



Case Report

Filarial breast nodule mimicking duct ectasia: A rare entity

Navjot Kaur^{1*}, Bhavneet Singh², Anil Sharma³, Poonam Katoch⁴, Pavithra H N⁵, Parminder Kaur Gill⁶

¹Dept. of Pathology and Lab Medicine, Indus International Hospital, Dera Bassi, Punjab, India

²Dept. of Radio Diagnosis, Indus International Hospital, Dera Bassi, Punjab, India

³General and Laparoscopy Surgery, Indus International Hospital, Dera Bassi, Punjab, India

⁴Dept. of Lab Medicine, Indus International Hospital, Dera Bassi, Punjab, India

⁵Dept. of Pathology and Lab Medicine, Indus Super Speciality Hospital, Mohali, Punjab, India

⁶Dept. of Lab Medicine, Indus International Hospital, Dera Bassi, Punjab, India

Abstract

Filariasis is a major social and economic burden in tropical countries. Breast is an uncommon site for the occurrence of a filarial nodule with limited published data. In this study we report a 27-year female presented with complaint of left breast lump. FNAC showed numerous scattered sheathed uncoiled and coiled microfilaria. The present case report will help clinicians and pathologists to understand that a thorough search for microfilaria organisms is mandatory when cytopathology is performed on cases with subcutaneous breast lumps especially in patients of endemic countries like India.

Keywords: Filariasis, FNAC, Breast, Endemic, Tropical microfilaria.

Received: 29-09-2024; **Accepted:** 23-12-2024; **Available Online:** 22-04-2025

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprint@ipinnovative.com

1. Introduction

Filariasis is a major social and economic burden in tropical countries.¹ In India, filariasis is mainly caused by nematodes *Wuchereria bancrofti* and *Brugia malayi* and transmitted by female *Culex* mosquito. Filariasis can cause both systemic and subcutaneous effects which includes enlargement with hardening of tissues or elephantiasis due to obstruction of lymphatic system.¹ However, Microfilaria and adult worms have been detected on fine needle aspiration cytology at different sites including thyroid, liver, lungs, breast, bone marrow and body fluids. Breast is an uncommon site for the occurrence of a filarial nodule with limited published data.²

2. Case Report

A 27-year female patient resident of Ambala (Haryana) presented with complaint of left breast lump for 2 months. There is no history of travel to endemic areas such as Bihar, Jharkhand, UP etc. There was no history of fever, weight loss,

loss of appetite and there was no history of lactation or nipple discharge. On examination, right breast and axilla was normal, a mobile lump was palpable in upper outer quadrant of left breast measuring 1.5 x 1 cm, firm in consistency. There was no erythema of the overlying skin. A single mobile lymph node was palpable in left axilla measuring 1 x 1 cm.

Breast Sonomammography depicted well defined rounded hypoechoic lesion measuring approximately 3.9x4.9x8.4 mm in the upper outer quadrant in superficial planes with surrounding raised echogenicity of breast parenchyma and fat- s/o inflammatory changes. Internal moving low-level echoes were seen. No internal solid component seen. (**Figure 1**) Adjacent mild thickening of ductal wall was noted with no internal vascularity. (**Figure 2**) Probe tenderness was present. Few enlarged lymph nodes were seen in the left axilla largest measuring ~ 10.3 mm in SAD. BIRAD IVa was labeled with possibility of complex

*Corresponding author: Navjot Kaur
Email: dr.navjotkaur@yahoo.com

cyst/focal ductal ectasis (since a duct was coursing adjacent to lesion) and FNAC was advised.

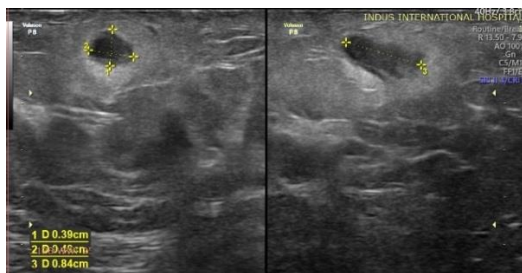


Figure 1: Ultrasound image shows well defined rounded hypoechoic cyst like lesion measuring approximately 3.9x4.9x8.4 mm noted in the upper outer quadrant in superficial planes with surrounding raised echogenicity of breast parenchyma and fat- s/o inflammatory changes. Internal moving low-level echoes seen

