



FILARIA AT UNUSUAL SITES WITH REVIEW OF LITERATURE

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ABSTRACT

Filariasis is caused by a parasite species Filarioidia and is a vector borne disease transmitted by mosquito bite. It remains asymptomatic in most of the patients but can present as unilateral non-pitting pedal edema, enlargement of male and female genitalia and can also present in other organs as painless swellings of long duration. Our area is endemic for filariasis and patients commonly present as leg swelling and genital enlargement, but some were found to involve unusual sites like Breast and Conjunctiva. All these cases were diagnosed on biopsy and Fine Needle Aspiration Cytology (FNAC). One of the control measures is mosquito eradication and use of prophylactic drug Diethylcarbamazine (DEC) which is regularly followed up in our endemic area.

KEYWORDS: FILARIASIS, BIOPSY, F.N.A.C., LYMPHNODE, EPIDIDYMIS, BREAST, CONJUNCTIVA.

INTRODUCTION

Filariasis is known since antiquity. Shushruta, Egyptian and Persian physicians were the first to note elephantiasis. Filariae are tissue Nematodes which produce motile embryos, "Microfilaria" in blood and tissue fluids. Adult worms live in tissues, lymphatics and blood vessels of definitive hosts, Man. Adult filarial worms are tolerated for years in the lymphatics and subcutaneous tissues, the mechanism of which are not well understood... but include increased activity of specific subsets of T8 suppressor T cells. Not microfilaria, but the adult worms, living or dead produce the pathological changes and the end result of which is Elephantiasis.^[1,2]

DISCUSSION

Microfilariae were discovered in 1863 by Demarquay in hydrocele fluid. In 1868 Wucherer detected microfilaria in chylous urine, in Brazil. Lewis in 1872 found microfilaria in human blood, in Kolkata. Mason in 1878 demonstrated the insect vector Culex mosquito, but various species of Anopheles, Aedes and Culex mosquitoes are also known insect vectors.^[1]

LF is a major public health problem across the globe. It is endemic in 83 countries and territories, with more than

a billion people at risk of infection. An estimated 120 million people are already affected worldwide of whom about 40 million are incapacitated and disfigured by the disease. About 63% of the world's population with the disease resides in Southeast Asia Region and nearly one third live in India alone. It is estimated that 554.2 million people in India are at risk of infection in 243 districts across 20 states/ union territories.^[3] The economic effects of disease are devastating, as patients with disability have reduced work capacity and household income. This limits their ability to pay for healthcare, education and basic household expenses. Besides, it equally damages their social life by ostracizing them from their families and communities.^[3]

In general, two groups of filarial infection are known

1. The ones endemic in wide geographic areas produce large number of infections and usually lack animal reservoir.
2. Less important group with worldwide distribution seen in wild and domestic animals which sporadically infect humans and cause diagnostic problem for the pathologist.^[2]

Though the life cycle of filariasis is complicated, the simplified cycle is shown below.^[4] (Fig 1).

