

Case Report

Cytological detection of microfilaria in unsuspected clinical scenario

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Received: 01 January 2018

Accepted: 03 February 2018

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ABSTRACT

Filariasis is a major public health problem in tropical countries, including India. Fine needle aspiration cytology plays an important role in prompt recognition of disease. Aim was to highlight the role of fine needle aspiration cytology as a simple and cost effective tool to detect microfilarial infestation. A retrospective study of 10 cases in which fine needle aspiration cytology was done and was useful in detecting microfilaria. Patient's age were ranging from 19-62 years. M:F ratio being 7:3. Out of ten cases, maximum cases of microfilarial detection was reported in soft tissue swelling (four cases), followed by lymph node swelling (three cases), thyroid swelling (two cases) and breast swelling (one case). Careful screening of fine needle aspiration cytology smears is helpful in detecting microfilaria even in asymptomatic patients living in endemic zone which plays a significant role in recognition of disease and obviating severe manifestations of filariasis if treated in time.

Keywords: Fine needle aspiration cytology, Filarial infestation

INTRODUCTION

Filariasis is a parasitic infection caused by nematode worms *Wucheria bancrofti*, *Brugia malayi* and *Brugia timori*. Filariasis caused by *Wucheria bancrofti* and *Brugia malayi* are more common in India. Disease is transmitted in human by the infected female mosquitoes of the genera *Culex*, *Anopheles* and *Aedes*. It is a major public health problem in tropical countries, including India. According to World Health Organization, one-third of the people affected by filariasis are in India, especially in Gujarat, Uttar Pradesh, Bihar, Jharkhand, Andhra Pradesh, Orissa, Tamil Nadu and Kerala.¹ The prevalence of this disease rises due to proliferation of slums and expansion of breeding sites for mosquitoes.² The disease mainly involves the lymphatic system of the body. The most frequently involved lymphatic is those of lower limb, retroperitoneal tissue, spermatic cord, epididymis and mammary gland. Cases of microfilaria have been rarely presented at atypical sites such as soft tissue

swelling, thyroid nodule, breast lump, salivary gland and effusion fluid.²⁻⁴ We present here 10 cases encountered in our institute during the period of 2 years where microfilaria was diagnosed in fine needle aspiration cytology performed for swelling over various sites. The aim of present study is to highlight the definitive role of simple and cost effective fine needle aspiration technique for microfilaria detection in superficial soft tissue swelling, lymph node and unusual site such as breast nodule and thyroid nodule.

CASE REPORT

A retrospective analysis was conducted at Government Medical College, Department of Pathology, attached to New Civil Hospital during period of two years i.e. 2015-2016. A total of 4308 cases having superficial swelling at various sites were referred for fine needle aspiration. Detail history of all these patients was taken, patients were thoroughly examined, consent was obtained, and

aspiration was made by Martin and Ellis technique. In case of cystic swelling, cyst content was aspirated, and smears were prepared from cyst fluid after centrifugation. Residual swelling was reaspirated and smear was made. The smears were wet fixed immediately in 95% alcohol and stained by hematoxylin-eosin and Papanicolaou stain. Air dried smears were stained by May-Grünwald Giemsa stain. A total of 10 cases, with age ranging from 19 to 62 years having swelled at various sites were diagnosed as microfilarial infestation which were included in present study.

This study was conducted on ten cases of filariasis which were diagnosed on fine needle aspiration cytology from various sites. Out of total ten cases maximum cases of filariasis were reported in soft tissue swelling (four cases) followed by lymph node (three cases), thyroid swelling (two cases) and breast swelling (one case). M:F ratio being 7:3 and age ranging from 19-62 years (Table 1). Clinical presentations of these cases were variable which included pain, swelling, fever and erythema.

Table 1: Summary of microfilarial infestation at various sites.

Clinical history	Age/sex	Cytological findings and FNAC diagnosis
Soft tissue swelling		
Arm swelling (3)	1. 20Y/M	Microfilarial infestation
	2. 26Y/M	
	3. 26Y/F	
Sub auricular swelling (1)	4. 62Y/M	
Lymph node		
Cervical swelling (2)	1. 19Y/M	1. Granulomatous lymphadenitis with microfilarial infestation.
	2. 21Y/F	2. Tuberculous lesion with microfilarial infestation.
Axillary swelling (1)	3. 32Y/M	3. Microfilarial infestation.
Thyroid swelling		
Thyroid swelling (2)	1. 29Y/M	1. Benign thyroid cystic lesion with microfilarial infestation.
	2. 45Y/F	2. Benign follicular nodule (category II) with microfilarial infestation.
Breast lump		
Breast lump (1)	1. 23Y/F	1. Microfilarial infestation.



Figure: 1 FNAC smear of arm swelling showing microfilarial infestation in 40x view.

