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Case Report

Radiology Section

Presentation of Breast Filariasis in a Lactating Female: A Case Report

MS APARNA[1], YESHWANTH RAJU NARAYANAN[2], KIRTHI SATHYAKUMAR[3], SUNDARA RAJA PERUMAL[4]

ABSTRACT

Filariasis is a neglected tropical disease that rarely involves the breast. We report a rare case of breast filariasis in a 29-year-old lactating female who presented with a gradually enlarging, pruritic, and erythematous swelling in the left breast. Clinical examination revealed a firm, mobile mass in the upper inner quadrant, without nipple discharge or skin ulceration. Ultrasonography demonstrated a well-defined cystic lesion with echogenic linear structures exhibiting vigorous twirling movements- characteristic of the 'filarial dance sign.' Colour doppler imaging confirmed motion artefacts suggestive of live filarial infestation. Imaging, particularly real-time ultrasonography, was pivotal in diagnosis. Breast filariasis should be considered in the differential diagnosis of cystic breast lesions, particularly in endemic areas. Prompt diagnosis can prevent unnecessary interventions and guide effective antiparasitic therapy.

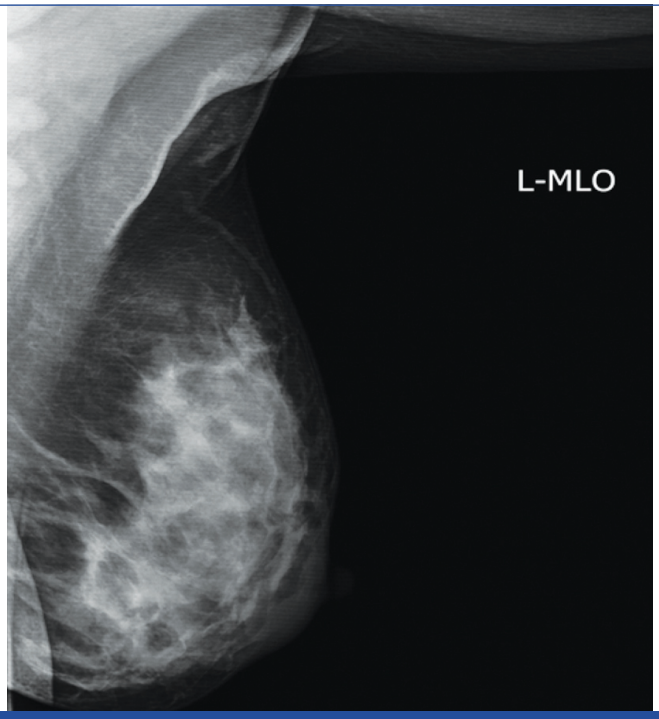
Keywords: Dance sign, Lactating female, Parasitic cyst, Skin ulceration, Wuchereria bancrofti

CASE REPORT

A 29-year-old lactating female, presented with a complaint of gradually increasing swelling measuring ~ (1x1 cm) in the left breast for five days, associated with pruritus and redness. She reported no history of trauma, fever, weight loss, loss of appetite, or tuberculosis. No significant family history was noted. General examination was unremarkable.

Local examination revealed a firm, mobile mass in the upper inner quadrant of the left breast near the nipple-areolar complex. There was no nipple discharge or skin ulceration. A few firm, discrete lymph nodes were palpable in the left axilla. The right breast was normal. Laboratory investigations were within normal limits. Total leukocyte count was 8,820 cells/μL with 2% eosinophils and 63.2% neutrophils.

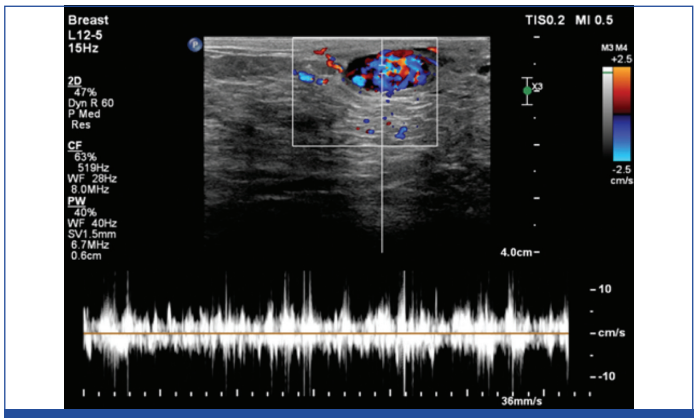
Mammography and ultrasonography were performed. Mediolateral Oblique (MLO) view of the left breast appeared normal with no calcifications [Table/Fig-1].



[Table/Fig-1]: Mammogram of the left breast, Mediolateral Oblique view (MLO).

Ultrasound revealed a well-defined ovoid cystic lesion (1.4×0.5 cm) near the nipple-areolar complex in the upper inner quadrant. Multiple echogenic linear structures were seen within the cyst, exhibiting vigorous twirling motion - the 'filarial dance' sign [Table/Fig-2] [Video-1]. Colour Doppler showed aliasing artifacts due to the motion of cyst contents [Table/Fig-3].

[Table/Fig-2]: Ultrasonography (USG) shows a well circumscribed cystic lesion within the breast parenchyma containing multiple echogenic linear and tortuous structures within the cyst (arrow).



[Table/Fig-3]: Colour doppler image showing an aliasing artefact caused by the vigorous movement of the cyst contents.

