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## Original Article-Upper Gastrointestinal Endoscopic Findings in Premenopausal Anaemic Patients

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### Abstract

**Background-**in premenopausal women, menstrual blood loss and pregnancy associated requirements are often presumed to be the source of iron deficiency anaemia. These patients may have gastric erosion, diffuse gastritis, gastric ulcer or erosive oesophagitis which also can cause anaemia

**Aims and objectives-**To find out the correlation between endoscopic findings and anaemia.

**Material and methods –** This cross sectional study was conducted on 50 patients admitted in various medical wards as well as those attending out patients clinic at Department of Medicine, G.R. Medical College, Gwalior from May 2004 to September 2005, informed consent was taken from patients before participating in the study.

**Results-**The mean age in study group 34.7 (7.09) yrs (S.D.). Maximum number of patients in study group belongs to 36-45yrs, age group. In the study population 28 female had normal and 22 female had heavy menstrual flow. Maximum number of patients had three children. The mean parity was 2.3 with S.D. 1.35. In our study 41, patients were vegetarian and 9 were non-vegetarian by diet. Most of non-vegetarian were Muslim. All women presented, symptoms related to anaemia, such as fatigue 70% and shortness of breath 68%. Majority of women in the study group had GI symptoms n=39(78%) which were not spontaneously reported, but only referred to when specifically asked. n = 28(56%) had upper GI symptoms, such as epigastric discomfort and dyspepsia. n=21(42%) complained of lower GI symptoms, such as mild lower abdominal plain loose stool or constipation and n=11(22%) patients has symptoms referring to both upper and lower GI tract. There was no statistically significant difference in mean value of Hb%, PCV%, MCV cmm, MCH pgm, MCHC%, Serum ferritin and Serum iron value in different age group. (p>.05) There was no statistically significant difference in mean value of Hb%, PCV%, MCV cmm, MCH pgm, MCHC%, serum ferritin and serum iron and serum ferritin in female with normal menstrual flow or female with heavy menstrual flow. On endoscopic evaluation 34/50 (68%) showed (upper GIT) abnormalities and included oesophagitis 3 (6%), erosive gastritis 5 (10%), diffuse gastritis 16(32%), antral gastritis with duodenal ulcer 6(12%), gastric ulcer 2(4%) and chronic atrophic gastritis 2(4%). 16 (32%) patients showed no abnormalities.

**Conclusion-** In our study iron deficiency anaemia was observed in all patients. Neither the severity of anaemia nor the serum ferritin level was found to have any significant correlation with the amount of menstrual flow. UGI endoscopic revealed statistically significant abnormal lesions in premenopausal patients.

**Keywords:** Anaemia, Premenstrual, Ugi Endoscopy

### 1. Introduction

Anaemia is present when the haemoglobin level in blood is below the lower extreme of the normal range for the age and sex of the individual. The lower limit of normality is reduced during pregnancy. In strict sense 'Anaemia' means absence of blood, it is defined as reduction in circulating red cell mass and corresponding decrease in the oxygen carrying capacity of the blood<sup>[1]</sup>. Anaemia is a multifactorial disease which afflicts humanity, it's not fatal but have high morbidity and the crippling and paralyzing effect on human society. Anaemia may be primary, or it occurs as a secondary phenomenon associated with other chronic illness. Anaemia is said to be present in women residing at lower altitude if the haemoglobin is much below the 11 gm/dl in the non-pregnant state or is less than 10 gm/dl in pregnancy and puerperium in developed country e.g. India<sup>[2]</sup>. In premenopausal women, menstrual blood loss and pregnancy associated requirements are often presumed to be the source of iron deficiency anaemia. These patients may have gastric erosion, diffuse gastritis, gastric ulcer or erosive oesophagitis which also can cause anaemia<sup>[3]</sup>.

Therefore it is quite necessary to ascertain the exact causes of anaemia in female of this stage. This study was taken to detect GI causes in premenopausal women with anaemia.

