

## Case Report

# Microfilaria Infection in Metastatic Node in a Case of Breast Carcinoma

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ABSTRACT

Filariasis is a major public health problem in tropical and subtropical countries such as India. It is caused by nematodes, principally *Wuchereria bancrofti* and *Brugia malayi* and is transmitted by the Culex mosquito. *W.bancrofti* accounts for 90% of cases of lymphatic filariasis. Filaria of the breast with axillary lymphadenopathy and lymphedema, mimicking breast carcinoma has been previously reported. Microfilariae have also been previously observed as coincidental findings with various inflammatory and neoplastic lesions. Few examples are hemangiomas of the liver, meningiomas, intracranial hemangioblastomas, uterine cervix, pharyngeal, urinary bladder, preputial and metastatic carcinomas, melanomas, and leukemia. Here, we report an unusual case of filarial infection of a metastatic axillary node in a case of invasive breast carcinoma, observed in a modified radical mastectomy specimen. Previous cases reported in literature have reported microfilaria in metastatic axillary node detected on cytology specimens; histological diagnosis, though reported, is rare.

**KEYWORDS:** Breast carcinoma and microfilaria, microfilaria, microfilaria coexistent with metastatic node

## INTRODUCTION

Filariasis is a major public health problem of our country, with *Wuchereria bancrofti* responsible for 90% of cases of lymphatic filariasis.<sup>[1]</sup> Detection of microfilaria in peripheral blood is almost an everyday event in this part of the world, but microfilaria in a node simultaneously showing metastasis from invasive breast carcinoma in a mastectomy specimen is a rare finding. Filaria of the breast with axillary lymphadenopathy and lymphedema, mimicking breast carcinoma has been previously reported.<sup>[2]</sup> Microfilariae have also been previously observed as coincidental findings of various neoplastic conditions.<sup>[3]</sup> Also, cytological evidence of lymphatic filariasis coexistent with breast carcinoma has been previously documented,<sup>[4]</sup> but histologically confirmed reports are still rare.

In our case, we believe lymphatic blockage by metastatic deposit prevented the filarial worm from escaping the node via efferent lymphatics. As such, these infections are mostly asymptomatic and are only rare coincidental findings. But in a metastatic node, the possibility of filarial infection cannot be overlooked.

## CASE REPORT

A 48-year-old woman, resident of Jharkhand, an endemic area, visited the Surgical Oncology OPD of SGCC and RI with complaints of a painless rapidly increasing breast lump in the lower and inner quadrant of the right breast. Clinical examination revealed a 4 cm × 4 cm, firm, fixed mass with unremarkable overlying skin. She had undergone fine-needle aspiration cytology outside which was reported as suspicious of malignancy. Along with general workup, she was advised trucut biopsy. Her routine examinations were largely unremarkable with eosinophil percentage in peripheral blood being 4%. Histopathological examination of the trucut biopsy revealed invasive carcinoma of no special type. The patient underwent modified radical mastectomy (MRM). Gross examination showed a white solid growth, measuring 4.5 cm × 3.5 cm × 3 cm. Multiple axillary lymph nodes were dissected, the largest one measuring

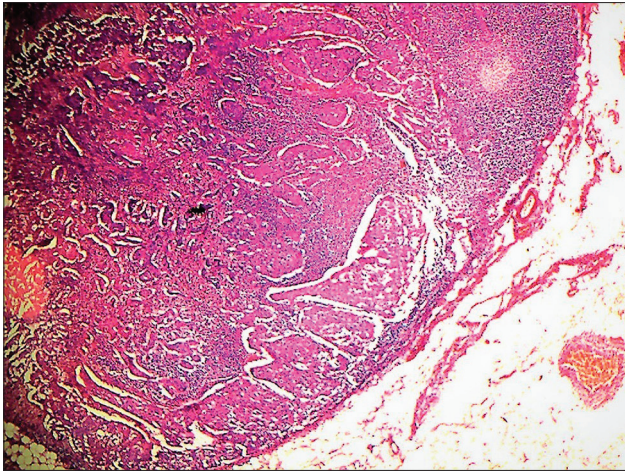
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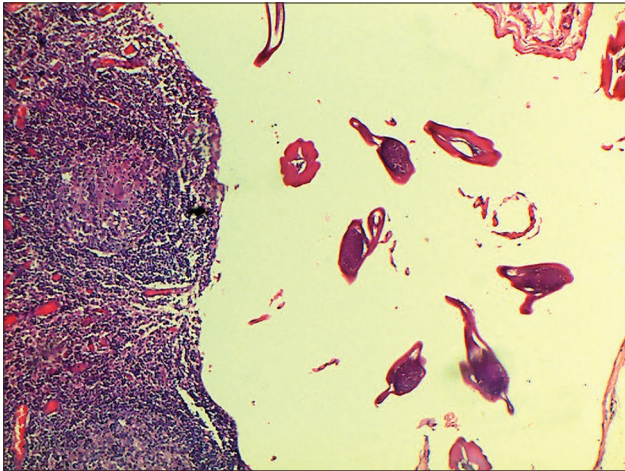
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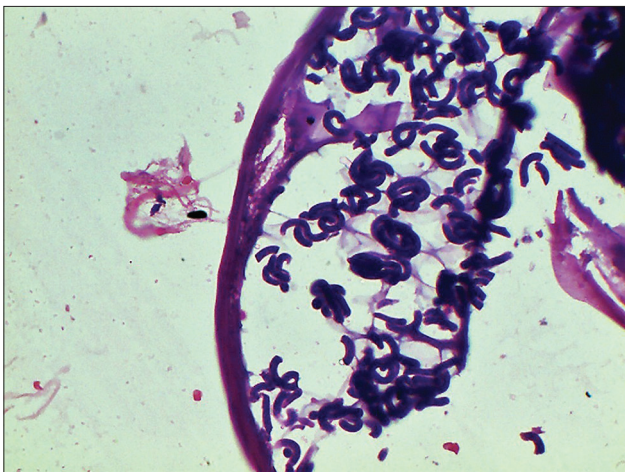
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**Figure 1:** Photomicrograph showing metastatic deposit of invasive mammary carcinoma in axillary node (H and E, ×4)