S. No.	Authors	Year	Age/sex	Clinical findings	Radiological findings	Treatment and outcome
1	Tiwari K et al., [10]	2024	22 year/Female	Painless 2x2 cm lump in the right breast for 2 months. No axillary swelling. Normal blood investigations	Tubular structures with dancing spree movement on USG	Patient was successfully treated with Diethylcarbamazine Citrate (DEC) for 3 months
2	Sharma VA et al., [11]	2021	40 years/Female	Painful 3x3 cm lump in the right breast for 3-4 weeks. Redness and induration on examination. Mild leucocytosis, eosinophilia, and high Erythrocyte Sedimentation Rate (ESR)	Complex cyst of the BIRADS-3 category on Sono mammography	The patient underwent a wide local excision followed by DEC for 3 months
3	Garg M et al., [12]	2023	30 years/Female	Painless 1.2 x 0.6 cm nodular periareolar swelling for 1 month with itching. Routine blood investigations except for eosinophilia (10%)	Hypoechoic subareolar lesion with dilated duct and a tiny linear hyperechoic structure showing vigorous movement	The patient was treated with DEC for 3 months as per the recommended regimen
4	Chouhan S et al., [13]	2020	55 years/Male	Mildly painful 2 x 2 cm swelling in the left breast in the subareolar region for 3 weeks.	FNAC was performed directly, which demonstrated the presence of microfilaria.	The patient was treated successfully with DEC, albendazole, and amoxicillin-clavulanic acid.
5	Vyas S et al., [14]	2020	44 years/Female	Gradually increasing swelling of the right breast with redness, pain, itching, and systemic symptoms for 6 months.	Real-time USG showed mobile structures in the region of swelling.	Patient recovered with an appropriate regimen of DEC

[Table/Fig-4]: Reported cases of breast filariasis over the past 5 years [10-14].

The patient was advised to undergo Fine-Needle Aspiration Cytology (FNAC) from the lesion; however, the patient was unwilling to do so. Hence, as the imaging appearance was typical of filariasis, the patient was managed conservatively using the antiparasitic medication Diethylcarbamazine Citrate (DEC) 6 mg/kg/day for 12 days. Afterward, the size of the lesion reduced and improved on further follow-up.

DISCUSSION

Filariasis is a vector-borne parasitic disease affecting approximately 120 million people in tropical and subtropical regions of Asia, Africa, the Western Pacific, and parts of the Caribbean and South America. In India, around 250 districts across 20 states are considered endemic [1].

Wuchereria bancrofti is the most common cause of lymphatic filariasis. Adult worms inhabit lymphatic vessels, releasing microfilariae that circulate in the bloodstream. These are ingested by mosquitoes and transmitted to new hosts via bites. The larvae that are introduced into the skin migrate to the lymphatic system and mature into adult worms [2].

Symptoms can emerge years after a patient has left an endemic region. The typical clinical signs include haematuria, limb lymphoedema, and genital issues such as hydrocele, chylocele, and swelling of the scrotum and penis. Patients may experience recurrent acute episodes characterised by pain and low-grade fever [3].

While filarial involvement of the breast is rare, it is common in endemic regions where *W. bancrofti* is the predominant species. Breast involvement occurs when larvae migrate to the regional lymphatic vessels, triggering local granulomatous inflammation in the surrounding tissues [4]. Over time, fibrosis replaces the lymphatic vessels, disrupting local lymphatic drainage. Consequently, patients may develop an ill-defined, painless breast lump, known as a filarial granuloma. In many cases, this mass is clinically misdiagnosed as malignancy [5]. The upper outer quadrant is the most frequently affected site, though the periareolar region is also commonly involved [4]. The clinical course is often insidious, punctuated by occasional febrile or inflammatory episodes. This pattern was also observed in our patient who was from Orissa, which is considered as an endemic region. Diagnosis is aided by FNAC and typical ultrasonographic findings [6]. The distinctive "filarial dance sign," representing the characteristic movement of worms within nests of adult *W. bancrofti* in the lymphatic vessels of the spermatic cord has been described [1,7]. Worm nests, which are dilated lymphatic vessels exhibiting the characteristic movement patterns of worms, can be visualised using Two-Dimensional (2D) and M-mode imaging. In M-mode images, the body wall of adult worms appears as a double-layered structure, with its phasic motion represented by wavy bands [8]. Similar findings have also been reported in the breast, where this random motion is a hallmark of adult worm activity. These moving echogenic contents were noted in our patient as well, allowing a confident diagnosis of breast filariasis.

The above characteristic imaging appearance is observed during the acute and subacute phases of the disease. In the degenerative stage, the dead worm undergoes dystrophic calcification, which the mammography readily detects as elongated, tortuous calcifications that do not follow a ductal distribution. Additionally, granulomatous non-calcified lesions may present as nodules, resembling a fibroadenoma or an intramammary lymph node [8].

DEC is the primary drug for lymphatic filariasis, effective against both immature and adult worms. It can be given as a single dose or over 12 days [9]. Our patient was managed conservatively using DEC, after which she showed improvement on further follow-up.

[Table/Fig-4] presents the previously reported cases of breast filariasis from the literature over the past five years [10-14].

CONCLUSION(S)

Although rare, breast filariasis is a notable differential for cystic breast lesions, especially in endemic regions. Real-time ultrasonography, particularly the demonstration of the filarial dance sign, plays a vital role in diagnosis and preventing mismanagement.

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PARTICULARS OF CONTRIBUTORS:
1. Resident, Department of Radiology, SRM Medical College Hospital and Research Centre, Chennai, Tamil Nadu, India.
2. Resident, Department of Radiology, SRM Medical College Hospital and Research Centre, Chennai, Tamil Nadu, India.
3. Professor, Department of Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.
4. Professor, Department of Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu, Tamil Nadu, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:
Dr. Kirthi Sathyakumar,
Professor, Department of Radio Diagnosis, SRM Medical College Hospital and Research Centre, SRM IST, Kattankulathur, Chengalpattu-603203, Tamil Nadu, India.
E-mail: kirthis@srmist.edu.in

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