

Human ocular Thelaziasis: A case report from Karnataka

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ABSTRACT

Thelaziasis is an arthropod-borne disease of the eye and adnexa caused by *Thelazia callipaeda*, a nematode parasite transmitted by drosophilid flies to carnivores and humans. As its distribution is mainly confined to South Asian countries and Russia, it is commonly known as Oriental Eye worm. It is often under-reported and not given its due clinical importance. Five creamy-white, translucent worms were removed from the conjunctival sac of a 74 year old male patient. Based on morphological characters, the worms were identified as nematodes belonging to the genus *Thelazia* and speciation was confirmed by CDC, Atlanta as *callipaeda*. Rarity of the disease and its ability to cause both extra and intraocular manifestations leading to ocular morbidity is the rationale for presenting this case.

Key words: ocular thelaziasis, *Thelazia callipaeda*, arthropod-borne disease

INTRODUCTION

Thelazia callipaeda was first described in 1910 from a Chinese dog, the first case involving human was reported in 1917,¹ where four worms were extracted from the eye of Coolie in Peiping, China. The first reported case in India was from Erode, Tamil Nadu in 1948.² *Thelazia callipaeda* infects a range of definitive hosts, such as dogs, cats, foxes, rabbits and humans. It is seen in the conjunctival sac, lacrimal gland and lacrimal duct of these mammals.³ Human Thelaziasis predominantly observed in rural communities with poor living and low socio-economic standards, and mainly affects the elderly and children.³ Ocular features of human Thelaziasis include excess lacrimation, irritation, conjunctivitis, keratitis, corneal ulcers and ectropion.

Thelazia callipaeda and *Thelazia californiensis* are the two common nematode parasites known to cause human Thelaziasis. An infected person (or the other definitive hosts) harbors the first stage larvae in the lacrimal secretions. Arthropod vectors feeding on such infected lacrimal secretions ingest these larvae which undergo 3 molts inside the midgut of the vector in 2-3 weeks time and develops into infective third stage larvae. This stage is infective to humans. Third stage larvae are transmitted accidentally to another susceptible host by the vector when it

feeds on such lacrimal secretions. The third stage larvae develops into adult form within 35 days in the eye of the infected person.⁴

CASE HISTORY

A 74 year old Hindu farmer from Sakaleshpura taluk (Karnataka), reported to the department of ophthalmology with symptoms of foreign body sensation in his right eye for the last two days following a hit with the tail of cattle. The patient belongs to a hilly region, and rears cattle in his farm house.

On examination there was no conjunctival congestion, cornea and pupils were normal with visual acuity 20/20. Fundus examination didn't reveal any abnormality. He was prescribed antibiotic eye drops and kept under observation for one week. However, the same complaint persisted. On examination with the upper eyelid eversion, a white thread like worm was seen near the lateral canthus. Slit lamp bio microscopic examination revealed four to five white, motile, translucent worms creeping in the superior fornix coming through a tunnel in the conjunctival sac. It was observed that two worms were already crawling on the corneal surface. Five worms were removed with a plane forceps after instilling 4% Lignocaine hydrochloride eye drops. The patient

was observed for next three days for more worms, but no worms were found. After two years of follow up there was no recurrence and the patient was symptomatically free.

Fig 1: Anterior end demonstrating the mouth and oesophagus.

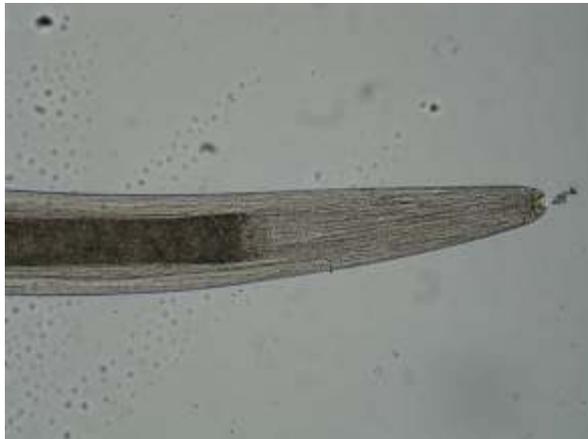


Fig 2: The body with transverse cuticular striations.



The worms were transferred to a sterile normal saline container and were sent to microbiology department for further examination. The worms were identified as nematode parasites by using an inverted microscope (Fig 1, 2 and 3), which showed sluggish motility, internal systems were clearly visible, and both the ends were straight and hook-like projections were appreciated. For further confirmation of the species, the worms and the microphotographs were sent to CDC Atlanta and confirmed as male worms of *T. callipaeda*.

Fig 3: Posterior curved end of the worm.



DISCUSSION

Of the two species of the genus *Thelazia*, *T. callipaeda* has been found to responsible for most of the cases of human ocular Thelaziasis in Asia. Although these parasites commonly affect the anterior segment of the eye, they can also cause severe damage to the posterior segment. Cases of intraocular Thelaziasis with rhegmatogenous retinal detachment, and intraocular inflammation involving vitreous causing visual disturbances and recovering the worm from human vitreous had been reported.^{7,8} Interestingly, in one case, the worm was discovered during intracapsular cataract surgery.⁹

The common predisposing factors for human Thelaziasis are unhealthy living conditions and the surrounding environment. Cattle rearing, contact with stray dogs, mountainous terrains and rainy season make the humans vulnerable to ocular thelaziasis.¹⁰ Conjunctival and corneal injuries, traumatic conjunctivitis facilitate the introduction of the larvae into the subconjunctival space and vitreous cavity. In the present case, cattle rearing was the predisposing factor, and the patient also reported with the history of being hit his eye with the tail of a cattle.

The natural cycle of vector activity of ocular Thelaziasis has seasonal distribution with a peak rate of transmission during July-August, which coincided with the reporting of this case. The main

mode of transmission in this case was probably injury with the cattle tail and might be through his contaminated towels. The towels being contaminated with cow dung containing deposited eggs/larvae of the worm and the same is used for wiping or rubbing the eyes after the injury is the possible mode of entry of eggs/larvae into the eyes.

Although the treatment of ocular Thelaziasis is topical Organophosphates, 1% Moxidectin and 10% Imidacloprid in animals; mechanical removal of the parasite is the only curative treatment for human ocular Thelaziasis.

CONCLUSION

Human ocular Thelaziasis is associated with unhygienic living conditions, low socio-economic status and improper personal hygiene, and commonly affects the rural population. It can be prevented by adopting protective measures like using bed nets at night, keeping the eyes, face and

nose clean while sleeping, by keeping the surroundings clean, and by creating public awareness about it. Suspecting ocular Thelaziasis remains the most important step for its diagnosis.

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