Coexistence of microfilaria with metastatic adenocarcinomatous deposit from breast in axillary lymph node cytology: A rare association

ABSTRACT

Filariasis is a global social health problem of tropical and subtropical countries like India. *W. bancrofti* accounts for 95% of cases of lymphatic filariasis. Microfilaria in cytosmears are a rare finding. We report a case of 55 year old female presented with right axillary swelling with ipsilateral breast lump. Cytosmears from the lymph node aspirate showed metastatic adenocarcinomatous deposits and a bunch of microfilariae surrounding the tumor cells and the aspirate from the breast shows ductal carcinoma. We report an additional case of a rare association of microfilaria co-existing with carcinomatous deposit in the lymph node.

Key words: Cytology; metastatic adenocarcinoma; microfilaria

Introduction

Filariasis is a major public health problem in tropical and subtropical countries such as India, China, Indonesia, Africa, and the Far East.[1] Despite its high incidence, it is infrequent to find microfilaria in fine-needle aspiration cytology (FNAC) smears and body fluids. The diagnosis is conventionally made by demonstrating microfilariae in peripheral blood smears. However, microfilariae have been coincidentally detected in FNAC in association with various inflammatory and neoplastic lesions in clinically unsuspected cases of filariasis with absence of microfilariae in the peripheral blood.[2-5] Although coexistence of microfilaria with carcinoma breast have been reported, we report the first case of coexistence of microfilaria with secondary deposits from ductal carcinoma of the breast in FNAC of axillary lymph node.

Case Report

A 55-year-old female presented to the surgical outpatient department with a right axillary swelling since 2 months. On examination, there was a soft-to-firm, mobile, nontender lump in the right upper outer quadrant of the breast approximately 3 x 3 cm in size. No history of nipple discharge was present. There was associated ipsilateral axillary lymphadenopathy of size 2 x 2 cm. Aspiration was done from both the sites, which yielded hemorrhagic aspirate. Smears were stained with May-Grunwald/Giemsa (MCG) and hematoxylin and eosin (H and E). Microscopic examination of the aspirate from both the sites showed cellular smears with malignant epithelial cells in clusters,
Acinar pattern, sheets, and scattered discretely. The tumor cells were pleomorphic with high nuclear–cytoplasmic ratio, irregular nuclear outline, coarse chromatin, with conspicuous one to two nucleoli. However, the lymph node aspirate showed sheathed microfilariae along with tumor cells [Figure 1a and b]. *Wuchereria bancrofti* was identified by the presence of hyaline sheath, multiple coarse, discrete nuclei extending from the head to tail and the tail tip free of nuclei [Figure 1b]. Peripheral smear prepared from the midnight sample revealed eosinophilia but no microfilaria.

**Discussion**

Filariasis is a global health problem with 1.3 billion people living in areas where the disease is endemic. It is caused by three closely related nematodes, namely *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*, among which *W. bancrofti* accounts for 95% of the cases of lymphatic filariasis. Heavily infected areas in India are Uttar Pradesh, Bihar, Jharkhand, Andhra Pradesh, Odisha, Tamil Nadu, Kerala, and Gujarat. [1]

Despite its high incidence it is infrequent to find microfilaria in FNAC smears and body fluids. The diagnosis is conventionally made by demonstrating microfilariae in peripheral blood smear. However, microfilariae have been coincidentally detected in FNAC in association with various inflammatory and neoplastic lesions in clinically unsuspected cases of filariasis with absence of microfilariae in the peripheral blood. [2-5] Although coexistence of microfilaria with carcinoma breast have been reported, we report the first case of coexistence microfilaria with secondary deposits from ductal carcinoma of breast in FNAC of axillary lymph node.

Lymphatic filariasis may manifest as acute, chronic, and asymptomatic disease. Eosinophilia and microfilaremia are common in acute phase. [1] The chronic stage of bancroftian filariasis is characterized by lymphadenopathy, lymphedema, hydrocele, and elephantiasis, and is caused by lymphatic blockage. A significant number of infected individuals in endemic areas remain asymptomatic throughout their life. They serve as an important source of infection in the community. FNAC is valuable in the detection of asymptomatic and clinically unsuspected cases of filariasis. In the study done by Walter *et al.*, an initial diagnosis of filariasis was made from the cytological smear in all 35 cases; none had clinical filariasis. [6] There are few cases of microfilaria at unusual sites such as lymph node, breast lump, thyroid masses, bone marrow, bronchial aspirate, nipple secretion, pleural fluid, pericardial fluid, ovarian cyst fluid, and cervicovaginal smears in the literature. [7]

The presence of microfilariae along with neoplasms is speculated to be a chance association. [8] It is very unusual to find microfilaria in metastatic lymph nodes. [9] We have found only few case reports of microfilaria along with secondary deposits. [8] This may be due to transmigration of microfilaria along with metastatic tumor emboli or because lymph nodes are the normal habitation for the filarial organisms. Because these parasites circulate in the vascular and lymphatic systems, their appearance in tissue fluids and exfoliated surface material would possibly occur under conditions of lymphatic obstruction by scars or tumors and damage due to inflammation, trauma, or stasis. In neoplasms, the rich vascularity could possibly encourage the concentration of parasite at that site. [3] Their presence can also be explained by the fact that larvae may be present in the vasculature, and during aspiration, rupture of vessels may result in hemorrhage and release of microfilariae. [10] Microfilariae have been reported in association with neoplastic lesions such as squamous cell carcinoma of maxillary antrum, carcinoma of the pharynx, follicular carcinoma of thyroid, carcinoma of the breast, carcinoma of the pancreas, squamous cell, and undifferentiated carcinoma of the uterine cervix, Ewing’s sarcoma of the bone, fibromyxoma, lymphangiosarcoma, transitional cell carcinoma of bladder, metastatic melanoma to the bladder, seminoma of undescended testis, leukemia, non-Hodgkin lymphoma, anaplastic astrocytoma of the thalamus, intracranial hemangioblastoma, meningioma, and craniopharyngioma. [9]

**Conclusion**

To conclude, filariasis may be incidentally detected in FNAC smears in clinically unsuspected cases with absence of microfilaria in peripheral blood. The present case emphasizes that careful screening of cytology smears can detect microfilaria even in asymptomatic patients, especially in endemic areas to prevent disabling complications of the disease.
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Conflicts of interest
There are no conflicts of interest.

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