Filarial abscess: Aspiration of adult gravid female worm from submandibular region, an unusual presentation

ABSTRACT
Microfilaria is a major public health problem in tropical and subtropical countries and is an endemic problem in India. *Wuchereria bancrofti* is the most common filarial infection. In some cases, microfilariae and adult filarial worm have been incidentally detected in fine-needle aspirates of various lesions; detection of microfilaria from subcutaneous site or from abscess site is even rarer. We here report an unusual case of Bancroftian microfilariasis in a 68-year-old female coming from endemic area presenting with right submandibular abscess. Our aim is to highlight the chances of finding microfilaria and adult worm in cytology of an unsuspected case at an unusual site.

Key words: Adult female worm; filarial abscess; submandibular region

Introduction
Lymphatic filariasis is caused by the worms *Wuchereria bancrofti*, *Brugia malayi*, and *Brugia timori*. *B. malayi* is mostly confined to Southeast Asia. *B. timori* is restricted to Indonesian islands. In India, almost 99% of the cases are infected with *W. bancrofti* that is transmitted by the *Culex* mosquitoes. It has predilection for lower limbs, spermatic cord, and epididymis. Breast, thyroid, body fluids, and skin are unusual sites for filariasis. Despite the fact that large number of people are at risk and wide variety of tissues are affected, it is not common to find microfilariae or adult worm in fine-needle aspiration cytology (FNAC) smears.

Submandibular or head and neck region involvement is an even rarer presentation. Hereby, we report a case of filarial abscess in right submandibular region that is clinically presented as inflammatory pyogenic abscess.

Case Report
A 68-year-old lady presented to surgery outpatient department with swelling and pain in the right submandibular region for the last 2 months. Local examination showed a soft and fluctuant swelling of 4 × 3 cm over right submandibular region. It was warm and tender on palpation. Clinical examination of the orofacial region did not reveal any odontogenic or nonodontogenic foci of infection.

All the hematological parameters were normal except for mild peripheral eosinophilia (12%) and a low hemoglobin level. A clinical diagnosis of submandibular pyogenic abscess was made and to exclude tuberculosis, FNAC was advised.
FNAC from the swelling yielded purulent material along with a creamy white thread. Smears showed adult gravid female filarial worm having an intact outer cuticle layer and body cavity filled with different stages of developing ova and microfilariae [Figure 1]. In addition, numerous embryos and coiled larvae and fully straightened larvae of *W. bancrofti* that were sheathed and had no nuclei in the tail end were also visualized. The background was composed of inflammatory cells including neutrophils, lymphocytes, macrophages, and eosinophils. Hence, a final diagnosis of filarial abscess was made.

**Discussion**

In India, *W. bancrofti* is distributed chiefly along the seacoast and along the banks of big rivers (except Indus). But it has also been reported from Rajasthan, Punjab, Uttar Pradesh, and Delhi.[1] The life cycle of the filarial worms (bancroftian and brugian filariasis) can be divided into the mosquito phase and human phase. Man is the definitive host and mosquito is the intermediate host. Adult worm resides in lymph node where gravid female worm release a large number of microfilariae. These larva pass through thoracic duct and pulmonary capillaries and ultimately come into the blood stream. Microfilariae are capable of living in the peripheral blood for a considerable time without undergoing any developmental metamorphosis. Subsequently, they are taken up by the female mosquitoes during their blood meal. Further development of microfilariae takes place in its intermediate host (mosquito) after which they become infective to man.

The microfilaria of both *W. bancrofti* and *B. malayi* display nocturnal periodicity as a part of the biological adaptation and thus correlating with the nocturnal biting habits of the mosquito. Adult female worms of the two abovementioned species cannot be distinguished though, adult male worms show minor differences. Species diagnosis thereby is made on the basis of morphology of the microfilaria. The microfilaria of *W. bancrofti* is larger in size and possesses smooth body curve, its body nuclei are more well defined, discrete, round, and uniform in size compared to that of *B. malayi*, which is smaller in size, possesses secondary kinks and blurred and intermingled nuclei. Tail tapers to a delicate point with absent terminal nucleus in *W. bancrofti* whereas later it is more bulbous and have two distinct terminal nuclei.[2] However, differentiation between these two nematodes is not clinically important as the mode of treatment remains same.

Filarial worm produces disease due to migration of adult parasite through the lymphatic system.[8] The adult *W. bancrofti* may involve the lymphatics of the lower limbs, spermatocord, epididymis, testis, retroperitoneum, and female breast.[8] Its classical presentation are elephantiasis, chronic lymphedema, epididymitis, funiculitis, and lymphadenitis.[8] The diagnosis of filariasis is made either by demonstrating microfilariae, adult worm, or filarial antigen in blood or on ultrasound using B-mode and M-mode scan with or without color Doppler or pulsed wave Doppler by demonstrating filarial dance sign in dilated lymphatics.[9] In our case, radiological investigations were not performed as the patient was presenting as an inflammatory abscess in submandibular region and clinically filariasis was not suspected. Hence, FNAC was done where we found numerous microfilariae along with adult gravid worm. There are many case reports where the diagnosis of filariasis was made by demonstrating microfilariae in cytological smears, it is unusual to find adult filarial worms on aspiration smears. In the present case, the patient had a solitary swelling from which purulent exudates and fragment of adult worm was aspirated. There are a few reports in which adult filarial worms is aspirated from soft-tissue swellings,[8,10] lymph node,[3,11] and epididymal nodes. In all these cases, the swelling was painless and the patient was asymptomatic. This case was unusual and similar to the case reported by Kaur *et al.^[7] where the patient presented with an inflammatory abscess in the submandibular region, which is clinically suspected to be of pyogenic in origin and later on proved as a filarial abscess on FNAC.

**Conclusion**

The main purpose of this case report is to raise the awareness that in tropical countries such as India where filariasis is endemic, it should always be considered as a differential diagnosis of swelling at any site. Our presentation revealed that adult female worm and microfilaria may even be
present at rare sites such as submandibular region. Careful examination of cytological smears is very important in prompt recognition of the disease and institution of specific treatment especially in unsuspected and asymptomatic cases.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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