

Microfilaria co-existing with anaplastic carcinoma of Thyroid- An Unusual and Rare Case Report

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Abstract

Filariasis is a major public health problem in India and microfilaria is sometimes seen during routine fine needle aspiration cytology (FNAC) smears, but it is very rare to find microfilaria coexistent with neoplastic lesions. Here we report a rare case that showed microfilaria on fine needle aspiration cytology associated with anaplastic carcinoma of thyroid gland. Microfilaria is rarely found in the thyroid gland.

Keywords: Anaplastic carcinoma, Fine needle aspiration Cytology (FNAC), Microfilaria, Thyroid gland

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Introduction: Filariasis is a common public health problem in the Southeast Asia.^[1] The disease mainly involves the lymphatic system of the body. The most frequently involved lymphatics are those of lower limbs, retroperitoneal tissues, spermatic cord, epididymis and mammary gland.^{[2],[3]}

Due to the nocturnal periodicity of species endemic in India, it is difficult to find microfilaria in blood and fine-needle aspirates despite its high incidence in this zone.^[4] There are only few reported cases

of coexistent microfilaria with neoplasm in the cytology literature.^[5] We report an interesting case of microfilaria with Thyroid gland Neoplasm to emphasize the significance of careful screening of smears in endemic areas. In our case, the finding of microfilaria in thyroid aspirate was purely coincidental as there was no suggestive clinical history.

Case Presentation: A 52-year-old lady presented with diffuse enlargement of thyroid with duration of 3 months and

difficulty in swallowing since 3 days. Ultrasound and Computed Tomography scan findings showed malignant mass lesion and multiple enlarged lymphnodes along internal jugular vein. (Level 3 and 4). Fine needle aspiration cytology was performed using 10 ml disposable syringe and a 23-gauge needle. Haematoxylin and Eosin, Giemsa and Papanicolou stains were performed which revealed microfilariae of *Wuchereria bancrofti* by hyaline sheath, length of cephalic phase and presence of somatic cells (nuclei). Higher magnification revealed microfilariae with a clear space at the cephalic and caudal ends. A diagnosis of microfilariae of *Wuchereria bancrofti* in thyroid was offered.

Smears also showed malignant cells predominantly scattered singly, in small groups, papillary fragments and interspersed with capillary and basement membrane matrix. Cells showed high pleomorphism with binucleated and multinucleated bizarre cells and high normal and abnormal mitotic activity. Few malignant cells also showed phagocytosed neutrophils (emperipolesis). Diagnosis of

Anaplastic carcinoma of thyroid with microfilaria was offered.

This diagnosis was confirmed on histopathology.

Discussion

It is estimated that approximately 600 million people are living in areas endemic for lymphatic Filariasis in Southeast Asia Region.^[1] It is transmitted by Culex mosquito and is caused by two closely related nematodes *Wuchereria Bancrofti* and *Brugia malayi* and *B.timori* that are responsible for 95% and 5% cases, respectively, of the 120 million infections worldwide. Adult worms live in the lymphatic vessels 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.^[2, 3]

Filariasis causes a spectrum of diseases including asymptomatic microfilaremia, acute lymphangitis and lymphadenitis, chronic lymphadenitis,

edema of limbs and genitalia and tropical pulmonary-eosinophilia^[6].

Despite a large number of people affected worldwide, it is quite unusual to find microfilaria in routine cytological smears. There have been reports of single or small number of cases of microfilariaemia at various sites as lymphnode, breast lump, bone marrow, bronchial aspirate, nipple secretions, pleural and pericardial fluid, ovarian cyst fluid and cervico-vaginal smears.^[5,7] Thyroid and axilla are another rare site from which microfilaria has been isolate. ^[2, 3, 5, 7, 8, 9, 10] The index case is unique that the patient presented with anaplastic carcinoma of thyroid, which showed microfilaria on FNAC.

It is well established that larval forms of *W. Bancrofti* and *B. Malayi* circulate in the body till they are picked by an intermediate host. Walter *et al.* suggested that microfilaria appears in the tissue fluid and exfoliated surface material due to lymphatic and vascular obstruction and subsequent extravasations. The finding of microfilaria in pericardial fluid, breast cyst fluid and bronchial aspirate may be

explained in this way. However, the presence of microfilaria in thyroid aspirate cannot be explained in a similar manner.

Some authors have suggested that presence of microfilaria in thyroid could be the result of lodging of the parasite in intra thyroid microvasculature and subsequent rupture. ^[5, 8] In the present case, the patient has Anaplastic carcinoma of thyroid with larvae present in microvasculature. In malignancy increased blood vasculature also causes the increase deposition of microfilaria to these sites.

A possible rupture of vessels may have led to hemorrhage and release of microfilaria in the thyroid due to malignancy. In literature there has been no data suggesting role of microfilaria in causing malignancy.

Conclusion: The presence of microfilaria in aspirate from neoplastic lesion is an incidental finding and there is no change in the clinical presentation of the tumor and that the patient might harbor subclinical filariasis when the patient developed tumor or metastasis of tumor.

To summarize filariasis may be detected in clinically unsuspected cases, so a high index of suspicion should be kept in mind and careful screening is mandatory for the search of coexisting pathology and for detecting microfilaria at unusual sites.

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