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*Case Report*

# Enterobial Infestation in Surgically Removed Appendices- Analysis of 4 Cases

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## ABSTRACT

Enterobius Vermicularis also known as pinworm or threadworm is the most common parasitic infestation of appendix most commonly affecting the paediatric age group. It is an obligate parasite measuring approximately 10mm in length with its head embedded in adjacent bowel. Infection spreads most commonly via fecal-oral route in humans. It is usually asymptomatic but the most common symptom is perianal pruritus.

***Keywords:*** Follicular appendicitis, Enterobius Vermicularis

## INTRODUCTION

Enterobius Vermicularis also known as pin worm or seat worm is a widespread obligate parasite with humans as the only natural host most frequently affecting the children aged 5-10 years. [1,2] Humans are accidentally infected by either swallowing or inhaling the pinworm eggs. Factors like heavy clothing and fewer baths contribute to its higher prevalence in cold climate. [2] Parasitic infestation produces no specific symptoms due to low pathogenicity except for pruritus ani and restless sleeping. Clinically it mimics acute appendicitis or appendiceal colic without eliciting an acute inflammation. [3] It has also implicated with ileocolitis, perianal abscess, enterocutaneous fistula, mesenteric abscess and salpingitis. [4]

We present 4 cases wherein the patients underwent appendicectomy and the pathology revealed Enterobius Vermicularis associated with chronic inflammatory infiltrate.

### CASE 1

28-year-old woman presented with history of acute pain in abdomen since 1 day, loose stools, single episode of vomiting, fever spike and insomnia since few days. There was also history of pruritus in the perianal region since a week. On examination there was tenderness in the right iliac fossa (Mc Burney's sign) and positive Rovsing's sign. She did not have any history of systemic illnesses including diabetes mellitus. Although on operating the pinworms were not macroscopically visible, but the appendix was noted to be inflamed.

### CASE 2

A 16 year-old boy presented with history of pain in abdomen since 2 days, nausea and 2-3 episodes of vomiting. On examination there was low grade fever the patient complained of severe tenderness in the right lower quadrant. The patient had history of similar type of pain about a year back which subsided after treatment**.** There was no other significant history. On

operating the surgeons found an inflamed appendix.

**CASE 3**

A 34-year old man presented with severe pain in abdomen since 4 hours, he had 1 episode of vomiting while coming to the hospital. Examination elicited tenderness in the abdomen more marked on the right side. USG was done which showed features of acute appendicitis. Open appendicectomy was performed and macroscopically worms could not be identified.

**CASE 4**

A 20-year old female presented with pain in abdomen in right lower quadrant since a day. This was associated with loose stools, nausea, vomiting and anorexia. The patient had fever spike a night before for which he took medication. On examining there was tenderness in the right side maximum being at the Mc Burney's point. Appendix was removed and sent for histopathological examination.

The total count of the patients in all the 3 cases was in normal range while one of the patients showed an elevated WBC count without eosinophilia.

All the four patients and their family members were given a course of anthelmintic drugs after the diagnosis was made.

**GROSS**

The external surface of all the specimens was congested, while on cut section lumen could be identified with presence of fecalith in one. Grossly the pinworm could not be identified in any of the specimen

**HISTOPATHOLOGY**

Histopathological examination of all the specimens revealed similar histomorphological features showing denudation of lining mucosal epithelium. Underneath lamina propria showed chronic lymphocytic inflammatory infiltrate reaching upto the muscularis layer. Serosa showed congested blood vessels. The lumen showed adult and eggs of Enterobius Vermicularis. These four cases were diagnosed as Follicular Appendicitis with Enterobius Vermicularis infestation.