**Aims and Objectives-**To detect anaemia in premenopausal female patients. Upper Gastrointestinal endoscopy in these anaemic patients. To find out the correlation between endoscopic findings and anaemia, if possible.

**Material and Methods:** This cross sectional study was conducted on 50 patients admitted in various medical wards as well as those attending out patients clinic at Department of Medicine, G.R. Medical College, Gwalior from May 2004 to September 2005, informed consent was taken from patients before participating in the study. Fifty premenopausal women with anaemia were selected. Premenopausal status was defined as the personal report that they were still menstruating. Anaemia was defined as a haemoglobin concentration of < 12 gm/dl, but in developing countries it was < 11 gm/dl. Cases were selected on the basis of history, symptoms, signs and laboratory investigation.

**Inclusion criteria:** All non-pregnant menstruating women with anaemia irrespective of menstrual flow.

**Exclusion criteria:** Young female before the age of menarche's, post-menopausal, pregnant or breast –feeding women. Women excluded who were using acid suppressing drugs or anticoagulants. Women who had obvious blood loss, bleeding hemorrhoids, positive for malaria parasite or splenomegaly, worm infestation, and previous gastric surgery. Also excluded were women with haematologic diagnosis, such as aplastic anaemia, thalassaemia, myelodysplasia or cancer, haemolysis, as well as those with any other cancer or chronic diseases such as chronic renal failure, cirrhosis and severe cardiopulmonary disease or with anorexia.

The menstrual cycle was considered normal when frequency is 25-32 days and duration between 3-5 days. During clinical interview, each patient was questioned concerning frequency and duration of menstrual flow. Those women who had decreased interval or increased duration were considered to have a heavy menstrual flow, Obstetrical history: parity status if women denotes, how much time she conceive and attain the age of viability (28 weeks of gestation). Symptoms: Gastrointestinal symptoms: Like epigastric discomfort, dyspepsia, nausea, anorexia and abdominal pain. Anaemic symptoms: like dyspnea, fatigue, palpitation and oedema. Following clinical signs were noted on clinical examination to diagnose the patient of iron deficiency anaemia pallor, koilonychias, angular stomatitis, glossitis, and haemic murmur.

**Laboratory Investigation**

Haemoglobin, Total Red Cell Count, Packed Cell Volume: Means Cell Volume, Mean Cell Haemoglobin, and Mean Cell Haemoglobin Concentrations

Total Leucocyte Count, Differential Leucocyte Count, Platelet Counts. Lft, Rft, Urine R/M, Stool Examination for Occult Blood, Ova and Parasites and Serum Iron Ferritin Levels. Ugi Endoscopy Was Performed In Every Patient With Written Consent.

**Statistical Analysis:** Data were collected in an Access database and analyzed with SPSS (v 10). Student's test and Mann-Whitney test for continuous variable and Fisher's exact test for categorical variables were used for univariate analysis. Multivariate analysis was performed using forward stepwise logistic regression to determine the demographic, clinical and laboratory features that were associated with the presence of a

gastrointestinal lesion detected b endoscopy. For each independent predictor, the odd ratio and 95% confidence interval were calculated. A two-tailed P value of <0.05 was considered statistically significant. All data are expressed as mean ± standard deviation.

**Observations**

**Table 1:** Age distribution of study population

Age group	No. of patient	Percent
16-25	6	12.0
26-35	17	34.0
36-45	27	54.0
Total	50	100.0

Present study included fifty patients between 18-45 yrs of age. This mean age in study group 34.7±7.09. Maximum number of patients in study group belongs to 36-45 yrs age group. Minimum Age In Our Study Was 18, Maximum Was 45, Mean Age Was 34.70 and Standard Deviation Was 7.09.

