Extraintestinal Presentation of Enterobius Vermicularis in a 14-Year Girl

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ABSTRACT

Enterobius vermicularis (EV) is an intestinal parasite that usually presents with nocturnal perianal pruritis. Few extraintestinal manifestations have also been reported in the literature. Herein, we report an EV infection in the conjunctival sac of a 14-year girl with mild ocular irritation and redness. She felt some thread-like structure coming from her eyes. General physical and ophthalmological examination was unremarkable. Her stool detailed examination was not performed. The thread-like structure was identified microscopically as EV. She was treated with oral albendazole. Only four comparable cases have been reported in contemporary medical literature, all from India. This report presents the first case from Pakistan.

Key Words: *Enterobius vermicularis*, *Extraintestinal, Conjunctival sac*.

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INTRODUCTION

Enterobius vermicularis (EV) is an intestinal nematode that primarily affects humans. The prevalence is highest among school-going children and young adults, however, individuals of all ages are susceptible to infection in poor socioeconomic areas and resource-rich regions.[1] The presence of EV has also been observed in school-going Pakistani children.[2]

Embryonated eggs, the infective form, are a unique life cycle feature of this worm. Nocturnal migration of gravid female worms to lay eggs on the perianal skin folds causes hallmark perianal pruritus. Frequent itching causes contamination of fingers. Infection occurs *via* self-inoculation by transferring eggs on the contaminated fingers to the mouth or exposure to the contaminated environment. Infrequently, serious intestinal manifestations of EV, such as adult worm-associated appendicitis and intestinal abscesses, have been reported.[3]

Extraintestinal manifestations of EV have been reported very rarely in the literature. Herein, we report an EV infection in the conjunctival sac of a 14-year girl with mild ocular irritation and redness.

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CASE REPORT

A 14-year girl, with no known comorbidities, presented to the ophthalmology clinic at the Aga Khan University Hospital (AKUH), Karachi, Pakistan with the complaint of slight blurring of vision along with redness and itching in her right eye for the last two days. She had discarded what she called and felt a whitish tiny motile, worm-like structure in the right lower conjunctival sac before coming to the hospital.

She appeared physically well on general physical assessment. Redness in the right eye was observed but no worms were found on ocular assessment. She was advised moxifloxacin eye drops (1 drop per eye / twice per day) and fluorometholone eye drops (1 to 2 drops per eye / twice per day). The patient followed up in the ophthalmology clinic with the passage of four worms from her lower conjunctival sac. Two worms were collected in a sterile container and submitted for identification to the microbiology laboratory, at AKUH, Karachi, Pakistan.

The macroscopic examination of the submitted specimen in the laboratory revealed a very tiny worm, whitish in colour, ranging in length from 5 to 8 mm with tapering ends, attached to the side wall of the container.

On microscopic examination with saline and iodine preparation, identifiable structures were consistent with EV (adult female). These included a pointed tail, a uterus, a bulbous and muscular oesophagus, and lateral alae (Figure 1).

After the microbiology assessment, she also visited the infectious disease (ID) clinic. Her physical assessment was unremarkable. She denied nocturnal perianal itching. Oral albendazole (300 mg / twice daily for three days) was prescribed, with the request of stool detailed report (DR) for ova and parasites;

however, the specimen was not submitted. She was followed up in the ID clinic with a complete resolution of symptoms.

DISCUSSION

Extraintestinal presentations of EV are rare but diverse including tubo-ovarian abscesses and pelvic inflammatory disease,[4] mesenteric lymphadenopathy,[5] and nocturnal enuresis.[6]

A literature review of EV-associated eye involvement revealed four similar cases reported and recorded in the years 1976, 2011, 2015, and 2022. A detailed review of clinical presentations in these cases showed similarities to the present case.

A 15-year girl (1976) from Assam, India, reported to expel from her left eye approximately 42 worms over three weeks of which she was under critical observation in the hospital for about two weeks. This patient's stool examination showed negative results for the presence of worms, and she did not have any other complaints. Surprisingly, during the examination while hospitalised, there were no worms reported to emerge from the nose.[7]

