

Cytological Diagnosis of Brugia Malaysian Filariasis Presented As a Subcutaneous Nodule in the Thigh – An Unusual Case Report

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Abstract

Filariasis is a major health problem in tropical and sub tropical countries and is an endemic problem in India. The disease is usually detected by the demonstration of microfilaria in peripheral smear. Microfilaria has been detected incidentally during FNACs of various lesions like breast, thyroid, lymph node, liver, lungs, etc. Microfilaria of *Brugia malayi* in a subcutaneous nodule is a rare presentation. We report a case of 31 year old male who presented with a subcutaneous swelling of the upper thigh of the right leg. Aspirate from the swelling revealed numerous microfilaria. The microfilaria was identified *Brugia malayi* with a sheath with two terminal nuclei in the tail alongwith eosinophilia. This case highlights the finding of microfilaria of an unsuspected case at an unusual site. We present this case due to the rarity that *Brugia malayi* is rare to cause sub cutaneous filariasis

Keywords

Filariasis, Sub cutaneous swelling, *Brugia malayi*, Microfilaria

Introduction

Filariasis is an important public health problem of the tropics and subtropics and is commonly seen in countries like India, Indonesia, China, Africa and far East^[1]. Filariasis is a parasitic disease most commonly caused by

Wuchereria bancrofti. In India it is caused by *Wuchereria bancrofti*, *Brugia malayi* and *Brugia timori*. According to the present estimates Filariasis affects more than 120 million people in 80 countries around the world^[2]. Filariasis is manifested by a wide range of clinical features. The acute phase manifests with eosinophilia and microfilaremia. In the chronic stage the clinical features are lymphadenopathy, hydrocele, lymphedema and elephantiasis.

Case Report

A 31 year old male, resident of Kollam in southern Kerala presented to surgery OPD with 2 swellings in the upper thigh of right leg of 1 week duration. The swelling was identified by the patient himself. On examination the larger swelling was 2x2 cm firm and the smaller swelling was 1x1 cm which was also of the same consistency. The patient gives a history of employment in Saudi Arabia 4 years back. Two years back he gave a history of erythematous papules over the forearm and scalp which was seen by a dermatologist and he was treated with antibiotics. So with this history the patient was sent to the Cytology Department for FNAC. FNAC was done from the larger swelling using 10ml syringe and 22 gauge needle under aseptic precautions. The slides were fixed in alcohol and papinicolaou staining was done. The aspirate

yielded a whitish material. The smear showed numerous microfilaria, plenty of eosinophils, foreign body giant cells, histiocytic collections, granuloma, mast cells and neutrophils. The microfilaria has a rounded anterior end and pointed posterior end with a sheath and nuclei. There are two terminal nuclei that are distinctly separated from the other nuclei in the tail. So with these features the species was identified as microfilaria of *Brugia malayi*. Routine blood smear examination showed eosinophilia. He was given Diethylcarbamazine for 3 weeks along with anti-inflammatory drugs.

