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Case Report

A Case Report of Intravaginal *Enterobius vermicularis* Infection in a 12-Year-Old Girl

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Abstract

Pinworm, or *Enterobius vermicularis*, is the name of a tube worm that is an intestinal parasite found in humans, especially among children. Pinworm infection spreads easily and is more common in children between 5 and 10 years of age, people living in institutions and nursing homes, and people who have close contact with individuals from the afore-mentioned groups. Pinworms may also migrate from the anus to the vaginal area and cause vaginal itching, especially at night. In 2022, a 12-year-old girl from one of the villages of East Azarbaijan Province in Iran referred to one of the medical clinics with symptoms of itching and abnormal and purulent discharge from the vagina. In the parasitology laboratory, samples were taken from the perianal and vaginal areas using Graham's test and an intravaginal swab. Eventually, *Enterobius vermicularis* eggs were detected.

Keywords: Case report, Intravaginal infection, *Enterobius vermicularis*, Graham's test, Girls

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Introduction

Pinworm, or *Enterobius vermicularis*, is the name of a tube worm that is an intestinal parasite found in humans, especially among children. This worm can cause the complication of enterobiasis or pinworm infection. In terms of classification, the worm is in the Oxyuridae family (1,2).

Pinworm infection is a parasitic infection caused by a worm in the human intestine (3). Worms are tiny, slender, and white creatures that are usually less than 1 cm long. It is the most common type of worm infection in humans (4,5). This infection spreads easily and is more common in children between 5 and 10 years of age, people living in institutions and nursing homes, and people who have close contact with individuals from the afore-mentioned groups. It is worth mentioning that this infection is effectively treated with medication, but re-infection is also possible. Serious complications and long-term health effects are rare (6).

Life Cycle of Pinworm

This worm lives in the cecum, appendix, and lower parts of the small intestine. After copulation, the male worm dies, but the female worm moves towards the anus area for excreting eggs, often leaves the anus during the day, and spawns in the skin area of the seat and perianal (7,8). There are about 12 thousand eggs in the uterus of the female worm. As mentioned previously, the male worm dies after copulation, but the female worm dies after spawning. The eggs contain larvae at the time of hatching and become infective after about 6 hours. They enter the mouth through water, food, dust, and contaminated hands, and ultimately enter the human body. At the beginning of the small intestine, the larvae are released and continue their way to the cecum. After reaching the cecum, they turn into adult worms, which are considered disease reservoirs (9).

Pinworms in the Vagina

Parasites such as lice may infest the hairy part of the vulva, just like head lice. Pinworms may also migrate from the anus to the vaginal area and cause vaginal itching, especially at night. Although lice and their eggs can be seen with bare eyes, pinworms can only be seen through microscopic examination (10).

Pinworms in the Uterus

In women, pinworms can migrate from the anus to the vagina and affect the uterus, fallopian tubes, and other pelvic organs, causing vaginitis (inflammation of the vagina), endometritis (inflammation of the lining of the uterus), or other infections. In addition, in pregnant women, these worms may sometimes cause a urinary tract infection (11).

A Clinical Case

In 2022, a 12-year-old girl from one of the villages of East Azarbaijan Province in Iran referred to one of the medical clinics with symptoms of itching and abnormal and purulent discharge from the vagina. After being examined by a doctor with a preliminary diagnosis of the possibility

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of parasitic infection, she was sent to the parasitology laboratory. In the parasitology laboratory, samples were taken from the perianal and vaginal areas using Graham's test and an intravaginal swab. Eventually, *Enterobius vermicularis* eggs were detected (Figures 1 and 2). After prescribing mebendazole and repeating it after 2 weeks by the attending physician, a complete recovery was achieved in the perianal and intravaginal areas, which indicates the effectiveness of the antiparasitic drug treatment.

Discussion

Children's low immune system status and their frequent contact with infected soil and materials, according to their age, make them more vulnerable to various types of parasitic infections than adults (12). There is a wide range of clinical symptoms in children with various types of intestinal parasites. Infection with enterobiasis can cause symptoms such as itching of the rectum and anus at night and subsequent lack of sleep in the affected child, which will result in complications such as restlessness, anger, fatigue, decreased concentration, and academic failure (13,14). Other symptoms associated with this parasite include an itchy nose, drooling and grinding of teeth at night, as well as vulvovaginitis in infected girls. Due to the nature of the life cycle of this worm, which does not have an intermediate host, and its direct transmission, it is expected to have a higher prevalence in communities such as barracks, rehabilitation centers, orphanages, and children's educational centers, where they have many direct contacts with each other (15).

Figure 1. Anterior End of Adult *Enterobius vermicularis* Worm, Isolated From the Anus of the 12-Year-Old Girl

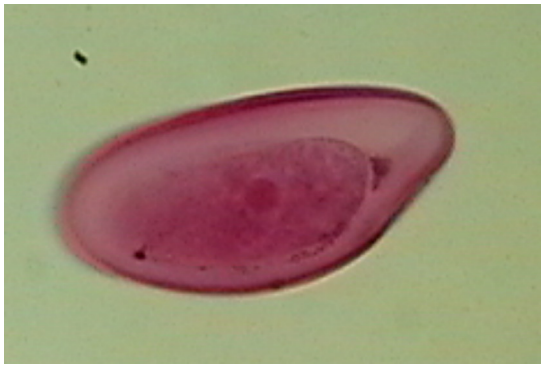

Figure 2. One of the Eggs of the *Enterobius vermicularis* Worm Under a Light Microscope (×40)

Conclusion

Considering the adverse effects of *Enterobius vermicularis* infection and its negative consequences in terms of mental health, concentration, and learning quality in children, the following implications can be drawn:

Educational and explanatory programs should introduce the importance of the subject and the methods of control and prevention of this parasite to the families, the teaching staff, and the parents of students. In addition, doctors are advised to request periodic tests from the involved individuals.

Competing Interests

None to be declared.

Ethical Approval

Written consent was obtained from the patients' parents for the publication of these clinical cases.

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