



AN EXTREMELY RARE REPORT OF FINDING MULTIPLE HOOKWORMS IN THE JEJUNAL PART OF GASTROJEJUNOSTOMY STOMA INSTEAD OF ITS USUAL SITE IN DUODENUM WHILE DOING UPPER GASTRO INTESTINAL ENDOSCOPY

Govindarajalu Ganesan

Department of General surgery, Aarupadai Veedu Medical College and Hospital, Puducherry 607402.

ABSTRACT

While doing upper gastro intestinal endoscopy hookworms are most commonly found in duodenum and very rarely in stomach. But interestingly multiple hookworms were seen in the jejunal part of gastrojejunostomy stoma while doing upper gastro intestinal endoscopy in a 45 year old female patient who had undergone Truncal Vagotomy and gastrojejunostomy. Such endoscopic finding has not been reported so far. The patient underwent upper gastro intestinal endoscopy since she had dyspepsia for the last few months. But infection with multiple hookworms was found to be the cause of her dyspepsia after endoscopy. Hence upper gastro intestinal endoscopy is a very useful investigation to diagnose hookworm infection of duodenum, stomach and even the jejunal part of gastrojejunostomy stoma.

Key Words: Hookworm, Upper gastro intestinal endoscopy, Jejunal part of gastrojejunostomy stoma

INTRODUCTION

There has been many reports of finding hookworms in duodenum while doing upper gastro intestinal endoscopy (1to10). Rarely hookworm is also reported to occur in stomach while doing upper gastro intestinal endoscopy (10to13). But there has been no reports of finding hookworms in the jejunal part of gastrojejunostomy stoma while doing upper gastro intestinal endoscopy. Hence an extremely rare report of finding multiple hookworms in the jejunal part of gastrojejunostomy stoma while doing upper gastro intestinal endoscopy is given here.

CASE REPORT

A 45 year old female patient who had undergone Truncal Vagotomy and gastrojejunostomy before six years and having dyspepsia for the last few months was subjected

to upper gastro intestinal endoscopy. But very interestingly multiple hookworms were found actively moving in the jejunal part of gastrojejunostomy stoma (Fig 1,2).

The head and the mouth of the hookworm is bent backward dorsally like a hook (Fig3) giving the name hookworm to it. It is S-shaped due to its dorsal bend at the head end (Fig3,4). Locomotion is by longitudinal muscles on one side contracting, while the other side expands, deforming the body into S-shaped curves (Fig 2,3,4).

Two hookworms lying extremely close to one another (Fig 1) were retrieved out using biopsy forceps and immediately sent for microbiological examination. By microbiological examination the two hookworms were identified as male and female hookworms and were also identified as *Ancylostoma duodenale*. The patient was treated with a single dose of 400mg of albendazole and her symptoms resolved.

Corresponding Author:

Govindarajalu Ganesan, Department of General surgery, Aarupadai Veedu Medical College and Hospital, Puducherry 607402.

Email: drgganesan@gmail.com

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DISCUSSION

There are two human-specific hookworms, namely *Ancylostoma duodenale* and *Necator americanus* (4). Usually, the diagnosis of hookworm infection is made by the characteristic egg shape appearance on faecal examination (4). However, misdiagnosis is due to the absence of eggs of the parasites in stools (4). In such situation upper gastro intestinal endoscopy becomes an extremely useful investigation to diagnose hookworm infection (4).

Hookworm is an elongated, unsegmented round worm belonging to the the Phylum Nematoda. When a round worm is found during upper gastrointestinal endoscopy, differential diagnosis is important to determine the diagnosis for the appropriate treatment (4). This can be achieved according to the morphology of the worms under microscopy and their location in the gastro intestinal tract (4). The common intestinal worms include *Ascaris lumbricoides*, *Trichuris trichiura* (whipworm), *Enterobius vermicularis* (pinworm), *Strongyloides stercoralis* and *Anisakis simplex* in addition to hookworms (*Ancylostoma duodenale* and *Necator americanus*) (4).

Ascaris is a large roundworm (15-40cm in length) and inhabits the small intestine (4). Whipworm is 30-50mm in length and inhabits the large intestine (especially around caecum) (4). Pinworm (10mm in length) also inhabits the same areas as the whipworm (4). Therefore, both the parasites are very rarely observed during upper gastrointestinal endoscopy (4). *Strongyloides stercoralis* inhabits the mucosa of duodenum or upper jejunum and is pretty small (2-3 mm in length) and relatively rare (4). The larva of *Anisakis simplex* is found usually in the stomach of human beings and measures 2cm in length.

Hookworms usually reside in the upper portion of the small intestine (4). In our study also multiple hookworms were found in the jejunal part of gastrojejunostomy stoma. Hence in our study also, hookworms were found to reside in the upper portion of the small intestine. Hookworm is identified by its characteristic bent head giving it a hook like appearance (Fig3,4). Hookworm is also S-shaped due to its bend at the head end (Fig3,4). Locomotion is by longitudinal muscles on one side contracting, while the other side expands, deforming the body into S-shaped curves (Fig 2,3,4). By all these features the round worm seen in this patient was identified as hook worm. The worms were also retrieved out using biopsy forceps and by microscopic examination were also confirmed as *Ancylostoma duodenale*.

