

CASE REPORT

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“Dancing spree” in breast: a rare case presentation

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Abstract

Background Filariasis is a tropical vector-borne disease seen predominantly in endemic areas, and the most common presentation is a lymphatic disorder in the form of lymphangiectasia. This case describes the breast as one of the uncommon sites of involvement by the filarial worm.

Case presentation We report an uncommon case of breast filariasis with chief complaints of a nodular lump in the breast.

Conclusions As symptoms of breast filariasis can mimic breast malignancy, appropriate diagnosis using real-time ultrasound plays a crucial role to reduce psychological stress on the patient and also helps in planning treatment.

Keywords Filariasis, Breast, Ultrasound, Doppler, Filarial dance

Background

Filariasis is a tropical vector-borne disease seen predominantly in Asian, African, and some South American countries [1]. In India, it is distributed along the sea coast and bank of rivers and the endemic areas include Bihar followed by Kerala, Uttar Pradesh, and Tamil Nadu [1], West Bengal [2]. Lymphatic filariasis in humans is mainly caused by *Wuchereria bancrofti* and *Brugia Malayi*. The adult worm mainly affects lymphatic circulation (Fig. 1). The commonly involved sites are bronchial aspirates, cervicovaginal smears, and pericardial fluid [3].

Breast involvement in filariasis is an extremely rare disease, seen only in endemic areas. Involvement of the breast occurs when the larvae migrate to lymphatic vessels leading to gradual fibrosis causing disruption of local lymphatic drainage [4]. Disruption of the subdermal lymphatic drainage can lead to hyperemia and peau d'orange appearance—a sign of breast malignancy causing the clinical dilemma. Another common presentation

of patients with breast filariasis is an ill-defined painless breast lump [1]. The most common involved site is the upper outer quadrant of the breast followed by the periareolar region. The clinical course is often insidious with occasional febrile or inflammatory episodes [4].

Due to vague clinical presentation and symptoms mimicking breast malignancy, diagnosing breast filariasis is challenging [5].

Imaging plays an important role in the diagnosis of breast filariasis with ultrasound being the modality of choice. Real-time ultrasound helps to demonstrate the vigorous movements of the filarial worm termed “filarial dance”—classical filariasis. “The filarial dance sign” was first coined by Amartal et al. in a patient with scrotal filariasis [6, 7].

Thus, an appropriate diagnosis with real-time ultrasound helps in appropriate treatment and also helps in reducing the psychological stress on the patient.

Case presentation

A 30-year-old patient from West Bengal presented to an outpatient surgery department, Sri Ramachandra Medical Centre, Chennai, Tamil Nadu, with a complaint of painless nodular swelling in the periareolar region of the right breast for the past 1 month associated with itching.

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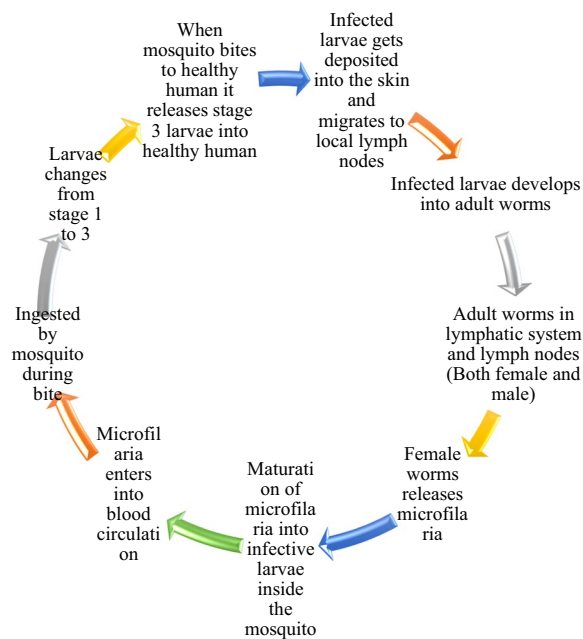


Fig. 1 Life cycle of *Wuchereria bancrofti* [3]

The family history was negative for breast carcinoma. There was no history of breast trauma.

On clinical examination, there was no palpable lump in the breast and no palpable axillary lymph nodes. The overlying and adjacent skin was normal. The patient reported no symptoms of fever or chills.

Considering the age of 30 years, she underwent an ultrasound of both breasts as a primary investigation. Ultrasound of the right breast revealed a hypoechoic lesion in the subareolar region (area of palpable concern), around 11 o'clock position measuring 1.2×0.6 cm probably a dilated duct with a tiny linear hyperechoic fluctuating focus within (Fig. 2). On real-time ultrasound, the vigorous movement of the worm was seen within the duct—suggestive of “Filarial dance” (Fig. 3). On color Doppler, mixed red-blue color signals with rhythmic, non-pulsatile Doppler signals were noted (Fig. 4). Ultrasound of the left breast was unremarkable.

