

Evaluation of Abnormal Endoscopic Findings in Patients with Severe Iron Deficiency Anemia

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ABSTRACT

Introduction: Anemia although a frequent problem in all age groups, is an important cause of morbidity and mortality in the elderly. Despite standard endoscopic diagnostic evaluations with esophagogastroduodenoscopy (EGD) and colonoscopy, up to 30% of patients with iron deficiency anemia (IDA) are without a definitive diagnosis. Obscure gastrointestinal bleeding (OGIB) (occult or overt) from the small bowel, could be the source of IDA in patients with normal EGD and colonoscopy. Study aimed to evaluate abnormal endoscopic findings in patients with severe iron deficiency anemia.

Material and methods: The study was conducted in the Department of General Medicine of the Medical institution. For the study, we selected 50 patients with severe anaemia which reported to outpatient clinic of the department. The patients with severe anemia (Haemoglobin < 8g/dl) were included in the study. We conducted thorough physical examination of each patient to obtain detailed and meticulous clinical history. Relevant lab and biochemistry investigations were conducted. Upper gastrointestinal endoscopy was performed on the each subject and findings were correlated with patients having severe IDA.

Results: The mean age of the patients was 44.69 ± 7.8 years. Mean Hb value of the patients was $7.1 \pm 1.2\%$. The positive findings on endoscopy were observed in 66% subjects (n=33). The least finding seen were Fundal varix (n=2).

Conclusion: There are statistically significant endoscopic findings observed in patients with severe iron deficiency. It is recommended to use upper GI endoscopy in evaluation of patients with severe anemia.

Keywords: Iron Deficiency Anemia, Colonoscopy, GI Bleeding

could be the source of IDA in patients with normal EGD and colonoscopy. Wireless capsule endoscopy (WCE), a relatively new diagnostic modality helps in the detection of small bowel mucosal abnormalities. Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of patients with IDA may delay the diagnosis of GI tumors especially colorectal cancer.² In 20% of patients with IDA a routine upper and lower GI endoscopy may not ascertain GI cause during hospital admission. Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of patients with IDA may delay the diagnosis of GI tumors especially colorectal cancer. Hence, the present study was planned to evaluate abnormal endoscopic findings in patients with severe iron deficiency anemia.

MATERIAL AND METHODS

The study was conducted in the Department of General Medicine of the Medical institution. The ethical clearance for the protocol of the study was approved from the ethical committee of the institute. For the study, 50 patients reporting to department clinic with severe anemia were selected. The patients had Hemoglobin <8g/dl. Exclusion criteria for the study were patients who were contraindicated to undergo endoscopy such as pregnant women, and asthmatic patients. An informed written consent was obtained from each participant after verbally explaining them the protocol of the study. We conducted thorough physical examination of each patient to obtain detailed and meticulous clinical history. Relevant lab and biochemistry investigations were conducted. Upper gastrointestinal endoscopy was performed on the each subject and findings were correlated with patients having severe IDA.

STATISTICAL ANALYSIS

The statistical analysis of the data was done using SPSS program for windows. Student's t-test and Chi-square test were used for statistical significance of the data. A p-value less than 0.05 were predefined as statistically significant.

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INTRODUCTION

Anemia (from the ancient Greek ἀναιμία, anaimia, meaning 'lack of blood') is defined by a decrease in the total amount of hemoglobin or the number of red blood cells. Iron deficiency anemia is a form of anemia due to the lack of sufficient iron to form normal red blood cells. Iron deficiency anemia is typically caused by inadequate intake of iron, chronic blood loss, or a combination of both. Iron deficiency anemia is the most common cause of anemia in the world. Anemia although a frequent problem in all age groups, is an important cause of morbidity and mortality in the elderly. Despite standard endoscopic diagnostic evaluations with esophagogastroduodenoscopy (EGD) and colonoscopy, up to 30% of patients with iron deficiency anemia (IDA) are without a definitive diagnosis. Obscure gastrointestinal bleeding (OGIB) (occult or overt) from the small bowel,

| Endoscopic abnormal findings | No. of patients | p-value |
|------------------------------|-----------------|---------|
| Erosive gastritis | 21 | 0.01 |
| Peptic ulceration | 4 | |
| Esophageal varicies | 3 | |
| Fundal varix | 3 | |
| Ca stomach | 2 | |
| Total | 33 | |

Table-1: Number of patients with various endoscopic abnormal findings

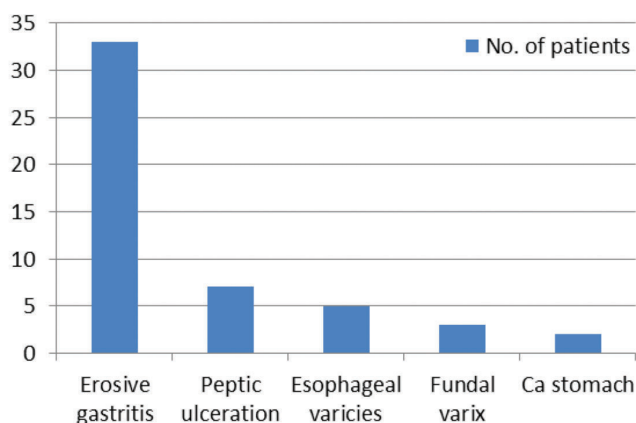


Figure-1: Graphical representation showing number of patients with various endodonic abnormal findings

RESULTS

The total number of patients in the study was 50. The number of male patients was 34 and number of female patients was 16. The mean age of the patients was 44.69 ± 7.8 years. Mean Hb value of the patients was $7.1 \pm 1.2\%$. The positive findings on endoscopy were observed in 66% subjects ($n=33$). The maximum finding seen was Endoscopic gastritis ($n=21$). The least finding seen were Fundal varix ($n=2$). The results see were statistically significant with p-value less than 0.05 [Table 1 and Fig 1].

