Live *Ascaris* in anterior chamber causing hypertensive uveitis

Anadi Khatri, Bal Kumar Khatri

ABSTRACT

**Introduction:** Human ocular parasitosis is common in the parts of the world-especially in the developing and the underdeveloped nations where there is poor knowledge regarding hygiene and the devastating consequences that may arise due to its disregard.

**Case Report:** Herein, we describe a 42-year-old male presenting with decreased vision with painful red eye since five days. Best corrected Visual Acuity (BCVA) was 1/60 and 6/6. The right eye was congested; hypopyon and vitreous exudates present. Single live freely motile worm noted in anterior chamber. Flat retina with hyperechoic vitreous shadows observed in ocular ultrasonography. Intraocular pressure was 38 and 17 mmHg. No relevant systemic association identified. Surgical retrieval of live worm was achieved via corneal incision. The worm was identified as adult male *Ascaris lumbricoides* (26x2 mm) by parasitologist. Blood eosinophil count was raised and adult worms and ova of *Ascaris lumbricoides* was also seen in the stool. The eye was treated with topical steroid, antiglaucoma and cycloplegic agents supplemented by oral anthelmintic and corticosteroid (1 mg/kg). Visual recovery was achieved.

**Conclusion:** In patients presenting early with intraocular parasite, surgical removal of the live adult worm along with oral steroids is recommended to treat and preserve vision.
**CASE REPORT**

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**Keywords:** *Ascaris*, Parasite, Uveitis, Viscoexpression

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**INTRODUCTION**

Intraocular invasion by *Ascaris lumbricoides* is an extremely rare condition. It can present suddenly and with an adult worm with no obvious posterior segment pathology (except uveitis). Also, commonly known as the roundworm, it infects humans when an fertilized egg of the organism is ingested. It then transforms into a larval worm which penetrates the wall of the duodenum and enters the blood stream. It is then transported to the liver and heart from where it enters pulmonary circulation to reach the alveoli. In three weeks, the larva passes from the respiratory system to be coughed up, swallowed, and thus returned to the small intestine, where it matures to an adult male or female worm [1].

*A. lumbricoides* is characterized by its great size. Males are 2–4 mm in diameter and 15–31 cm long. The male's posterior end is curved ventrally and has a bluntly pointed tail. Females are 3–6 mm wide and 20–49 cm long [2]. More than 1 billion people are affected by this infection [3]. Ocular infestation by this parasite has

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been described earlier in nasolacrimal passage and an intraocular invasion by its larval form dating back to 1937 [2].

Surgical removal is essential and best done with no touch technique to prevent capsule of the worm peeling off and for prevention of both vision and life-threatening allergic reaction.

**CASE REPORT**

A 42-year-old male presented to our outpatient department complaining of dull aching pain with the sensation of ‘something moving’ in the right eye. It was associated with redness, watering and photophobia. He denied previous ocular or systemic symptoms. General physical examination was unremarkable. He gives no history of fever, vomiting, abnormal/involuntary body movements, pruritus.

The patient has no history of diabetes, hypertension or any other chronic illness for which he has been treated or is receiving treatment He is a non-vegetarian - consumes fish, chicken and egg. He denies intake of raw meat. He is a farmer by occupation and has no similar complains/problem in the past.

The patient’s vision in right eye was 1/60 and 6/6 in left eye. On slit lamp examination, there was diffuse congestion of the conjunctiva of the right eye with circumcorneal congestion. The cornea was clear. Hypopyon of 1 mm was present. A moving worm was seen in the anterior chamber of the right eye. Pilocarpine was added to prevent the worm from escaping from anterior chamber and shifted to operating room. Posterior segment findings of the right eye could not be appreciated and the findings of the left eye were normal.

**Investigations**

Intraocular pressure (IOP) was 38 mmHg in right eye and 17 mmHg in left eye. B-scan was performed (longitudinal) which showed flat retina with hyperechoic vitreous shadows, Blood and stool was collected from the patient and sent for microbiological investigation. Blood examination revealed eosinophilia (6%). The other lineage were within normal limit. Stool examination revealed adult worms and ova in the stool of *A. lumbricoides*.