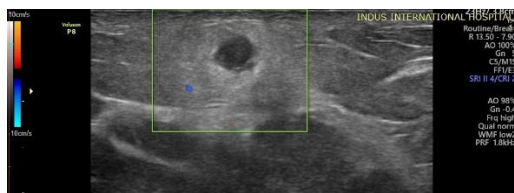


Figure 2: Colour Doppler shows no obvious internal vascularity

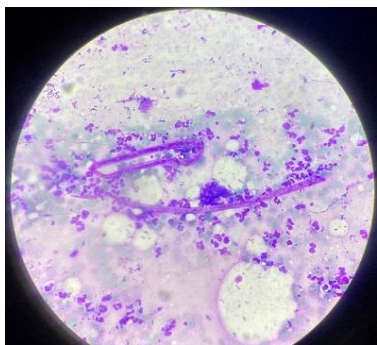


Figure 3: Photomicrograph showing Wuchereria Bancrofti with the tail devoid of nuclei in the background of mixed inflammation (40x, Giemsa Stain)

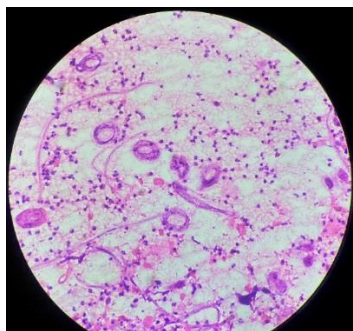


Figure 4: Photomicrograph showing numerous coiled microfilariae in the background of mixed inflammation (10 x H & E Stain)

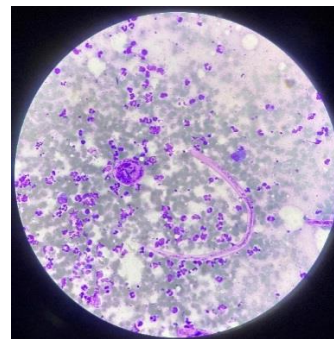


Figure 5: Photomicrograph of adult filarial worm with coiled microfilaria (40x, Giemsa Stain).

Fine needle aspirate was thick whitish in nature. The aspirate was smeared on slides and stained with May Grunwald Giemsa stain. The aspirates were cellular and showed numerous scattered sheathed uncoiled and coiled microfilaria with elongated terminal nuclei and a caudal space at the posterior end. (**Figure 3**) (**Figure 4**). The background showed dense mixed inflammatory cells composed of neutrophils, cystic macrophages, lymphocytes, plasma cells and occasional eosinophils in necrotic background. There was evidence of numerous granulomas and multinucleated giant cells. (**Figure 5**) Occasional clusters of ductal epithelial cells were noted exhibiting mild reactive atypia. There was no evidence of malignant cells in the smears studied. Peripheral blood examination, buffy coat preparation was also done and no evidence of infection was detected. Blood examination from samples collected at night were also negative for microfilaria.

3. Discussion

Filariasis is a public health problem most commonly seen in tropical countries of Africa and Asia.¹ It is an endemic disease in India particularly in the states of Bihar, Jharkhand, West Bengal, Uttar Pradesh etc.² In, India it is commonly caused by *W. bancrofti* (95%) and *B. malayi* (5%).³ *Wuchereria bancrofti* is the type of sheathed microfilaria that has an envelope.⁴ Humans are definite hosts and culex mosquito is intermediate host for filariasis.¹ Upper outer quadrant of breast is the most common site in breast filariasis. A subcutaneous filarial nodule involving breast is rare and can pose difficulties in diagnosis.⁵ Filarial nodule can sometimes become adherent to overlying skin, leading to hyperemia and peau d'orange giving wrong clinical interpretation as carcinoma breast.⁶

Imaging plays an important role in diagnosis of filariasis as real time ultrasound demonstrates classical 'Filarial dance' sign which was first reported by Amaral et al.⁷ In our case, echoes were presumed due to be proteinaceous contents/hemorrhage/pus of complex cyst, however it was actually microfilaria swirling within lesion (which was not typical in this case).

The known case of microfilaria disease can be categorized into acute, subacute and degenerating stage.⁸ On Sonography, the aforementioned imaging appearance in our case is usually seen in the acute and subacute phases of the disease i.e. a well-defined nodule with random moving echoes with surrounding inflammatory changes. Sometimes, linear duct like channels is also seen with thin echogenic strands within. On mammography, corresponding trabecular thickening and multiple tortuous tubular channels not conforming to ductal distribution are usually seen along with discrete nodular opacities.

In the degenerating stage of the parasite, there is dystrophic calcification of the dead worm that is easily detected by mammography as nodular or elongated tortuous calcifications not conforming to a ductal distribution.⁹

It is important to note that the most common presentation of breast filariasis is granulomatous non calcified nodule (as seen in our case) which may mimic fibroadenoma or an intramammary lymph node or malignancy.^{10,11,12} That is why Histopathology plays important role in nonspecific ambiguous cases, like ours.

