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Filarial Infection Presenting as a Breast Nodule: A Rare Case with Diagnostic Role of FNAC

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INTRODUCTION

Filariasis is very frequently encountered in the Asian, African and some of the South American countries[1]. It is a major public health problem in India and inspite of existence of the National Filaria Control Programme since 1955, in the year 2005 there were approximately up to 31 million microfilaraemics, 23 million cases of symptomatic filariasis and about 473 million individuals potentially at risk of infection[2].

The disease is caused by the nematode worm, either Wuchereria bancrofti or Brugia malayi and transmitted by ubiquitous mosquito species Culex quinquefasciatus and Mansonia annulifera/M.uniformis respectively[3]. Chronic filariasis presents with swelling of legs, hands, scrotum, labia or breast[4].

Case Report A 32 year female from Satna District presented to the surgery OPD of SSMC, Rewa with the history of lump in the right breast since 1 month. The patient was then advised for routine hematological investigations, USG and FNAC. Blood findings were within normal limits except for anemia and thrombocytosis, no eosinophilia and no hemoparasite seen in the peripheral blood smear examination. On ultrasound examination, a hypoechoic, cystic focus, with well defined margins seen at 10'o clock position in right breast. The fluid has dense echos and the lesion measures around 13x8 mm which was suggestive of abscess. The patient then came to the Department of Pathology, SSMC, Rewa for the procedure of FNAC. On detailed history, she revealed she had a lump in right breast since one month which was gradually increasing in size, associated with itching and not associated with pain. There was no history of fever, anorexia, loss of weight or any discharge from nipple.

On examination, a well defined lump of size 1.5x1 cm present on the upper outer quadrant of right breast which was firm, non tender, mobile, not fixed to superficial skin and deep structures. The nipple areolar complex was normal appearing, no skin changes (peau d'orange) were seen during examination. The axillary lymph nodes were not palpable on ipsilateral and contralateral side. The contralateral breast and nipple areolar complex was normal on examination. The consent was taken and FNAC was performed with all aseptic precautions. A 22 gauge needle was used for aspiration, attached with 20 ml syringe using a plunger. 4 slides were prepared, fixed in isopropyl alcohol and were stained with H and E stain.

On microscopic examination-H and E stained smears revealed benign ductal epithelial cells and myoepithelial cells along with few multinucleated giant cells and macrophages. Focal collection of elongated parasites seen with clear space, free from nuclei at the caudal end (microfilaria-Wuchereria bancrofti). Background reveals plenty of neutrophils along with eosinophils and macrophages (Fig 1-3).

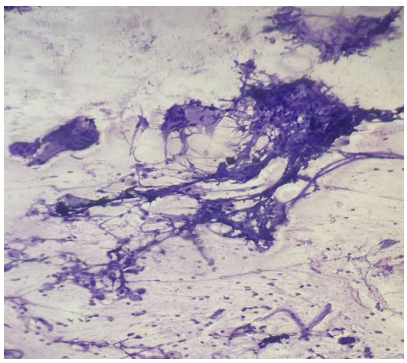

Fig. 1: Low power view of aspirate showing many microfilaria along with giant cell and granuloma (H and E Stain, 10x)

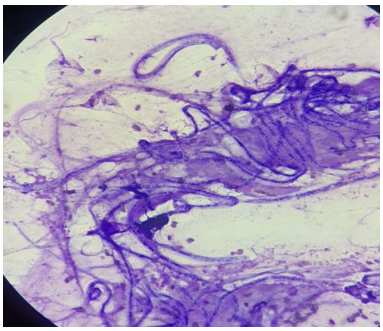

Fig. 2: High power view of aspirate showing numerous microfilaria with nuclei. (H and E Stain, 40x)

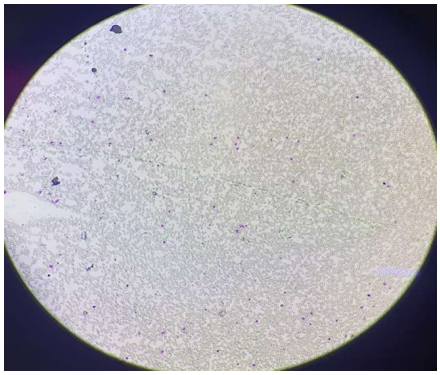

Fig. 3: Peripheral blood smear showing no hemoparasite. (Leishman Stain, 10x)

DISCUSSIONS

Filariasis is a parasitic disease caused by thread-like nematode worms known as filarial parasites. It is a major public health problem in the various districts of Madhya Pradesh. Filariasis is endemic in Rewa and Satna, indicating a consistent presence of the disease in these regions[5]. Insects, predominantly mosquitoes, act as the intermediate host. During a blood meal the insect takes in microfilariae (MF). Over a span of 2-3 weeks the microfilariae undergo development within the insect, transforming into infective third-stage larvae. These larvae return to the definitive human host during the insect's subsequent feeding. Within the human host, the larvae mature into adult worms, living for 10-15 years and producing microfilariae[6].

The clinical manifestations of lymphatic filariasis may vary from one endemic area to another. Generally, the most common clinical form of the disease is hydrocele, with lymphoedema and elephantiasis occurs less commonly[7]. Female breast is

an unusual site for the occurrence of filarial nodule and few such cases have been documented in literature[8]. Most of the previous literatures also revealed an incidental diagnosis of microfilariae in cytology smears of different locations including thyroid, soft tissue, lymph nodes, salivary glands, effusion fluids,lower limbs, retroperitoneal tissues, spermatic cord and epididymis[9,10].

The most common site is the upper outer quadrant of the breast[11] and most of the lesions manifest as subcutaneous hard mass nodule with cutaneous attachment[6]. Involvement of the female breast occurs when the larvae migrate to lymphatic vessels, causing local granulomatous inflammation in adjacent tissues. Gradually, the lymphatic vessels are replaced by fibrosis, leading to disruption of local lymphatic drainage. As a result, patients may present with an ill-defined painless breast lump, which has been referred to as filarial granuloma. Sometimes accompanying inflammatory changes in overlying skin including edema of the skin (Peau d' orange) and enlargement of axillary lymph nodes make it clinically indistinguishable from carcinoma. In our case, we found the lesion at the upper outer quadrant of the right breast but without skin attachment and any evidence of microfilaria in blood. After undergoing a three-week treatment with diethylcarbamazine (DEC), her lesion exhibited rapid reduction within few weeks and ultimately resolved entirely within a month.

CONCLUSION

A nodule in breast due to filarial etiology is rare. Fine Needle Aspiration Cytology (FNAC) proves highly effective in diagnosing filarial breast lesions, playing a crucial role in preventing unnecessary surgical procedures. In regions like India, where filariasis is endemic, it should be considered as one of the differential diagnosis in the breast lump cases.

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