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Pathology

Microfilaria in Cytological Smear at Unusual Sites in Clinically Unsuspected Cases: A Series of Five Case Presentations of Filariasis

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Abstract **Original Research Article**

Filariasis is a major public health problem especially in tropical countries like India. The disease is conventionally examined in peripheral blood smears. Fine-needle aspiration cytology (FNAC) is not routinely used for its identification. It has usually been detected incidentally, while performing FNACs for evaluation of other lesions. The disease might be missed if we are unaware of the possibility, especially in the absence of eosinophilia. We have also found microfilaria in cytological smears incidentally. Here we report a series of 5 cases at unusual sites.

Keywords: Fine-needle aspiration cytology, incidental findings, microfilaria.

INTRODUCTION

Filariasis is a major health problem in India and India alone accounts for 40% of the world disease burden.[1] Odisha is among the 9 Indian states which are endemic for the disease [1]. The disease usually involves lymphatics and is also detected in blood. Despite high incidence of filariasis in India, detection of microfilaria in FNAC is rare. Here is a case series of five such presentations. Filariasis is caused by nematodes that inhabit the lymphatic vessel and lymph node of human. Majority of the disease is caused by Wuchereria bancrofti (90%) and the others being Brugia malayi and Brugia timari. Different serological methods of detection of microfilaria are available but still the gold standard is direct demonstration of the microfilaria in the smear.

Case-1

A 16 year old male patient, presented with painless nodular lesion, of size 0.5 x 0.3 x 0.2 cm over the dorsum of penis since one month. There was no history of fever, weight loss or lymphadenopathy. Cytology revealed plenty of polymorphs, fibroblasts and parasite (larval form) (Fig-1).

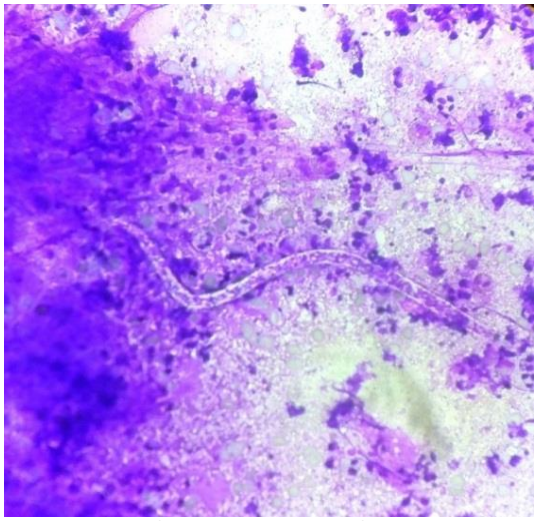

Fig-1: Cytosmears from nodule dorsum of penis showing larval form along with plenty of polymorphs and fibroblasts (Diff Quik 100X)

Case-2

A 25 year old female presented with a right breast lump with a clinical diagnosis of fibroadenoma. The lump was found to be cystic. 2ml staw colored fluid aspirated and the swelling reduced. The lump was nontender and there was no history of fever and lymphadenopathy. Cytology revealed many microfilaria along with few benign looking duct epithelial cells showing apocrine change in a background of cyst macrophages (Fig-2).

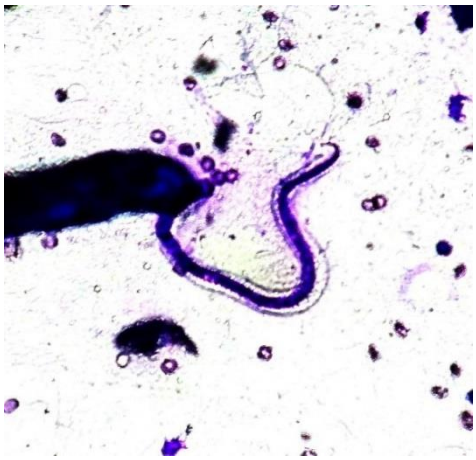

Fig-2: Cytosmears from right breast lump showing microfilaria (Diff Quik, 400X)

Case-3

A 23 year old male patient presented with a painless swelling, of size 1.5 x 1.0 x 0.5 cm on inner aspect of right arm since 6 months. The swelling was nontender and was not associated with fever or lymphadenopathy. Cytology revealed several microfilaria (Fig-3a, b).

