

Cytodiagnosis Of Bancroftian Microfilariae At Various Sites In An Endemic Area



Medical Science

KEYWORDS : Fine needle aspiration, lymph node, microfilaria, thyroid

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ABSTRACT

Introduction: Microfilaria has been a major public health problem since ancient times mainly in tropical countries like India. Conventional methods along with aspiration cytology are important tool for diagnosis.

Most cases of cytologically diagnosed microfilaria are unanticipated. Our aim is to evaluate the utility and importance of fine needle aspiration in diagnosis of filariasis in clinically unsuspected cases.

Material and Methods: Total 2114 fine needle aspirations both free hand and USG guided were performed in a tertiary care centre from 01/01/2012 to 31/12/2012. 22-23 gauge needle attached to 10ml disposable syringe was used and Haematoxylin and Eosin, Giemsa and Papanicolou stains were used for staining smears.

Results : Out of 2114 aspirations, total 6 cases of microfilaria were detected at sites like thyroid, cervical lymph node, inguinal lymph node, axillary swelling and peritoneal fluid.

Conclusion : Careful screening of aspiration smears is mandatory for identification of microfilaria in asymptomatic patients so that early treatment can be started.

Introduction:

Filariasis has been a disabling parasitic disease worldwide particularly in tropical and subtropical countries of the world.

Lymphatic filariasis is transmitted by culex mosquito and is caused by nematodes, Wuchereria Bancrofti and Brugia Malayi. Most filariasis is caused by nematodes Wuchereria bancrofti, Brugia Malayi, Brugia Timori, Onchocerca Volvulus, Mansonella Perstans, Mansonella Streptocerca, Mansonella Ozzardi, Dirofilaria Conjunctivae, Dirofilaria magalhaesi, Dirofilaria Immitis and Loa-loa(Chatterjee, 1980)[2]. In endemic areas, filariasis causes a spectrum of diseases, including

- (1) asymptomatic microfilaremia,
- (2) chronic lymphadenitis with swelling of the dependent limb or scrotum (elephantiasis),and
- (3) tropical pulmonary eosinophilia.[10]

Even though the incidence is high, microfilaria in fine needle aspiration cytology (FNAC) smear and body fluids are unusual and it is rare to find microfilaria along with smears aspirated from neoplastic lesions. There are only few reported cases of coexistent microfilaria with neoplasm in the cytology literature.

Adult worm lives in the lymphnode while microfilariae circulates in peripheral blood. The cause of appearance of microfilariae in tissue fluid and exfoliated surface material may be due to either lymphatic/vascular obstruction, extravasation due to scar/tumour or inflammation or tumours causing damage to the walls.[19]

Table showing case details

No	Age/Sex	Complaints	Site	Diagnosis	Provisional.Diagnosis
1	50/female	Neck swelling	Thyroid	Malignancy with microfilaria	Malignncy
2	11/male	Axillary swelling	Right axilla	Microfilaria	Tuberculosis
3	22/male	Inguinal swelling	Inguinal region	Microfilaria	Tuberculosis
4	25/female	Neck swelling	Matted Right cervical swelling	Microfilaria	Tuberculosis
5	70/male	Ascitic fluid	Peritonium	Microfilaria	Malignancy
6	20/male	Cervical swelling	Right cervical region	Microfilaria	Tuberculosis

Table 1: 6 cases where microfilaria was found

Aim of the present study is to assess the Utility and importance of fine needle aspiration cytology in diagnosis of filariasis in clinically unsuspected cases.

Material and Method:

Total 2114 fine needle aspirations both free hand and Ultra-sound guided were performed in cytopathology section, department of pathology, government medical college, Surat from 1st January 2012 to 31st December 2012.

Aspirates were obtained by suction with a 22-23 gauge needle attached to a 10 ml disposable syringe. Rapid to and fro motion was applied for aspiration. In cases of failed aspiration, repeat smears were prepared. For cystic lesions, cyst content was aspirated and smears were prepared after cytocentrifugation. Air dried smears were stained with Giemsa stain and smears fixed in 95% alcohol were stained with Papanicolaou and Haematoxylin and Eosin.

Results:

Total 2114 aspirations were performed and 6 cases of microfilaria were detected in Thyroid, cervical swelling, inguinal swelling, axillary swelling and peritoneal fluid. Male to female ratio was 2:1. One case (thyroid) was malignant while all others were non neoplastic. Wuchereria Bancrofti was the only species diagnosed in 5 aspirations and in 1 fluid sample. All the cases were clinically unsuspected and microfilaria was an incidental finding.

