

RESEARCH ARTICLE

SEVERE ANAEMIA WITH SEVERE EOSINOPHILIA IN A PATIENT WITH HOOKWORM INFECTION IN OUR STUDY –AN EXTREMELY RARE FINDING

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ABSTRACT

Objective: Severe anaemia is reported to occur in severe hookworm infection in many studies. Severe eosinophilia is also reported to occur in hookworm infection in many studies. But so far detailed study was not done to know about the occurrence of both severe anaemia and severe eosinophilia in patients with hookworm infection found while doing upper gastro-intestinal endoscopy. Hence a detailed study was done to know about the occurrence of both severe anaemia and severe eosinophilia in patients with hookworm infection found while doing upper gastro-intestinal endoscopy.

Methods: A study of 1137 patients who had undergone upper gastro-intestinal endoscopy for a period of four years and eight months from May 2009 to December 2013 was carried out. In each of these 1137 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 severe anaemia and the presence or absence of eosinophilia and severe eosinophilia. The results were found as given below.

Results: Out of these 1137 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, 9 patients had anaemia and 2 of these 9 patients were found to have severe anaemia (haemoglobin <7g/dl or g%). Out of these 14 patients, 10 patients were found to have eosinophilia and 4 out of these 10 patients were found to have severe eosinophilia (absolute eosinophil count >1000 cells/cu.mm). But one patient with hookworms in duodenum had both severe anaemia and severe eosinophilia.

Conclusion: Out of the 14 patients with hookworms in duodenum, only one patient had both severe anaemia and severe eosinophilia. Hence occurrence of both severe anaemia and severe eosinophilia is an extremely rare finding in patients with hookworm infection.

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INTRODUCTION

Severe anaemia is reported to occur in severe hookworm infection in many studies (1 to 14). Severe eosinophilia is also reported to occur in hookworm infection in many studies (11 to 21). But so far detailed study was not done to know about the occurrence of both severe anaemia and severe eosinophilia in patients with hookworm infection found while doing upper gastro-intestinal endoscopy. Hence a detailed study was done to know about the occurrence of both severe anaemia and severe eosinophilia in patients with hookworm infection found while doing upper gastro-intestinal endoscopy.

MATERIALS AND METHODS

This study was conducted in the department of general surgery, Aarupadai Veedu Medical College and Hospital, Puducherry. A study of 1137 patients who had undergone upper gastro-intestinal endoscopy for a period of four years and eight months from May 2009 to December 2013 was carried out. In

each of these 1137 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 severe anaemia and the presence or absence of eosinophilia and severe eosinophilia. Anaemia is defined as haemoglobin <12g/dl or 12g% in women and haemoglobin <13g/dl or 13g% in men. Mild anaemia is taken as haemoglobin 10 to 12g/dl or g%, moderate anaemia is taken as haemoglobin 7 to 10g/dl or g% and severe anaemia is taken as haemoglobin <7g/dl or g%. Eosinophilia is defined as eosinophils > or = 500 cells/cu.mm (21). Severe eosinophilia is defined as eosinophils > 1000 cells/cu.mm (16). The results were found as given below.

RESULTS

1. Out of these 1137 patients, 14 patients found to have hookworms in duodenum while doing upper gastro-

intestinal endoscopy were taken into consideration for our study.

2. Out of these 14 patients with hookworms in duodenum, 9 patients had anaemia and 2 of these 9 patients were found to have severe anaemia (haemoglobin <7g/dl or g%).
3. Out of these 14 patients with hookworms in duodenum, 10 patients were found to have eosinophilia and 4 out of these 10 patients were found to have severe eosinophilia (absolute eosinophil count >1000cells/cu.mm).
4. Out of the 14 patients with hookworms in duodenum, only one patient had both severe anaemia (haemoglobin 3.2 g %) and severe eosinophilia (absolute eosinophil count - 1100cells/cu.mm).
5. Hence occurrence of both severe anaemia and severe eosinophilia is an extremely rare finding in patients with hookworm infection.

