



## DYSPEPSIA; FREQUENCY OF COMMON UPPER GASTROINTESTINAL ENDOSCOPIC FINDINGS IN ELDERLY PATIENTS WITH IRON DEFICIENCY ANEMIA

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### INTRODUCTION

Iron deficiency is defined as a state of the body in which there are no iron stores to be mobilized and in which there are signs of compromised supply of iron to tissues, including the erythron, are present. Iron deficiency is ranked at the top of three global "hidden hungers" including Iron, Iodine and Vitamin A: sub clinical deficiency without visible signs of deficiency. Iron Deficiency Anemia (IDA) is present in about one fifth of the world's population.<sup>1</sup>

The prevalence of iron deficiency anemia is 2% in adult men and in women it is 3 to 5%.<sup>2</sup> It is mostly due to poor intake of iron containing supplements and food or chronic blood loss from GIT and during menstruation.<sup>3</sup> Chronic gastrointestinal (GI) blood loss is the top most cause of iron deficiency anemia in men above 50 years of age and post-menopausal women<sup>4,5</sup> while in premenopausal women the major contributors

**ABSTRACT...** The most common single cause of anemia worldwide is Iron deficiency. It results from other underlying diseases and to look for its cause is very crucial and is of far greater importance than restoring the iron stores and hemoglobin levels. **Objectives:** To determine the frequency of common upper gastrointestinal endoscopic findings in elderly patients with iron deficiency anemia presenting with dyspepsia. **Study Design:** Cross sectional descriptive study. **Setting:** Department of Medicine, Khyber Teaching hospital, Peshawar. **Period:** March, 2011 to September, 2011. **Materials and Methods:** 116 patients, all the patients with iron deficiency anemia presenting with dyspepsia were subjected to upper gastrointestinal endoscopy to detect common findings as gastric erosions, peptic ulcer and gastric carcinoma. **Statistical Analysis:** Data was analyzed with SPSS 10.0. **Results:** On upper gastrointestinal endoscopy, normal findings were noted 30 (25.86%) patients and abnormal findings were noted in 86 (74.14%) patients including 45 (38.79%) patients with gastric erosions, 30 (25.86%) patients with peptic ulcer and 11 (9.48%) patients were found with gastric malignancy. **Conclusions:** Upper gastrointestinal lesions are common in elderly patients with iron deficiency anemia presenting with dyspepsia and must be screened by gastrointestinal endoscopy.

**Key words:** Iron deficiency anemia, gastrointestinal endoscopy, Dyspepsia, elderly patients

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of IDA are menorrhagia and increased demand of iron during pregnancy and lactation.<sup>6</sup> Gastrointestinal bleeding is usually clinically not clear and is difficult to detect.<sup>7</sup>

In general, Upper GI complaints are fairly common in the general population as a whole. Dyspepsia, which is defined as recurrent pain or discomfort centered in the upper abdomen affects 14 to 40% of the population each year. It is usually associated with early satiety, upper abdominal fullness, eructation, heartburn, nausea and vomiting. Patients with alarm features such as dysphagia, haematemesis and or malaena along with selected cases of dyspepsia are candidates for oesophagogastroduodenoscopy (OGD).<sup>8</sup> Dyspepsia is a recurrent condition that causes pain and discomfort in upper abdomen and affects 40% of UK population. It is responsible for 4% of consultation to primary care.<sup>9</sup> Iron deficient patients with dyspepsia, the initial examination should be directed towards finding these lesions.

Clinicians may therefore reasonably elect to undertake an upper gastrointestinal endoscopy in high risk patients.<sup>10</sup>

According to one study, the prevalence of gastrointestinal lesions in patients with iron deficiency anemia and dyspepsia is between 40-70% with peptic ulceration (30%) the most common abnormality followed by gastric erosion (18%). In another study, the frequency of malignancy was estimated to be 29%.<sup>11</sup>

A thorough examination of gastrointestinal tract has become standard practice regardless of fecal occult blood test<sup>12</sup> and, indeed, many clinicians advocate both upper and lower endoscopy regardless of symptoms and signs of gastrointestinal tract.<sup>13</sup>

The objective of the currently designed study was to determine the frequency of common upper gastrointestinal finding in iron deficiency anemia patients presenting with dyspepsia.