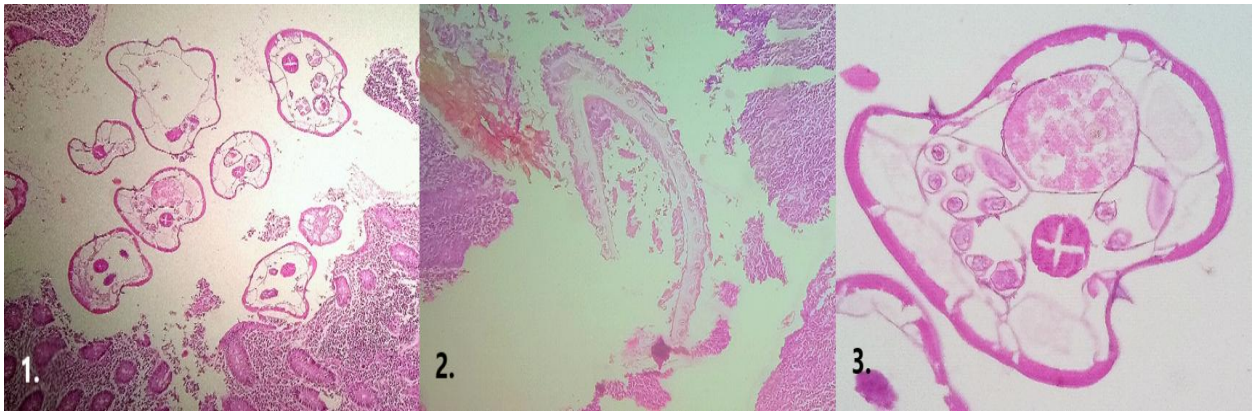


**Figure 1– 10 x Transverse section of appendix showing adult forms of Enterobius**
**Figure 2– 40 x Longitudinal section of Enterobius**
**Figure 3- 40x Transverse section of gravid female Enterobius showing ala, gut and ovaries**

## DISCUSSION

Enterobius is the commonest worm found in the appendix, its association with appendicitis was first described in 1899. [5] People of every socioeconomic group can acquire the infection. Its presence can cause pathologic changes ranging from lymphoid hyperplasia to acute phlegmonous inflammation with life threatening complications like gangrene and peritonitis. [3] The simple presence of Enterobius Vermicularis in the appendix can produce symptoms of acute appendicitis referred to as 'appendiceal colic'. [6,7] Humans are the only natural hosts of pinworms, the embryonated eggs measure about 30-60 microns and are found on hands dust and fomite. On reaching the stomach pinworm

larvae hatch from eggs, the larvae migrate towards the end of small intestine and mature. Adults are white thin worms measuring 6-10 microns with the females being longer than the males. Gravid females migrate to the perianal region in the night and deposits upto 11000 eggs, these eggs can be detected by cellophane tape and saline swabs in the morning but, they have low sensitivity. Microscopic detection in faeces can be done but only a few of the patients have eggs in their stool. The lifespan of pinworm is between 11 to 35 days. Ova when released from the gravid females leads to obstruction which is followed by super added bacterial infection. Differentiating appendiceal colic due to parasites from usual acute appendicitis is not possible by physical examination therefore; a detailed clinical history should be taken. Blood counts for eosinophilia and stool examination aids in the diagnosis. [8] Once there is a suspicion of helminthic infestation appendicectomy should be done with utmost caution as it is difficult to deal with the worms released after the procedure. Moreover, before proceeding for emergency resection of appendix clinical observation and a course of antihelminthics should be preferred. Appendicectomy is not a curative procedure it only treats the consequence. It should be followed by treatment antihelminthic drugs like albendazole and mebendazole but they kill only the larval and adults forms so, a second dose is recommended after 15 days in order to kill the newly hatched larva. It is advisable to prophylactically treat all the family members and close contacts once the diagnosis has been confirmed**.**

## CONCLUSION

Enterobius infestation is a curable disease; therefore always a detailed clinical history with a proper lab work up should be done before proceeding for surgery with potential complications. After the resection a careful examination of the sample should be done to look for the parasites to establish a confirmative diagnosis so as to give prophylactic antihelminthics to the close contacts and prevent further morbidity.

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