- 1) A 50 year old lady presented with rapidly developing thyroid swelling. Cytology revealed anaplastic carcinoma of thyroid with microfilaria.
- 2) An 11 year old child presented with right axillary swelling since 10 days. Clinically suspected as tuberculosis, on fine needle aspiration of mass, smears showed microfilaria.

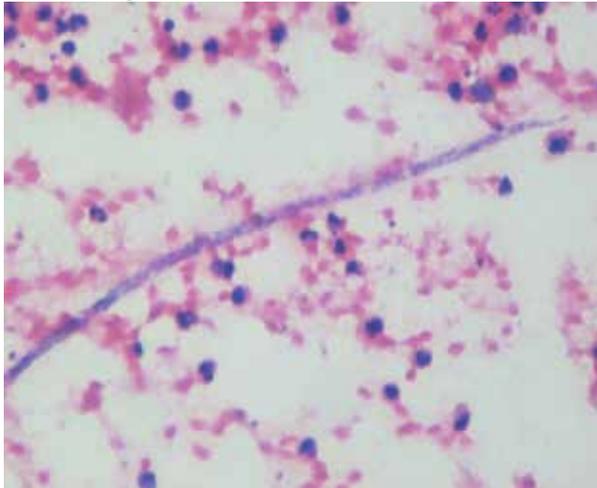


Figure 1: Microfilaria in aspirate from axillary swelling in 11 year old child

- 3) A 22 year old man presented with bilateral inguinal swelling since 8 to 9 months. No other complaint noted. Cytology revealed microfilariae.
- 4) A 22 old year female presented with multiple matted lymph nodes. Clinically the case was suspected as tuberculosis. On aspiration microfilaria was detected.
- 5) A 70 year old man came with the history of ascites. Aspirated fluid showed reactive mesothelial cells and microfilaria.
- 6) 20 year old boy presented with right cervical swelling since one month. Clinically suspected as tuberculosis, Aspiration of swelling revealed microfilaria.

Discussion

In recent years, the traditional classification of filarial disease has been challenged. Various assays for circulating filarial antigen have been introduced. Patients with asymptomatic microfilariaemias have occult lymphatic pathology and renal disease. This suggests that the old classification based on presence or

absence of microfilariaemia and/or chronic pathology is out-dated. It is no longer wise to think of individuals as having filarial 'infection' without 'filarial disease' for the same reason - many of the former will have evidence of 'covert disease' if the studies are rigorous enough.^[17] Significant numbers of patients never undergo tests for filarial infection because they are never included in epidemiological studies nor they present features typical of filariasis.

In India filariasis is common in Uttar Pradesh, Bihar, Kerala, Jharkhand, Orissa, Tamil Nadu and Gujarat.^[12] The present estimate suggests that over 120 million people in 80 countries are affected by filariasis and more than 1.1 billion people live in areas where there is risk of infection^[14]. Peripheral smears stained with Giemsa have been the most important method for detecting microfilaria. Though FNAC is not routinely utilised for clinically suspected cases of filariasis, but microfilaria has been detected at various unusual sites either associated with other diseases or independently in unsuspected cases.

Microfilaria has been found at various sites like breast, neck lymph nodes, thyroid, testis, epididymis, axillary swellings, subcutaneous swellings, effusions, cervical scrape smears, bronchial washing, soft tissue, bone marrow, leprosy and others.^[8,18,15,16,9,11,5,7,3]

Microfilariae have been reported in association with neoplastic lesions such as hemangioma of liver,^[6]Ewing's sarcoma of bone,^[1]squamous cell carcinoma of maxillary antrum,^[13]anaplastic astrocytoma of thalamus,^[4] low grade astrocytoma of C6-D1 spinal segment, cranipharyngioma of third ventricle ^[4] and non- Hodgkin lymphoma^[4]

We observed the presence of microfilaria in thyroid malignancy, cervical and inguinal lymph node, ascitic fluid and axillary swelling. In thyroid, microfilariae was associated with malignancy, while in others, tuberculosis was suspected as provisional diagnosis which on fine needle aspiration revealed the presence of parasite.

Conclusion:

In endemic areas, the diagnosis of filariasis should be considered in the differential diagnosis of swellings. Even in the absence of clinical indications and absence of eosinophils in peripheral smears, microfilaria can be detected at any site. This highlights the importance of careful screening of fine needle aspiration smears in asymptomatic patients.

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