

CASE REPORT

Enterobius Vermicularis Induced Endophthalmitis - A Case Report on Anaesthetic Consideration

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ABSTRACT

We report an unusual case of extraintestinal infection with adult *Enterobius vermicularis* worm found alive intraocular in a 2 year old girl, presenting with hypopyon. Under general anaesthesia using routine drugs, worm was removed alive with all emergency drugs been kept ready to deal with anaphylactic reaction. Case was managed safely without any complication.

Key Words: enterobius vermicularis, general anaesthesia, anaphylactic reaction, endophthalmitis.

INTRODUCTION

Pinworm infections are also known as enterobiasis or oxyuriasis. They are one of the most common types of human intestinal worm infections, commonly affecting children between the ages of 5 and 10 years. *Enterobius vermicularis*, often referred to as pinworm, is an intestinal nematode which commonly infects children throughout the world. Transmission of *E. vermicularis* eggs occurs through the fecal-oral route, with eggs being directly inoculated from the fingers into the mouth. Fomites may also play a role in the transmission. The eggs are infective shortly after being laid, making autoinfection a common route of intestinal infection.

Extra intestinal presentation is very rare. The most common extraintestinal site is the female reproductive tract (vagina, uterus, ovaries, and fallopian tubes) due to migration of the female worm

from the anus.^{1,2} Prevalence in children in certain communities has been found to be as high as 61% in India.

CASE REPORT

A 2 year old girl (body weight-7 kg) was admitted with complaints of redness in right eye for fifteen days with no improvement after using topical medication. She had no history of fever and ocular trauma. Provisional clinical diagnosis of hypopyon was made after sonography, which was suggestive of endophthalmitis and posterior vitreous detachment was also seen. All routine blood investigations (CBC, RFT, LFT, Serum electrolytes, blood sugar, Coagulation profile, HIV, HBsAg, ECG, Chest X-ray) were found to be normal. Live worm was removed along with tissues from anterior chamber, subluxated lens was removed and surgery for retinal detachment was not required. On histopathological examination worm was confirmed to be *enterobius vermicularis*.

Anaesthetic Management

After thorough pre anesthetic checkup and pre operative optimization, patient was scheduled for an elective surgery. On the day of surgery patient vitals were blood pressure 96/60 mm Hg, pulse 160 bpm, oxygen saturation 100%. Patient was given a cover of steroids (inj.hydrocortisone 1.5 mg/kg and dexamethasone 0.1 mg/kg slow IV) for its anti inflammatory property followed by inj. Midazolam 0.01mg/kg, inj. Glycopyrrolate 0.005mg/kg, inj.

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Fentanyl 1 mcg/kg IV. Then inj. Thiopentone 5mg/kg was given for induction and muscle relaxant inj. Atracurium 0.5mg/kg loading dose was given after IPPV with 100% oxygen for 3-5 mins. Patient was intubated with 4.0 mm uncuffed ETT under direct laryngoscopic vision, bilateral air entry checked and tube fixed at 12 mark. Maintenance of anesthesia was done using N₂O:O₂ 60:40, isoflurane 0.2-0.6% and inj. Atracurium 0.1 mg/kg IV SOS. Keeping in mind anaphylaxis could have happened intra operatively all emergency drugs (inj. Hydro corti son e, inj. Dexamethasone, inj. Atropine, inj. Adrenaline, inj. Noradrenaline, inj. Ephedrine, inj. Dobutamine, inj. Amiodarone) were kept ready. In this case a live

worm was present in anterior chamber which was seen directly under microscope and removed, anterior chamber wash was done to remove pus from the right eye. After the surgery all anesthetic agents were withdrawn, oral suctioning done, and after return of spontaneous respiration inj . Neostigmine 0.05-0.07mg/kg and inj. Glycopyrolate 0.005mg/kg IV given. Patient extubated and shifted to recovery room for observation, no signs of anaphylaxis were present intra and post ope ratively . Worm was sent to microbiology department to proceed for further medical management, and was found to be Enterobius vermicularis.

