A case of intraocular thelaziasis with rhegmatogenous retinal detachment

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Thelazia callipaeda or oriental eyeworm is a spirurid nematode. Dogs and cats are the main final hosts of the eyeworm and on occasions, rabbits, monkeys and humans may become hosts.1 The eyeworm normally parasitises in the conjunctival sac and lacrimal duct of the final hosts.2,3 T callipaeda is responsible for most of the cases of human thelaziasis in Asia.4 Ocular manifestations of thelaziasis include excess lacrimation, irritation, conjunctivitis, keratitis and corneal ulcers.5 Although most of the cases reported were extraocular, intraocular infestation has been reported in China.6 Here, we report a rare case of intraocular thelaziasis, in which the oriental eyeworm resulted in rhegmatogenous retinal detachment.

CASE HISTORY

A 54-year-old man presented with a one-week history of floaters and reduced vision in the left eye. He had experienced transient left eye pain for around one year and had recently developed symptoms of a ‘thread-like’ floating filament in the left visual field. He lived in rural China and had five dogs, including a puppy.

On examination, the visual acuity of the left eye was 6/15. The intraocular pressure was 13.7 mmHg. Slitlamp examination showed a quiet anterior chamber with mild posterior subcapsular cataract and mild vitreous opacity. Fundus examination showed a single small U-shaped tear in the inferonasal retina with neurosensory retinal detachment from four o’clock to nine o’clock with mild retinal folds. A diagnosis of left rhegmatogenous retinal detachment was made and he underwent combined lens extraction with phacoemulsification and intraocular lens insertion, vitrectomy and gas tamponading. While draining the subretinal fluid from the retinal tear, a spiral-like yellowish mass was found lying on the retinal pigment epithelium (RPE) beneath the retinal tear. The mass expanded to be a living worm and was removed en bloc with intraocular forceps. Examination of the worm under the surgical microscope showed a thread-like, semi-transparent worm with two ends. During the rest of the surgery, no significant abnormal findings were discovered except for a yellow-white scar on the RPE, where the worm had been. On the first day after the surgery, the visual acuity of the left eye was finger counting at 30 cm and the IOP was 52.5 mmHg. The IOP was 12.5 in the next day after aggressive anti-glaucoma medication. On the fourth day after the surgery, the VA was 6/300 in the left eye and the retina was attached, however, the retina detached again one month later. Fundus examination revealed a new small U-shaped tear near the original break, as well as a preretinal proliferative membrane extending from five to 10 o’clock. A second vitrectomy with proliferative membrane peeling and silicone oil tamponading was performed for the patient. No more worms were found during the second surgery. The VA was 6/120 and 6/75 on day 1 and day 4 after the second surgery. The VA was 6/60 and 6/100 on the visits one month and three months, respectively, after the second surgery. The retina remained attached in all of the post-operative visits after the second surgery.

The worm was identified as Thelazia callipaeda. It was measured to be one millimetre in length and up to 0.2 mm in breadth with anterior and posterior ends (Figures 1A and 1B). Transverse cuticular striations were seen all over the worm body (Figure 2A). Although a hexagonal profile was not clear on the buccal opening, the worm was found to have no lips or teeth. The oesophagus was full of...
ingested material. The uterus was filled with embryonated eggs in the anterior part of the worm body (Figure 2B).

DISCUSSION

Human thelaziasis is caused by *T. callipaeda* or *T. californiensis*. The adult worm of *T. callipaeda* normally parasitises in the final host’s conjunctival sac and the female worm produces either larvae or embryonated eggs. The first-stage larvae are transmitted by the intermediate hosts, the drosophilid *Phortica* flies. The first-stage larvae develop into the infectious third-stage larvae and move to the mouth of the flies, where they are deposited onto the new final hosts. The larvae finally develop into the adult stage while in the conjunctival sac of the new hosts. The final hosts are mainly dogs and cats, while humans are occasional and accidental hosts. Human thelaziasis has been reported in many Asian countries, including China and *T. callipaeda* is thought to be responsible for most of the cases. Most of the reported cases result in conjunctivitis and keratitis and there were only a few reports on intraocular infestation of *T. callipaeda*, including intracameral thelaziasis7–8 and intravitreal thelaziasis.8,9,10

To our knowledge, this is the first report of intraocular thelaziasis associated with rhegmatogenous retinal detachment. Based on the intra-operative findings, the rhegmatogenous retinal detachment is likely to be caused by the worm, as there was only one retinal tear and the worm was lying just beneath the tear. Another possibility is that an intravitreal worm could have entered through an existing retinal tear. This possibility is unlikely to be due to the much larger volume of the vitreous cavity compared with the small size of the worm. As *T. callipaeda* does not have hooks or sharp spines on its body and its mouth has no lips, it is difficult to determine how and where the worm entered into the vitreous cavity and caused the retinal tear. Lee and colleagues9 previously postulated that the parasite entered the vitreous cavity through a corneal laceration. Reports by Zakir and associates6 and Xue, Tian and Huang10 both failed to determine the route by which the worms entered into the eyes. Zakir and associates6 suggested that the route of intraocular parasitism was through the skin by infectious filariform larvae or ingestion of raw drinking water containing the larvae or embryonated eggs. Whether the larvae can penetrate human skin and travel along the blood stream, or whether the larvae and embryonated eggs can survive in the human digestive tract, is still unknown. In this case, if the larva had accessed the eye via the blood stream, it is most likely that it would have entered the choroidal circulation and settled under the retina. In our patient, the worm stayed beneath the retinal tear instead of moving elsewhere. If it had not stayed in the retinal tear, it would have been more difficult to determine the exact cause of the rhegmatogenous retinal detachment and the associated thelaziasis might not have been detected.
REFERENCES


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