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## A detailed study of the role of stool examination for whipworm ova in the diagnosis of whipworm infection

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### Abstract

**Objective:** To study the role of stool examination for whipworm ova or eggs in the diagnosis of whipworm infection.

**Methods:** A study of 72 patients who had undergone colonoscopy for a period of 5 years from November 2009 to October 2014 was carried out in order to find out the presence of parasitic worms during colonoscopy in these patients.

**Results:** Out of these 72 patients, parasitic worm was found in the colon in only one patient. The parasitic worm found in this patient was identified as whipworm or trichuris trichiura by its characteristic whip like shape. It has a short posterior thick part resembling the short handle of the whip and a long, thin anterior part resembling the distal long, thin part of the whip. But the stool examination of the patient was negative for ova or cyst.

**Conclusion:** Usually whipworm infection is diagnosed by finding its ova or eggs in stool examination. But sometimes adult whipworms are found while doing colonoscopy even when the stool examination is negative for its eggs. Hence colonoscopy is a very useful investigation to diagnose whipworm infection especially when the stool examination is negative for its eggs.

**Keywords:** Adult whipworm, trichuris trichiura, stool examination, colonoscopy

### 1. Introduction

Whipworms are the most common nematodes or roundworms found in the large intestine of human beings while doing colonoscopy (2). Our patient was also found to have whipworm in the colon while doing colonoscopy. There has been also reports of finding whipworm in the large intestine of human beings while doing colonoscopy in many parts of the world. (1 to 14). Usually whipworm (trichuris trichiura) infection is diagnosed by finding its ova or eggs in stool examination [1, 8, 10, 11, 13]. But the patient who had whipworm in our study had negative stool examination for ova or cyst. Hence colonoscopy is a very useful investigation to diagnose whipworm infection especially when the stool examination is negative for its eggs.

### 2. Materials and Methods

This study was conducted in the department of general surgery, Aarupadai Veedu Medical College and Hospital, Puducherry. A study of 72 patients who had undergone colonoscopy for a period of 5 years from November 2009 to October 2014 was carried out in order to find out the presence of parasitic worms during colonoscopy in these patients. In each of these patients, presence of any parasitic worm was carefully looked for during the procedure of colonoscopy and the colonoscopic pictures of each patient were carefully studied and analysed. In patients found to have parasitic worms during colonoscopy, stool examination was done for ova or cyst.

### 3. Results

Out of these 72 patients, parasitic worm was found in only one patient. The parasitic worm found in this patient was identified as whipworm or trichuris trichiura by its characteristic whip like shape. This patient was an eighty year old male patient and one adult whipworm was found in the sigmoid colon of this patient while doing colonoscopy. His stool examination was negative for ova or cyst. The patient was treated with a single dose of 400mg of albendazole.

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#### 4. Discussion

##### 4.1 Size of whipworm and its life cycle

The male whipworm is 3 to 4.5 cm and the female whipworm is 3.5 to 5 cm in length [11]. Adults can live for years and deposit thousands of eggs per day [8]. Infective eggs are ingested from eating contaminated soil [8, 13]. Upon ingestion the eggs hatch into larvae in the small intestine [8, 11, 13, 14]. The larvae eventually migrate to the large intestine and complete maturation to adult worms in 1 to 3 months [8, 11, 13, 14].

##### 4.2 Negative stool examination in whipworm infection

In our patient, stool examination is negative for ova or cyst. In various other studies also, adult whipworms were found while doing colonoscopy even when the stool examination is negative for its eggs [2, 3, 5, 6, 7, 13].