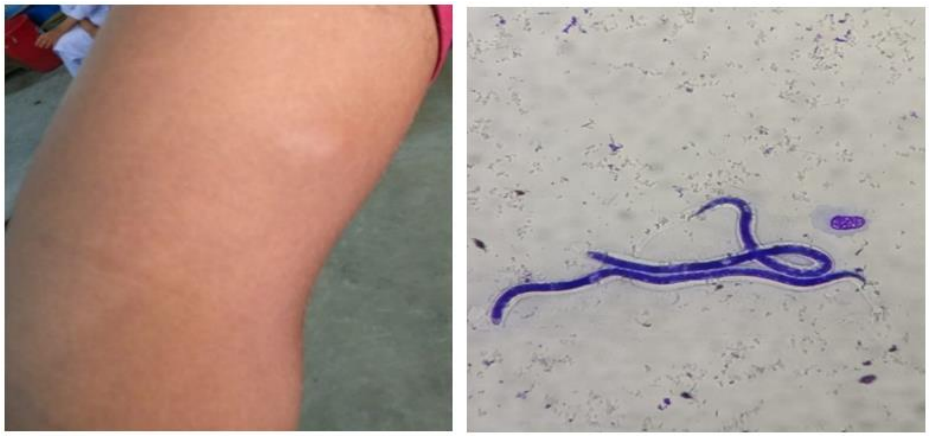

Fig-3(a): Subcutaneous swelling forearm microfilaria along with, (b): Cytosmears showing cyst macrophages (Diff Quick, 400X)

Case-4

A 34 year old female presented with right breast lump, of size 1.5 x 1.0 x 1.0 cm, with a clinical diagnosis of fibroadenoma. The lump was nontender and was not associated with fever or lymphadenopathy. Cytology revealed benign duct epithelial cells along with microfilaria in a background of cyst macrophages (Fig-4a). The biopsy of the above case was also received in our department which also detected microfilaria (Fig-4b)

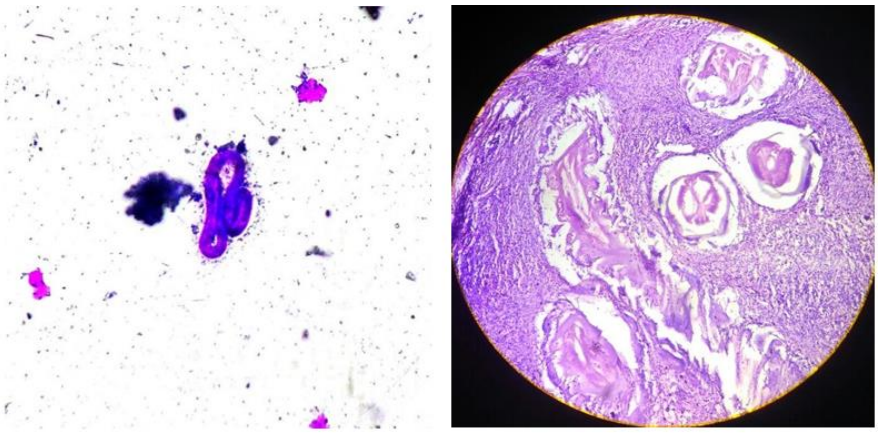

Fig-4(a): Cytosmears from right breast showing benign duct epithelial cells along with microfilaria in a background of cyst macrophages (Diff quik, 400X); (b) Histopathology showing microfilaria (H&E, 100X)

Case-5

A 24 year old female presented with right breast lump measuring 2 cm in diameter for the past one year. There was no history of fever and lymphadenopathy. The nature of the aspirate was straw colored fluid. Cytology revealed microfilaria in a background of lymphocytes and macrophages (Fig-5).

