Caliskan et al. stated breast MRI findings of a case with mammary hydatid disease. They revealed one large cystic mass with a smaller cyst exhibiting peripheral calcification (6).

Imaging plays a key role in this condition by demonstrating discriminating features of hydatid disease. On MRI, T1 weighted images may show multicystic disease with varying signal intensities (4,7,8). The cyst wall demonstrates mild contrast enhancement. On T2 weighted imaging the daughter cysts may have slightly higher signal than the parent cyst (4). Infection, calcification, haemorrhage or internal membranes can change the signal intensities of the cysts.

**Conclusion**

In conclusion, mammary hydatid disease may be considered in the differential diagnosis of breast masses, especially in endemic regions. Prompt diagnosis of the condition avoids unnecessary and dangerous diagnostic intervention.

**References**