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A detailed study of various grades of anaemia in patients with hookworm infection diagnosed by doing upper gastro intestinal endoscopy

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Abstract

Objective: Anaemia is commonly reported to occur in hookworm infection. Hence a detailed study was done to know about the various grades of anaemia in patients with hookworm infection diagnosed by doing upper gastro intestinal endoscopy.

Methods: A study of 1307 patients who had undergone upper gastro-intestinal endoscopy for a period of 5 years and one month from May 2009 to May 2014 was carried out to know about the various grades of anaemia in patients with hookworm infection diagnosed by doing upper gastro intestinal endoscopy.

Results: Out of these 1307 patients, 14 patients found to have hookworms in duodenum while doing upper gastro-intestinal endoscopy were taken into consideration for our study. Out of these 14 patients with hookworms in duodenum, 5 patients did not have anaemia, 6 patients had mild anaemia, 1 patient had moderate anaemia and 2 patients were found to have severe anaemia. Hence 11 out of 14 patients with hookworms in duodenum had absence of anaemia and mild anaemia. Hence majority of the patients with hookworms in duodenum were in the early stage of hookworm infection in our study since 11 out of 14 patients had absence of anaemia and only mild anaemia. Only 3 out of 14 patients with hookworms in duodenum had moderate anaemia and severe anaemia. Hence only few patients with hookworms in duodenum were in the late stage of hookworm infection in our study since only 3 out of 14 patients had moderate anaemia and severe anaemia.

Conclusion: Hence majority of the patients with hookworms in duodenum were in the early stage of hookworm infection in our study. Only few patients with hookworms in duodenum were in the late stage of hookworm infection in our study.

Keywords: various grades of anaemia, hookworms in duodenum, upper gastro intestinal endoscopy

1. Introduction

Anaemia is commonly reported to occur in hookworm infection (1 to 16). Hence a detailed study was done to know about the various grades of anaemia in patients with hookworm infection diagnosed by doing upper gastro intestinal endoscopy.

2. Materials and Methods

This study was conducted in the department of general surgery, Aarupadai Veedu Medical College and Hospital, Puducherry. A study of 1307 patients who had undergone upper gastro-intestinal endoscopy for a period of 5 years and one month from May 2009 to May 2014 was carried out. In each of these 1307 patients, the first and second part of duodenum were carefully examined to find out the presence of hookworms. In all the patients found to have hookworms in duodenum, investigations were done to know about the presence or absence of anaemia and to know about the various grades of anaemia in patients with hookworm infection diagnosed while doing upper gastro intestinal endoscopy. Anaemia is defined as haemoglobin < 12g/dl or 12g% in women and haemoglobin or < 13g/dl or 13g% in men. Mild anaemia is taken as haemoglobin 10to12g/dl or g%, moderate anaemia is taken as haemoglobin 7to10g/dl or g% and severe anaemia is taken as haemoglobin <7g/dl or g%. The results were found as given below.

3. Results

1. Out of these 1307 patients, 14 patients found to have hookworms in duodenum while doing upper gastro-intestinal endoscopy were taken into consideration for our study.

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2. Out of these 14 patients with hookworms in duodenum taken into consideration for our study.
 - a. 5 patients did not have anaemia [haemoglobin >13g/dl in men and haemoglobin > 12g/dl in women].
 - b. 6 patients had mild anaemia [haemoglobin 10 to 12g/dl]
 - c. 1 patient had moderate anaemia [haemoglobin 7 to 10g/dl]
 - d. 2 patients were found to have severe anaemia [haemoglobin <7g/dl].
3. 11 out of 14 patients with hookworms in duodenum had absence of anaemia and only mild anaemia.
4. Only 3 out of 14 patients with hookworms in duodenum had moderate anaemia and severe anaemia.

4. Discussion

4.1 Absence of anaemia

Out of the 14 patients with hookworms in duodenum taken into consideration for our study, 5 patients did not have anaemia [haemoglobin >13g/dl in men and haemoglobin > 12g/dl in women].