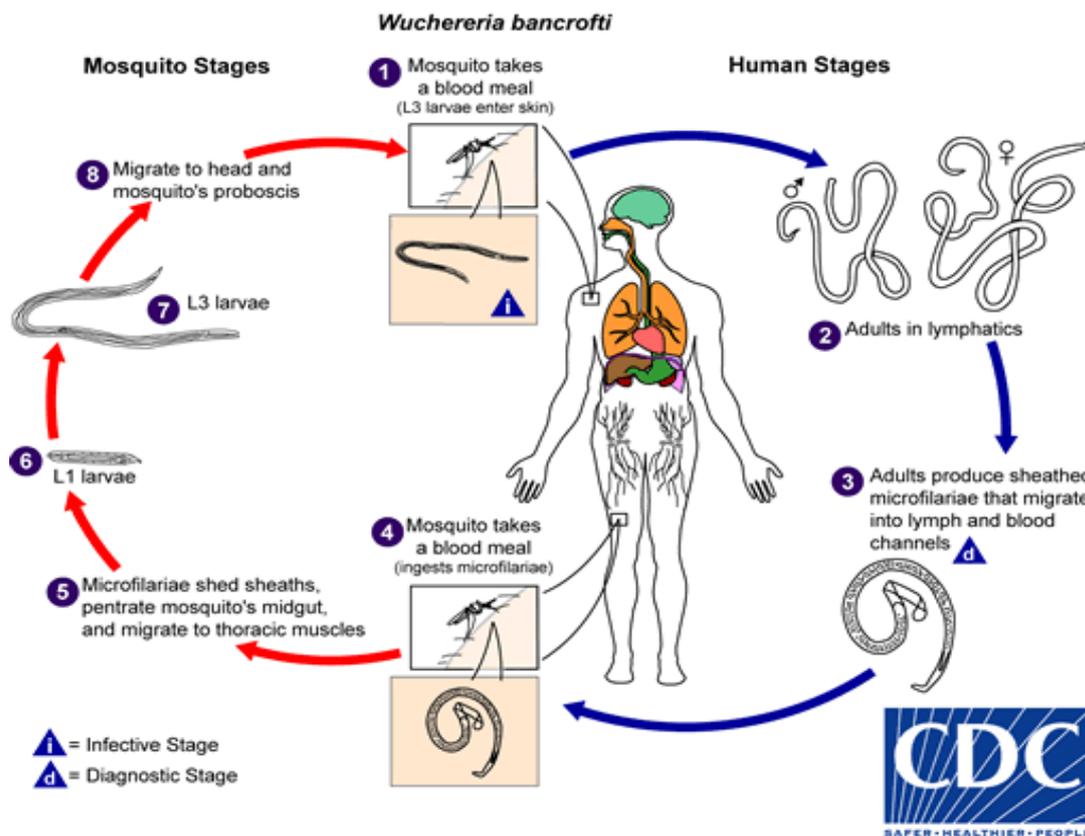


Fig. 1: Depicts Life cycle of *Wuchereria bancrofti*.

Bancroftian filariasis has a worldwide distribution. Insects, particularly mosquitoes serve as the intermediate host. While taking a blood meal, the insect ingests MF. Over 2 to 3 weeks, the MF develop within the insect into infective third-stage larvae. They re-enter the definitive human host when the insect feeds again. The larvae mature into adult worm which lives for 10 to 15 years and produces MF. **In India, > 98% cases of filariasis are caused by *W. bancrofti*.**

Based on normal habitats of adult worms, filariasis can be divided into four groups

- A) Lymphatic Filariasis caused by *Wuchereria Bancrofti*, *Brugia Malayi* and *Brugia Timori*
- B) Subcutaneous Filariasis is caused by *Loa Loa*, *Onchocerca Volvulus* and *Mansonella Streptocerca*
- C) Serous cavity filariasis by *Mansonella Ozaraddi* and *Monsonella Perstans*
- D) Animal tissue nematodes ... *Dirofilaria Conjunctivae* cause conjunctival filariasis.

There is no animal reservoirs for *Wuchereria Bancrofti*, hence lymphatic filariasis is not a zoonotic disease. Dogs, cats, monkeys, wild carnivores and rodents are reservoirs for *Brugia Malayi*.^[5]

Unusual sites in which microfilaria (MF) are reported include the breast, thyroid, salivary gland, conjunctiva and can also be demonstrated in cervicovaginal smear, ovarian cyst fluid, bronchial brushings, effusion fluid, and gastric brush.^[2]

