An interesting case of a parasite in the breast tissue

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Section: Breast imaging
Area of Interest: Breast
Procedure: Sampling
Procedure: Screening
Procedure: Diagnostic procedure
Procedure: Biopsy
Technique: Percutaneous
Technique: Mammography
Technique: Ultrasound
Technique: Ultrasound-Colour Doppler
Special Focus: Parasites Cysts Tropical diseases Case
Type: Clinical Cases
Authors: Dr. Anushri Parakh, Dr. Jyoti Arora, Dr. Ruchika Goel
Patient: 49 years, female

Clinical History:

A 49-year-old asymptomatic woman underwent routine screening mammography. This revealed an abnormality in the left breast and further investigations were advised.

Imaging Findings:

The screening mammogram (Fig. 1) revealed a 10mm round mass in the upper-outer quadrant of the left breast (anterior-third) with obscured posterior margins—BIRADS 0. No calcifications, spiculated mass or significant axillary lymph nodes were noted. She was recalled for further clinical assessment, which revealed a palpable lump in the area of concern on mammography, and an ultrasound (US) was advised. Breast US (Fig. 2), in the area of mammographic abnormality, revealed a 12x10 mm thick-walled cyst with a 2 mm polypoidal lesion (without internal vascularity) arising from its non-dependant wall—BIRADS 4a. No other focal abnormality was seen in the rest of the left breast. Ultrasound-guided biopsy of the complex cyst was performed (Fig. 3) without complications. Histopathology (Fig. 4) revealed larva of the cysticercal parasite with surrounding giant cell reaction. Clinical follow-up after a two-month course of albendazole showed no abnormality on palpation or imaging (Fig. 5).

Discussion:

Cysticercosis, which is caused by Taenia solium larvae, is a common parasitic infection of the soft tissues [1]. Humans become occasional hosts by eating undercooked vegetables or pork contaminated by eggs of T. solium or regurgitation of eggs into the stomach from intestines of people harbouring a gravid worm. This parasitic infestation is endemic in Asia, Latin America and Central & South Africa [2]. It can affect multiple organs like brain, spinal cord, orbit, muscles, subcutaneous tissue, breast and heart.

Clinical features depend upon the location of the cyst, number of cysts and host response [3] and a history of residence or travel in endemic regions may provide a diagnostic clue. Among soft tissue infestations, subcutaneous
lesions may present as painless or painful subcutaneous nodules and intramuscular cysts as myalgia, mass, pseudotumour or pseudohypertrophy. In the breast, an uncommon location of affliction [4-7], they can manifest in the form of a lump (painful or painless) making the clinical diagnosis a myriad of possibilities ranging from cysts (simple, complex or complicated), abscess, fibroadenoma or malignancies, to name just a few. Radiological investigations are necessary for characterisation, defining complications such as cyst rupture or associated abscess formation and image-guided biopsies. Mammogram can reveal masses, lymphadenopathy or even calcified worm-like density [8]. The characteristic finding on an US is of a complex cyst with an echogenic focus along the wall, which represents the scolex. In chronic cases, these lesions tend to calcify. Magnetic resonance Imaging has a role when the parasite is viable, where peripheral enhancement of the cyst wall can be demonstrated. Definitive diagnosis is made by tissue sampling, which reveals presence of a scolex and surrounding host response in the form of inflammatory cell infiltration with histiocytes and epitheloid cell granulomas [9].

Treatment of uncomplicated breast cysticercosis entails a course of anti-helminthic medication and follow-up imaging to look for resolution. If complicated with abscess formation, drainage procedures might be necessary.

**Differential Diagnosis List:** Breast cysticercosis, Haematoma, Fat necrosis or oil cyst, Mastitis or breast abscess, Intracystic papilloma, Necrotizing neoplasm

**Final Diagnosis:** Breast cysticercosis

**References:**

http://www.who.int/mediacentre/factsheets/fs376/en/
Sah SP, Jha PC, Gupta AK et al (2001) An incidental case of breast cysticercosis which was associated with a fibroadenoma. IJPM44(1):59-61
Description: A 10 mm round density (red arrows) with obscured posterior margins in the upper-outer quadrant of the left breast. BIRADS 0. No significant axillary lymph nodes, calcifications or spiculations noted. Origin: Parakh A, Department of Radiology, Medanta, Gurgaon
Description: A 12x10 mm thick-walled cyst (A) with a 2 mm polypoidal lesion arising from the non-dependant wall (B) showing no colour-uptake on power Doppler (C). BIRADS-4a. No significant left axillary lymph nodes noted (D). Origin: Parakh A, Department of Radiology, Medanta, Gurgaon
**Figure 3**

Description: Performed with a 11G needle (red arrow) through the polypoidal lesion 'scolex' (green arrow) along the wall of the cyst (yellow arrow). **Origin:** Arora J., Department of Radiology, Medanta, Gurgaon
Figure 4

Description: Resolution of previously visualized BIRADS-4 lesion. Origin: Arora J., Department of Radiology, Medanta, Gurgaon
Description: Targeted-US shows resolution of previously visualized complex-cystic lesion. Origin: Arora J., Department of Radiology, Medanta, Gurgaon
Description: Dense lymphoplasmacytic inflammatory infiltrate with epitheloid cell granuloma and larva of cysticercal parasite (racemose cyst wall). There was a giant cell reaction around the larva. Origin: Goel R., Department of Pathology, Medanta