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Subcutaneous Filariasis mimicking Myositis: A Case Report.

Rashmi Khemani, Swati Sharma*, and Manna Valiathan

Department of Pathology, Kasturba Medical College, Manipal University, Manipal, Karnataka, India.

ABSTRACT

Filariasis is a parasitic disease caused by nematodes. They can infest the lymphatics, subcutaneous tissue or the serous cavities in humans. Thedisease usually follows a chronic course. The pathologic changes in the lymphatics and lymph nodes are attributable to the presence of the adult worm. Death of the worm causes severe inflammatory reaction which is characterized by fibrinoid necrosis and pronounced eosinophilic infiltration. An adult male presented with a swelling in the left chest wall with associated low grade fever since one week, which on radiology was suggestive of myositis. On histopathology a diagnosis of subcutaneous filariasis was given. This case emphasizes that filarial etiology should be considered as a differential diagnosis especially in the endemic areas.

Keywords: Filariasis, myositis, nematode, subcutaneous

Corresponding author

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INTRODUCTION

Filariasis is a known disabling parasitic disease caused by nematodes belonging to the super family Filarioidea [1]. It is widely prevalent in tropics and subtropics. India contributes to about 40% of the total global burden and accounts for nearly 50% of the people at risk of the infection. The brunt of the disease is borne in coastal areas and banks of major rivers where the prevalence of lymphatic filariasis is nearly5–10%, and around 98% of these diagnosed cases are caused by Wuchereria bancrofti [2].

There are 8 known filarial nematodes where humans act as definitive hosts. They are divided into three groups according to the site within the body they occupy: Lymphatic filariasis is caused by Wuchereria bancrofti, Brugiamalayi and Brugiatimori. These worms occupy the lymphatic system, including the lymph nodes and in chronic cases lead to the disease called elephantiasis. Subcutaneous filariasis is caused by Loa loa, Mansonella streptocerca and Onchocerca volvulus. These worms occupy the subcutaneous layer of the skin. Serous cavity filariasis is caused by Mansonellaperstans and Mansonellaozzardi, which occupy the serous cavity of the abdomen [1].

A recent emerging disease is subcutaneous dirofilariasis, a zoonotic filariasis caused by infection with several species of the genus Dirofilaria [3].Human dirofilariasis is accidental, rare and mostly presents as periorbital and subconjunctival cysts [2].

CASE REPORT

A 40 year old, male from Karnataka, India presented with history of a swelling in the left chest wall since one week, insidious in onset and associated with continuous mild pain and low grade fever. There was no history of sinus or discharge, increase in size on coughing or loss of sensation over the swelling. There was no history of trauma or associated skin changes.

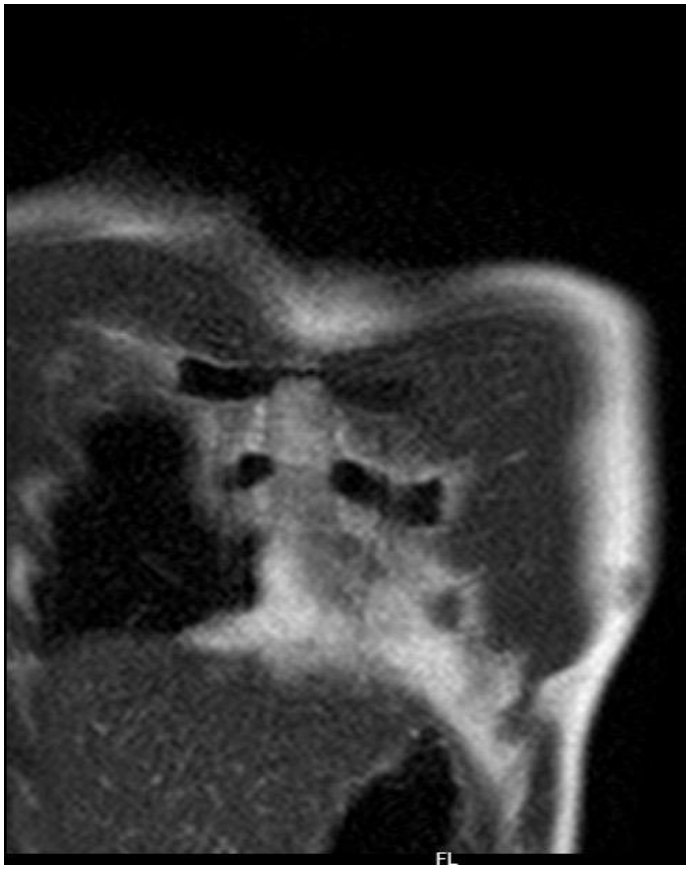

Figure 1: MRI Coronal view- Bulky inferior fibres of left serratus anterior muscle with ill defined hyper intensities