**Figure 2:** Photomicrograph showing subcapsular space of axillary node containing adult filarial worm (H and E, ×10)



**Figure 3:** Photomicrograph showing female worm with gravid uterus filled with coiled microfilariae within a distended lymphatic channel (H and E, ×40)

1.5 cm in diameter. A histopathological diagnosis of invasive carcinoma of no special type, Modified

Bloom–Richardson Grade 3 (3+3+3= 9) was rendered. Of 25 right axillary lymph nodes, 7 showed metastatic deposit. One of the metastatic axillary nodes [Figure 1] also showed dilated subcapsular space harboring a parasitic organism resembling an adult filarial worm. Cross-section of the tail-piece with microfilaments was clear. Outer eosinophilic cuticle with underlying hypodermis and nuclei of developing morules were identified [Figure 2]. The adjacent soft tissue contained a distended lymphatic channel within which a female worm with gravid uterus filled with coiled microfilariae was observed [Figure 3]. There was sparse surrounding inflammatory infiltrate. Tissue eosinophilia was not present.

Serial peripheral blood smears taken under strict conditions were examined but did not elicit microfilariae. Chest X-ray was also unremarkable.

A final diagnosis of invasive carcinoma of no special type, Grade 3, Stage pT2N2aMx with filarial infestation of metastatic node was rendered. Hormone receptor status was estrogen receptor positive (Score 8) and Her2neu positive (Score 3+).

The patient was started on antifilarial therapy (diethylcarbamazine). She is now on adjuvant hormone therapy and is doing well at present, with no complaint of relapse.

## DISCUSSION

Filariasis can manifest as a spectrum of diseases, which include asymptomatic microfilaremia, acute and chronic lymphangitis and lymphadenitis, disfiguring edema of limbs and genitalia, and tropical pulmonary eosinophilia.<sup>[5]</sup> Microfilariae have been identified cytologically at unusual sites, such as lymph node, nipple secretions, pleural and pericardial fluids, ovarian cyst fluids, thyroid, soft tissue, bone marrow, epididymis, lung, bronchoalveolar fluid, breast, gastric brushings, cervicovaginal smears, and hydrocele fluid.<sup>[6]</sup> They have also been reported in association with various benign and malignant tumors. In some cases, it is associated with breast malignancy.<sup>[4,7]</sup> Although it is thought that coexistence of microfilariae and malignancy is co-incidental, yet some authors have suggested that such parasitic infestations may be a causative factor for tumorigenesis.<sup>[8]</sup>

Infected individuals are described as either “microfilaremic” or “amicrofilaremic,” depending on the presence or absence of microfilariae in their peripheral blood. Filariasis is diagnosed in microfilaremic cases primarily through direct observation of microfilariae in the peripheral blood. Occult filariasis is diagnosed in amicrofilaremic cases based on

clinical observations or circulating antigens in the blood. Despite the high incidence of filariasis, microfilaria is not a very common finding.

Microfilaria in a metastatic axillary node in an MRM specimen is quite rare. We feel, in our case, this was an incidental finding, and the patient, a resident of Jharkhand, which is an endemic area<sup>[1]</sup> was actually harboring a subclinical infection. Localization of the parasite in the metastatic node may be due to the transmigration of microfilaria along with metastatic tumor emboli or because lymph nodes are the normal habitat for filarial worms. As these parasites circulate in the lymphovascular systems, their appearance in tissue fluids and exfoliated surface material would possibly occur under conditions of lymphatic obstruction by scars, tumors, damage due to inflammation, trauma, or stasis. In neoplasms, the rich vascularity can also encourage the concentration of parasite at that site.<sup>[9]</sup>

The treatment of choice in lymphatic filariasis is diethylcarbamazine (6 mg/kg single dose).<sup>[10]</sup>

#### **Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

#### **Conflicts of interest**

There are no conflicts of interest.

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