Maximum cases were reported in soft tissue where three cases were of arm swelling and one case was of sub auricular swelling. In this swelling, along with microfilaria, ill formed granuloma, few multinucleated giant cells, histiocytes, large number of polymorphs and macrophages were seen.

Total three cases of lymphnode swelling were identified. Out of which two cases were of cervical lymphnode and

one case was of axillary lymphnode. Cytological finding from lymphnode showed microfilaria along with ill formed granuloma and reactive lymphoid cell population. In another cervical lymphnode, degenerated cells with microfilaria was seen in caseous necrotic background where Zeihl Nelson stain showed presence of acid fast bacilli. As tuberculosis is very common we found this case as dual infection that is tuberculous lesion with microfilarial infestation.

Thyroid swelling was soft, non-tender and aspiration from it was brownish in color. Ultrasonography finding for both thyroid swelling was suggestive of benign cystic lesion. Cytological aspirates revealed thyroid follicular cells, hurthle cell changes, pigment laden macrophages, occasional giant cells and microfilarial infestation.

In case of breast lump swelling was soft, mobile and non-tender. Ultrasonography finding was suggestive of benign cystic lesion and cytological aspirate revealed only few scattered benign ductal epithelial cells along with microfilaria.

DISCUSSION

Filariasis is a major public health problem in tropical countries, including India. Filariasis causes a spectrum of

diseases including asymptomatic microfilaremia, acute lymphangitis and lymphadenitis, chronic lymphadenitis with swelling of the dependent limb or scrotum (elephantiasis) and tropical pulmonary eosinophilia.⁴ Filariasis is rarely present as cystic swelling in various unusual sites like breast, thyroid, salivary gland and soft tissue swelling.⁵

The parasite usually circulates in lymphatic and vascular compartment, but the presence of filarial organism in tissue fluid probably occur owing to condition causing lymphovascular obstruction resulting in extravasation of blood and release of microfilaria. Such aberrant migration to these dead-end sites is probably determined by local factor such as lymphatic blockage by scar or tumor and damage to the blood vessel wall by inflammation, trauma or stasis. Rupture of vessels may have led to release of microfilaria into subcutaneous tissue and surrounding host tissue reaction probably led to development of a well deformed cystic swelling containing microfilaria. Epithelioid granuloma, giant cells and mixed inflammatory cells may be the result of host tissue response.⁶

In our study maximum numbers of cases were reported as soft tissue swelling such as arm swelling (three cases) and one case at sub auricular site. Tandon et al, Srikanth et al and Panicker et al have reported microfilaria in fine needle aspiration cytology of arm cyst, forearm swelling.⁶⁻⁸

In our study three cases were reported from lymph node, two were cervical and one was axillary lymph node. Basu et al, Nigam JS et al reported microfilaria in fine needle aspiration cytology of axillary lymph node.^{9,10} Raveendram et al has reported microfilaria parasite in cervical lymph node enlargement.¹¹

Presence of microfilaria in thyroid could be the result of lodging of parasite in the intrathyroid microvasculature and subsequent rupture of blood vessel led to hemorrhage and release of microfilaria in the thyroid and subsequent histiocytic reaction which led to development of solitary thyroid nodule. In our study two cases showed presence of microfilaria in thyroid swelling. Presence of microfilaria in solitary thyroid nodule was also reported by Chowdhary et al.¹²

Female breast is an unusual site for the occurrence of filarial nodule and few such cases have been documented in literature. Patients usually present with solitary, non-tender, painless nodule. Clinically the differential diagnosis could be fibroadenoma or carcinoma breast in such case. Fine needle aspiration cytology is well established, widely available, simple and cost-effective means to evaluate breast lump. So, in case of fluid aspirate and pauci cellular smear from breast lump careful screening with possibilities of microfilarial infestation particularly in endemic area should be done to avoid unnecessary surgery. In our study one case was

reported from breast swelling. Pal S. et al, Thakur et al and Patrikar et al have reported microfilariasis in breast lump.¹³⁻¹⁵

CONCLUSION

Filariasis may present as soft tissue swelling at unusual sites without associated lymphatic involvement in the form of lymphangitis and lymphadenitis. Fine needle aspiration cytology is minimally invasive, cost effective and definitive modality. Careful screening of fine needle aspiration cytology smears is helpful in detecting microfilaria. Institution of specific treatment obviates the progression of the disease and severe manifestations of filariasis.

ACKNOWLEDGEMENTS

Authors would like to thank all the technical staff for their kind cooperation.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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Cite this article as: Kumawat S, Bhagat VM, Gamit B, Jha BM. Cytological detection of microfilaria in unsuspected clinical scenario. *Int J Res Med Sci* 2018;6:1051-4.