CASE REPORT

Loa loa in the vitreous cavity of the eyeBhagabat Nayak,¹ Subijay Sinha,² Lipika Nayak³¹Dr RP Centre, AIIMS, New Delhi, India²Sushrut Eye Hospital, Kolkata, West Bengal, India³Lok Nayak Hospital, New Delhi, India

Correspondence to

Dr Bhagabat Nayak, bhagabat80@gmail.com

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SUMMARY

A 25-year-old man presented with painful diminution of vision (20/160), accompanied by redness, pain and floaters, over a period of 2 weeks, in his left eye. On examination, the anterior segment revealed moderate inflammation. Posterior segment examination showed a grade one vitreous haze with a fairly long live worm moving around in a haphazard and relentless manner throughout the vitreous cavity. The media was slightly hazy due to corneal oedema. The worm was clearly visible in the fundus photo taken. So we planned the patient for vitrectomy, and removal of the worm was performed under steroid cover. The worm was sent to the microbiology department for examination and it was found to be the species of *Loa loa*. The patient was administered a course of diethylcarbamazine and, on follow-up after 2 weeks, his vision had improved to 20/40.

BACKGROUND

Loa loa, a filarial nematode, is a parasite of man. This nematode is transmitted to humans by *Chrysops* (mangrove flies) and produces a disease called loiasis. It is more prevalent in tropical regions, such as those found in Africa, due to presence of its two vectors, *Chrysops silicea* and *Chrysops dimidiata*, in rain forests.¹ Though it usually causes subcutaneous loiasis, eye infections may occur when the adult worm enters into the subconjunctival tissues, prompting the synonym 'eye worm'; the worm may also enter into the anterior chamber of the eye.^{2 3} The infection mostly remains asymptomatic for a long period. The microfilaria of *L. loa* may not often be demonstrated in these cases, probably either because the worms are not mature or only males are present in the infection.

We report a case of intravitreal filariasis of *L. Loa* from India, which we removed surgically from the vitreous cavity.

CASE PRESENTATION

A 25-year-old man presented with painful diminution of vision, redness, pain and floaters, over a period of 2 weeks, in his left eye. On examination, visual acuity of right and left eye was 20/20 and 20/160, respectively. The patient was a fruit vendor by profession, from an eastern region of India. Biomicroscopic examination revealed the anterior segment as having moderate inflammation. Posterior segment examination showed a grade one vitreous haze with a fairly long live worm moving around in a haphazard and relentless manner throughout the vitreous cavity. The media was slightly hazy due to corneal oedema. The worm was clearly visible in the fundus photo taken

(figure 1A). So we decided planned the patient for vitrectomy, and removal of the worm was performed under steroid cover.

INVESTIGATIONS

Routine blood investigation was carried out. A white cell count showed marked eosinophilia (14%). Although filarial antibodies were detected in serum, microfilariae were found in neither the thick nor thin peripheral blood smear.

DIFFERENTIAL DIAGNOSIS

Although *Brugia malayi*, *Wuchereria bancrofti* and *Dirofilaria immitis* were included in the differential diagnosis, microbiological examination confirmed the worm to be from a species of adult *L. loa*.

TREATMENT

On the basis of clear visibility of a live worm inside the vitreous cavity, we decided to surgically remove it from the eye. Alternatively, only an antifilarial drug could have killed the worm inside the eye, and may have resulted in a more toxic reaction inside eye. The worm was surgically removed from the vitreous cavity and sent to the microbiology department for examination, where it was found to be from the *L. Loa* spp (figure 1B). The patient was administered a course of diethylcarbamazine at a dose of 6 mg/kg/days taken 3 times daily for 12 days, as it is effective against the microfilariae and adult *L. loa*.

OUTCOME AND FOLLOW-UP

On follow-up after 2 weeks, the patient's vision had improved to 20/40. The vitreous haze had cleared and there was minimal corneal oedema.

DISCUSSION

Loiasis, also known as African eye worm, is caused by the parasitic worm *L. loa*. It is transmitted

Figure 1 (A) Showing the coiled *Loa loa* worm clearly visible in the fundus photo (arrow). (B) Transparent tubular body of the worm under high microscopic magnification after removal through vitrectomy for microbiological examination.

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through the repeated bites of deerflies (also known as mango flies or mangrove flies) of the genus *Chrysops*. The flies that transmit the parasite breed in the high-canopied rain forests of West and Central Africa. The infection is most commonly associated with recurrent episodes of itchy swellings (local angio-oedema) known as Calabar swellings in addition to eye infestations. Though endemic to West and Central Africa, sporadic cases have been reported from other parts of the world, including India. Most of these cases describe the presence of *L. loa* in subconjunctival tissue,^{4–6} though a few cases have been reported from India with the worm in the anterior chamber of the eye.³ However, to the best of our knowledge, this is the first case report of loiasis of the vitreous cavity of the eye.

The worm in this case, identified as an adult male *L. loa*, might have, in its larval stage, migrated to the vitreous cavity—either from the blood through ciliary vessels or by burrowing through the coats of the eyeball—and grown there. Absence of microfilaraemia may have, in this case, been due to the presence of a lone adult male incapable of reproduction.

In conclusion, this is a case of loiasis in the vitreous cavity of the eye—encountered in a non-endemic area—with absence of microfilaraemia and with no Calabar swelling.

Patient's perspective

I have benefited after surgery and medicine treatment. My vision has improved significantly with disappearance of floaters.

Learning points

- ▶ As *Loa loa* can manifest as a worm in the vitreous cavity, a complete ocular examination including posterior segment should be undertaken in any case of worms in the anterior segment of the eye and subcutaneous loiasis.
- ▶ Removal of the worm from the vitreous cavity should be attempted before starting an antilarial drug.
- ▶ A blood investigation is necessary to rule out the presence of microfilaraemia.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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