



## Microfilariae in Lymph Node Aspirate- A Case Report

Authors

**Dr Jyoti Sharma, Dr Nitin Chaudhary, Dr Sandhya Bordia**

R.N.T. Medical College

### Abstract

*Lymphatic filariasis is a major public health problem in India. It is routinely examined in night peripheral blood smears. Fine-needle aspiration cytology (FNAC) is not routinely used for its identification. It has always been detected incidentally, while doing FNACs for evaluation of other lesions. It is unusual to find microfilariae in fine needle aspiration cytology (FNAC) smears of lymph nodes in spite of very high incidence in India. In the absence of clinical features of filariasis, FNAC may help in the diagnosis of lymphatic filariasis. We present this case because of unusual occurrence of isolated lymph node filariasis (occult filariasis) without microfilaremia.*

**Keywords-** Axillary lymph node, *Microfilaria*, FNAC.

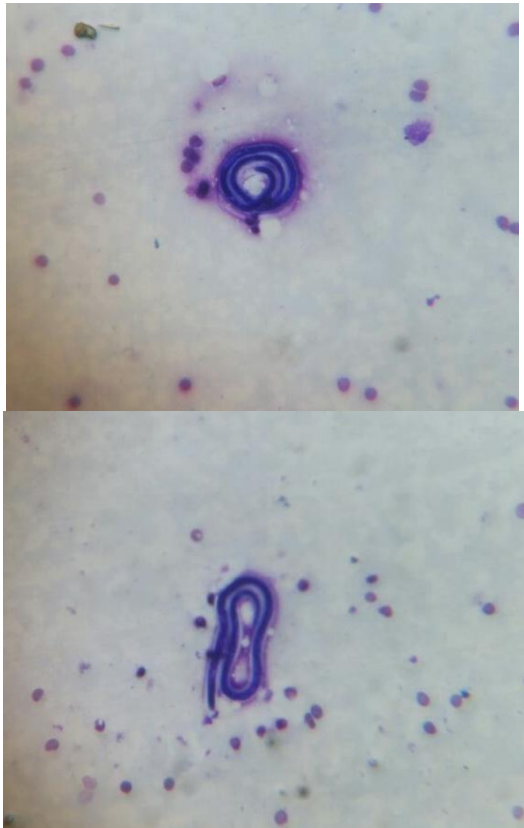
### Introduction

Filariasis is a global problem. It is largely confined to tropics and subtropics of Africa, Asia, Western Pacific and parts of the Americas, affecting over 83 countries<sup>1</sup>. The disease is endemic all over India and is caused by two closely related nematode worms, *Wuchereria bancrofti* and *Brugia malayi* transmitted by the *Culex* mosquito. The disease mainly involves the lymph node and lymphatic system of the body. Lymphatic Filariasis has been identified by the World Health Organization as a leading cause of long term disability in the world. FNA of the enlarged lymph nodes is a useful diagnostic tool to reveal parasite without microfilaremia.

### Case Report

A thirty year old male came with complaints of dry cough and multiple axillary lymph node

swellings. There was no history of fever or generalized lymphadenopathy. On examination, the lymph nodes were firm and matted. There were four groups of lymph nodes and each was 3 x 3cms. There was no local rise of temperature and skin over swelling was normal. On aspiration thick creamy white material was obtained. MGG staining was performed and smears showed scattered coiled microfilariae in a background of reactive lymphoid cells and neutrophils (Figure 1 and 2). Multiple peripheral blood samples were taken for consecutive three nights showed no evidence of microfilaria, but eosinophilia (30%) was present.



**Figure 1 and 2** showing scattered coiled microfilariae in a background of reactive lymphoid cells and neutrophils (MGG 400X)

### Discussion

Lymphatic filariasis is caused by the nematodes. Adult worms are found in the lymphatic vessels and lymph nodes of human beings only, whereas larval forms (microfilaria) may circulate in the peripheral blood. The four most common presentations are asymptomatic microfilaremia, lymphoedema, hydrocele formation and acute attacks.

The most common species found in India is *Wuchereria bancrofti*. Humans are exclusive and definitive host for *W. bancrofti*. The adult females are viviparous giving birth to larva known as microfilaria in the lymphatics of man. Species diagnosis is by the study of larval forms<sup>2</sup>.

*Wuchereria Bancrofti*, is a sheathed periodic microfilaria with tail tip free from nuclei. But in our case, the tail tip is not visualized properly as the microfilariae are coiled. The injurious effect by the larvae on the human host is in the form of lymphangitis which is the basic lesion in classic filariasis.

*Microfilaria* displays nocturnal periodicity. So, three consecutive night blood samples are commonly used for its detection but considered less sensitive tools for its diagnosis. Other methods are circulating filarial antigen (CFA) detection test, which is now regarded as the gold standard for demonstration of organism<sup>3</sup>. Limited reports are available in the literature attesting the importance of FNAC as a diagnostic tool in the diagnosis of filariasis in the early stages. FNAC are not applied for routine diagnosis of clinically suspected filariasis. Incidental detection on FNAC has been reported in cytological smears and it is the most frequently diagnosed parasite in which microfilaria is the most common form.

Microfilariae may not be seen in peripheral blood in elephantiasis, lymphangitis, early stages of allergic manifestations and in occult filariasis, hence diagnosis depends on lymph node FNAC or biopsy adjacent to the area of lymphangitis and/or by immunologic tests.

