A REPORT OF THREE CASES OF HUMAN OCULAR THELAZIASIS IN MANIPUR MICROBIOLOGY

Microbiology

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ABSTRACT

BACKGROUND: This is a report of 3(three) cases of human ocular thelaziasis caused by *Thelazia* species.

CASE CHARACTERISTIC: Three patients aged 34 year, 27 years and 5 years old male attended Department of ophthalmology, RIMS, Imphal during the period from 2017 to 2019 with chief complaint of increased lacrimation, itching and irritation. The parasites were surgically removed from the eyes of patients in one piece under local anaesthesia and brought to Microbiology department and were processed for identification. They were all suffering from ocular *Thelazia* species.

RESULTS: These worms were intact, slender, thread-like and creamy white in colour. On the basis of recovery site, gross appearance and microscopical findings, the worms were identified to be *Thelazia* species.

CONCLUSION: This case report highlights the importance of "thelaziasis" and emphasize on further study of the morbid conditions and sequelae caused by the worm is required to minimise human infection.

KEYWORDS

Ocular *Thelazia*, Oriental eyeworm, *Thelazia callipaeda*, Manipur,

INTRODUCTION

Thelazia callipaeda was first reported by Railliet and Henry in 1910 from a Chinese dog. It is also known as Oriental eyeworm. The two important species infecting human eye are *Thelazia callipaeda* and *Thelazia californiensis*.¹ *Thelazia* belongs to genus nematode worms which are inhabitants in the eyes of dogs, cats, rabbits, camels and rarely, humans. Infestation with *Thelazia* species is called "Thelaziasis." In the hosts they are found in the eyelids, tear glands, conjunctiva and vitreous cavity of the eyeball. If not diagnosed early and treated it may lead to chronic conjunctivitis, scarring, keratitis, corneal ulcer and rarely intraocular problems.² Man is an accidental host. Transmission occurs through autumn housefly. Several species of the genera *Musca autumnalis* (pest of livestock) act as intermediate hosts. They ingest embryonated eggs while feeding on eye/nasal secretions of a sleeping host. Larvae develop in the body cavity of the fly and are deposited on the conjunctiva of a new host. This larva takes 3-6 weeks to attain maturity. Eggs are laid by female worm in the conjunctival and lacrimal sac of the host.³

Case 1. A 34 years old Hindu male, presented in ophthalmology department, RIMS, in August, 2017 with the complaint of itching, swelling of left upper eyelids, increased lacrimation and foreign body sensation in the right eye. He is a farmer from Thoubal district. On detailed ocular examination, a small whitish appearing point was seen in deep upper conjunctival cul-de-sac of right eye, which was removed by grasping with forceps. On further exploration three more worms were noticed inside left upper lid in the sub conjunctival space. His visual acuity was 6/6 for both eyes. He gave history of two similar episodes earlier for which he got treatment. General physical examination of the patient revealed no abnormalities. Routine investigations like complete haemogram, blood sugar, stool, urine were within normal limit. All the worms were removed intact and brought to Microbiology department for identification.

Case 2. A 5-year-old child from Moidangpok, Imphal reported in eye OPD in February 2018. He had mucoid discharge, redness in the left eye for one week with conjunctival congestion and swelling. Visual acuity was not affected. On examination of upper eyelid eversion, small white thread like worms were seen near the lateral canthus and conjunctiva with rapid moment. Total eight worms were removed under local anaesthesia. Routine examination like blood investigations, stool and urine were all within normal limit.

Case 3. A 27-year-old Hindu male from Lamdung, Imphal East reported in the month of July 2020 with complaints of irritation, itching and the feeling of worm like thing coming out of his left eye. He had removed one worm at home and another was removed at eye OPD under local anaesthesia. He is student and gave history of keeping two pet dogs. Visual acuity was 6/6 for both eyes and other investigations like complete haemogram, blood sugar were within normal limit.

Identification:

All the worms received were intact, slender, thread-like and creamy white in colour. Three of these were 10mm to 12mm in length (Figure 1). It had a tapered anterior end with trapezoid buccal capsule (Figure 2) and ventrally curved while posterior end was coiled spirally with spicule at the tip suggesting male (Figure 3). The entire body of the worms were covered by dense transverse cuticular striations (Figure 4). Based on the site of recovery, gross appearance and microscopical findings, the worms were identified to be *Thelazia* species.

