Adult filarial worm in the tissue section of a breast lump

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Abstract Filariasis is a global health hazard. Incidence of filariasis is remarkably high in Indian subcontinent. Apart from typical cases it is not common to find microfilaria and adult worm in tissue section and needle aspiration of the breast lump. Presence of microfilaria and adult worm in the breast is a rare finding. We report a case of filarial nodule in the breast of a 40-year-old woman who presented with a painless mass in the breast since last 1 month. It was diagnosed as fibroadenoma breast. Fine needle aspiration cytology showed mainly chronic inflammatory cells. The nodule was excised in toto and processed for histopathological examination. Histopathology confirmed the adult worm with granuloma in the breast nodule.

Keywords Filarial nodule · Granuloma · Breast

Introduction

Filariasis is a serious socioeconomic and public health problem in the world. Usually the term “Filariasis” refers to lymphatic filariasis (LF) caused by *Wuchereria bancrofti* (*W. bancrofti*) and *Brugia* species. As on December 2006 the total population at risk of LF was estimated to be 1,254 million in 83 endemic countries of which 64% was contributed by South-East Asia Region (SEAR) alone. In India it is estimated 554.2 million population are at risk of LF infection in 243 implementation units (district) [1]. The endemic areas are mainly the sea coast and the banks of large rivers. There are many heavily infected areas in Orissa. Filariasis in India is caused by two closely related nematode worms. *W. bancrofti* and *Brugia malayi* [2]. The disease mainly involves lymphatic system of the body. Although the incident is high in Indian subcontinent, yet it is unusual to find microfilaria (MF) and adult worm in breast nodule and few such cases have been documented [3–5]. We report an unusual case of adult filarial worm with granuloma in a breast nodule. Therefore LF must be kept in mind while dealing a breast lump.

Case report

A 40-year-old female presented with peanut sized nodule in the subareolar region of the left breast of 1 month duration. She did not experience pain but noticed that it was increasing in size. Clinical examination revealed a small mobile nodule measuring $3 \times 2 \times 1$ cm. There was no axillary lymphadenopathy. Systemic examination revealed no abnormalities. Clinically it was diagnosed as fibroadenoma breast. Fine needle aspiration cytology of the breast nodule showed mainly chronic inflammatory cells. The nodule was excised in toto. The excised nodule was received for histopathological examination.

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Gross examination

A single tissue piece of size $3 \times 2 \times 1$ cm, soft to firm in consistency, cut surface was yellowish white in colour.

Microscopic examination

Revealed an adult worm cut in several planes, surrounded by dense inflammatory cell infiltrate consisting of lymphocytes, eosinophils, histiocytes and plasma cells (Fig. 1). Cross section of this worm showed paired tubular structures containing small round bodies (uterus) and an empty tubular structure (intestine). The surrounding breast tissue was unremarkable. It was reported as Filarial granuloma of breast.

Discussion

The World Health Organization (WHO) estimated in 1994, the number of person suffering from bancroftian filariasis worldwide is approximately 106.2 million. Of these, 45.5 million were found in India [6]. Filariasis is transmitted by culex mosquito. There are eight filarial species causing infection in man. Infection with any of these filarial worms may be called *Filariasis* but traditionally the term filariasis refers to LF caused by *W. bancrofti* or *Brugia* sps [6]. *W. bancrofti* accounts for about 90% of all filariasis cases in the world followed by *B. malayi* and *B. timori*. Lymphatic filariasis so called because the adult worm live in the lymphatic system of the definitive host and microfilaria is released and circulated in the peripheral blood. Most frequently involved lymphatics are those of lower limbs retroperitoneal tissue, spermatic cord, epididymis and mammary gland.

Diagnosis of filariasis is usually made by finding MF in peripheral blood or skin and detection of filarial antigen

and antibody. Adult worms can be detected in lymphatics, subcutaneous tissue, peritoneal and pleural cavities, heart, brain, scrotum and breast. The diagnosis is made on clinical grounds in the endemic areas. Despite of large number of people affected worldwide, it is quite unusual to find MF or adult worm in breast lump and few such cases have been documented in literature [3–5, 7]. It is frequently caused by *W. bancrofti*. The patients usually present with solitary, non-tender, painless and unilateral breast lump. Multiple lesions are uncommon. The upper outer quadrant is the most common site. But central or periareolar nodules are rare [7]. Most of the lesions involve subcutaneous tissue and present as a hard mass with cutaneous attachment. Sometimes accompanying inflammatory changes including oedema of the skin makes it clinically indistinguishable from carcinoma [8].

The diagnosis of mammary involvement by *W. bancrofti* is dependant on the specific microscopic features of the adult worms and MF [9]. In the present case, MF was not detected in blood smear. Only histopathology confirmed the presence of adult worm with a prominent granulomatous inflammatory reaction around it.

In India filarial infection of the breast is very rare. It is common in some endemic areas like China and Sri Lanka [5]. Rourkela is an area of low transmission zone for filariasis. But it is having cosmopolitan population with industrial background. Hence LF must be kept in mind while dealing a case of breast lump in this area.

The condition may responds to diethylcarbamazepine therapy, which in many instances may lead to complete dissolution of the lump. This case is interesting one as clinically it was suspected to have fibroadenoma of the breast, but the biopsy revealed filarial granuloma of the breast alongwith the adult filarial worm.

Conflict of interest The authors do not have any disclosable interest

Fig. 1 Photomicrograph showing transverse section of adult filarial worm with granuloma (H&E, $\times 400$)

References

1. Weekly epidemiological record. (2007) Geneva: World Health Organization 82(42):361–380
2. Park KP. Textbook of preventive and social medicine. 18th ed. Jabalpur, 211–216
3. Kapila K, Verma K (1996) Diagnostics of parasites in fine needle aspirates. Acta Cytol 40:653–656
4. Rukmangandha N, Shanti V, Kiran CM, Nalini PK, Sarella JB (2006) Breast filariasis by fine needle aspiration cytology – a case report. Indian J Pathol Microbiol 49:243–244
5. Patrikar A, Maimoon S, Mahore S (2007) Filarial granuloma in breast. Indian J Pathol Microbiol 51:85–86
6. David TJ, William AP Jr (2006) Medical Parasitology, 9th ed. pp 274–275
7. Pant I, Singh PN, Singh SN (2003) Filariasis of breast – a report of two cases, an unusual site to be involved. J Cytol 20: 206–207

8. Hippargi SB, Kittur SK, Yelikar BR (2007) Filariasis of the breast, diagnosed on fine needle aspiration cytology. *J Cytol* 24:103–104
9. Yuechan C, Qun X (1981) Filarial granuloma of female breast – a histopathological study of 131 cases. *Am J Trop Med Hyg* 30:1206–1210