DISCUSSION

Iron deficiency anemia is considered as an alarm sign for the presence of possible GI malignancies, and inadequate evaluation of patients with IDA may delay the diagnosis of GI tumors especially colorectal cancer. In 20% of patients with IDA a routine upper and lower GI endoscopy may not ascertain GI cause during hospital admission. The present study was conducted for the evaluation of co-relation between severe iron deficiency anemia and esophageal gastro duodenoscopy. We observed that erosive gastritis was the most common endoscopy findings observed. The results were statistically significant. Kępczyk T et al determined the diagnostic value of a comprehensive gynecological and gastrointestinal evaluation in premenopausal women with IDA. They included 19 premenopausal, nonpregnant women with age < 18 years having iron deficiency anemia. 37% of women ($n=7$) with IDA had gynecological etiology of anemia and only 4 women presented with digestive complaints. On performing upper endoscopy on these patients, 86% were found to be having gastrointestinal diseases. 29% patients

had positive fecal occult blood testing. 63% of women ($n=12$) with IDA did not have any gynecological etiology of anemia. All wome were tested negative for fecal occult blood test and majority of them had heart burn as digestive chief complaint. They concluded that women with IDA have significant upper gastrointestinal disease which is diagnosed by endoscopy. Thus, upper endoscopy should be a gold protocol for every premenopausal woman with IDA presenting with digestive complaints. Ackerman Z et al determined the yield of SBB performed during routine endoscopy of adults with IDA. They prospectively studied 93 patients with IDA. Three control groups were included: 23 patients with steatorrhea, 37 patients with idiopathic diarrhea, and 9 patients in whom SBB was performed for miscellaneous indications. SBB findings well matched to celiac disease were seen in 11 patients with IDA and 2 patients with steatorrhea. Patients from other groups did not have similar findings. Of the 11 patients with IDA, 2 patients were later diagnosed to have celiac disease. They presented with chief complaints of rectal bleeding and occult blood in stools respectively. IDA patients with celiac disease were seen to be younger, having more diarrhea episodes, mean Hb level at reduced level and anemia for longer duration as compared to patients without celiac disease. No. of patients having mucosal abnormalities such as esophagitis, gastritis, duodenitis, hemorrhoids, and colitis were seen to be significantly more in patient swith celiac disease.^{7,8}

Karnam US et al conducted study to evaluate prevalence of coeliac disease in patients having iron-deficiency anemia. All the patients with iron deficiency anemia reporting to gastroenterology department during study period (1998-2000) underwent esophagogastroduodenoscopy with small bowel biopsies and colonoscopy. Patients with serum ferritin < 25 ng/ml and hemoglobin level < 12g/ml were included in the study. Two biopsies each of distal duodenum and colonoscopy along with upper endoscopy was performed on all the patients. For the confirmation of diagnosis of celiac disease, they performed serum immunoglobulin A antiendomysial antibody test on patients with positive small bowel biopsy. A total of 139 patients were included in the study with 47 men and 48 women comprising study population. 40.9% of the study population was positive for hemocult-positive stools. For the endoscopic findings, they observed that 22.8% of population had gastritis, 9.5% had gastric ulcers, 8.5% had duodenitis, 7.6% had esophagitis, 2.8% had Barrett's ulcer, 2.8% had duodenal ulcer, 2.8% had gastric polyp and 2.8 5 had celiac disease. For colonoscopic findings, they observed 21.9% population had colon polyps, 10.4% had diverticula and 16.1% had hemorrhoids. 32.3% patients had multiple findings whereas 28.5% had no findings. They concluded that the occult disease prevalence in this prospective study of iron deficiency anemia patients was 2.8%. Muhammad A et al compared older adults with younger adults on the basis of diagnostic yield of WCE for IDA. In this retrospective study, data is based on 652 consecutive WCE performed during a 5-year period (2002 to 2007). Most common finding observed by WCE in patients

with IDA without OGIB: group 1 (age<50 y)=small bowel erosion (19%) and ulceration (19%), group 2 (age 50 to 64 y)=small bowel erosion (33%), group 3 (age 65 to 85 y, older adults)=small bowel erosion (30%), and group 4 (age>85 y, the oldest old)=small bowel erosion (38%). Most common finding observed by WCE in patients with IDA with OGIB: group 1=small bowel ulceration (19%), group 2=small bowel erosion (26%), group 3=small bowel erosion (38%), and group 4=angiodyplasia (55%). The authors concluded that IDA in patients with negative EGD and colonoscopy can be critically viewed using WCE.⁹⁻¹⁵

CONCLUSION

Within the limitations of our study, we concluded that patients with severe iron deficiency anemia have statistically significant endoscopic findings and we strongly recommend patients with severe iron deficiency anemia to be evaluated with upper GI endoscopy regularly.

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