Case 12724

Filariasis in breast - Realtime US for solving this clinical dilemma
Published on 28.06.2015

DOI: 10.1594/EURORAD/CASE.12724
ISSN: 1563-4086
Section: Breast imaging
Area of Interest: Breast
Procedure: Diagnostic procedure
Procedure: Laboratory tests
Imaging Technique: Ultrasound
Imaging Technique: Ultrasound-Colour Doppler
Special Focus: Infection Tropical diseases Case Type: Clinical Cases
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Patient: 33 years, female

Clinical History:
A 33-year-old female patient presented with a slow-growing painless mass in the left breast for the past 4 months. There was no history of fever, weight loss, trauma or any breast discharge. No family history of breast carcinoma was reported.
Local examination revealed a firm discrete non-tender mass that was palpable in the upper outer quadrant of the left breast.

Imaging Findings:
The left breast showed a well-defined anechoic lesion with shaggy margins of 1.2 x 0.8 cm at 2 o'clock position (Fig. 1). Some rapidly moving hyper-echoic linear structures were noted within the lesion suggestive of "Filarial dance sign". (Fig. 5)
Dilated lymphatics were also seen in the sub-cutaneous plane especially at 12 o'clock to 3 o’ clock position. (Fig. 4) The rest of the breast parenchyma appeared normal.
A dilated cord-like structure measuring 4 to 5 mm was noted in the left axilla suggestive of a thickened lymphatic channel. (Fig. 2)
Few sub-centimetre-sized non-necrotic lymph nodes were noted in the left axilla. (Fig. 3) The right breast and right axilla were unremarkable.
Ultrasound-guided FNAC revealed adult worms and microfilaria of W. bancrofti confirming our imaging diagnosis. (Fig. 6)

Discussion:
Lymphatic filariasis, a parasitic infestation in humans, is commonly caused by Wuchereria bancrofti and Bruga malayi. Lymphatic filariasis puts at risk more than a billion people in more than 80 countries who are seriously incapacitated or disfigured by the disease [1].
Mammary filariasis clinically presents as an unilateral painless lump in breast often associated with redness of the overlying skin. Most often the lesions are seen involving the upper outer quadrant of the breast.
When the female breast is involved, the larvae enter the lymphatic vessels causing lymphangitis, fibrosis and disruption of lymphatic drainage. Hyperaemia and sub-dermal lymphatic damage lead to peau d’orange appearance
of the breast more commonly associated with malignancies and cause a clinical dilemma in the diagnosis. [2, 3] Ultrasound is a valuable tool for demonstrating cases of lymphatic filariasis. Amaral et al. had first described the use of high-frequency transducers to demonstrate adult worms of *W. bancrofti* in the scrotal region of men [4]. They described it as continuous distinctive specific pattern of worm movement – “Filarial dance sign”- also described in our case (Fig. 5). It is very important to delineate all the dilated lymphatic channels and look for filarial worms in all the cystic lesions, as not every cyst will show the adult worms. This finding facilitates the follow-up and response to treatment evaluation as in our case.

These worms may later calcify and appear as linear tubular or serpiginous calcifications on breast mammograms. These calcifications are usually not adjacent to ducts and are located in the connective tissue – differentiating them from calcifications seen in intraductal carcinomas of the breast [5, 7]. Additional features include residual micro-calcification or curvilinear micro-calcification within the mass suggestive of degenerating and calcifying worms.

Besides *Wuchereria bancrofti*, other parasitic diseases that can cause soft tissue calcifications include cysticercosis, dracunculosis and other filarial infections such as onchocerciasis and loiasis, therefore peripheral blood smears and anti-filarial antibodies and circulating antigens are significant in confirming the diagnosis in cases where filarial dance sign is not demonstrated. [6]

This case emphasizes the need to consider the possibility of filariasis in patients presenting with breast lumps in endemic areas and the utility of ultrasound in establishing the diagnosis by demonstrating the classical filarial dance sign.

**Differential Diagnosis List:**  Filariasis of left breast with left axillary lymphadenopathy, Cysticercosis, Breast abscess, Intraductal carcinoma breast

**Final Diagnosis:**  Filariasis of left breast with left axillary lymphadenopathy

**References:**


Description: High frequency ultrasound using a linear probe shows a well-defined anechoic lesion in the breast parenchyma. Origin: Padmashree Dr.D.Y.Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)
Description: A dilated thickened lymphatic channel. Colour Doppler image was obtained to rule out any vascularity/vessel with similar image morphology. Origin: Padmashree Dr. D.Y. Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)
Description: Few sub-centimetre-sized reactive lymph nodes visualized in the left axilla (marked by asterisk). Origin: Padmashree Dr. D.Y. Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)
Description: Dilated lymphatics in the subcutaneous breast tissue - sign of inflammatory reaction due to parasite. Origin: Padmashree Dr. D. Y. Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)
**Description:** Filarial dance sign - rapidly moving parasites seen inside the anechoic lesion in the breast parenchyma. **Origin:** Padmashree Dr.D.Y.Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)
Figure 6

Description: Photomicrograph showing a microfilaria of Wuchereria bancrofti. Origin: Padmashree Dr. D. Y. Patil Hospital and Research Centre, Nerul, Navi Mumbai (India)