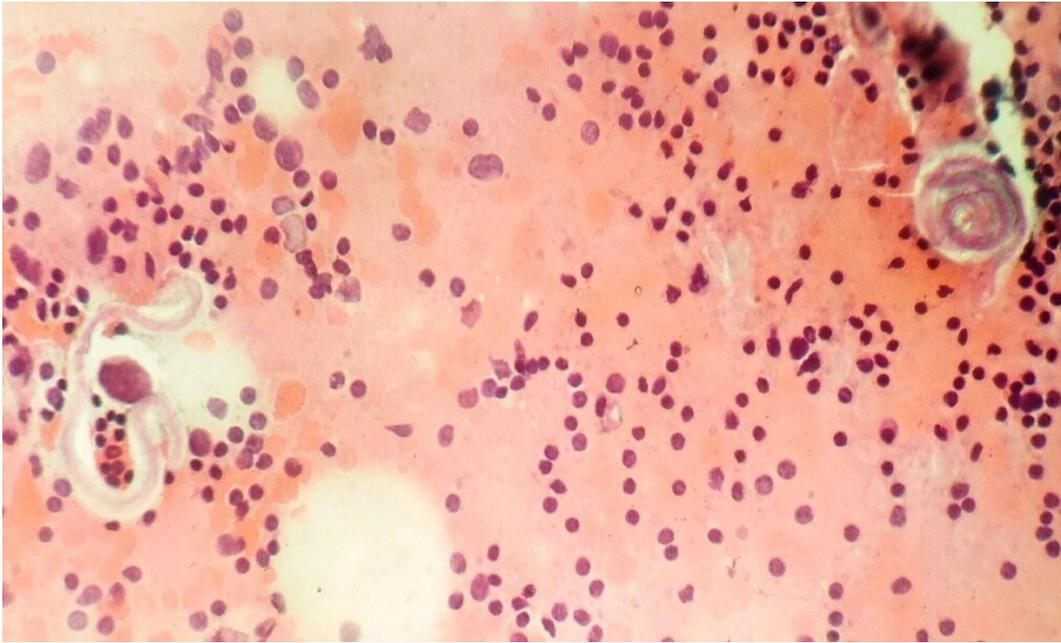
Some of the interesting and unusual clinical presentations and diagnostic difficulties we came across include.

INGUINAL LYMPHNODE

A 27 year old male clinically had left inguinal swelling for one year. On examination he had left inguinal lymphadenopathy, single node, 3x2 cm, nontender, soft to firm and freely mobile. All systemic examinations were within normal limits. Blood examination revealed mild leucocytosis with lymphocytosis and mild eosinophilia. FNAC of inguinal node was advised.

Under all aseptic precautions FNAC of (Lt) Inguinal node was performed. The smears were prepared and stained with Leishman stain, were highly cellular with plenty of lymphocytes and scattered neutrophils and eosinophils along with abundant coiled filarial adult worms (Fig 2).

The diagnosis of filariasis was made.^[6,7]