## MATERIAL AND METHODS

This cross sectional descriptive study was done during six months from 21<sup>st</sup> March, 2011 to 21<sup>st</sup> September, 2011 at Department of Medicine, Khyber Teaching hospital, Peshawar recruiting 116 patients presenting with dyspepsia and IDA. IDA was defined as Hemoglobin concentration of less than 12.5g/dl in men and less than 10.6g/dl in women with serum iron concentration less than 45 $\mu$ g/dl accompanied by transferrin saturation of less than 15%. Dyspepsia was defined by history of upper abdominal fullness of any amount and pain of any degree that is aggravated by eating. The inclusion criteria adopted was; all patients of any gender above 50 years presenting with iron deficiency anemia and dyspepsia. Exclusion criteria applied was; Patients having bleeding disorders, previous gastrectomy or bowel resection, patients already taking anti ulcer treatment or having chronic hepatitis B or chronic hepatitis C infection as these were acting as confounders and were liable to introduce bias in the study results.

All patients meeting the inclusion criteria were

admitted in ward through OPD. The purpose and benefits of the study were explained to the patient and they were assured that the study is done purely for research and data publication and a written informed consent was obtained. All the patients were prepared for upper GI endoscopy after taking detailed history and clinical examination followed by routine investigation. All the patients were subjected to Upper GI endoscopy on next list and all the endoscopic procedures were performed by single experience gastroenterologist having minimum of five years of experience to detect common findings as gastric erosions, peptic ulcer and gastric carcinoma. Gastric erosion was defined as superficial mucosal lesions of less than 5mm in diameter. Peptic ulcer as loss of mucosal surface, visible by endoscopy, which in addition to having depth of more than 5mm, is also greater than 5mm in diameter. It usually occurs in stomach and first part of duodenum. Gastric carcinoma was defined as an ulcer, a mushroom-shaped or protruding mass, or a flat, thickened area of mucosa known as linitis plastica and was confirmed by expert histopathologist through biopsy specimens taken during endoscopy.

All the above mentioned information including name, age, gender and address were recorded in a pre-designed proforma. Strictly exclusion criteria was followed to control confounders and bias in the study results. All the data was entered and analyzed in SPSS Version 10. Frequency and percentages were calculated for categorical variables like gender, common upper GI endoscopic findings (gastric erosion, peptic ulcer and gastric carcinoma). Mean  $\pm$  SD were calculated for numerical variables like age, hemoglobin concentration and serum iron concentration. Results were presented as tables and graphs.

## RESULTS

The total number of patients with Iron Deficiency Anemia was 116 comprising of 86 (74.14%) males and 30 (25.86%) females. The male to female ratio was 2.86:1. The patient ages range from 50 to 75 years. The mean age of male patients was 58.7 years + 6.3SD and female was 58.2 years + 6.3SD

with an overall mean age of 58.6 years + 6.3SD.

On upper gastrointestinal endoscopy, normal findings were noted in 30 (25.86%) patients and abnormal findings were observed in 86 (74.14%) patients. There were 45 (38.79%) patients with gastric erosions, 30 (25.86%) patients with peptic ulcer and 11 (9.48%) patients were found with gastric malignancy. (Table-I)

The endoscopic findings distribution according to gender, age and mean hemoglobin concentration, mean transferrin saturation and mean serum iron level are shown in detail in Table No-II-III-IV.

Upper GI Endoscopic Findings	Frequency n(%)
Gastric erosions	45 (38.79%)
Peptic ulcers	30 (25.86%)
Gastric malignancy	11 (9.48%)
Normal findings	30 (25.86%)

**Table-I. Common upper GI endoscopic findings in patients with iron deficiency anemia**

Upper GI Endoscopic Findings	Gender	
	Male	female
Gastric erosions	35 (30.17%)	10 (8.62%)
Peptic ulcers	24 (20.69%)	6 (5.17%)
Gastric malignancy	9 (7.76%)	2 (1.72%)
Normal Findings	18 (15.52%)	12 (10.34%)

**Table-I. Gender distribution of common upper GI endoscopic findings in patients with iron deficiency anemia**

Upper GI Endoscopic Findings	Age groups		
	50 to 60 years	61 to 70 years	70 and above
Gastric erosions	25 (21.56%)	11 (9.48%)	9 (7.76%)
Peptic ulcers	22 (18.97%)	3 (2.58%)	5 (4.31%)
Gastric malignancy	3 (2.58%)	4 (3.45%)	4 (3.45%)
Normal Findings	15 (12.93%)	10 (8.62%)	5 (4.31%)