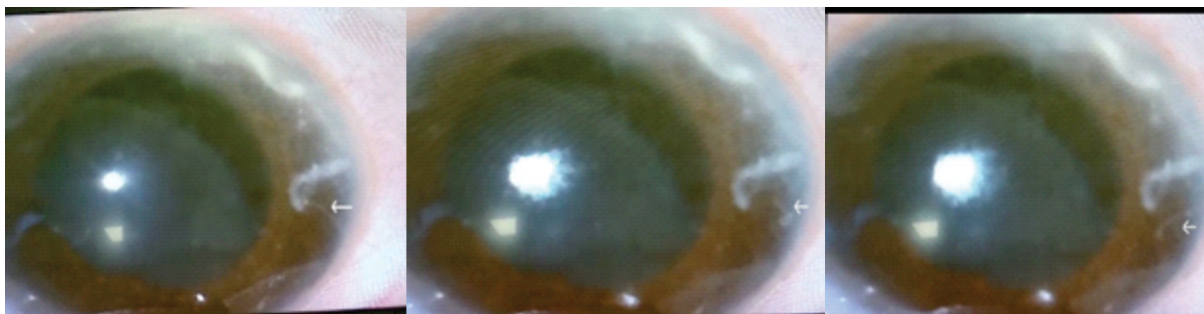


Figure 1: Above three figures depicts change in position of live worm *E. vermicularis* in anterior chamber of right eye.

DISCUSSION

Enterobius vermicularis is an organism that primarily lives in ileum and caecum. Once *E. vermicularis* eggs are ingested, they take about 1 to 2 months to develop into adult worms which happens in the small intestine . These do not usually cause any symptoms when confined to the ileocecal area. The female adult worms and ova migrate to the anal area mostly at night time and deposit thousands of eggs in the perianal area. This migration causes a lot of itching and pruritus. Eggs hatch near the anal area causing itching, scratching and this causes perianal pruritus. This leads to contamination of the fingers and results in ingestion of the eggs (autoinfection) and restarting of the life cycle of the worm. Occasionally, the larvae migrate back into the rectum and to the small intestine and begin the life cycle (retro infection).

According to the CDC guidelines the recommended treatment for pinworm infection is oral pyrantel pamoate, given at a dose of 11 mg/kg of body weight. Alternatively, patients may be given one dose of mebendazole (100-mg tablet).

A second dose may be given in cases where the infection persists-typically the result of auto-inoculation

Within the OR anaphylactic reactions have a reported incidence of 1 in 4000 to 1 in 25000. Bronchospasm is the most common presenting sign in patients under general anesthesia (78 .3%). Other signs and symptoms of anaphylaxis in the OR for patients under general anesthesia include hypotension (63.9%), urticaria (54.2%), desaturation (49.4%), angioedema (16.9%), and cardiovascular collapse (6%).

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Ring and Messmer described the following four-grade scale, which may be used to classify intra-operative anaphylactic events:

- Grade 1-Anaphylaxis with cutaneous signs only
- Grade 2-Anaphylaxis with cutaneous manifestations, as well as hemodynamic instability
- Grade 3-Anaphylaxis with life-threatening reactions, including cardiovascular collapse
- Grade 4-Anaphylaxis with cardiac arrest

The drug of choice in the management of anaphylaxis is epinephrine. For patients with refractory hypotension, additional boluses of epinephrine and even an epinephrine infusion may be required to maintain hemodynamic stability. Other vasoactive agents (eg, Vasopressin), Trendelenburg position, and IV fluids may be required sometimes. Patients who are on beta blockers and are nonresponsive to epinephrine should be treated with IV fluids and glucagon. Corticosteroids are administered to decrease edema and to block the release of immune mediators. Hydrocortisone has a rapid onset of action and is the preferred steroid in this circumstance.

Patient was thoroughly examined for other possible sites of enterobius inoculation or infestation and medical management was included in plan of treatment.

Ocular involvement by *E. vermicularis* is extremely rare. In literature, there are only two case reports of the adult worm being isolated from the conjunctival sac. The first report from 1976 describes a case of 15 year old Indian girl who gave history of worms crawling out of her eyes. She continued to expel

worms for 21 days, with a total number of 42 worms identified.⁴ Second case report is of a 14 year old Caucasian girl in whom 6 adult *E. vermicularis* were isolated from conjunctiva! sac as well as nose¹. Only one case is reported in which embryonated eggs of *E. vermicularis* were isolated from corneal scrapings obtained from a graft infiltrate following penetrating keratoplasty⁵.

CONCLUSION

The anaesthetist should be aware of anaphylactic reaction and be prepared for treatment. Consequently, a close monitoring for early diagnosis and appropriate management of anaphylaxis are essential to stabilize the patient and produce the best outcome.

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