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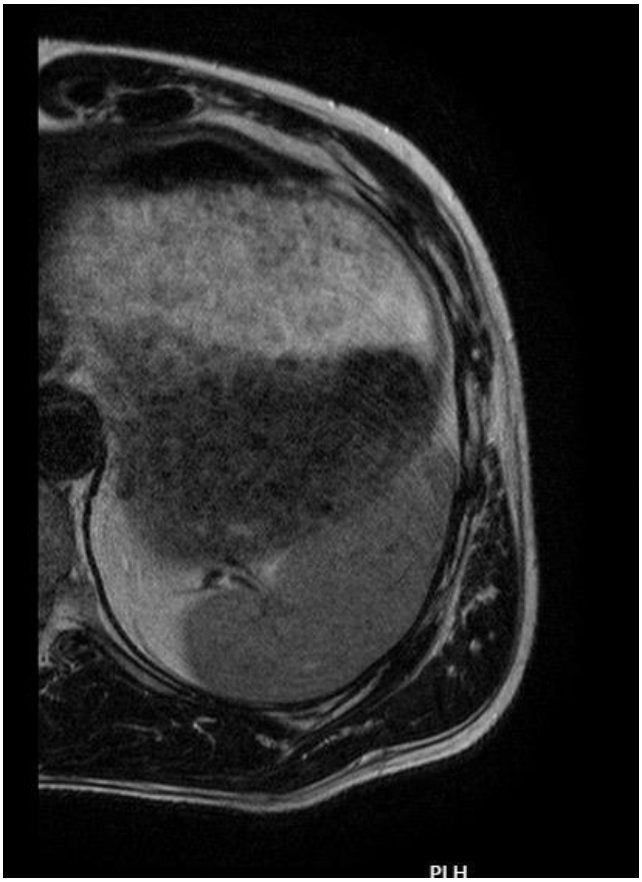

Figure 2: MRI Axial view- Bulky inferior fibres of left serratus anterior muscle with ill defined hyper intensities

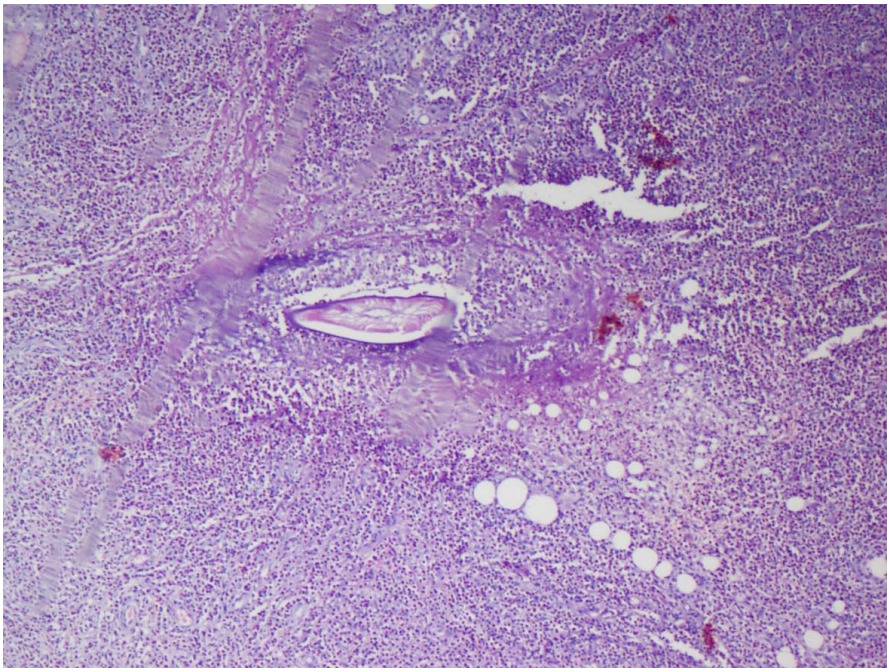

Figure 3: Lesion showing cut section of the filarial surrounded by inflammation, H&E X40

