



IRON DEFICIENCY ANEMIA; FREQUENCY OF DUAL LESIONS DETECTED BY BIDIRECTIONAL ENDOSCOPY IN PATIENTS WITH IRON DEFICIENCY ANEMIA WITHOUT OBVIOUS BLOOD LOSS.

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ABSTRACT... Objectives: To determine the frequency of dual lesions detected by Upper and lower GI endoscopies in patients with iron deficiency anemia without obvious blood loss. **Study Design:** Cross sectional study. **Place and Duration of Study:** Department of Medicine, Civil Hospital Karachi from 1st Feb 2015 to 31st July 2015. **Methodology:** A total 163 patients with Iron deficiency anemia (IDA) for duration of 6 months were registered. Upper and lower GI endoscopies were done in all patients. Outcome variable were the presence of dual lesion identified by gastroenterologist during Upper and lower GI endoscopies. All the results were catered in the pre-approved performa and findings were evaluated by SPSS 17. **Results:** The average age of the patients was 40.64 ± 11.17 years. Frequency of dual lesions detected by Upper and lower GI endoscopies in patients with iron deficiency anemia without obvious blood loss was observed in 38.65% (63/163) cases. **Conclusion:** Upper GI tract lesion like gastritis, duodenitis, gastric ulcer and duodenal ulcer were the most common causes of IDA without obvious blood loss. However, Dual lesions were not uncommon, thus both procedures (upper and lower GI endoscopies) were required in most (particularly elderly) patients. This can help to provide shorter hospital stays, reduced medical costs and faster decision making for patient care.

Key words: Duodenitis, Duodenal Ulcer, Gastritis, Gastric Ulcer, Iron Deficiency Anemia.

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INTRODUCTION

More than one billion people worldwide are recognized to be suffering from Iron deficiency anemia hence it is implicated as an important health problem throughout the world.¹ It does not only rank among the top 10 disease burdens for young and middle aged adult men (15–44 years), but it is also the third leading cause of Disability Adjusted Life Years (DALY's) lost for females of childbearing age.² Iron deficiency anemia is one of the most common cause of referral to gastroenterologists. Confirmation of diagnosis of IDA should be done by both upper and lower gastrointestinal endoscopies in all postmenopausal female and all male patients unless there is presence of a history of overt non-GI blood loss.³ The American Gastroenterology Association and the British Society of Gastroenterology guideline agree that a simultaneous approach consisting of both esophagogastroduodenoscopy (EGD)

and colonoscopy in such patients is favored over consequent approach of one followed by the other at different times. When it comes to the investigation of iron deficiency anemia, it has been suggested that the use of upper and lower GI endoscopies preferably in the same sedative episode is a reasonable approach by saving time to diagnosis and treatment in addition to cost effectiveness.^{3,4}

Studies conducted in the Western population have shown that a prevalence of between 48 – 71% in upper GI tract and around 13.5-30% in lower GI tract lesions can be found via endoscopic method in patients of IDA without any GI symptoms or without history of apparent blood loss.^{5,6}

Various studies conducted in Europe and Mediterranean also documented the presence of dual lesion on bidirectional endoscopy. One such

study by Songul S et al⁶ studied 91 patients and reported duodenitis in 12 patients (13.9%), ulcers (gastric and duodenal) in 4 patients (4.6%), gastritis in 18 patients (20.9%) and 5 patients with polyps – 1 gastric and 4 colonic (7.1%). However, Asian population with the same study portended a slightly different picture.^{8,9} Sriprayoon T et al⁸ in evaluation of endoscopic findings of 103 patients found 20 patients with ulcers (22%), 18 patients with erosive gastritis (20%), varices in 5 patients (6%) and polyps in a total of 12 patients (13%).

The benefits of the same day upper and lower GI endoscopies as compared to alternate day endoscopy are well established and include shorter hospital stays, reduced medical costs and faster decision making for patient care [7] but the results of this approach have been varying in different recent studies.⁸⁻¹²

In a study of 260 patients by Ali M et al. showed that 26 (10%) had positive findings on both Gastroduodenoscopy and colonoscopy¹⁰ while studies by Landy J et al and Fireman Z et al showed dual lesions in range of 1.3 to 2.3 % of the study population.^{11,12}

Two studies on upper and lower GI endoscopies in iron deficiency anemia patients in Thailand reported that dual lesions were present in 12 % of the patients.^{8,9}

Until now, there has been no study about upper and lower GI endoscopies in Pakistani population and this study aimed to see the prevalence, sites and types of dual GI lesions as observed by upper and lower GI endoscopies. With the present era of cost efficient and time saving medical practice, this study will help in formulating a protocol regarding use of bidirectional endoscopy in investigating the iron deficiency anemia in our local population and will help in providing shorter hospital stays, reduced medical costs and faster decision making for patient care.