DISCUSSION:

Thelazia are not human parasites. They are transmitted from animals to humans through intermediate hosts namely Dipteran flies. The female worm releases the sheathed larvae which reach the tears of the infected animal host and are ingested by the flies when they feed on the tears. Inside the flies, these hatch, cross the gut wall and migrate to various tissues and develop into infectious larvae and migrate to mouth parts of flies. When these flies feed on tears of humans, they transmit the larvae into the conjunctival sac and become adult worms in 3 to 9 weeks, which may live for 1 year or longer.⁴ Spread of *Thelazia* is more prevalent in areas with poor hygiene, sanitation and overcrowding where humans live in close contact with animals.⁵

Patient may present with symptoms of increased watering, redness of the eyes, foreign body sensation, itching due to inflammation of conjunctiva or cornea. Increased lacrimation may lead to eyelid dermatitis and swelling of lids. Corneal oedema can cause keratitis, photophobia and corneal erosions due to the serrated cuticle which causes mechanical damage to the conjunctival and corneal epithelium.⁶

In our case study, all the patients had close association with dogs and cats as pet animal. Further the patient who had repeated episode gave history of being very close to his pet dogs. In March 2012 a similar case of *Thelazia callipaeda* was reported from Manipur by RM Sing et al in

a 60-year-old male, Hindu farmer who came for cataract surgery in the ophthalmology department. Morphologically thelazia can be identified by its creamy colour and on microscopic examination anterior end bears a prominent cephalic extension protruding forward and rectangular buccal cavity with no teeth like structure. Vulva is anterior to the oesophago-intestinal junction about 0.5mm from anterior end in *Thelazia callipaeda*. This differentiates it from *Thelazia californiensis* where vulval opening is posterior to the oesophago intestinal junction. Cases of thelaziasis are increasing, mostly in rural areas with poor living and socioeconomic conditions and it mainly affects children and the elderly.⁷

CONCLUSION:

By early detection, complications caused by thelaziasis can be avoided. Hence awareness about cleanliness and thorough investigation of the pet dogs and cats which are in close contact with humans including the vector control strategies need to be carried out in the region to reduce and prevent the prevalence of infection.

Figure1. Whole Length Of *Thelazia Callipaeda*

Figure 2. Anterior End Of *Thelazia Callipaeda* Showing Rectangular Buccal Cavity

Figure 3. Posterior End Of *Thelazia Callipaeda* Showing Spicule And Coiled Tail

Figure 4: Body Of *Thelazia Callipaeda* Showing Dense Transverse Cuticular Striations.

Figure 5: *Thelazia Callipaeda* In The Upper Eyelid

REFERENCES

1. Choi WY, Lee WK, Lee OR. A case of Human Thelaziasis in Seoul. Korean J Parasitol 1977;15:127-32.
2. Rathinasamy M, Subhadevi S. Ocular thelaziasis in a 4 months old girl child. Chettinad Health City Med J. 2014;3:15-7.
3. A. Sharma, M. Pandey, V. Sharma et al. A CASE OF HUMAN THELAZIASIS FROM HIMACHAL PRADESH. Indian Journal of Medical Microbiology, (2006) 24 (1):67-9
4. Fuentes I, Montes I, Saugar JM et al. Thelaziosis in humans, a zoonotic infection, Spain, 2011. Emerging Infectious Diseases. 2012 Dec;18(12):2073.
5. Sharma M, Das D, Bhattacharjee H et al. Human ocular thelaziasis caused by gravid *Thelazia callipaeda* – A unique and rare case report. Indian J Ophthalmol 2019;67:282-5.
6. Mudita G, Sareen A, Gupta P et al., Ocular Infestation of *Thelazia callipaeda* presenting As Eyelid Dermatitis. Sch. J. App. Med. Sci., Sep 2017; 5(9A):3510-3512
7. Singh RM, Singh HL, Gurumayum P, Gambhir Singh RK. Human ocular thalaziasis. A case report from Manipur, India. Ann Trop Med Public Health 2015;8:13-15