CASE REPORT

Bilateral breast filariasis mimicking inflammatory breast carcinoma

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SUMMARY

Breast is an uncommon site to be affected in filariasis. However, such cases may be encountered in endemic areas. Here, we report a case of filariasis of breast in a 55-year-old woman who was clinically mistaken for inflammatory carcinoma of the breast. Sonomammography revealed classic signs pointing towards the diagnosis of filariasis of breast, which was confirmed with microscopic examination of fine-needle aspirate. Thus, imaging played a pivotal role in correctly diagnosing and further altering the line of management.

BACKGROUND

Filariasis is commonly encountered in Africa, Asia and some South American countries.¹ In India, endemic areas include Odisha, Bihar, Uttar Pradesh, Gujarat, Andhra Pradesh and Tamil Nadu.²

Wuchereria bancrofti and *Brugia malayi* are the most common parasites causing lymphatic filariasis with majority of cases in India being linked to *W. bancrofti*.¹⁻³

Lymphatic filariasis commonly involves lower limbs, scrotal sac and retroperitoneum with breast being an extremely uncommon site.²

CASE PRESENTATION

A 55-year-old woman from Uttar Pradesh (India) with positive family history of breast cancer in first-degree relative, presented with gradually developing left-sided breast swelling, redness and

Figure 2 Bilateral mediolateral oblique view of mammogram shows linear, tortuous, non-calcified opacities in upper outer quadrants of both breasts, which were not in ductal distribution. In addition, few serpiginous, linear calcific foci are noted in both breasts.

induration since last 4 months. Bilateral axillary lymph nodes were enlarged. Clinical examination revealed erythema, swelling in left breast; however, no lump was palpable. On this basis, a clinical diagnosis of inflammatory breast cancer was considered, and the patient was advised for mammography.

Craniocaudal and mediolateral mammographic views (figures 1A and 2) revealed presence of linear, tortuous, non-calcified opacities in upper outer quadrants of both breasts, which were not in ductal distribution. In addition, few serpiginous, linear calcific foci are noted in both breasts, likely representing dead and calcified filarial worms (figure 1B). This was followed by targeted ultrasonographic

Figure 1 (A) Bilateral craniocaudal view of mammogram shows linear, tortuous, non-calcified opacities (asterisk) in upper outer quadrants of both breasts, which were not in ductal distribution. In addition, few serpiginous, linear calcific foci are noted in both breasts. (B) Magnified view of suspected area of mammogram in (A) shows serpiginous, linear and discontinuous calcifications in right breast denoting calcified worms.

Figure 3 Ultrasonography reveals dilated tubular anechoic channels in superolateral quadrants of both breasts. Thick white arrows denote echogenic filarial worm.

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Table 1 Haematological parameters of the patient

Parameters	Laboratory value
Haemoglobin	10.2 gm/dL
Red blood cell	$4.8 \times 10^{12}/L$
Total leucocyte count	$7.5 \times 10^9/L$
Differential count	Eosinophilia (12%)
Erythrocyte sedimentation rate	80 mm (first hour)
Platelet	$240 \times 10^9/L$

evaluation, which in turn demonstrated multiple tubular cystic lesions, with few of them having echogenic foci (figure 3) showing classic wriggling motion, popularly called as 'filarial dance'. Hence, a diagnosis of bilateral breast filariasis was put forward.

INVESTIGATIONS

Her haematological parameters were normal (table 1).

Straw-coloured fluid was aspirated from the tubular anechoic area by ultrasound-guided fine-needle aspiration. Cytological examination demonstrated live adult parasite of *W. bancrofti*.

DIFFERENTIAL DIAGNOSIS

Inflammatory breast carcinoma

There may be a family history of breast cancer. Lymph nodes if enlarged are typically hard, with or without fixity to underlying muscle.

TREATMENT

She was treated with diethylcarbamazine citrate for 4 weeks (table 2).

OUTCOME AND FOLLOW-UP

Following treatment, patient recovered completely after 1 month. At 3-month follow-up, patient continues to be asymptomatic. Ultrasonography done at 3 months showed echogenic calcifications in the absence of any dilated ducts.