**Table-III. Age distribution of common upper gi endoscopic findings in patients with iron deficiency anemia**

Upper GI Endoscopic Findings	Mean + Standard deviation		
	Serum Iron	Transferrin Saturation	Hb%
Gastric erosions	56.9 ± 4.2	8.1 ± 2.2	7.2 ± 1.6
Peptic ulcers	56.9 ± 4.4	7.9 ± 2.1	7.2 ± 1.9
Gastric malignancy	56.8 ± 4.2	8.0 ± 2.1	7.2 ± 1.7
Normal findings	56.2 ± 3.7	7.8 ± 2.0	7.1 ± 1.5

**Table-IV. Distribution of mean serum iron, transferrin saturation and hemoglobin% according to common upper gi endoscopic findings in patients with iron deficiency anemia**

**DISCUSSIONS**

Iron deficiency anemia (IDA) affects approximately 30% of the world’s population<sup>14</sup>. Iron deficiency is one of the most common causes of anemia. In a majority of patients, the cause of iron deficiency in men and postmenopausal women is chronic occult gastrointestinal bleeding. Moreover, it has been noted that appropriate evaluation is not done in a large proportion of anemic patients to detect iron deficiency anemia, which can be easily diagnosed by simple serum tests of iron body stores. This is particularly important as tests for estimation of iron stores in the body are noninvasive, of low cost and can distinguish patients with a high degree of accuracy with or without iron deficiency. Not only the evaluation of anemia is done less frequently than should be expected, but, in addition, a large proportion of anemic patients do not undergo endoscopic evaluation who are found to have iron deficiency.<sup>15</sup>

In our study, mean age in our study was quit high (58.6 years ± 6.3SD) when compared with a local study (39.78 years ± 11.2SD) which has reported a study group consisted of 50 patients.<sup>10</sup> This difference in the mean age of patients is because that we took the age group of patients above 50 years of age. Majority of patients in our study were of 55years, 62 years and 64 years. However, the male predominance (74.14% males and 25.86% females) was in accordance to the results of this local study (66% males and 34% females).<sup>10</sup>

The chronic blood loss leading to Iron deficiency anemia is usually silent and becomes evident when patients develop symptoms.<sup>16</sup>There are few studies in patients with IDA without

gastroenterological symptoms and the number of patients is small and the patients are of different groups. The usual pattern of the disease is difficult to decide the factor responsible for the endoscopic outcome in patients with IDA having no gastrointestinal symptoms.<sup>17</sup> In our study, on upper gastrointestinal endoscopy, normal findings were noted in 25.86% patients. There were 38.79% patients with gastric erosions, 25.86% patients with peptic ulcer and 9.48% patients were found with gastric malignancy. In a local study by Sajid MU et al<sup>10</sup>, the upper GI endoscopy demonstrated lesions in 66% patients. Peptic ulcer (30%) was more common and erosive gastritis (18%) was less in comparison to our study. In a study by Cetinkaya ZA et al<sup>18</sup>, there were normal findings in 18.75%. On other hand, 96.52% patients revealed the cause of IDA in whom both upper gastrointestinal endoscopy and colonoscopy was performed. Majid S et al<sup>19</sup> has reported 17.89% helicobacter associated gastritis or celiac disease, 5.26% patients had malignancy.

The standard diagnostic procedure for patients above 50 years of age with iron deficiency is to investigate the upper and lower gastrointestinal tract pathology as well as rule out a nutritional cause. As studies have suggested bidirectional endoscopic evaluation as a workup and most of them recommended lower gastrointestinal endoscopy first.<sup>20</sup> We have scanty data in our country regarding endoscopic evaluation of patients without gastrointestinal symptoms presenting with IDA. Furthermore it is not clear that evaluation of patients with IDA should be started with upper GI or lower GI endoscopic examination.

## CONCLUSIONS

We conclude that significant number of patients with Iron deficiency anemia presenting with dyspepsia have upper gastrointestinal lesions like peptic ulcers, acute gastric erosions and gastric malignancies, so such patients must be evaluated for chronic blood loss from upper GI tract. Iron deficiency anemia is not a disease by itself but it results from other underlying diseases

and to look for its cause is very crucial and may be of far greater importance to the ultimate well-being of the patient than restoring the iron stores and hemoglobin levels. These procedures are not cost effective for each IDA patients so upper GI endoscopy should be done in patients with IDA and having dyspepsia.

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