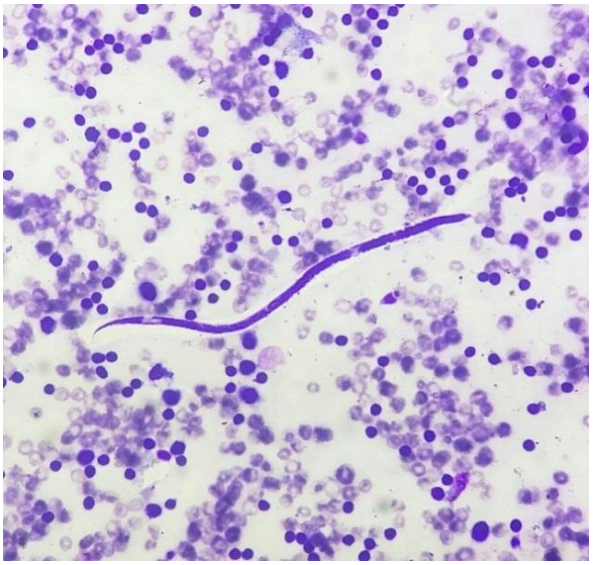

Fig-5: Cytosmears from right breast lump showing microfilaria in a background of lymphocytes and macrophages (Diff Quik, 100X)

DISCUSSION

Microfilaria is a public health problem in tropical region of south east Asia including Indian subcontinent [1]. It is caused by the nematode *W. bancrofti, Brugia malayi, Brugia tumori* and transmitted through bite of *Culex* mosquitoes [1]. The Adult worms are found in the lymphatic vessels and lymph nodes of human beings only, where blockage and host reaction can result in lymphatic inflammation and dysfunction, and eventually in lymphedema and fibrosis, whereas larval forms (microfilaria) may circulate in the peripheral blood. Others mature in the skin and subcutaneous tissues, where they induce nodule formation and dermatitis, migrating filariae of these species can cause ocular damage. A significant number of infected individuals in endemic areas remain asymptomatic throughout their life. As, Microfilaria displays nocturnal periodicity, three consecutive night blood samples are commonly used for its detection but considered less sensitive for its diagnosis. Other methods being circulating filarial antigen (CFA) detection test, which is regarded as the gold standard now. FNAC are not applied for routine diagnosis of clinically suspected filariasis. Incidental detection on FNAC has been reported in cytological smears previously [2, 3]. Khare P *et al*., found microfilaria in FNAC of superficial lesions like lymph nodes, swelling at testiculo – scrotal region, thyroid swelling, soft tissue swelling and breast lumps [2]. Sinha R *et al*., reported a case of microfilaria found incidentally by ultrasound guided FNAC in case of carcinoma gall bladder [3]. Gupta *et al*., reported six cases where microfilaria were found in body fluids cytology and FNAC smears in association with tubercular pleural effusion/lymphadenitis, pregnancy and non Hodgkin's lymphoma [4]. Our incidental findings of microfilariae in superficial locations by FNAC were also not anticipated clinically.

In one of our cases, there was superficial swelling on the flexor surface of arm with a provisional diagnosis of lipoma or neurofibroma. Blood eosinophil counts within normal range, as observed in our case, were reported as well by Rawat *et al*. and Varghese *et al*., [5, 6]. Benign lesion sites where microfilaria has been reported are breast, testis, epididymis, thyroid, lung, lymph nodes, skin, bone marrow, subcutaneous nodule, etc [2, 3, 7]. In our cases we found microfilaria in breast, penis and skin. FNAC plays an important diagnostic role in clinically palpable lesions. Filariasis is more often an incidental finding rather than being a primary diagnosis [7]. There is very low detection rate of microfilaria in superficial swellings, with the absence of eosinophilia. Peripheral blood smears and histopathological examination may not always demonstrate microfilaria. Microfilariae may not be seen in peripheral blood due to elephantiasis, lymphangitis, early stages of allergic manifestations, and in occult filariasis [8].

CONCLUSION

In our opinion, the present series of cases were incidental findings in the absence of any clinical suspicion. Diagnosis of filariasis should be highly suspected, especially when eosinophil count is normal and there is an absence of microfilaria in peripheral blood. Careful screening of cytological smear can provide definitive diagnosis of early, asymptomatic, and clinically unsuspected cases of filariasis, Therefore FNAC can be helpful for the diagnosis of filariasis, even in the absence of clinical features of filariasis.

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