Original Research Paper

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A Detailed Study of Various Grades of Whipworm Infection Diagnosed by Doing Colonoscopy

General Surgery

KEYWORDS : adult whipworm, trichuris trichiura, various grades of whipworm infection, colonoscopy

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ABSTRACT

Objective: *To study the various grades of whipworm infection diagnosed by doing colonoscopy.*

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 patients found to have parasitic worms during colonoscopy, number of parasitic worms in the colon were noted and investigations were done to know about the presence or absence of anaemia to know about the severity and various grades of whipworm infection.*

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. Our patient was found to have only single whipworm in the colon while doing colonoscopy. Our patient did not have anaemia (haemoglobin 14.4 g%)and did not have any serious complications like Trichuris dysentery syndrome causing anaemia or colonic obstruction and perforation.*

Conclusion : *Hence our patient was found to have only mild whipworm infection with only a single whipworm in the colon while doing colonoscopy without anaemia and without serious complications like Trichuris dysentery syndrome or colonic obstruction and perforation.*

Introduction :

Whipworms are the most common nematodes or roundworms found in the large intestine of human beings 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 (1to14). Our patient was also found to have whipworm in the colon while doing colonoscopy. A detailed study of various grades of whipworm infection diagnosed by doing colonoscopy was carried out.

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 patients found to have parasitic worms during colonoscopy, number of parasitic worms in the colon were noted and investigations were done to know about the presence or absence of anaemia. Anaemia is defined as haemoglobin < 12g/dl or 12g% in women and haemoglobin < 13g/dl or13g% in men.

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 patient presented with history of lower abdominal pain for 1week,constipation for 2 days and vomiting for 1day. On abdominal examination, his abdomen was soft, mildly distended and mild tenderness was present in the hypogastric region. His haemoglobin was 14.4g%, white blood cell count was 10,900 and his differential white blood cell count was polymorphs 80%, lymphocytes 16% and eosinophils 4% .His stool examination was negative for ova or cyst. His Xray abdomen and ultrasound abdomen showed gas filled bowel loops and was diagnosed as having mild subacute intestinal obstruction .When he was subjected to diagnostic colonoscopy, one adult whipworm was found in the sigmoid colon while doing colonoscopy despite negative stool examination for ova or cyst. The patient was treated with a single dose of 400mg of albendazole and started showing clinical improvement.

Absence of anaemia in our patient

In our patient anaemia was not present[(haemoglobin 14.4 g%).In another study also (5),all the three patients with whipworm or trichuris trichiura found in colonoscopy did not have anaemia (haemoglobin 13.7 g %, 14.1 g%, 13.9 g%).

Absence of anaemia in another study

In a study conducted by Kyung-Sun Ok_et al (5) in Korea, colonoscopy revealed a small, white, worm-like object attached to the cecum(trichuris trichiura) in a 56 year old male patient without anaemia (haemoglobin 13.7 g %,) . In the same study(5), colonoscopy revealed a small, white, worm on the proximal ascending colon(trichuris trichiura) in a 46 year old male patient without anaemia (haemoglobin 14.1 g%). In the same study(5), colonoscopy revealed a small, white, worm within the ileocecal valve(trichuris trichiura) without anaemia (haemoglobin 13.9 g%) in a 55 year old male patient.

Mild whipworm infection in our patient

Our patient was also found to have only mild whipworm infection without anaemia (haemoglobin 14.4 g%) and without serious complications like Trichuris dysentery syndrome causing anaemia requiring intensive medical treatment and prolonged antiworm treatment and without colonic obstruction and perforation requiring surgical resection of the colon.

Mild whipworm infection in three patients in another study

In a study conducted by Kyung-Sun Ok_et al (5) in Korea, all the three patients with whipworm or trichuris trichiura found in colonoscopy were also found to have only mild whipworm infection without anaemia (haemoglobin 13.7 g %, 14.1 g%, 13.9 g%) and without serious complications like Trichuris dysentery syndrome causing anaemia requiring intensive medical treatment and without colonic obstruction and perforation requiring surgical resection of the colon. All the three patients were treated with albendazole and were symptom-free after treatment with albendazole.

Discussion.

1. Blood loss and anaemia in whipworm infection

The male whipworm is 3to 4.5cm and the female whipworm is 3.5 to 5cm in length (11) .Unlike hookworm which sucks blood from the small intestinal mucosa,

whipworm[(trichuris trichiura) does not suck blood and feeds only on the tissue secretions of the large intestinal wall. Also most people in endemic areas of Trichuris trichiura infections are colonized only by a small number of worms (usually less than 15) unlike large number of hookworms present commonly in hookworm infection. Hence anaemia is not common in whipworm infection ,but is common in hookworm Infection. Our patient with whipworm infection also did not have any anaemia (haemoglobin 14.4 g%).

2.Whitish colour of whipworm

Whipworms do not feed on blood and feeds 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).

3.Only a very small portion of the long anterior part of whipworm seen during colonoscopy

We can see only the short posterior thick part of whipworm 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 inorder 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.

