

## **Case study**

### **“*Enterobius vermicularis*: A first case report from Saptari, ”**

#### **Abstract:**

*Enterobius vermicularis* is one of the prevalent intestinal helminths in schooling children. But the parasite was not reported so far from the area. We report a first case of the parasite, which produced symptoms of gastrointestinal problems like, abdominal pain and perineal irritation in a 5-year-old child. The parasitic specimen sample was collected by using adhesive cellophane tape from the perineal area on a glass slide with considering proper established laboratory methods and precautions. Microscopical examination of the specimen showed a flattened on one end and slightly curved on other end, thin, smooth and transparent eggs of *E. vermicularis*. The ova are ingested through oro-fecal route, larvae hatch and mature female worms migrate to the perianal region where they lay eggs. Sometimes may also migrate from the anus to female genital tract. The infections are asymptomatic but common symptoms are abdominal pain, perineal region itching, irritability, and debilitating sleep disturbance, although, of low pathogenicity, complications such as infertility or peritonitis may develop. It is a common auto-infectious parasite. Ova of *the pinworm* are rarely seen in the stool of routine microscopic examination. Therefore, the easy and effective method is “scotch-tape / adhesive cellophane tape” and the test is performed for routine examination. The case report is very useful for health professional for reporting, diagnosis and treatment of the infection.

**Keys words:** *Enterobius vermicularis*, Pin worm, Nematode, Oxyuriasis, Autoinfection

#### **INTRODUCTION:**

*Enterobius vermicularis*, frequently known as pinworm or seat worm is one of the most common intestinal parasites in schooling children. Although most infections are asymptomatic, some cases induce exasperating symptoms. The condition associated with *E. vermicularis* infection is

known as oxyuriasis (or enterobiasis) (Caldwell, 1982), presented by itching or irritation of the perianal region, acute abdominal pain, crawling sensation, and mental disorders. *E. vermicularis* commonly affects young schooling children age lower than 10 years [Nophawan *et al.*, 2013]. Controlling of *E. vermicularis* infection is difficult, because of the parasite's rapid transmission and high reinfection rate [Shoup, 2001]. It is cosmopolitan in nature and infected billions of people all over the world, especially schooling children. The prevalence of *E. vermicularis* infection among children has been reported in many parts of the world, with infection rates having great variations, depending on the various factors like age, area and climate studied [Bunchu *et al.*, 2011, Mathuria *et al.*, 2017]. The prevalence of pinworm infection among children and schoolchildren has been reported in some scientific reports [Dahal & Maharjan 2015].

It is estimated that more 200 million people are infected yearly by this parasite infection especially in overcrowded areas such as schools, day care centers and, orphanages (Gulnaz & Nizami, 2006). It resides in the caecum and right colon of the intestine and moves out through the anus for the laying eggs. It is a lumen habitant and hence does not cause serious infection although may cause exasperating on rare cases when the parasite invades the tissues (Hong *et al.*, 2002). Ingestion eggs contaminated food, water leads to the infection. The mature parasite usually inhabits in the intestinal lumen of terminal ileum or caecum (Heyman, 2004) which after fertilization, the female parasite moves to the perianal region where air contact stimulates them to lay eggs (Murata *et al.*, 2002, Zahariou *et al.*, 2007). The presence of female *E. vermicularis* causes vigorous itching in the perianal region. Scratching of the affected area will lead to transfer of eggs to the finger and help in the transmission of the eggs, same person known as autoinfection (Horne, 2002). Adults are least infected group with exception of mother whose children are infected (Devlin, 1991). Occasionally, *E. vermicularis* moves to other sites and develop granulomatous lesions, mostly affecting female genital tract and appendix (Dahal *et al.*, 2015).

The purpose of the case study is to inform health professionals about the *E. vermicularis* infection and to assist them in reporting, diagnosing, treating, and preventing and controlling the infection.

## **CASE PRESENTATION**

This is the case of 5 years old school child. One day around 12:00 pm in the month of January a woman came to the lab with his 5 years daughter to test his stool sample complaining that there was severe itching around the anus and perineal region at night, irritability, weight loss and

doesn't concentrate on his study for last few months. After acknowledging her complaint, It was requested her to come tomorrow in the lab with his son in the early morning after bed without visiting the toilet. The procedure was clearly demonstrated to their guardian about the procedure and method. In next day the patient came the lab with her mother, the sample was collected by using adhesive cello tape from the perineal area on a glass slide with considering proper laboratory precautions [Shoup, 2001] and requested the guardian of the patient to visit lab after 2:00 pm to take the report.

The laboratory workup revealed that flattened on one end (slightly curved on one end), thin, smooth and transparent eggs seen the adhesive cello tape which was fixed on the glass side (adhesive side down) and examined under a light microscope on 10X and 40X (fig. 1). The diagnostic criteria, result, and literature of review [Ghazala R *et al.*, 2015, Mathuria *et al.*, 2017] confirmed the precedence of *E. vermicularis* in the area.

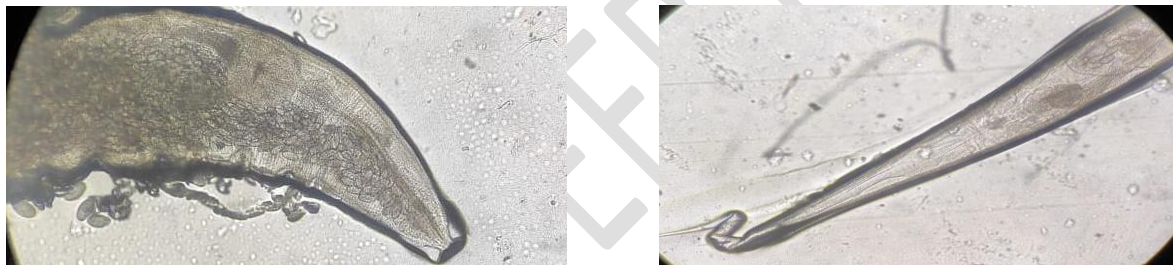


Fig. 1:- Head and tail parts of *E.vermicularis* containing eggs.

### **Discussion:**

The parasite has a cosmopolitan distribution. It is more common in school and preschool children of temperate and cold climates than warm because of less frequent of changing of under clothing and bathing in the winter season of common children residing places like a hostel, day care centers, and orphanages. Illiteracy, Poverty, a socio-economic and socio-behavioral status of life may play a major role in increasing the rate of prevalence of the parasite. This high prevalence rate this parasitic infection among the children is due to living style, poor sanitary, socio-economic condition, sharing of beds, crowding, and consumption of properly unwashed raw vegetables and fruits, drinking of contaminated water and unhygienic food. It develops

autoinfection due to use of contaminated fingers for eating and drinking and it transmits to others to use of contaminated towels, bed, clothes. The infection mainly observed in preschool and school children which develops symptoms like irritation, weakness, loss of concentration, abdominal pain, mental disorders, growth, and development and affects their study and growth and development.

### **Conclusion:**

The treatment combined with a focus on hygienic measures can almost always completely remove pinworm infection and avoid recurrence and autoinfection. The participation of all members of the patient's household, including sexual partners, is essential to the treatment's long-term effectiveness. Health education and, hygiene and sanitation play vital role in prevention and control of parasitic infections.

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