Single hookworm in duodenum seen in one of these patients with absence of anaemia [haemoglobin 17.6g%] is shown in Fig 1.

The hookworm in duodenum is identified by its bent head which looks like a hook (Fig 1) and by its S-shaped appearance (13) (Fig 1).

4.2 Mild anaemia

Out of the 14 patients with hookworms in duodenum taken into consideration for our study, 6 patients had mild anaemia [haemoglobin 10 to 12g/dl].

Single hookworm in duodenum seen in one of these patients with mild anaemia [haemoglobin 10g/dl or g %] is shown in Fig 2.

The hookworm in duodenum is identified by its bent head which looks like a hook (Fig 1) and by its S-shaped appearance (13) (Fig 1).

4.3 Moderate anaemia

Out of the 14 patients with hookworms in duodenum taken into consideration for our study, only 1 patient had moderate anaemia [haemoglobin 7 to 10g/dl].

4.4 Severe anaemia

Out of the 14 patients with hookworms in duodenum taken into consideration for our study, only 2 patients were found to have severe anaemia [haemoglobin <7g/dl].

Multiple hookworms in duodenum seen in one of these 2 patients with severe anaemia [haemoglobin 3.2 g/dl or g %] is shown in fig 3.

Hence 11 out of 14 patients (79%) with hookworms in duodenum had absence of anaemia and mild anaemia.

But only 3 out of 14 patients (21%) with hookworms in duodenum had moderate anaemia and severe anaemia.

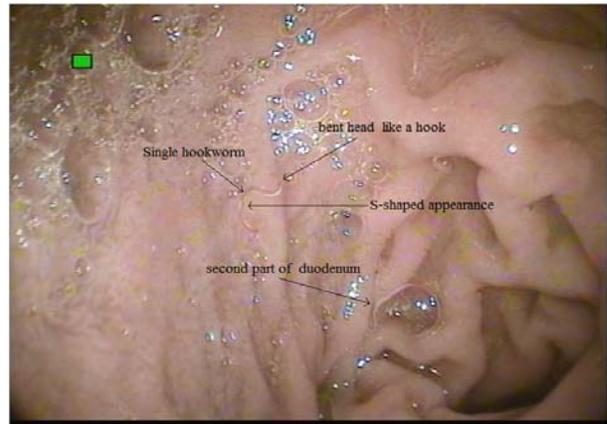


Fig 1: Single hookworm in duodenum with its bent head and S-shaped appearance in a patient without anaemia [haemoglobin 17.6g%]

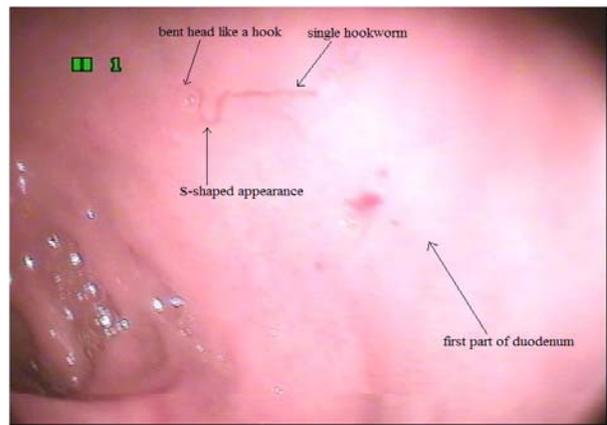


Fig 2: Single hookworm in duodenum with its bent head like a hook and S-shaped appearance in a patient with mild anaemia [haemoglobin 10 g%]



Fig 3: Multiple hookworms in duodenum in a patient with severe anaemia [haemoglobin 3.2 g%].

5. Conclusion

1. Hence majority of the patients with hookworms in duodenum were in the early stage of hookworm infection in our study since 11 out of 14 patients with hookworms in duodenum had absence of anaemia and only mild anaemia.
2. Hence only few patients with hookworms in duodenum were in the late stage of hookworm infection in our study since only 3 out of 14 patients with hookworms in duodenum had moderate anaemia and severe anaemia.

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