

# Breast Infestation by Filarial Worm: A Rare Entity

Seema Khanna\*, Sanjeev Kumar Gupta, Pranjal Bhardwaj and Satendra Kumar

Department of General Surgery, Banaras Hindu University, India

## Article Information

Received date: Apr 25, 2017

Accepted date: May 17, 2017

Published date: May 22, 2017

### \*Corresponding author

Seema Khanna, Department of General Surgery, Banaras Hindu University, India, Tel: 9415372009; Email: seemakhanna119@rediffmail.com

**Distributed under** Creative Commons CC-BY 4.0

**Keywords** Breast; Filariasis; FNAC; Microfilariae

## Abstract

Lymphatic filariasis is a major health problem in many parts of tropics with India accounting for more than 1/3rd of global disease burden. Most of the cases are caused by *Wuchereria bancrofti* (90%) and *Brugia malayi*. Breast being an extra-nodal site is a rare site for occurrence of filarial nodule. Patients usually present as a solitary, non tender lump in upper outer quadrant of breast. There may be associated fever, peau d' orange and palpable axillary lymphadenopathy and the condition may mimic malignancy. Fine Needle Aspiration Cytology (FNAC) from breast lump reveals several microfilariae with inflammatory infiltrates and giant cells. We present to you a case of an adult female from endemic area with painless solitary lump in her left breast which was later diagnosed as filarial granuloma.

## Introduction

Filariasis is a serious socioeconomic and public health problem throughout the subtropics and tropics, including India, Africa, South-East Asia, the Caribbean Islands, Central and South America [1]. India accounts for 40% of the disease burden worldwide. Extra-nodal sites like breast are rarely involved and only few cases have been reported till now [2-4]. As these parasites present as a lump in breast, they may mimic malignancy.

## Case Report

A 40 year old lady resident of Bihar presented with complaint of gradually progressive painless lump in her left breast for last 4 months. There was no history of fever, trauma, any skin changes or nipple discharge.

General physical and systemic examination was unremarkable. On local examination, there was a 3 x 2 cm firm, non tender, mobile lump in upper outer quadrant of her left breast. There was no fixity to skin or underlying structures. Nipple-areola complex and overlying skin was normal. No axillary lymph node was palpable. Opposite breast was normal. Routine blood examination was normal.

Ultrasound of breast showed a relatively well defined heterogenous lesion of size 3.17 cm (Transverse) x 0.88 cm (Antero-posterior) with few internal linear and circumferential hypoechoic areas suggestive of phlegmon in upper outer quadrant of left breast. Fine Needle Aspiration Cytology (FNAC) showed scattered inflammatory infiltrate comprising of lymphocytes, neutrophils, macrophages, occasional eosinophils along with few giant cells and several microfilariae larva.

Patient was started Di-Ethyl-Carbamazine (DEC) in the dose of 6mg/kg/day for 21 days. However, lump persisted even after DEC therapy due to which excision biopsy was done. Histopathological examination revealed dense inflammatory aggregates including eosinophils and well defined areas of giant cell reaction and necrosis against parasitic bodies containing adult and microfilariae larva, thereby confirming the diagnosis of filarial breast lump. Patient is on regular follow up for last 8 months with no recurrence.

## Discussion

Approximately 90% of filariasis cases are caused by *Wuchereria bancrofti* and majority of remainder by *Brugia malayi*. Other filarial parasites include *Brugia timori*, *Onchocerca volvulus*, *Mansonella perstans*, *Mansonella streptocerca*, *Dirofilaria immitis* and *Loa loa*. Anopheles species of mosquito are most common carriers in Africa whereas in America, it is *Culex quinquefasciatus*. *Aedes* and *Mansonia* can transmit the infection in Pacific and Asia. Bancroftian filariasis is not a zoonotic disease and adult worms are found in human beings only whereas domestic animals like cats and dogs may serve as reservoirs of infection for *Brugia malayi*.

*Wuchereria bancrofti* is the primary causative agent of lymphatic filariasis. An Adult female *Wuchereria bancrofti* is about 80-100 mm long and 0.24-0.30 mm in diameter, whereas a male is about 40 mm long and 0.1 mm in diameter. A microfilaria is about 240-300 µm long and 7.5-10

µm thick. Differentiation between both filarial species is based on the morphology of microfilariae. As compared to *Wuchereria bancrofti*, microfilariae of *Brugia malayi* are smaller, possess secondary kinks and their tail tip is not free from nuclei.