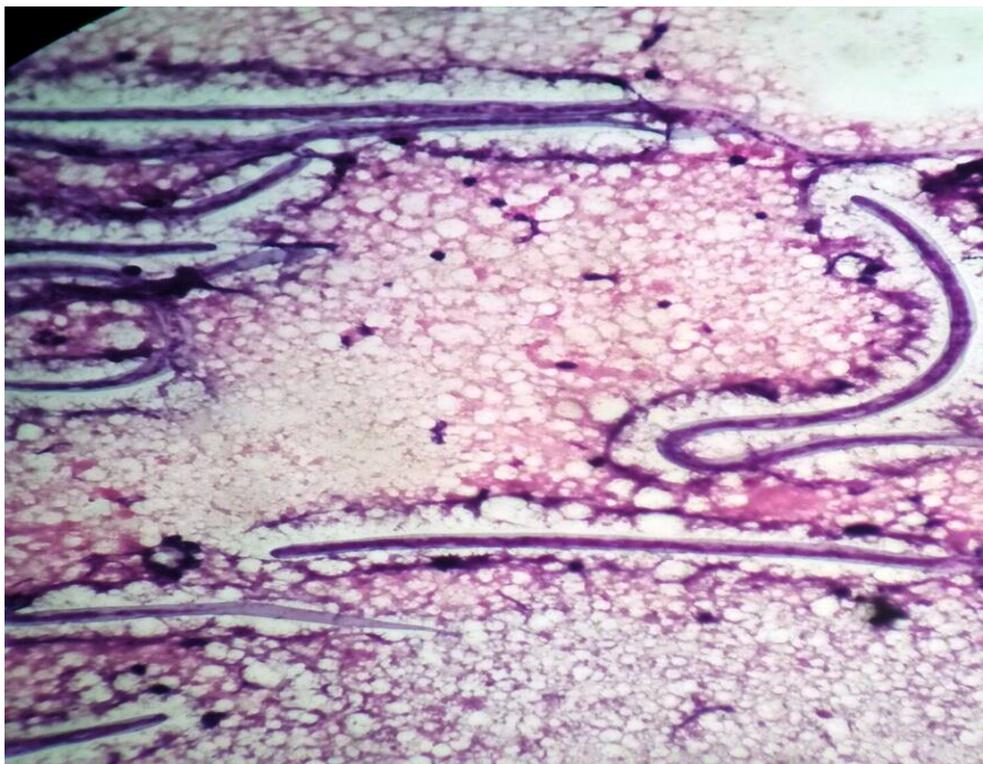


[Fig. 2: FNAC inguinal lymph node showing coiled filarial adult worms. Leishman stain; 10x X 40x].

BREAST

A 32 year old lady referred to us for FNAC of breast lump. On examination she had a lump of 4x3 cm in (Lt) breast upper outer quadrant, nontender, freely mobile. There was no axillary lymphadenopathy. Other breast examination was within normal limits. Her systemic examination was within normal limits.

FNAC smears were stained with H and E stain, were cellular containing plenty of microfilaria (Fig 3). The background had amorphous debris and scattered RBCs.^[6,8] The diagnosis of filariasis of breast was offered with a request for biopsy.