DISCUSSION

Filariasis is a tropical disease and is commonly encountered in India. Though breast is an uncommon site to be affected, it is often encountered in endemic areas of India. Most common organism causing breast filariasis in India is *W. bancrofti*.⁴ Cases of breast filariasis are usually unilateral in contrary to this case where there is bilateral involvement.⁵ Upper outer quadrant is the most common region to be affected.⁵ Usually, breast filariasis presents as non-tender breast swelling¹; however, cases with peaud'orange and lymphadenopathy have also been reported.⁶

Table 2 Summary of diagnostic approach and treatment

Diagnostic tests	Finding/comment
Mammography	Linear, tortuous, non-calcified opacities in upper outer quadrants of both breasts (non-ductal distribution) with few serpiginous, linear calcific foci in both breasts.
Ultrasonography	Multiple tubular cystic lesions with few echogenic foci; classic 'filarial dance'.
Fine-needle aspiration cytology	Live adult parasite of <i>Wuchereria bancrofti</i> .
Treatment	
Diethylcarbamazine citrate	6 mg/kg/day in 3 divided doses for 4 weeks.

Learning points

- Breast filariasis in India is not uncommon.
- Clinically it can be mistaken for breast cancer.
- Mammography with ultrasonography of the breast may be a useful tool for diagnosis of this condition.
- On ultrasound, 'filarial dance' sign is pathognomonic. On mammogram, dilated and beaded appearance of the lymphatics in specific anatomical distributions are pointer towards a pathology of lymphatic origin.

The disease is transmitted via mosquito (*Culex fatigans*) bite. The larvae which gets deposited under the human skin enters the lymphatic system and develops into adult worms. These adult worms cause inflammation and lymphatic obstruction, which is responsible for clinical symptoms.⁷ The adult worms produce microfilaria that enter the bloodstream and can be detected in patient's peripheral blood smear.⁸

Imaging serves as an important tool for diagnosis. Mammographic appearance include smooth, elongated, non-ductal serpiginous calcifications.⁹ However, calcifications may not be present, as seen in this case.³ On real time ultrasonography, typical vigorous swirling motion of live adult worms, classically described as 'filarial dance' may be demonstrated within the dilated lymphatic channel, which is seen in this case too.⁴ Finally, microscopic examination of the aspirate confirms the diagnosis and differentiates it from other cystic lesions of breast.¹⁰

In endemic areas, breast filariasis might mimic inflammatory carcinoma of the breast. Classic imaging findings on sonomammography help to differentiate between the two, thus having a strong impact on patient management and proper utilisation of health resources.

Contributors HL: Conception and design; SD: Acquisition of data, analysis and interpretation of data, drafting the manuscript and revising it critically for important intellectual content. MD: Acquisition of data, drafting the manuscript. NM: Conception and design, revising the manuscript critically for important intellectual content.

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REFERENCES

- 1 Sherwani P, Singhal S, Kumar N, et al. Breast filariasis diagnosed by real time sonographic imaging: a case report. *Iran J Radiol* 2016;13:e17991.
- 2 Bhattacharjee P, Ray R, Halder S. Filariasis of breast: an unusual presentation. *Ann Trop Med Ph* 2012;5:376–8.
- 3 Upadhyaya V, Upadhyaya DN, Sarkar S. An interesting case of breast filariasis. *Indian J Radiol Imaging* 2006;16:915–7.
- 4 Patil JA, Patil AD, Ramani SK. Filarial "dance" in breast mass. *AJR Am J Roentgenol* 2003;181:1157–8.
- 5 Rosen PP. Specific infections. In: Rosen PP, ed. *Breast Pathology*. 2nd edn. Philadelphia: Lippincott Williams and Wilkins, 2001:65–75.
- 6 Lahiri VL. Microfilariae in nipple secretion. *Acta Cytol* 1975;19:154.
- 7 Alkadhi H, Garzoli E. Calcified filariasis of the breasts. *N Engl J Med Overseas Ed* 2005;352:e2.
- 8 Ravikumar R, Sen KK, Singh SN, et al. Filarial dance in a breast lump. *Med J Armed Forces India* 2010;66:193–5.
- 9 Chow CK, McCarthy JS, Neafie R, et al. Mammography of lymphatic filariasis. *AJR Am J Roentgenol* 1996;167:1425–6.
- 10 Kapila K, Verma K. Diagnosis of parasites in fine needle breast aspirates. *Acta Cytol* 1996;40:653–6.

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