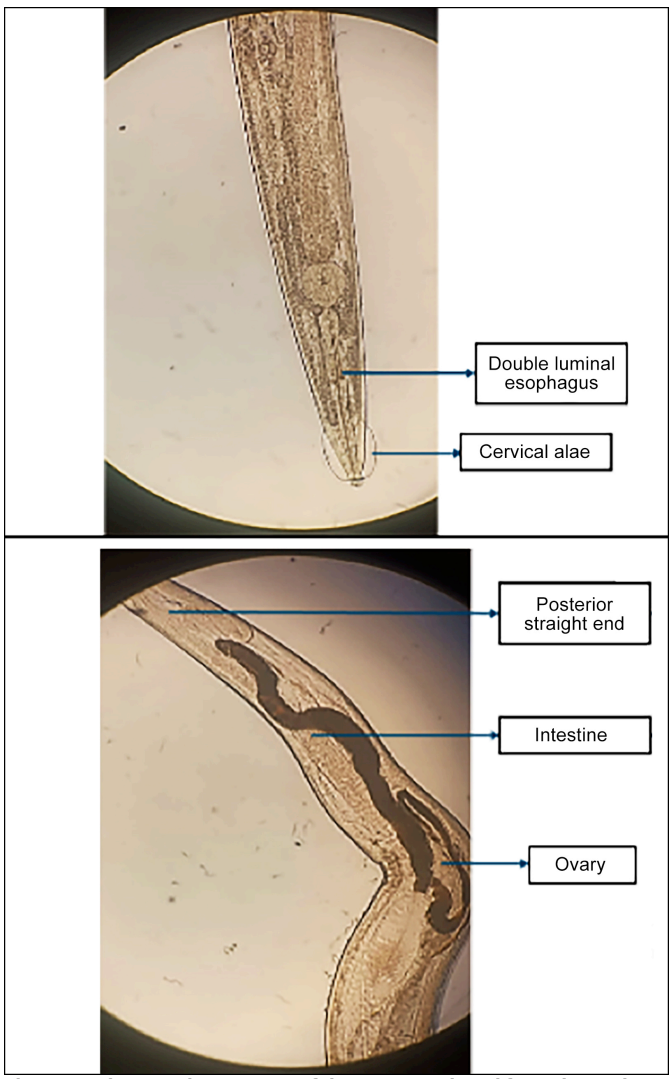

Figure 1: Microscopic structure of the worm retrieved from the conjunctival sac of the right eye.

A 14-year Caucasian girl (2011) and a 2.5-year boy in West Bengal (2015) presented with similar symptoms and the occurrence of worms in the eyes. In both cases, vision was normal, and biomicroscopy of the eye was unremarkable with an intact conjunctival sac and patent nasolacrimal duct. Both cases showed no signs of perianal worms or night-time pruritus, along with no other laboratory tests, e.g., a cellulose tape. However, stool parasite and ova examination showed EV ova.[8,9]

In 2022, a 14-year girl from Calcutta and a 35-year female (2015) from India presented to a tertiary care hospital with common complaints of redness, irritation, watery left eye, and worm-like structure discharge from the same eye. Both had normal visual acuity. The younger girl gave a history of perianal pruritis while the other lady did not give such a history. The stool DR for EV ova was positive in the second case only.[10]

The Centres for Disease Control (CDC) recommend oral pyrantel pamoate or mebendasole (100 mg) as standard treatments for EV. A second dose may be needed for persistent infections. Household contacts should be tested and treated due to environmental contamination. In this case, other household members did not undergo testing or treatment, but guidance was provided for environmental cleaning.

In conclusion, ocular enterobiasis, though infrequently encountered, represents a distinctive clinical entity. These cases demonstrate the importance of a comprehensive diagnostic approach involving ophthalmic examinations, imaging studies, and collaboration between diverse medical specialities. Furthermore, successful management with anthelmintic therapy emphasises the need for awareness among healthcare providers regarding the potential extraintestinal manifestations of EV. Continued research into pathogenesis and optimal management strategies will contribute to our understanding of this rare but intriguing condition.

PATIENT'S CONSENT:

Informed consent was obtained from the patient.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

MS: Data collection, literature review, and design of the work.
MZ: Conception, writing, reviewing, and final approval of the manuscript.
Both authors approved the final version of the manuscript to be published

REFERENCES

1. Shin H, Jung BK, Ryoo S, Hong S, Chang T, Park J, *et al.* Enterobius vermicularis infection among preschool children: A 12-Year (2008-2019) survey in large cities and provinces of the republic of Korea. *Korean J Parasitol* 2021; **59(4)**:421-6 doi: 10.3347/kjp.2021.59.4.421.
2. Khan W, Panhwar WA, Mehmood SA, Ahmed S, Ahmed MS, Khan N, *et al*. Pinworm infection in school children of four districts of Malakand region, Khyber Pakhtunkhwa,

Pakistan. *Braz J Biol* 2021; **82**:e238769. doi: 10.1590/1519-6984.238769.

3. Sousa J, Hawkins R, Shenoy A, Petroze R, Mustafa M, Taylor J, *et al.* Enterobius vermicularis-associated appendicitis: A 22-year case series and comprehensive review of the literature. *J Pediatr Surg* 2022; **57(8)**:1494-8. doi: 10.1016/j.jpedsurg.2021.09.038.
4. Mentessidou A, Theocharides C, Patoulias I, Panteli C. Enterobius vermicularis-associated pelvic inflammatory disease in a child. *J Pediatr Adolesc Gynecol* 2016; **29(2)**: e25-7. doi: 10.1016/j.jpag.2015.10.010.
5. Zafar S, Tariq MU, Ahmed Z. Ectopic enterobius vermicularis infestation; An extremely rare cause of mesenteric lymphadenopathy mimicking tuberculous lymphadenitis. *J Ayub Med Coll Abbottabad* 2018; **30(1)**:124-6.
6. Al-Shadood HA. Study the association between enterobius vermicularis infection and enuresis among children in Al-Najaf city. *AL-Qadisiya J Veterinary Med Sci* 2015; **14(1)**: 104-8. Available from: https://www.iraqoaj.net/iasj/pdf/12969c19fc82e739.
7. Dutta LP, Kalita SN. Enterobius vermicularis in the human conjunctival sac. *Indian J Ophthalmol* 1976; **24(1)**:34-5.
8. Babady NE, Awender E, Geller R, Miller T, Scheetz G, Arguello H, *et al.* Enterobius vermicularis in a 14-year girl's eye. *J Clin Microbiol* 2011; **49(12)**:4369-70. doi: 10.1128/jcm.05475-11.
9. Mallick SK, Sengupta R, Banerjee AK. Unusual presentation of enterobius vermicularis in conjunctival sac. *Trop Doct* 2015; **45(4)**:247-9. doi: 10.1177/0049475514562494.
10. Bose S, Mondal T, Das SK, Chakraborty A, Ghosh S, Pramanik N, *et al.* Rare presentations of ocular enterobiasis-case reports. *Trop Parasitol* 2022; **12(2)**:126-9. doi: 10.4103/tp.tp_27_21.

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