Fine needle aspiration cytology is a simple, cost-effective and widely available investigation to differentiate between neoplastic and non-neoplastic causes of the breast lump.¹³ Cytosmears commonly show microfilaria worms along with the presence of benign duct epithelial cells, granulomatous reaction with inflammatory cells consisting of eosinophils, neutrophils and histiocytes.¹⁴ It is unusual of *Wuchereria bancrofti* to have subcutaneous manifestations alone without any evidence in the peripheral blood as seen in our patient.¹⁵

4. Conclusion

Though, subcutaneous filarial nodule involving breast is rare but ultrasound followed by FNAC of subcutaneous swelling is simple and reliable diagnostic investigation which shows a Filarial worm and associated granulomatous reaction. It is appropriate to look for organisms such as mycobacterium and filarial infection in such clinical presentation. Thus, the present case report emphasizes clinicians and pathologists to understand the importance of comprehensive evaluation for microfilaria organisms when cytopathology is performed on cases with subcutaneous breast lumps especially in patients of endemic countries like India. We aim to ensure that potential filarial infections are not overlooked in similar clinical presentations.

5. Declaration of Patient Consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initial s will not be published

and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

6. Source of Funding

None.

7. Conflicts of Interest

There are no conflicts of interest.

References

1. Evans DB, Gelband H, Vlassoff C. Social and economic factors and the control of lymphatic filariasis: a review. *Acta Tropica*. 1993;53(1):1–26.
2. Shastri M, Nanda A. Breast filariasis masquerading as carcinoma: Cytologic diagnosis in two cases. *Tropical Parasitology*. 2022;12(1):59–61.
3. Kumar V, Reyaz M, Singh G. Filarial breast lump: A rare entity. *Inter Surg J* 2018;5(3):1149–50.
4. Fernandes H, Thomas BM, Putran I. Adult filarial worm from the breast aspirate of a young man. *J Parasit Dis*. 2016;40(2):536–8.
5. Singh AK, Gupta P, Yadav S, Pahawa HS. Incidental detection microfilaria in subcutaneous breast nodule of lactating female fnac: a rare case report. *J Clin Diagn Res*. 2014;8(6):FD03–4. doi: 10.7860/JCDR/2014/7494.4418.
6. Kar SK, Mania J, Baldwin CI, Denham DA. The sheath of the microfilaria of *Wuchereria bancrofti* has albumin and immunoglobulin on its surface. *Parasite Immunol*. 1993;15(5):297–300.
7. Amaral F, Dreyer G, Figueredo-Silva J, Noroes J, Cavalcanti A, Samico SC, et al. Live adult worms detected by ultrasonography in human Bancroftian filariasis. *Am J Trop Med Hyg*. 1994;50(6):753–7.
8. Vyas S, Rangarajan K, Das A, Hari S, Srivastava A, Mathur S. Case 283: breast filariasis. *Radiology*. 2020;297(2):487–91.
9. Bastarrika G, Pina L, Vivas I, Elorz M, San Julian M, Alberro JA. Calcified filariasis of the breast: report of four cases. *Eur Radiol*. 2001;11(7):1195–7.
10. Khan R, Harris SH, Maheshwari V. Filarial breast mouse. *J Coll Physicians Surg Pak*. 2011;21(8):513.
11. Chakrabarti I, Das V, Halder B, Giri A. Adult filarial worm in the aspirate from a breast lump mimicking fibroadenosis. *Trop Parasitol*. 2011;1(2):129–31. doi: 10.4103/2229-5070.86965.
12. Shastri M, Nanda A. Breast filariasis masquerading as carcinoma: Cytologic diagnosis in two cases. *Trop Parasitol*. 2022;12(1):59–61. doi: 10.4103/tp.TP_11_20.
13. Parashar C, Gupta A, Singh P. Rapid onsite evaluation of unstained cytosmears: a vermi-surprise in the breast. *J Cytol*. 2020;37(2):108–9. doi: 10.4103/JOC.JOC_15_19.
14. Nanda A, Gupta N, Lamba S, Sethi D. Subcutaneous filariasis: An unusual presentation with an adult gravid worm on aspiration. *Trop Parasitol*. 2018;8(2):121–3.
15. Mitra SK, Mishra RK, Verma P. Cytological diagnosis of microfilariae in filariasis endemic areas of eastern Uttar Pradesh. *J Cytol*. 2009 Jan;26(1):11–4. doi: 10.4103/0970-9371.51333.

Cite this article Kaur N, Singh B, Sharma A, Katoch P, Pavithra HN, Gill PK. Filarial breast nodule mimicking duct ectasia: A rare entity. *IP Arch Cytol Histopathol Res*. 2025;10(1):37-39.