METHODOLOGY

This was a cross sectional study, conducted in medical department of Dow Medical College, Civil

Hospital Karachi from 1st Feb 2015 to 31st July 2015. A total of 163 diagnosed patients of iron deficiency anemia as confirmed by iron studies, of more than 6 months duration, aged between 18 years to 60 years and having no apparent source of visible bleeding based on history were selected. All patients gave informed verbal consent after explanation of the study protocol. Patients were seen before the endoscopic procedures by senior physician. Upper and lower GI endoscopies were performed in all patients by trained endoscopist of medical department of Civil Hospital Karachi. An extensive survey of both the upper and lower gastrointestinal tract was done to rule out any underlying pathology. Patients with history of hematemesis and melena or either within last 3 months, vegetarian diet, history of gastrectomy, chronic Kidney disease (particularly hemodialysis), pregnancy, or thrombocytopenia (platelets < 50,000/mm³) were excluded from study. Besides that, those with past history of undergoing upper or lower gastrointestinal endoscopy and stool detail report positive for helminthes were also excluded from the study. Outcome variable were presence of dual lesion as identified by trained endoscopist during Upper and lower GI endoscopies. All the results were catered in the pre approved performa.

Bidirectional endoscopies meant performing upper and lower GI endoscopy on the same day while dual lesion were defined as presence of one or more of the following endoscopic observations in both upper and lower GI tract:

Oesophagitis is defined redness of esophagus with punctuate hemorrhagic spots in an area of > 0.5 cm seen upon gastroduodenoscopy while gastric ulcer and duodenal ulcer are defined as a mucosal break of > 0.5cm diameter in any part of stomach or duodenum respectively upon gastroduodenoscopy.

Gastritis and duodenitis were define as redness of stomach and duodenum respectively with punctuate hemorrhagic spots in an area of > 0.5 cm seen upon gastroduodenoscopy.

Adenomatous polyps: Smooth glassy

protrusion of > 0.5 cm in diameter seen upon gastroduodenoscopy and colonoscopy.

Hiatal hernia: Protrusion of > 2cm of upper part of stomach into esophagus seen upon gastroduodenoscopy.

Portal Hypertensive Gastropathy: Presence of bright red mucosa with cherry red spots on > 50% area of the body of stomach seen upon gastroduodenoscopy.

Oesophageal Varices: Dilated veins occupying > 30% of the lumen of esophagus seen upon gastroduodenoscopy.

Colonic Ulcers: A break in mucosa of > 0.5cm diameter in any part of colon seen upon colonoscopy.

Obvious blood loss meant history of hematemesis or history of melena (passage of black tarry stools) at least one time in the last 6 months. Iron deficiency anaemia defined as hemoglobin level of ≤ 13 g/dl for men and ≤ 12 g/dl for women along with any one of the serum Iron concentration ≤ 45 ug/dl, serum total iron binding capacity- TIBC ≥ 400 ug / dl, serum ferritin concentration ≤ 20 mg/ml for men and ≤ 10 mg/ml for women.

DATA ANALYSIS PROCEDURE

The Data was collected and analyzed on software SPSS version 17.0. Descriptive statistics included mean \pm standard deviation (SD) of continuous data, like age & level of hemoglobin. Frequencies and percentages were calculated from the categorical data, like gender (male or female), dual lesions (presence or absence). The data was presented in the form of table.

Effect modifiers were controlled by stratification of age in groups, gender (male or female) type of lesion (esophagitis, Gastric ulcer, Duodenal ulcer, Gastritis, Duodenitis, Adenomatous polyps, Hiatal hernia, Portal Hypertensive Gastropathy, Oesophageal Varices and Colonic ulcers) and number of lesions and location of lesions (upper GI tract-identified through gastroduodenoscopy or lower GI tract-identified upon colonoscopy)

through chi square test. P value of ≤ 0.05 was taken as significant.

RESULTS

A total 163 patients with Iron deficiency anemia for duration of 6 months were registered. Age distribution of the patients showed that the average age of the patients were 40.64 ± 11.17 years. Males constituted 55.83% and where as females contributed to 44.17% of the study sample. Mean hemoglobin level with respect to male (10.92 ± 1.03) and female (10.49 ± 0.58) was also recorded. The most common type of lesion was esophagitis that was observed in 45.4% cases followed by gastritis 51.5%, duodenitis 43.6%, gastric ulcer 42.3% duodenal ulcer 39.3% and other were also listed in Table-I.

