CASE REPORT

Microfilaria Masquerding as Soft Tissue Neoplasm in Left Arm

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Abstract:

Filariasis is endemic in India with large number of cases being reported every year. In endemic areas, filariasis may be entirely asymptomatic even with high microfilaraemia. We report an unusual case of filariasis in a 20 year old woman, who presented with a swelling in the medial aspect of the left upper arm since 6 months which was clinically suspected as a neoplastic lesion. On histopathological examination diagnosis of microfilaria was offered.

Keywords: Filariasis, Soft Tissue Swelling, *Wuchereria bancrofti*

Introduction:

Filariasis is a serious public health problem in the tropics and subtropics and is commonly seen in countries like India, China, Indonesia, Africa, and the Far East. Filaria is caused by nematodes that inhabit the lymphatic vessels and lymphnodes of a human host. The life cycle of microfilariae is found in two hosts. Man is the definitive host and mosquito is an intermediate host [1]. The different types of microfilaria found in humans are mainly divided under two broad categories, i.e. sheathed and unsheathed. *Microfilaria bancrofti*, *Microfilaria malayi*, and *Microfilaria loa* are the sheathed Microfilaria. *Microfilariae perstans* and *Microfilariae ozzardi* are the unsheathed microfilaria [1, 2]. We report an unusual case of filariasis in a 20 year old woman, who presented with a swelling in the medial aspect of the left upper arm, since 6 months and clinically it was suspected as neoplastic lesion. On histopathological examination, diagnosis of microfilaria was offered.

Case Report:

A 20 years old female presented with swelling in left mid arm since 6 months. It was mobile and soft to firm in consistency. With clinical diagnosis of lipoma excision was done and sent for histopathology.

Grossly the excised specimen showed single pale brown to pale yellow encapsulated tissue mass measuring 3×2×1 cm. Cut section showed solid pale white areas. Areas of necrosis and hemorrhage were absent (Fig.1). Microscopic examination of sections studied showed encapsulated structure of the lymphnode comprised of well defined hyperplastic lymphoid follicles in the cortical region and many dilated lymphatic channels showing sheathed organisms with densly eosinophilic cuticle and fine transverse striations suggestive of filarial parasite (Fig.2). Large areas of fibrosis, calcifications along with dilated and congested blood vessels were noted. Adjacent adipose tissue showed dilated lymphatics with calcified sheathed parasite surrounded by lymphocytes (Fig. 3).

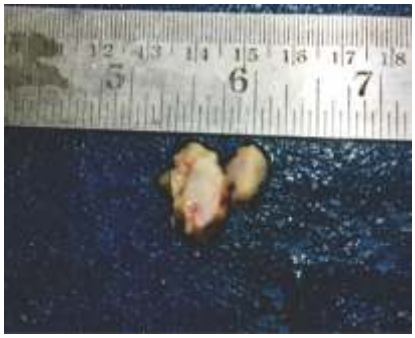

Fig. 1: Cut Section of the Swelling showing Pale White Areas

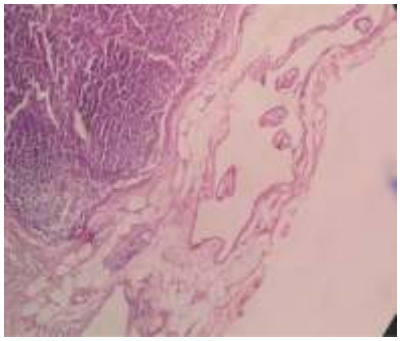

Fig. 2: Photomicrograph showing Microfilaria Adjacent to Lymphoid Follicles in Lymphatics of Adipose Tissue (H and E 100X)

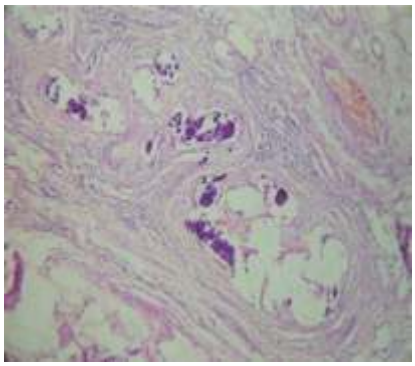

Fig. 3: Photomicrograph showing Calcified Sheathed Parasite in Dilated Lymphatics (H and E 400x)

Discussion:

Lymphatic filariasis is a common public health problem of tropical and subtropical countries including parts of Latin America, Sub-Saharan Africa and Southeast Asia. It is estimated that approximately 600 million people are living in areas endemic for lymphatic filariasis in Southeast Asia Region [3]. Currently in the world around 120 million population is affected by the disease that require treatment and around 40 million people are disabled by the disease [3, 4]. In India disease burden is estimated to be about 40% of the global burden. The disease is endemic all over India, especially in Uttar Pradesh, Bihar, Jharkhand, Andhra Pradesh, Orissa, Tamil Nadu, Kerala, and Gujarat [4].