4.Constipation or dysentery in whipworm infection

Our patient presented with constipation for 2 days. Only in one study, a 75 year old male patient presented with constipation (11). But in many studies, patients have presented with diarrhea (2,5,12)or with dysentery causing anaemia (Trichuris dysentery syndrome) which is common in children when there is a heavy load of whipworms (4,7,9, 14).

5.Intestinal obstruction in whipworm infection

Our patient presented with vomiting for 1day,constipation,mild abdominal distention and thus with mild subacute intestinal obstruction which was relieved with conservative management, enema and anti worm treatment. Heavy whipworm or trichuris trichiura infection can lead to colonic obstruction producing vomiting, constipation and abdominal distention (15) and when very severe due to very heavy load of whipworms may require surgical resection of the right colon (15).

6.Mild, moderate and severe whipworm infection

a. Mild whipworm infection

Whipworm infection is clinically silent in the vast majority of cases,since the worm load tends to be low (13)and these patients require only anti worm treatment. Our study and also some other studies (3,5, 13) have shown only a single whipworm in the colon while doing colonoscopy which represents the least load of whipworms and very mild whipworm infection in these fortunate patients

b.Moderate whipworm infection

Howewer, when worm load approaches 50 to 150 worms, clinical disease becomes evident with either chronic or acute symptoms (13). Most patients exhibit chronic nonspecific disease (13). Many studies referred in this article (1,2,6,7, 10,11,12)had patients only with few or moderate number of worms and hence these patients did not have any serious complications and could be treated only with supportive and anti worm treatment.

c. Severe whipworm infection .

Fortunately, only very few number of patients –especially only poorly nourished children and very old people living in unhygienic conditions-have a very heavy load of whipworms and present with serious complications like Trichuris dysentery syndrome (4,9, 14)causing anaemia requiring intensive medical treatment and prolonged antiworm treatment. Colonic obstruction and perforation occur especially in very old people living in very bad conditions (15)requiring surgical resection of the right colon.

7.Mild whipworm infection in our patient

Our patient was also found to have only mild whipworm infection without anaemia (haemoglobin 14.4 g%) and without serious complications like Trichuris dysentery syndrome causing anaemia requiring intensive medical treatment and prolonged antiworm treatment and without colonic obstruction and perforation requiring surgical resection of the colon. The patient was treated with a single dose of 400mg of albendazole and were symptom-free after treatment with albendazole.

Conclusion :

1. Whipworms are the most common nematodes or roundworms found in the large intestine of human beings while doing colonoscopy.

2.Whipworms do not suck blood and feeds only on the tissue secretions of the large intestinal wall. Hence anaemia is not common in whipworm infection.

3. Our study and also some other studies have shown only a single whipworm in the colon while doing colonoscopy which represents the least load of whipworms and very mild whipworm infection in these fortunate patients.

4. Howewer, when worm load approaches 50 to 150 worms, clinical disease becomes evident with either chronic or acute symptoms. Most patients exhibit chronic nonspecific disease (moderate whipworm infection).

5. Fortunately, only very few number of patients –especially only poorly nourished children and very old people living in unhygienic conditions-have a very heavy load of whipworms (severe whipworm infection)and present with serious complications like Trichuris dysentery syndrome causing anaemia requiring intensive medical treatment and colonic obstruction and perforation requiring surgical resection of the colon.

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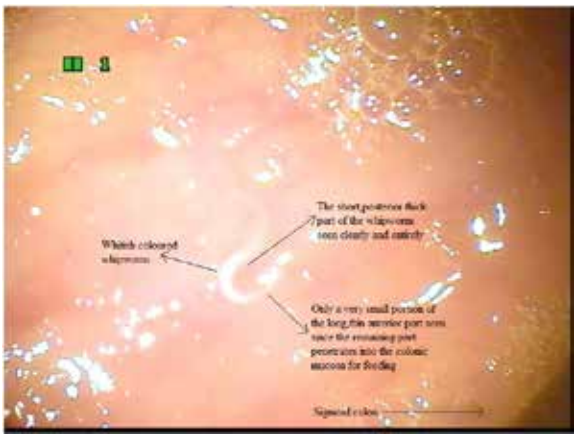

Fig 1: showing clearly and entirely only the short, posterior thick part of the whitish

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.

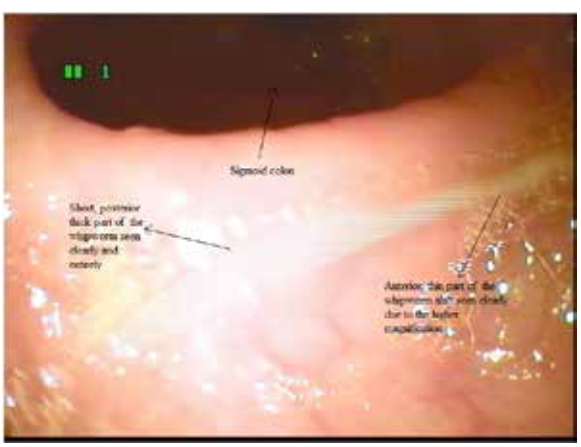

Fig 2 : Magnified view showing clearly both the short, posterior thick part and also the
anterior, thin part of the whipworm due to the higher magnification.

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