Ultrasound-guided fine needle aspiration cytology of the dilated duct was done using an 18-gauge needle (Fig. 5). Wet and dry slides were made and sent for cytology. The cytology result revealed the presence of bancrofti microfilaria.

Blood investigations revealed normal hemoglobin levels 12.4 gms/dl (normal range 12–15 gms/dl), red blood cell count of 4.42 mill/cc.mm (normal range 3.8–4.8 mill/cc.mm), a total leukocyte count of 7300 cells per

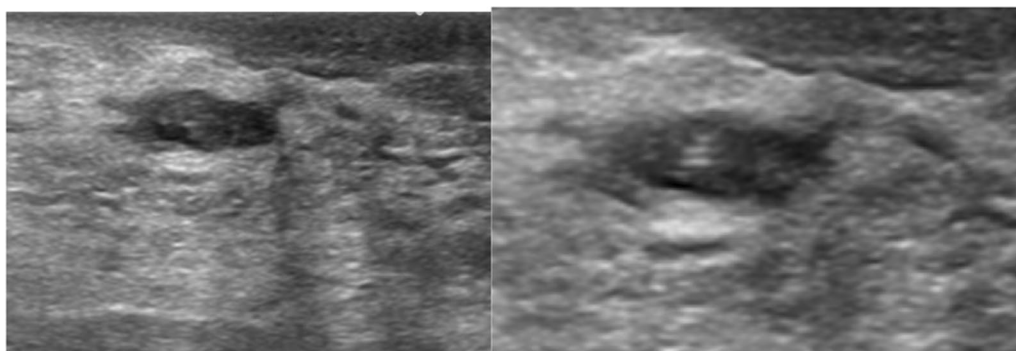


Fig. 2 Serial of images from real-time ultrasound focused on targeted lesion in the right breast at 11 o'clock position

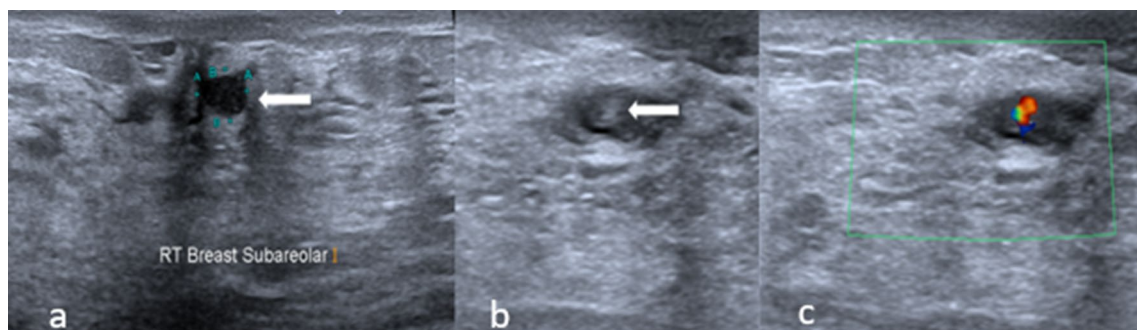


Fig. 3 **a** A tubular hypoechoic lesion in the subareolar region of the right breast around 11 o'clock position suggestive of dilated duct. **b** A linear hyperechoic focus within the dilated duct. **c** Color Doppler showing mixed red-blue signals within