**Differential diagnosis**

Right eye Pan Uveitis secondary to live intraocular parasite (Phylum)

**Treatment**

Patient was planned for right eye live intraocular foreign body removal (worm) under subconjunctival anesthesia. Under subconjunctival anesthesia, a clear corneal incision was made at temporal and nasal side measuring approx 2.8 mm. Viscoelastics—hydroxypropyl methylcellulose— was injected from the nasal port to expel the worm with no touch technique to prevent compromise in its capsule. Upon expulsion, AC wash was done and subconjunctival injection of vancomycin and dexamethasone was given. The worm was placed in saline (later transferred to ethanol 70%) and sent for a specialized parasitology department. The worm was identified as an adult male *Ascaris lumbricoides* measuring 26 mm long and 2 mm wide. The patient was prescribed eye drop ofloxacin, prednisolone, timolol, systemic acetazolamide, tropicamide along with systemic prednisolone (1 mg/kg) and albendazole stat (Figures 1–4).

**Outcome and follow-up**

On subsequent follow-ups, his visual acuity improved to 6/18 at third week with no further improvement in later follow-ups (At week 6 and 8) even after refraction.

Fundus examinations including ultrasonography (A/B scan) revealed normal nomenclature bilaterally. Intraocular pressure was 14 and 16 mmHg respectively.

**DISCUSSION**

Intraocular invasion by *Ascaris lumbricoides* is an extremely rare condition. It can present suddenly and with an adult worm with no obvious posterior segment pathology (except uveitis). Surgical removal is essential and best done with no touch technique to prevent capsule of the worm peeling off and for prevention of both vision and life-threatening allergic reaction.

*Ascaris lumbricoides* is the largest intestinal nematode parasitizing man. Man is the only definitive host of *Ascaris lumbricoides*. This parasite is unique in that it passes its entire life cycle in one host. Continuance of the species is ensured by transference from one host to another.

Figure 1: Live *Ascaris* can be seen resting over the iris from around 9–12 o’clock.
to another. The female is capable of laying both fertilized and unfertilized eggs. The mature female worm has an enormous egg laying capacity, liberating about 200,000 eggs daily [4]. Kean et al. have reported that eggs of *Ascaris* behave like an inert material [5]. It is the larva produces an irritant fluid due to the presence of Ascarase, resulting in allergic manifestation. and when absorbed, is toxic and may damage the tissues. The worm is known to cause subconjunctival mass, granulomatous iridocyclitis, choroiditis (macular or paramacular), recurrent vitreous hemorrhage, periphlebitis, papilloedema, chronic dacryocystitis and invasion into the subretinal space [5] *Ascaris* larvae do not normally develop in the eye [4] as shown by animal experiments with intraocular injection of *Ascaris* ova.

**CONCLUSION**

Management of live ascariasis in anterior chamber surgically has never been described in any literature. The use of viscoelastics caused restricted movements and also prevented it outer coating materials to be directly come in contact with the surrounding tissue. The technique of viscoexpulsion could be helpful in future cases in this regard. The definitive diagnosis of the type of worm should be definitely done by morphological evaluation of the adult worm. Nonetheless, some patients may not have them detectable in the blood due to the following reasons i) infestation by a sole male or female adult and/ or ii) low parasitaemia load. The worms can incubate for months and even years before they start to migrate. Surgical removal of the live adult worm is recommended.

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**Author Contributions**

Anadi Khatri – Substantial contributions to conception and design, Acquisition of data, Analysis and interpretation of data, Drafting the article, Revising it critically for important intellectual content, Final approval of the version to be published

Bal Kumar Khatri – Analysis and interpretation of data, Revising it critically for important intellectual content, Final approval of the version to be published

**Guarantor**

The corresponding author is the guarantor of submission.

**Conflict of Interest**

Authors declare no conflict of interest.

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