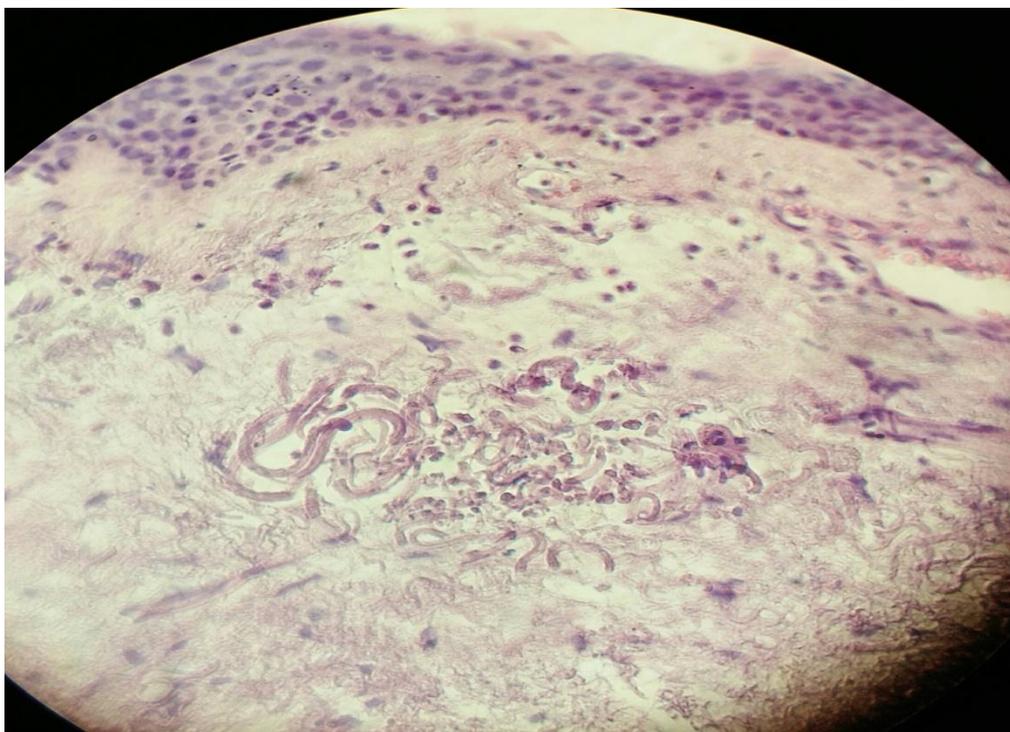


[Fig. 3: FNAC breast showing adults worms in fatty background. Leishman stain; 10x X 40x].

CONJUNCTIVA

A young male child clinically had a reddish small nodule in (Rt) eye at limbus. The nodule was excised and subjected for histopathological examination. On gross we received three small grayish soft to firm bits and all were processed as such. The microscopic examination revealed stratified squamous nonkeratinised epithelium with intact basement membrane and beneath fibrocollagenous stroma containing few congested blood vessels and chronic inflammatory infiltrate with coiled worms (Fig 4).

Intraocular infestation by the filarial worm is a rare occurrence in humans and most of the published reports are from Southeast Asia. The ocular manifestations of filariasis are elephantiasis of the eyelids, iritis, retinal hemorrhages, or the presence of microfilaria in the lacrimal gland secretion. Entry into the anterior chamber may be through ciliary vessels. The most common clinical presentation of ocular filarial infestation is chemosis, lid edema, orbital cellulitis anterior uveitis, or worm in the anterior chamber.^[1,2,9]

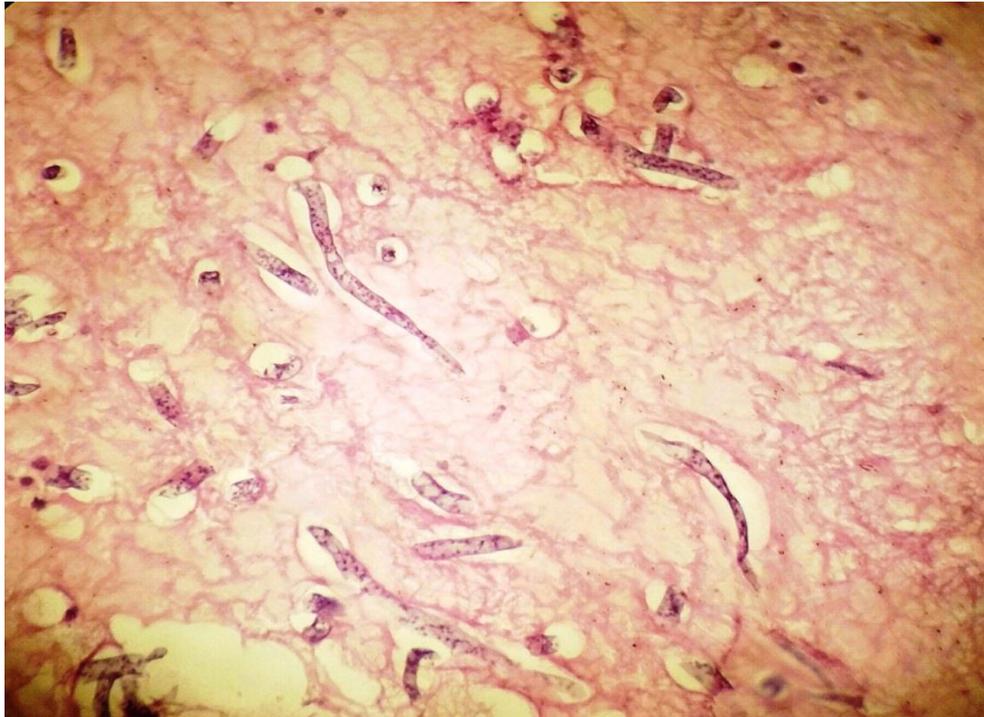


[Fig. 4: Section showing group of adult worms and microfilaria in fibrous stroma below the stratified squamous epithelial lining. H & E; 10x X 40x].