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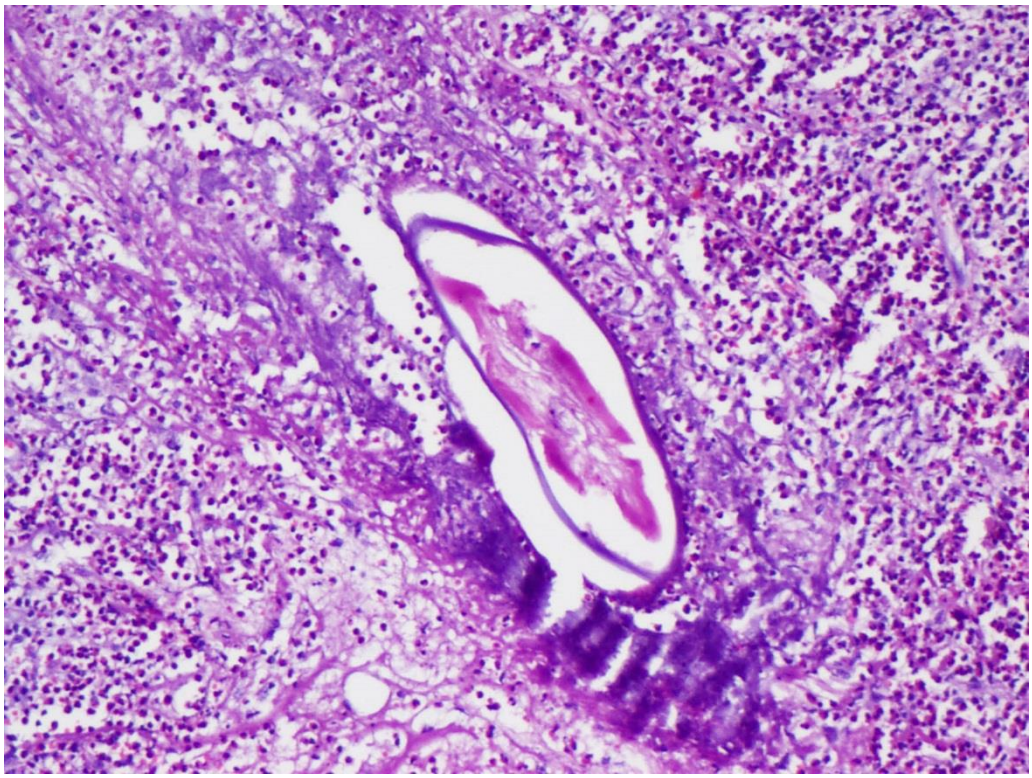

Figure 4: Cut section of filaria with surrounding eosinophils and degenerating cells, H&E X100