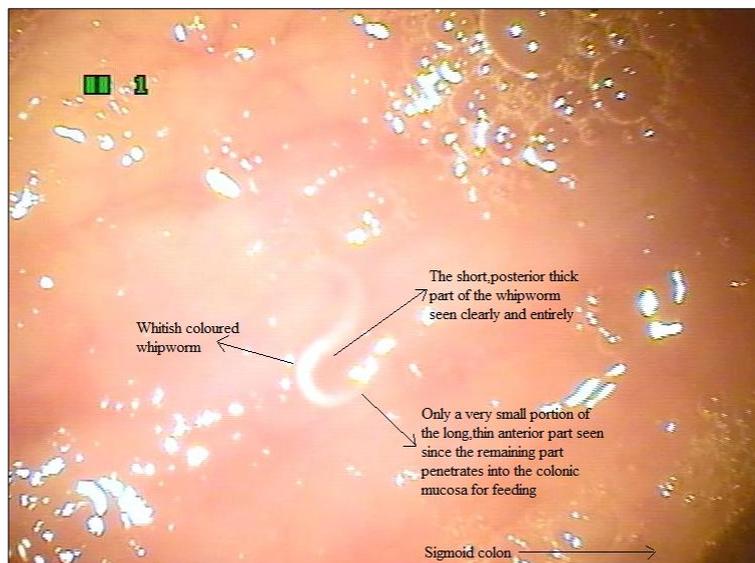
##### 4.3 Whitish colour of whipworm

Whipworms do not feed on blood and feed only on the tissue secretions of the large intestinal wall. Whipworm is

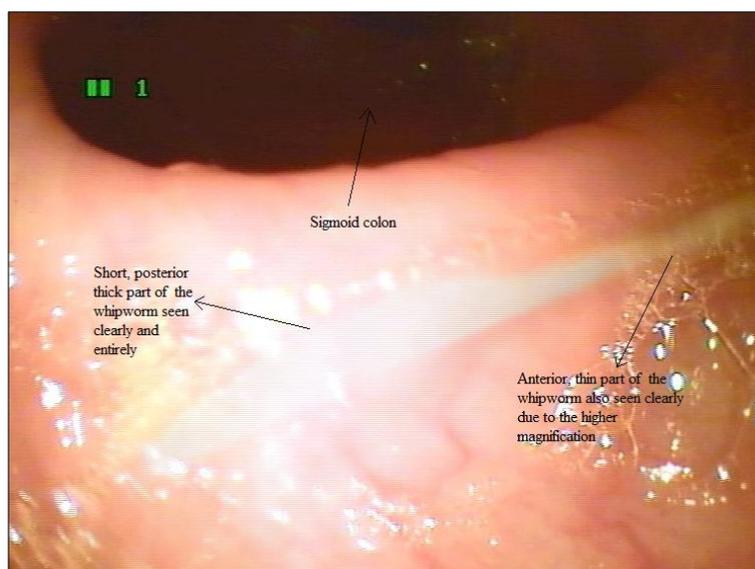
always whitish in colour [5] as it does not feed on blood (fig 1, 2).

##### 4.4 Only a very small portion of the long anterior part of whipworm seen during colonoscopy

We can see only the short posterior thick part entirely in the lumen of the large intestine [13, 14] but only a very small portion of the long, thin anterior part while doing colonoscopy since most of the anterior part penetrates into the large intestinal wall in order to feed on the tissue secretions of the large intestinal wall [13, 14]. Hence in fig 1, we can see only the short posterior thick part of the whitish coloured whipworm entirely in the lumen of the sigmoid colon but only a very small portion of the long, thin anterior part since most of the anterior part penetrates into the large intestinal wall for feeding purpose. But in the highly magnified view in fig 2, we can see clearly both the short posterior thick part and also the anterior thin part clearly due to the higher magnification.



**Fig 1:** showing clearly and entirely only the short, posterior thick part of the whitish coloured whipworm and only a very small portion of the long, thin anterior part since the anterior part penetrates into the large intestinal wall for feeding purpose.



**Fig 2:** Magnified view showing clearly both the short, posterior thick part and also the anterior, thin part of the whipworm due to the higher magnification.

## 5. Conclusion

1. Usually whipworm (*trichuris trichiura*) infection is diagnosed by finding its ova or eggs in stool examination.
2. But adult whipworms are sometimes found while doing colonoscopy even when the stool examination is negative for its ova or eggs.
3. The patient who had whipworm in our study also had negative stool examination for ova or cyst.
4. Hence colonoscopy is a very useful investigation to diagnose whipworm infection especially when the stool examination is negative for its ova or eggs.

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