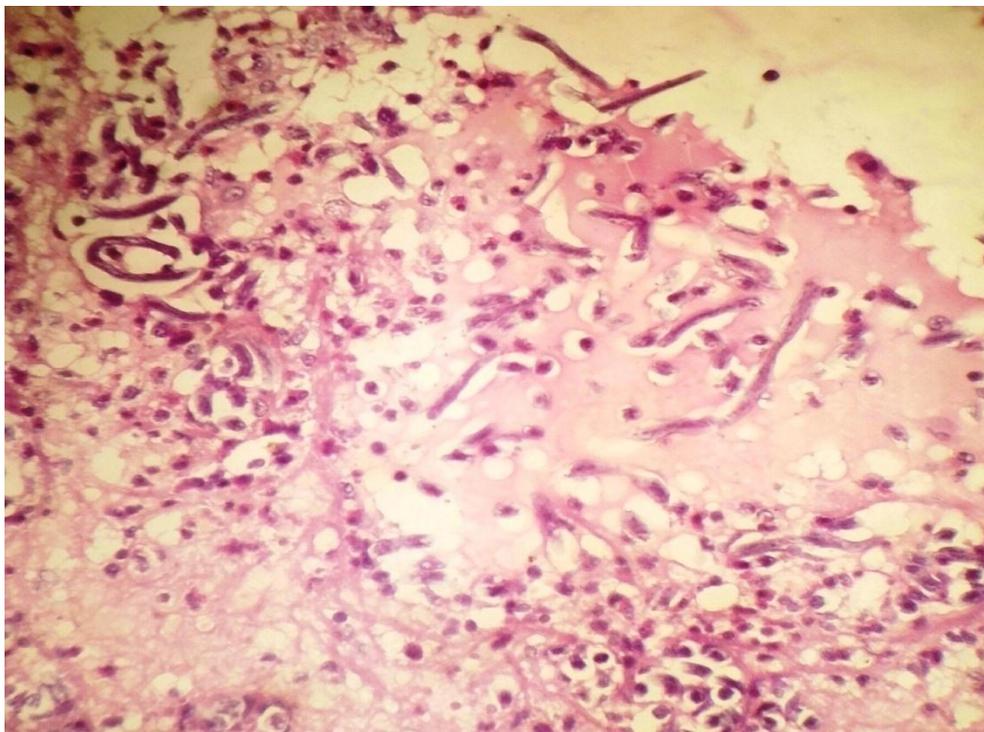
HYDROCELE SAC

A 35 year male was operated for hydrocele, sac and epididymal tissue was sent for histopathology examination. Sections stained with H & E stain showed fibrocollagenous stroma with plenty of scattered microfilaria (Fig 5) and adult worms surrounded by exudate of eosinophils, histiocytes and scattered lymphocytes (Fig 6).

Genital manifestations of lymphatic filariasis are generally asymptomatic, but may present with hydrocele, lymph scrotum, genital elephantiasis, lymph varix, and chyluria. Testicular involvement in filariasis is usually secondary to epididymitis; isolated filarial orchitis is rare.^[1,2,6,10]



[Fig. 5: Sections showing *Microfilaria* in fibrocollagenous stroma. H & E; 10x X 40x].



[Fig. 6: Section showing adult worms and *Microfilaria* on an inflammatory background. H & E; 10x X 40x].

CONCLUSION

Commonly the patients of Filariasis present with non pitting unilateral oedema of feet and genital swellings. We recommend the clinicians and the Pathologists to think of filariasis as a differential diagnosis with swelling at other sites especially in endemic areas as we have found.

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