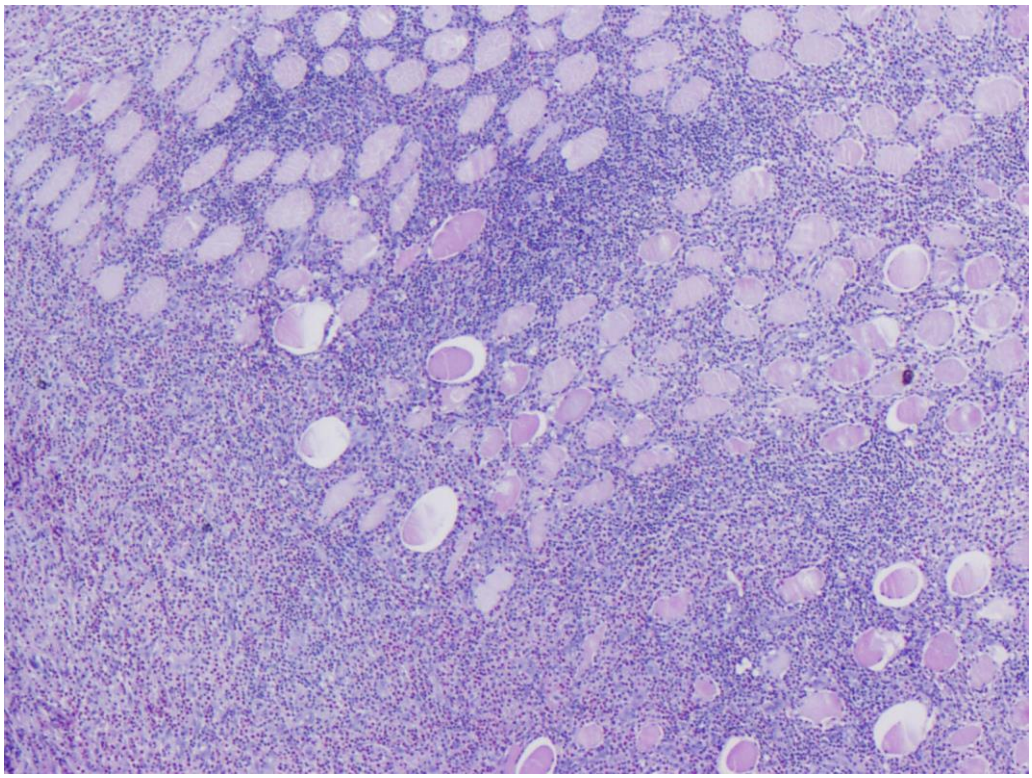

Figure 5: Dense mixed inflammatory cells infiltrating and destroying the muscle fibres, H&E X40

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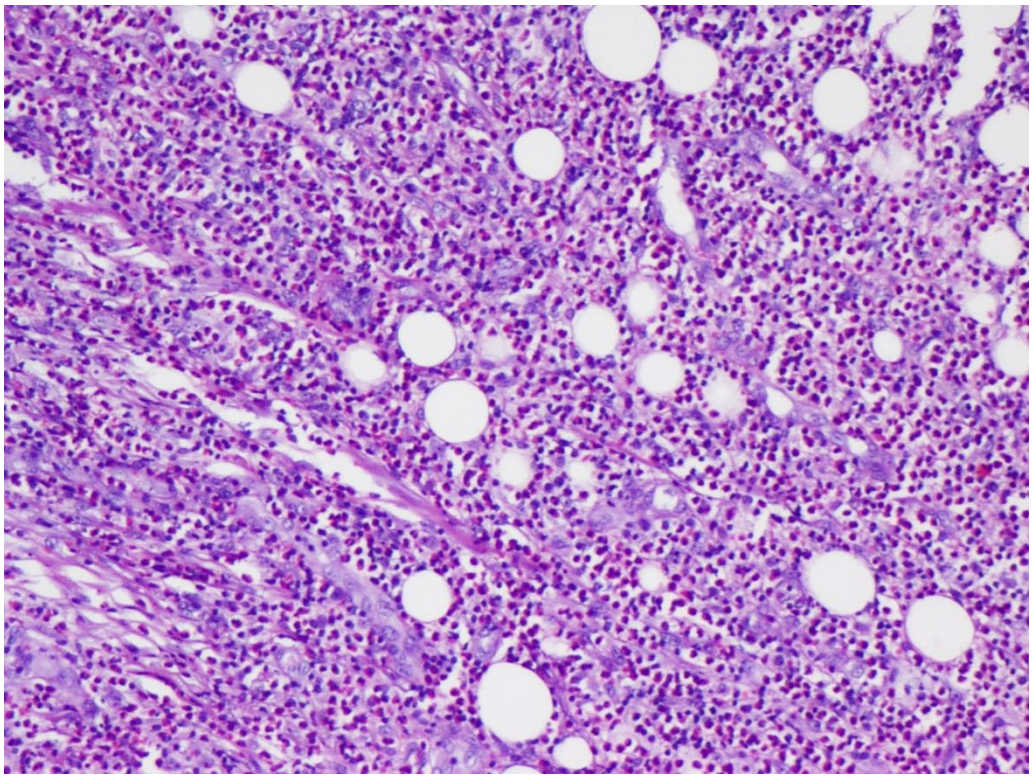

Figure 6: Dense mixed inflammatory cells infiltrating the subcutaneous tissue, H&E X100

On examination, a swelling in left chest wall, 5 cm below and lateral to left nipple, 5x5 cm in size was noted. It was firm, mobile and perpendicular to the plane of serratus anterior muscle. There was no fluctuation, tenderness or local rise in temperature. Overlying skin was normal and pinchable. No lymphadenopathy was noted. On investigations, eosinophil count was found to be increased. QBC showed no evidence of malaria/ microfilaria. On MRI thorax, inferior fibres of left serratus anterior muscle appeared bulky with ill defined hyper intensities in T2W1/ STIR images, heterogenous post contrast enhancement and adjacent inflammatory changes suggestive of myositis (Figure 1, 2). Excisional biopsy was performed and sent for histopathological examination. Grossly the cut section showed grey brown and yellow fatty areas. Microscopy showed cut sections of filarial worm surrounded by dense eosinophilic, scant lymphoplasmacytic and histiocytic infiltrate in a fibrocollagenous stroma with numerous proliferating blood vessels infiltrating the subcutaneous tissue, muscle fibres and nerve bundles (Figure 3-6). A diagnosis of subcutaneous filariasis with inflammation was given.