Filariasis mainly affects lymphatic system with predilection for lower limb, spermatic cord, epididymis and retroperitoneum. Infective larvae are transmitted by mosquito bites and deposition of larvae under the skin. The larvae migrate to lymphatic vessels and lymph nodes, where they develop into adult worms. The female worms produce microfilariae (as many as 50,000 per day) which circulate in the blood. Extranodal sites involvement like breast is a rare entity. Other unusual sites in which MF are reported include the thyroid, salivary gland, joint aspirates, ovarian cyst fluid, cervicovaginal smear, pericardial fluid, gastric brush, and bronchial brushings [2,5].

In breast, the larvae cause lymphangitis, fibrosis and disruption of lymphatic drainage. Usually presents as a unilateral, non tender, solitary lump in upper outer quadrant of breast. Central and periareolar regions are other less common sites. The underlying inflammation can lead to hyperemia of the overlying skin, peau d'orange and palpable axillary lymphadenopathy, thus confusing it with inflammatory carcinoma breast. Other parasitic infections which may also present as breast lump include cysticercosis and schistosomiasis [6].

Ultrasound is an important tool in diagnosis, as many times live wriggling adult worms demonstrate a continuous, distinctive pattern of movement called the 'filarial dance' [7]. Mammography of breast filariasis may show elongated and serpiginous calcification with or without lucent centers. These calcifications are located in connective tissue with no relation to the ducts. This finding differentiates them from calcifications of intraductal carcinoma [8]. The positive yield for microfilariae in blood examination is low because of their nocturnal periodicity as well as absence of microfilaremia in breast filariasis. Therefore, FNAC is always a more effective diagnostic method in such patients with mass lesions. Parasite demonstration in the smear is the most confirmatory evidence. Epithelioid cell granuloma is a commonly associated finding. Most patients respond to DEC therapy. However, in our case lump persisted even after DEC therapy due to which excision biopsy was done. Histopathology confirmed the diagnosis by showing presence of eosinophilic granulomatous reaction around the filarial parasites.

## Conclusion

Filarial lump in breast is an uncommon condition and many a times poses a diagnostic dilemma. Along with associated inflammatory changes, it commonly resembles inflammatory carcinoma breast and is therefore a cause of concern. Hence, clinicians should keep filariasis in mind as a remote but possible etiology for breast lump. This will help in prompt and accurate diagnosis of such rare cases and will avoid any unnecessary delay or mismanagement.

## Key Messages

- Breast being an extra-nodal site is a rare site for occurrence of filariasis and only few cases have been reported till now.
- Usually presents as solitary, non tender lump in upper outer quadrant which may mimic malignancy.
- Fine Needle Aspiration Cytology (FNAC) is the investigation of choice in these patients as positive yield for microfilariae in blood examination is very low.
- In endemic areas, it should always be kept in mind as a remote but possible differential for breast lump to avoid any diagnostic dilemma or mismanagement.

## References

1. Rosen PP. Specific infections. In: Rosen PP. Breast Pathology. 2<sup>nd</sup> ed. Philadelphia: Lippincott Williams and Wilkins. 2001; 65-75.
2. Kapila K, Verma K. Diagnosis of parasites in fine needle aspirates. Acta Cytol. 1996; 40: 653-656.
3. Alkadhi H, Garzoli E. Calcified filariasis of the breasts. N Engl J Med. 2005; 352.
4. Hippargi SB, Kittur SK, Yelikar BR. Filariasis of the breast, diagnosed on fine needle aspiration cytology. J Cytol. 2007; 24:103-104.
5. Sodhani P, Nayar M. Microfilaria in a thyroid aspirate smear: An incidental finding. Acta Cytol. 1989; 33: 942-943.
6. Sahai K, Kapila K, Verma K. Parasites in fine needle breast aspirates- assessment of host tissue response. Postgrad Med J. 2002; 78: 165-167.
7. Amaral F, Dreyer G, Figueredo-Silva J, Noroes J, Cavalcanti A, et al. Adult worms detected by ultrasonography in human bancroftian filariasis. Am J Trop Med Hyg. 1994; 50: 753-757.
8. Friedman PD, Kalisher L. Case 43: Filariases. Radiology. 2002; 222: 515-517.