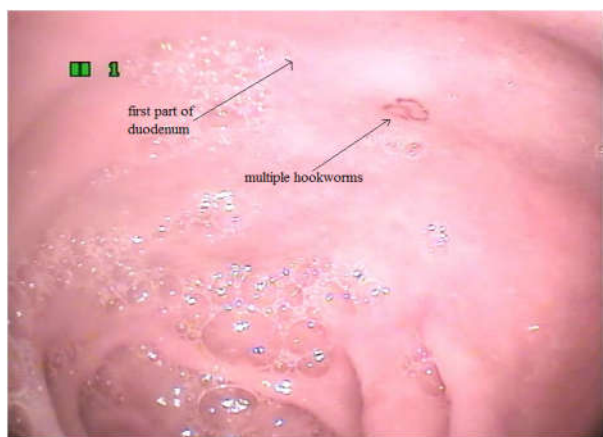


Fig 1 Multiple hookworms in duodenum in a patient with severe anaemia [haemoglobin 3.2 g%] and with severe eosinophilia [absolute eosinophil count - 1100cells/cu.mm]

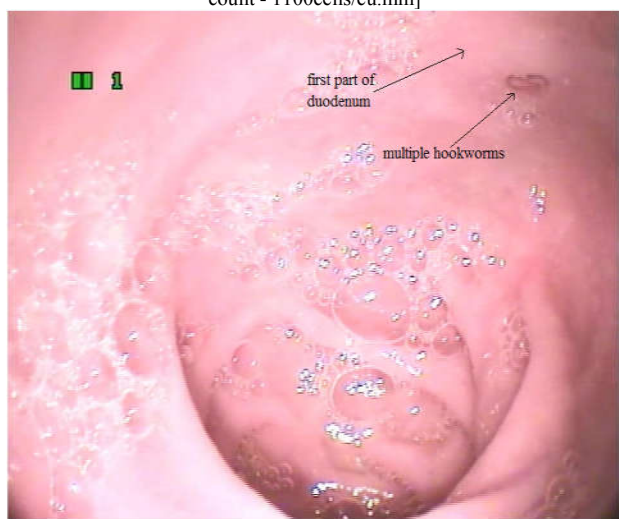


Fig 2 Multiple hookworms in duodenum in the same patient with severe anaemia [haemoglobin 3.2 g%] and severe eosinophilia [absolute eosinophil count - 1100cells/cu.mm][different view]



Fig 3 Multiple hookworms in duodenum in the same patient with severe anaemia [haemoglobin 3.2 g%] and with severe eosinophilia [absolute eosinophil count - 1100cells/cu.mm][different view]

DISCUSSION

Severe anaemia without eosinophilia [1patient]

Out of the 2 patients with severe anaemia in our study, one patient had severe anaemia (haemoglobin 2.1g%) but did not have eosinophilia (absolute eosinophil count- 366cells/cu.mm).

Severe eosinophilia without anaemia [1patient]

One patient with severe eosinophilia with hookworm infection in our study did not have anaemia (haemoglobin 18g%, absolute eosinophil count - 1000cells/cu.mm).

Severe eosinophilia with mild anaemia [1patient]

Severe eosinophilia occurring along with mild anaemia was present in one patient in our study (haemoglobin 11.7g%, absolute eosinophil count - 1248cells/cu.mm).

Severe eosinophilia with moderate anaemia [1patient]

Severe eosinophilia with moderate anaemia was present in one patient in our study (haemoglobin 8.6g%, absolute eosinophil count - 1260cells/cu.mm).

Severe anaemia with severe eosinophilia [1patient]

1. Out of the 14 patients with hookworms in duodenum, only one patient had both severe anaemia and severe eosinophilia in our study (haemoglobin 3.2 g %, absolute eosinophil count - 1100cells/cu.mm).
2. Severe anaemia indicates significant loss of blood which will occur only due to heavy burden of hookworms in severe hookworm infection or the late stage of hookworm infection. Hence severe anaemia a very important indicator of hookworm infection.
3. Severe eosinophilia is another very important indicator of hookworm infection.
4. Hence occurrence of both severe anaemia and severe eosinophilia becomes an extremely important indicator of hookworm infection.

5. Other studies have also shown the occurrence of severe anaemia with severe eosinophilia in patients with hookworm infection (11to14,19).
6. Multiple hookworms in duodenum seen in a patient with severe anaemia and severe eosinophilia (haemoglobin 3.2 g %, absolute eosinophil count - 1100cells/cu.mm) is shown in Fig 1,2,3.

CONCLUSION

1. Anaemia is an indicator of hookworm infection.
2. Eosinophilia is another indicator of hookworm infection.
3. Severe anaemia indicates significant loss of blood which will occur only due to heavy burden of hookworms in severe hookworm infection or the late stage of hookworm infection. Hence severe anaemia is a very important indicator of hookworm infection.
4. Severe eosinophilia is another very important indicator of hookworm infection.
5. Hence occurrence of both severe anaemia and severe eosinophilia becomes an extremely important indicator of hookworm infection.
6. Hence upper gastro-intestinal endoscopy should always be done in all patients with severe anaemia and severe eosinophilia to confirm the presence of hookworms as occurrence of both severe anaemia and severe eosinophilia becomes an extremely important indicator of hookworm infection.

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