This patient presented with dyspepsia and upper gastro intestinal endoscopy was carried out in this patient due to her dyspepsia. But infection with multiple hookworms was found to be the cause of her dyspepsia after upper gastro intestinal endoscopy. Thus hookworm infec-

tion can present with dyspepsia and upper gastro intestinal endoscopy is a very useful investigation to diagnose hookworm infection.

CONCLUSION

Hence upper gastro intestinal endoscopy is very useful to diagnose the presence of hookworms in duodenum, stomach and even in the jejunal part of gastrojejunostomy stoma. Hence upper gastro intestinal endoscopy is a very useful investigation to diagnose hookworm infection of the entire gastro intestinal tract.

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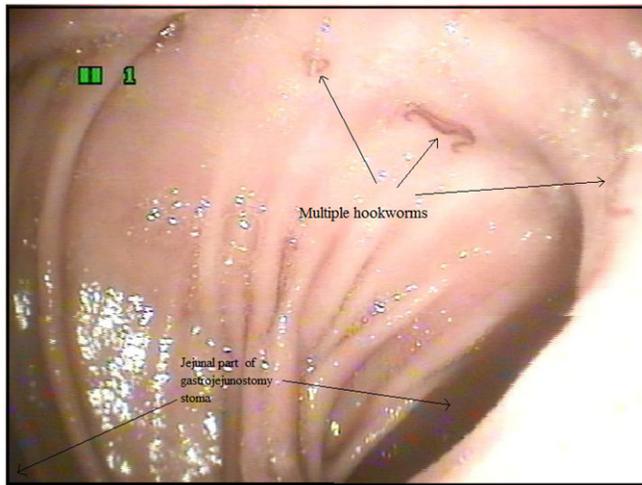


Figure 1: Showing endoscopic image of multiple hookworms in the jejunal part of gastrojejunostomy stoma.

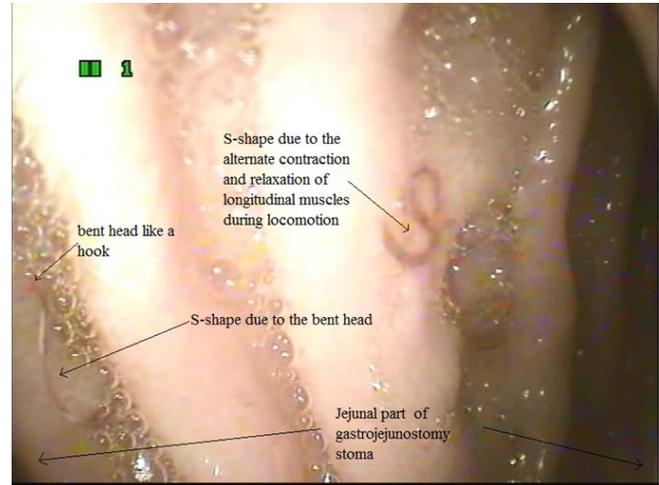


Figure 3: Videoendoscopic image of two hookworms in the jejunal part of gastrojejunostomy stoma showing clearly the bent head like a hook and S-shape due to the bent head and locomotion by longitudinal muscles

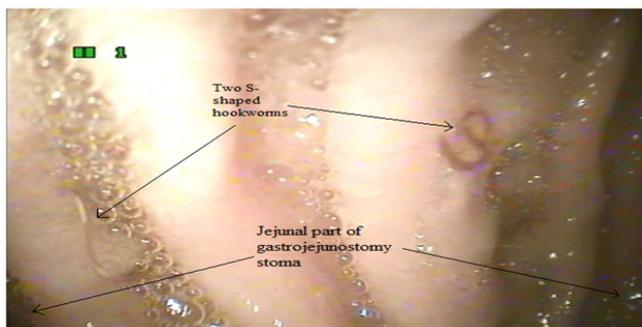


Figure 2: Showing the video endoscopic image of two S-shaped hookworms in the jejunal part of gastrojejunostomy stoma.

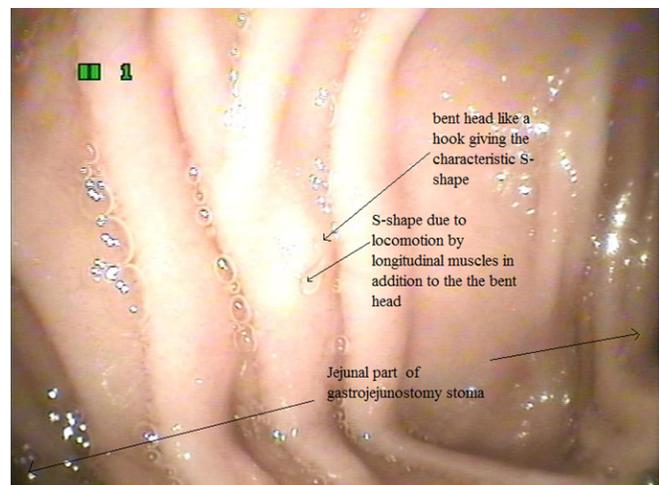


Figure 4: Videoendoscopic image of one of the multiple hookworms seen in the jejunal part of gastrojejunostomy stoma with the characteristic S-shape due to the bent head and locomotion by longitudinal muscles