The most frequently involved lymphatics are those of lower limbs, retroperitoneal tissues, spermatic cord, epididymis, and mammary gland<sup>4</sup>. Microfilariae have been identified cytologically at unusual sites, such as axillary lymph node, nipple secretions, pleural and pericardial fluids, ovarian cyst fluids, thyroid, soft tissue, bone marrow, lung, bronchoalveolar fluid, breast, gastric brushings, cervicovaginal smears, and hydrocele fluid.<sup>5</sup>

Tropical pulmonary eosinophilia is endemic in areas with filarial endemicity. It is most commonly found in regions of the Indian subcontinent, South East Asia, South America and Africa. In India, it is mostly found around the coastal regions from Maharashtra to Kerala and West Bengal to Tamil Nadu. The respiratory symptoms are chiefly cough, breathlessness, wheezing and chest pain. Symptoms are mostly nocturnal but may also occur during the day<sup>6</sup>. Systemic symptoms include fever, weight loss, fatigue and malaise. Extrapulmonary manifestations include lymphadenopathy and hepatosplenomegaly.

Mature gravid human filarial parasites, living in the lymphatics periodically release microfilariae which are trapped within the pulmonary microcirculation. The degenerating microfilariae release their antigenic constituents which triggers an immune response<sup>7</sup>. The presence of cough, breathlessness, wheezing, peripheral eosinophilia and pulmonary infiltrates points to a hypersensitivity reaction. There is a severe eosinophilic inflammation involving the lower airways. The dual role of the eosinophil i.e. destruction of microfilariae, and lung damage by release of eosinophilic granule components gives it a central role in the pathogenesis of Tropical pulmonary eosinophilia.<sup>8</sup>

Microfilariae have been reported in association with malignant lesions as well as benign lesions. Some malignant lesions are Ewing's sarcoma of the bone, non-Hodgkin's lymphoma, squamous cell carcinoma of the maxillary antrum, craniopharyngioma of the third ventricle, transitional cell carcinoma of the bladder, follicular carcinoma of the thyroid, seminoma of undescended testis, etc. Benign lesion sites are breast, testis, epididymis, thyroid, lung, lymph nodes, skin, etc. This may be due to its transmigration along with metastatic emboli and such aberrant migration to these dead end sites is probably determined by local factors such as lymphatic blockage by tumors and damage to the vessel wall by inflammation, trauma or stasis<sup>9</sup>. It has emphasized that microfilariae wander in tissue fluid and may get entrapped in needle during aspiration. Kumar et al reported a case of microfilaria in the supraclavicular lymph node in the background of malignant cells where the primary was in the stomach<sup>10</sup>.

In conclusion, absence of microfilaria in peripheral blood does not rule out filariasis. In occult filariasis, microfilariae are found in affected tissues but not in peripheral blood. Since there has been no chemoprophylaxis or any radical cure for chronic cases, early diagnosis and treatment is the best option for filariasis and Fine Needle Aspiration Cytology has emerged as

a low cost out-patient procedure which many times helps in prompt recognition of the disease especially in unsuspected cases of filariasis. As filariasis is one of the important causes of disability careful screening of all smears and high index of suspicion, especially in endemic areas are the keys to correct diagnosis.

## References

1. Park K. Lymphatic filariasis, epidemiology of communicable diseases. In: Textbook of Preventive and Social Medicine. 22nd edition, Banarasidas Bhanot Publishers: Jabalpur; pg.245.
2. K.D.Chatterjee. Phylum nemathelminthes. In, K.D.Chatterjee (ed), Parasitology, 12th edition. Calcutta, Chatterjee medical publishers, 1980;188-98
3. Katti TV, Athanikar VS, Ananthrao AS, Rathod CV. Cytodiagnosis of microfilarial lymphadenitis coexistent with metastatic squamous cell carcinoma in a left cervical lymph node: An unusual presentation. Ann Nigerian Med 2012;6:47-9.
4. Gupta S, Sodhani P, Jain S, Kumar N. Microfilariae in association with neoplastic lesions: Report of five cases. Cytopathology 2001;12:120-6.
5. Suthar KD, Kashyap RR, Mewada BN, Suthar H. Filariasis presenting as generalised lymphadenopathy: A rare case report. Int J Med Sci Public Health 2013;2:755-6.
6. Udwardia FE. Tropical eosinophilia. In: Herzog H, editor. 7. Pulmonary eosinophilia: progress in pulmonary research, vol. VII. Basel: S. Karger; 1975. p. 35-155
7. Parsons-Smith BG. Tropical eosinophilia. Lancet 1944; 1 : 433-4.
8. Jai B. Mullerpattan, Zarir F. Udwardia & F arokh E. Udwardia; Tropical pulmonary eosinophilia - A review, Indian J Med Res 138, September 2013, pp 295-302
9. Garg PK, Jain BK, Rathi V, Singh N, Mohanty D. Mid-arm and epitrochlear

lymphadenopathy: a clinico-radiological surprise. J Infect Dev Ctries 2011;5(11): 820-4.

10. Gupta S, Gupta R, Bansal B, Singh S, Gupta K, Kudesia M. Significance of incidental detection of filariasis on aspiration smears: a case series. Diagn Cytopathol 2010;38(7):517-20.