

## Case reports

# Inadvertent detection of massive *Enterobius vermicularis* infection in an asymptomatic adult with rectal blowout following barotrauma

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**ABSTRACT.** *Enterobius vermicularis* (pin worm) is a common intestinal parasite infection which usually affects children and rarely causes significant illness. However, of the few reports of extra-intestinal *E. vermicularis* infection reported in the literature, patients can have significant morbidity and mortality, thus stressing the need for appropriate management of pin worm infection. We report a case of massive *E. vermicularis* infection in a 20-year-old male which was inadvertently discovered during an emergency abdominal surgery. The case emphasizes the need to perform routine ova-parasite screening at periodic intervals to detect intestinal parasitic infections, to promote adequate practices to improve sanitation facilities and to direct appropriate therapeutic measures to eliminate the worm burden in case of infections.

**Key words:** pin worm, asymptomatic infection, *Enterobius vermicularis*, barotrauma per anum

## Introduction

*Enterobius vermicularis* (pinworm) is a common intestinal parasite infection which usually affects children and rarely causes significant illness. Infection is most commonly confined to the intestinal tract [1]. Usual manifestations are perianal itching, sleeplessness, hyperactivity, weight loss, abdominal pain and vomiting. However, of the few reports of extra-intestinal *E. vermicularis* infection reported in the literature, patients can have significant morbidity and mortality [2]. Common extra-intestinal symptoms are pruritus vulvae, urinary tract infection, post-menopausal bleeding, epididymitis, pelvic mass, salpingitis and rarely hepatic involvement [3]. It has also been implicated in not so harmless conditions as appendicitis (as high as 2.39% of cases in developing countries), intestinal obstruction, intestinal perforation, enterocolitis mimicking Crohn's disease, and eosinophilic ileocolitis [4,5]. The dead parasites and eggs deposited in ectopic sites can also be

responsible for the formation of granulomas and abscesses [6]. Here we report a case of massive *E. vermicularis* infection in an asymptomatic adult which was inadvertently discovered during an emergency abdominal surgery.

## Case presentation

A 20-year-old male patient was admitted in the emergency to the Surgical ward of our hospital with a one-day history of barotrauma per anum, specifically reported as, playful insufflation of air through a gas pump cylinder inserted into the rectum by his co-worker. He was from a rural area belonging to a low socio-economic status and a food handler for domestic animals by occupation. After the incident, the patient had moderate per rectal bleeding of approximately 200 ml and mild diffuse abdominal pain.

On examination, the patient was conscious, oriented, afebrile, and had a blood pressure of 100/90 mm Hg with a pulse rate of 102/min.

Examination of the abdomen revealed a rigid and generalised tender abdomen with sluggish bowel sounds, and obliteration of liver dullness. X-ray of abdomen in erect posture revealed gas under the diaphragm, hence was suggestive of hollow viscus perforation. So the patient was planned for exploratory laparotomy on an emergency basis. Intra-operatively, approximately a 2 cm×1.5 cm perforation was identified in the anti-mesenteric border of proximal part of rectum with gross congestion (hyperemia) of small and large bowel loops. Fluid and fecal contamination was seen in peritoneal cavity with spillage of white coloured worms throughout the peritoneal cavity. Exploratory laparotomy with primary repair of rectal perforation and transverse colostomy was done under general anaesthesia. The worms were sent to the Department of Microbiology for parasitological study.

In the Microbiology Department, four worms were received in normal saline in a 30 ml sterile plastic container. On gross examination, the worms were off-white in colour, with cylindrical shape and size of approximately 8–12 mm length and 0.5–1 mm in diameter, identified to be adult female *E. vermicularis* worms. Direct wet-mount microscopy of the saline fluid revealed massive infection with numerous *E. vermicularis* ova, amounting to approximately 4–5 per high power field and 25–30 per low power field. On asking the patient (post-operatively), he revealed that with no toilet facilities at home, he was forced to resort to the practice of routine open defecation in the fields with use of open-footwear. None of his other family members were reported to be suffering from any worm infection. The patient was treated with oral albendazole and discharged one week after the surgery with advice to come for follow-up after one month. Simultaneously, he was counselled and educated regarding the harmful health effects of open defecation and urged to take steps to discontinue the practice altogether.

## Discussion

*E. vermicularis* is usually considered as an innocuous organism, with mild perianal itching in children as the only manifestation. More than half of the cases are asymptomatic.

Intestinal infections in adults are reported to be uncommon, with few case reports available as causing chronic diarrhoea [3,7] or mimicking

Crohn's disease [8,9]. A stronger association, however, has been reported between *E. vermicularis* and cases of acute appendicitis [10–12]. Extra-intestinal infections are rarer still, with occasional reported instances of pruritus vulvae, urinary tract infection, post-menopausal bleeding, epididymitis, pelvic mass, salpingitis and rarely hepatic involvement [3]. Occasionally, pinworms have been found to be masquerading as colorectal liver metastasis [13] or cause anaphylaxis after blunt abdominal trauma [14] or even perianal abscess [15]. Many a times, the infection is discovered inadvertently during colonoscopy [16], endoscopy [17] or during the intra-operative period [18] as seen in the current case.

Though a silent infection in most adults, *E. vermicularis* is a helminth that is found globally, is difficult to control and can be easily transmitted from person to person by contaminated hands, usually because of direct contact of fingers with the anus. Because of the extremely easy way of its transmission among people, it has high prevalence in overcrowded conditions, such as refugee camps, nurseries and primary schools [19,20]. The symptoms can be extremely diverse in children, ranging from nausea, diarrhoea, insomnia, irritability, recurrent cellulitis, loss of appetite, nightmares and endometritis to penetration of the submucosal layer of the bowel leading to fatality [20]. Thus, asymptomatic *E. vermicularis* infections in the general population should never be ignored and need to be treated appropriately. In the present case, it additionally needs to be viewed seriously in the wake of the patient's professional capacity as a food handler. Lastly, the case emphasizes the need to perform routine ova-parasite screening at periodic intervals to detect intestinal parasitic infections, to promote adequate practices to improve sanitation facilities and to direct appropriate therapeutic measures to eliminate the worm burden in case of infections.

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