Wuchereria bancrofti was first discovered by Demarquay in 1863 in hydrocele fluid from a patient in Cuba. Female worm was discovered by Bancroft (1877) and male worm was discovered by Bourne (1888). Periodicity of microfilaria and the role of insect vector (Culicine Mosquito) in disease transmission were described by Manson in 1892 [5].

Wuchereria bancrofti is the most common parasite which causes lymphatic filariasis in India and is transmitted by Culicine mosquitoes. The adult worm inhabits the lymphatic vessels, where blockage and host reaction can result in lymphatic inflammation, and eventually leads to lymphedema and fibrosis [5, 6].

Microfilaria is long slender creamy white, thread like with filariform shape and tapering ends. Adult males are 4 cm in length and 0.1 mm in diameter; these are smaller than females that measure 6-10 cm in length and 0.2-0.3 mm in diameter and are coiled together. Male worms can be differentiated from female worms by their small size or screw

like tail and presence of two spicules at the posterior end which helps in copulation. Females are vivi-parous and they directly discharge larvae without any eggs.

Larval forms of *W. Bancrofti* go through four stages [7]. First stage is microfilaria, second stage larva is large sausage shaped, and third stage is filariform larva which is the infective form to humans. Microfilaria is the diagnostic form found in the blood vessels. It measures 240 – 300 microns x 7.5 – 10 microns covered by a long hyaline sheath within which it moves. The head is blunt while the tail end is pointed. They are transparent and colorless in unstained blood films. They look pink with a column of violet nuclei when stained with Giemsa and Romanowsky stains. These columns of nuclei are present throughout the body except near the head and tail end. Nuclei are also absent in few places which represent various primordial organs like nerve ring, excretory pore, anal pore and genital cells. These larvae pass through the thoracic duct and pulmonary capillaries to the peripheral circulation [1, 6, 7].

Filariasis causes a spectrum of diseases including asymptomatic microfilaremia, acute lymphangitis, lymphadenitis, chronic lymphadenitis, edema of limbs and genitalia and tropical pulmonary eosinophilia [4, 5]. Alive and mobile adult worms and microfilaria do not excite any tissue reaction. Any restriction to their movement excites a variable but generally mild reaction. Dead and fixed worms and microfilaria excite severe reaction which may include eosinophilia, eosinophilic abscess, necrosis, and epithelioid granuloma. This is usually followed by fibrosis with or without calcification. These tissue reactions in the lymphnode or in the lymphatics produce lymphedema [6, 8]. Clinically filariasis can be of two types – filariasis of skin and subcutaneous tissue and lymphatic filariasis [6].

In different studies microfilariae have been demonstrated from different sites such as cervical lymph node, skin, subcutaneous tissue and soft tissue. These cases were clinically misdiagnosed as tuberculosis, non healing ulcer and skin infections. Mukta *et al*, in their case who presented with preauricular swelling in subcutaneous tissue which was clinically diagnosed as preauricular abscess but on cytology filariasis has been reported [9].

In our case, there was soft tissue swelling on the mid arm with a clinical diagnosis of soft tissue neoplasm suggestive of lipoma. Definitive diagnosis of microfilaria is made by the demonstration of parasite in peripheral smear. In our case after histopathological diagnosis of filaria three night blood samples were collected however, peripheral smear examination did not reveal microfilarial parasite or increase in eosinophil count. This suggests that filariasis can exist without microfileremia as also reported in some studies. Blood eosinophil counts within normal range, as observed in our case, were also reported by Rawat *et al*. and Varghese *et al* [9].

These observations suggest that there is no consistent relationship between filarial infection and blood eosinophilia that in turn reflects the difference in host response to parasite from person-to-person. Indexed case presented with soft tissue swelling and there was no peripheral eosinophilia but on microscopy examination of tissue there was fibrosis, calcification and calcified parasite with lymphocytic tissue reaction. Diagnosis of filarial infection is frequently made on clinical grounds in endemic areas, but demonstration of microfilariae in

circulating blood, and on histopathology examination are the means by which one can make definitive diagnosis.

Conclusion:

The importance of this case report is to create awareness that in tropical countries like India where filariasis is endemic, it should always be considered as a differential diagnosis of soft tissue swelling at any site. Careful examination of histopathology slides is very important in prompt recognition of the disease and institution of specific treatment, especially in unsuspected and asymptomatic patients without peripheral eosinophilia.

References

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