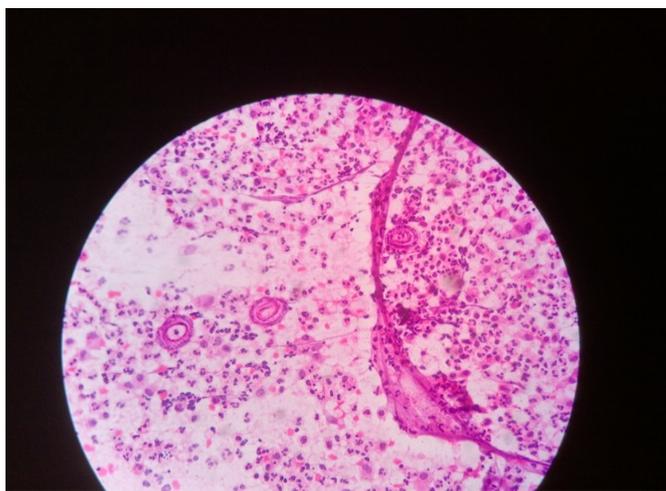


Fig 1. Showing numerous microfilaria, neutrophils and eosinophils

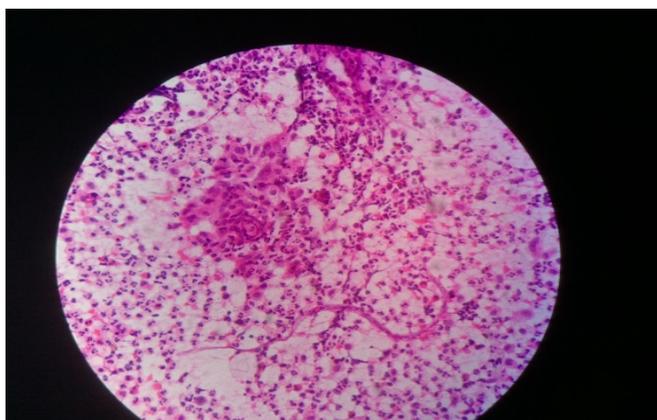


Fig 2. Showing microfilaria along with granuloma

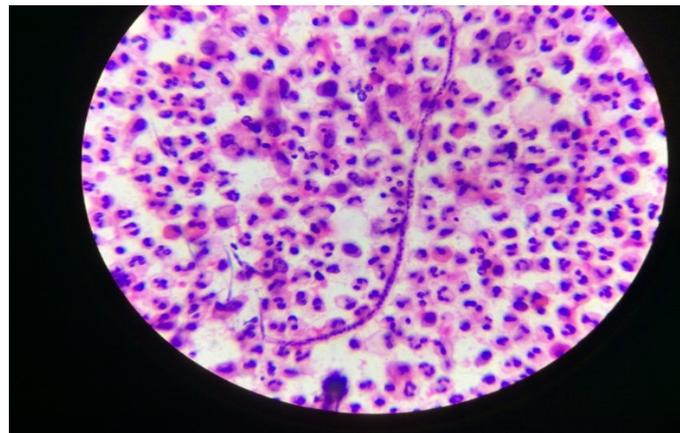


Fig 3. Oil immersion view showing microfilaria of *Brugia malayi* with numerous neutrophils, eosinophils and mast cells



Fig 4. Oil immersion view showing *Brugia Malavi* with two terminal nuclei in the tail end

Investigations

Heamoglobin – 14.9gm%, PCV- 43%, RBS – 372mg%, Serum Bilirubin – 0.6 mg%, Blood Urea – 17mg%, Serum Creatinine – 1mg, Sodium – 143mM/L, Potassium – 5mM/L

On examination there was no hepatosplenomegaly. All other systems – WNL

Except for the raised sugar level, all investigations – WNL
Peripheral smear showed eosinophilia but did not demonstrate any parasite

Discussion

Brugiya malayi presenting as a subcutaneous swelling is a very rare mode of presentation. *Brugiya malayi* is a

nematode of the 3 causative agents of lymphatic filariasis in humans. The other two causes of lymphatic filariasis are *Wuchereria bancrofti* and *Brugia timori* which defer from *Brugia malayi* morphologically^[3]. The subcutaneous filariasis is mainly caused by *Wuchereria loa loa*, *Oncosarca volvulus* and *Mansonella* species of which *Wuchereria loa loa* is found both in peripheral blood and subcutaneous nodule whereas the other two found only in skin^[4]. The principal mosquito vectors are *Mansoni* species. However in certain areas *Anopheles* and *Aedes* species may be important. Adult worms are minute and threadlike with a smooth cuticle. Microfilaria is of 177-230 µm actively move about in lymphatics and blood. Microfilaria has a sheath with two terminal nuclei that are distinctly separated from the other nuclei in the tail. Microfilaria may present in an unusual fashion. So careful screening of cytology smears is important even when filariasis is not suspected as in our case where the patient had no other complaints other than a subcutaneous nodule, is important medically for diagnosis and treatment of patients especially in endemic areas^[5]. Definitive diagnosis is based on the detection of microfilaria primarily in the blood smear. The other diagnostic modalities include thick and thin blood films, wet preparation, PCR, ultrasonography and antigen and antibody detection. The adult of lymphatic filariae inhabit lymph vessels which can cause blockage and host reaction resulting in lymphatic inflammation and dysfunction. This eventually results in lymphedema and fibrosis^[6]. The different species of microfilaria can be differentiated based on body morphology, nuclear characteristics, staining pattern, presence or absence of nuclei at the tip and nocturnal motility^{[7],[8]}. Subsequent examination of night blood smear from patient failed to demonstrate microfilaria which is in accordance with reports by the other authors suggesting that filaria can exist without

microfilaria in blood smear^{[1],[9]}. In our case aspiration from subcutaneous swelling showed sheathed microfilaria of *Brugia malayi* with two terminal nuclei at the tail end. The patient was treated with Diethylcarbamazine for 3 weeks. The patient came for follow up and both the swellings completely subsided.

Conclusion

Despite high incidence it is infrequent to find microfilaria in fine needle aspiration cytology of subcutaneous swellings. Most of the parasitic infections are curable with a prompt correct diagnosis. FNAC plays a significant role in diagnosing filarial infections in asymptomatic unsuspected cases like ours where microfilaria was absent in peripheral smear. Careful screening of cytological smears can render definitive diagnosis of early and asymptomatic and clinically unsuspected cases of filariasis. The main purpose of this case report is to create an awareness in clinicians that filariasis should always be considered as a differential diagnosis for any subcutaneous swellings.

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