Frequency of dual lesions detected by Upper and lower GI endoscopies in patients presenting with iron deficiency anemia without obvious blood loss was observed in 38.65% (63/163) cases. Rate of dual lesion was not significant among different age groups. Rate of dual lesion was 39.6% (36/91) in male and 37.5% (27/72) in female which is also not significant. Rate of dual lesion was also observed insignificant with respect to duration of disease. Frequency of dual lesions of detected by bidirectional endoscopy with respect to type of lesion is elucidated in the table, which shows that dual lesion was significantly associated with type of lesion.

DISCUSSION

Worldwide, Iron deficiency anemia (IDA) is an important health related issue and gastrointestinal (GI) tract is the most common site of occult blood loss, and the cause can vary from benign to malignant diseases. Thus, GI tract lesion should be seen for possible cause of IDA. The British Society of Gastroenterology guideline¹³ and the American Gastroenterology Association guideline¹⁴ advocate both esophagogastroduodenoscopy (EGD) and colonoscopy based on evidences from many studies, which have shown that EGD could detect lesions in 28-56% (average 38%), colonoscopy 14-30% (average 24%) and dual lesions by both endoscopies in 0-29% (average 10%).¹⁴⁻¹⁶ The average age of the patients was

40.64±11.17 years in our study, males were 55.83% and females were 44.17%.

Niv E et al⁵ in their study had 43 patient analyzed and they found 2 patients each of oesophagitis, hiatal hernia, erosive gastritis, 1 patient of duodenal ulcer, and 5 patients with colonic polyp (4.65%, 4.65%, 4.65%, 2.33% and 11.62% respectively). While Songul S et al⁶ upon studying a greater number of people, 91 patients, reported more duodenitis (13.9%) and gastritis (20.9%) than gastric/duodenal ulcers (4.6%) or polyps – 1 gastric and 4 colonic (7.1%).

In this study, the most common type of lesion was esophagitis that was observed in 45.4% cases followed by gastritis 51.5%, duodenitis 43.6%, and gastric ulcer 42.3% duodenal ulcer 39.3%. The most commonly identified lesion from EGD was peptic ulcers and from colonoscopy were colonic carcinoma. These are very similar to the observations from Western studies.¹⁴⁻¹⁶

In present study frequency of dual lesions detected by bidirectional endoscopy in patients presenting with iron deficiency anemia without obvious blood loss was observed in 38.65% (63/163) cases. Sriprayoon T et al⁸ in evaluation of endoscopic findings of 103 patients found 20 patients with ulcers (22%), 18 patients with erosive gastritis (20%), varices in 5 patients (6%) and 12 patients (13%) had polyps.

Shahid et al¹⁷ in 2008 mentioned that 71 % patients had lesions causing iron deficiency anemia and reported ulcers in 9.7% patients, oesophagitis in 6.3% of patients, erosive gastritis in 8.4%, and polyps in 8.5% of patients.

One study showed that an anemia-causing lesion was found in 14 (29%) and 16 (33%) patients in the upper and lower GI tract, respectively in patients with asymptomatic IDA. The prevalence of dual lesions (in both the upper and lower GI tract) was low (6%). 14 (29%) patients, a malignancy, predominantly right-sided colon carcinoma, was responsible for the IDA. Only one patient had a lesion in the small bowel. In 14 (29%) patients, the work-up was negative.¹⁸ It behooves us to

regard that this high rate of GI tract malignancy was found in asymptomatic patients.

In Thailand, there have been 2 studies investigating the causes of gastrointestinal tract lesions in patients with IDA. Gastrointestinal lesions were detected in 50% in the study by Ovtarlarnporn.¹⁹ involving 44 patients and employing esophagoduodenoscopy and barium enema. More recently, Sophonthanasiri's study²⁰ involving 69 IDA patients made use of bidirectional endoscopy and detected GI lesions in only 17%. The differing results may reflect differences in the inclusion criteria and definitions of the lesions considered as a cause of IDA. In the meantime, although most guidelines concluded that guaiac-based fecal occult blood tests (FOBT) is neither sensitive nor specific for predicting GI lesions. Therefore the role of Guaiac in screening or detecting GI lesions has fallen out of favor in presence of advanced modalities but still the test is commonly used by general practitioners in the work-up of IDA.

CONCLUSION

The prevalence of gastroenterological tract lesions in IDA patients as evaluated by Upper and lower GI endoscopies is 38.65%. Gastritis, duodenitis gastric ulcer and duodenal ulcer are the most common causes. Dual lesions are not uncommon, thus Upper and lower GI endoscopy is required in most (particularly elderly) patients. It will help in providing shorter hospital stays, reduced medical costs and faster decision making for patient care.

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


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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Khalid Imran	Reviewed the final manuscript.	
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4	Asif Ali	Collected the data.	
5	Pyar Ali	Did the SPSS analysis.	
6	Taha Sheikh	Did the SPSS analysis.	