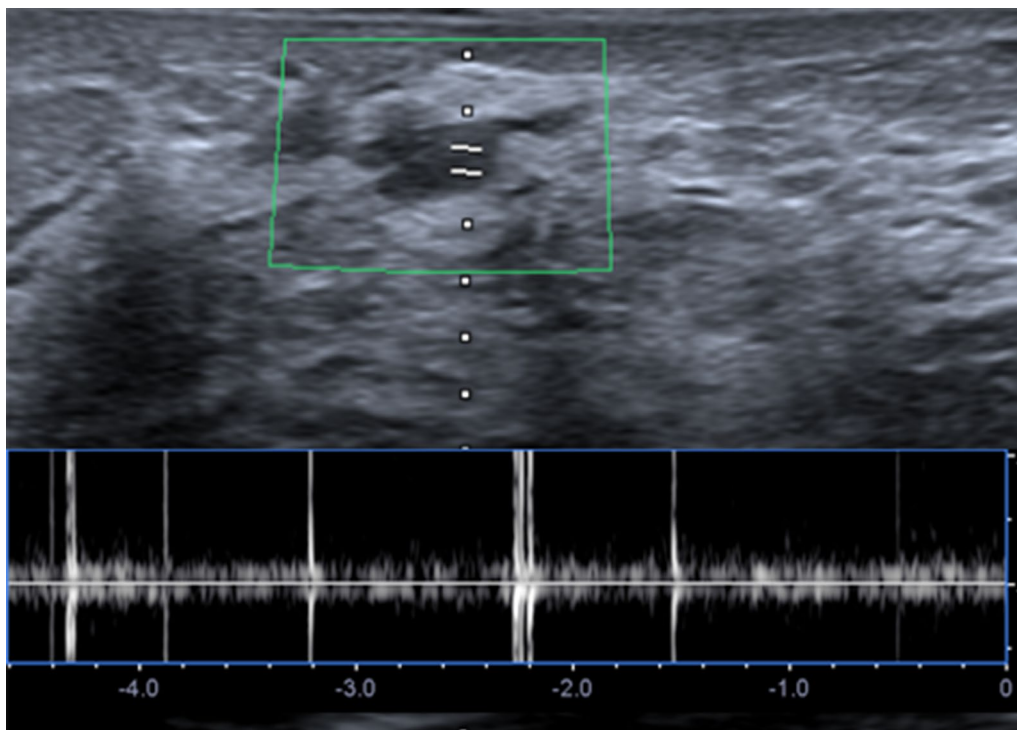


Fig. 4 Power Doppler of the curvilinear hyper echogenic area reveals non-rhythmic, non-pulsatile signal within

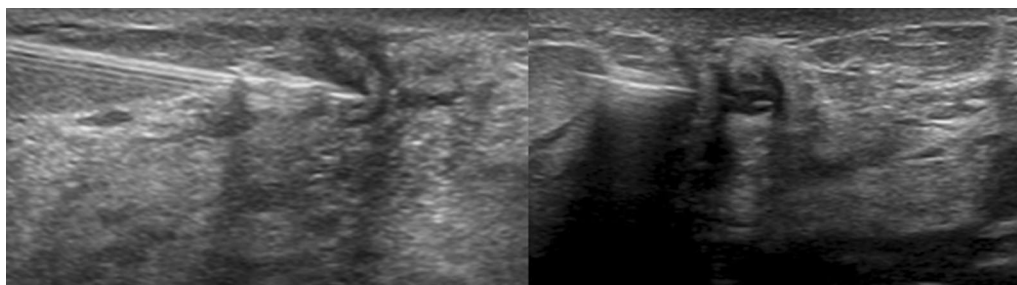


Fig. 5 USG-guided FNAC from the dilated duct using a 18-gauge needle

microliter (normal range 4500–11,000 cells per microliter [$4.5\text{--}11 \text{ cells} \times 10^9/\text{l}$]), a normal differential leukocyte count (60% neutrophils [normal range, 40–80%], 23% lymphocytes [normal range, 20–40%], eosinophilia with 10% eosinophils [normal range, 1–4%]), 6.2% monocytes [normal range, 2–10%], 0.6% basophils [normal range, 0–1%].

Peripheral blood smear revealed normocytic normochromic red blood cells with the normal number, morphology, and distribution of white blood cells with the absence of malarial parasite and microfilariasis.

Based on the ultrasound features and differential leukocyte showing eosinophilia, the diagnosis of breast filariasis was given.

The patient was put on a regimen of diethyl-carbamazine citrate (Day 1: 50 mg PO PC; Day 2: 50 mg PO TID; Day 3: 100 mg PO TID; Day 4–14: 100 mg TID PO) for 2 weeks for a period of 3 months with a drug-free interval of 2 weeks between each course.

The follow-up targeted ultrasound of the right breast performed after the completion of treatment showed a dilated duct in the subareolar region of the right breast. Twirling vigorous movement of the worm within the duct was no longer seen, suggestive of the dead worm. There was no evidence of mixed color signals on the color Doppler.

Conclusions

Breast filariasis is a rare presentation; however, in endemic areas like West Bengal, it is of utmost importance to differentiate breast filariasis from breast malignancy and correctly diagnose this disease using real-time ultrasound and color Doppler, thus helping inappropriate management.

Abbreviations

USG	Ultrasound
FNAC	Fine needle aspiration cytology
PO	Per oral
TID	Thrice daily
PC	After meals (Post cibum)
mg	Milligram

Acknowledgements

Not applicable.

Author contributions

MG did the image evaluation and manuscript preparation. BD did the case diagnosis and manuscript preparation. VS gave guidance regarding the manuscript. SI did the manuscript preparation. HG did the supervision of the manuscript and proofreading. All authors read and approved the final manuscript.

Funding

No funding was obtained for this study.

Availability of data and materials

Contact the corresponding author for the data.

Declarations

Ethics approval and consent to participate

The study does not require an ethical approval and the written consent was obtained from the patient.

Consent for publication

Written consent was obtained from the patient for the publication.

Competing interests

The authors declare that they have no competing interest.

Received: 18 November 2022 Accepted: 29 March 2023

Published online: 24 May 2023

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