DISCUSSION

The earliest description of filariasisis documented in 600BC by Sushruta, where the clinical features of elephantiasis were referred to as elephantiasis arabicum[4].

In subcutaneous filariasis, the nematodes occupy the subcutaneous layer of the skin. Loa loa is found both in peripheral blood and subcutaneous layer whereas, Mansonellastreptocerca and Onchocerca volvulus are found only in the skin [2,5].

Filariasis is a parasitic infestation which is transmitted by a vector(intermediate host), a red (tabanid) fly, Chrysops in case of Loa Loa, Black fly (Simulium) in case of Onchocerca and a midge in case of Mansonella[6].It is characterized by the presence of microfilaria, an embryonic stage between the eggs and larvae. Microfilaria may or may not retain the egg shell and are labelled as sheathed or unsheathed, respectively. Microfilariae bancrofti, malayi and loa are sheathed while microfilariae perstans and ozzardi are unsheathed[2,7].This feature along with nuclear arrangement particularly in the tail end, helps to differentiate between the various species. Adult filarial worms also show morphological differences in their cuticle and subcuticle. The microfilaria are released in the blood or dermis from where they are picked up by the vector.

The microfilaria develop into infective larvae within the intermediate host, which later deposit these larvae on the human skin at the time of another blood meal [8].

Filariasis produces acute as well as chronic clinical manifestations. The infective person may even remain asymptomatic in endemic areas. Usually the disease follows a chronic course and involves of the lymphatic system of lower limbs, retroperitoneal tissue, spermatic cord and epididymis [9].At times, the microfilaria of other filarial worms normally residing in the soft tissues or the body cavities can also produce lymphadenitis. Filarial lymphadenopathy typically involves the inguinal lymph nodes, but involvement of other groups as well as generalized lymphadenopathy have also been reported [8].In the infection caused by Loa loa, the worm migrates to the various parts of the body through the subdermal connective tissues and during this migration, causes edema of the subcutaneous tissue which is called as “calabar swellings” or “fugitive swellings”[6, 7]. In a few unusual cases W. bancrofti has been presented as a subcutaneous nodule[2,9].Onchocerca volvulus is known to cause river blindness along with skin and eye lesions[6].Invasion of breast tissue by filarial worms constitute one of the rarer causes of breast lump [10].A case of breast filariasis mimicking inflammatory carcinoma has also been documented[4].

Diagnosis of filariasisis usually by demonstration of microfilaria in stained or unstained blood films, detection of circulating filarial antigen or demonstration of the organism by histology. Monoclonal antibodies against the circulating filarial antigen and molecular biology techniques like ISH,FISH and PCR20 are now available for a specific diagnosis, without going through the difficult task of morphological differentiation. Presently, these tests are either experimental or are not available universally, hence we still have to rely on morphology for the diagnosis[8].Fluid cytology or fine-needle aspiration cytology is rarely performed for clinically suspected filariasis, however its role in diagnosis of filariasis should not be underestimated especially in clinically unanticipated cases[2,9].

DEC (Diethylcarbamazine) remains the gold standard treatment for filariasis and is effective against both microfilaria and adult worms. The other drug used is single dose of Ivermectin[4,5].Unfortunately, there is no vaccine to prevent filariasis, however, controlling the populations of blood-sucking insects, especially mosquitoes, can limit the spread of the disease[1].Simple extraction of the worm or complete lesional excision is the treatment of choice for human dirofilariasis[11].Filariasis can last a lifetime, and if untreated can lead to permanent disfigurement and damage to the lymphatic system and kidneys, secondary infections, hardening and thickening of the skin, and sexual and psychological problems. The transmission of filarial worm by blood transfusion is a significant problem in the disease endemic regions of the world[1].

CONCLUSION

Filariasis must be considered as a differential diagnosis in all cases that present as a subcutaneous swelling in regions where the disease is endemic. High index of clinical suspicion, complete clinical details, careful examination of the smear, correlation with laboratory parameters and understanding of the epidemiology helps in precise diagnosis.

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