**Table 2:** Distribution of Heavy Menses in the Study Population

Menstrual history	No. of patients (%)	Mean ±S.D. age(year)	95% C.I <sup>a</sup>
Normal menstrual flow	n=28(56)	36.96±7.39	33.09 to 38.89
Heavy menstrual flow	n=22(44)	33.13±6.35	30.17 to 35.95

**Table 3:** Distribution of Parity Status in the Study Population

Parity status	No. of Patients	Percent
Nulliparous	5	10.0
Monoparous	10	20.0
Biparous	12	24.0
Triparous	14	28.0
Tetraparous	6	12.0
Pentaparous	3	6.0
Total	50	100.0

Maximum number of patients had three children. The mean parity was 2.3 with S.D. 1.35.

**Table 4:** Distribution Food Habits in the Study Population

Food habits	No. of patients	Percent
Vegetarian	41	82.0
no vegetarian	9	18.0
Total	50	100.0

In our study 41, patients were vegetarian and 9 were non-vegetarian by diet.

**Table 5:** Clinical Profile of the Study Population

G.I. symptoms		No. of patients	Percent
UGI Complaints	Epigastric discomfort	26	52
	Dyspepsia	28	56
Lower GI Complaint	Lower abdominal pain	21	42
<b>Anaemic symptoms</b>	Fatigue	35	70
	Dyspnea	29	68
<b>Signs</b>	Pallor	50	100
	Koilonychias	13	26
	Angular stomatitis	21	42
	Glossitis	8	16

All women presented with symptoms related to anaemia, such as fatigue 70% and shortness of breath 68%. Majority of women in the study group had GI symptoms n=39(78%) which were not spontaneously reported, but only referred to when specially asked. n=28(56%) had upper GI symptoms, such as epigastric discomfort and dyspepsia. n=21(42%) complained of lower GI symptoms, such as mild lower abdominal pain, loose stool or constipation and n=11(22%) patients had symptoms referring to both upper and lower GI tract.

**Table 6:** Age- Group Wise Distribution of Severity of Anameia

Age-Group	Anaemia Grade			Total
	mild	Moderate	severe	
16-25	3	2	1	6
26-35	7	5	5	17
36-45	5	18	4	27
Total	15	25	10	50

There was no statistical significant (p>. 05) difference of anaemia in different age group found.

**Table 7:** Maen Haematological Value in Different Age Group

	Age group			
	16-25	26-35	36-45	Total
Mean Hb%± S.D.	8.53±1.3	8.68±0.9	7.51±1.2	8.03±1.2
Mean PCV%±S.D.	27.5±3.0	28.51±2.1	25.65±3.7	26.86±3.4
Mean MCV (cub. mm) ±S.D.	80.66±1.3	80.07±6.4	74.17±10	76.95±9.6
Mean MCH (pgm±)S.D.	26.33±5.8	27.17±3.9	21.96±5.2	24.26±5.4
Mean MCHC%±S.D	30.83	30.69	28.44	29.49
Mean S. Iron (ugm) ± S.D.	36.50±9.7	38.52±4.8	28.14±9.1	32.68±9.3
Mean S. Ferritin (ngm)±S.D.	21.19±4.50	22.41±4.0	18.59±6.1	20.20±5.5

There was no statistical significant difference in mean value of Hb%, PCV%, MCV, MCH, MCHC%, Serum ferritin and Serum iron value in different age group. (p>.05).We noticed a general decline while analyzing the mean value of all haematological parameter amongst the patients of 36-45 age-group. But it is not significant.

**Table 8:** Mean Haemtological Value According To Menstrual Flow

	Normal menstrual flow n=28	Heavy menstrual flow n=22
Mean Hb%±S.D.	8.00±1.22	8.05±1.32
Mean pcv%±S.D.	24.09±5.30	24.39±5.60
Mean mvc (cm)±S.D.	77.27±10.2	76.70±9.40
Mean mch (pgm)± S.D.	26.87±3.50	26.86±3.30
Mean MCHC%± S.D.	29.74±4.14	29.17±2.62
Mean S. Iron (ugm)± S.D.	32.53±9.08	32.86±9.77
Mean S. Ferritin (ngm)±S.D.	20.89±5.57	19.31±5.56

There was no statistically significant difference in mean value of Hb%, PCV%, MCV cm, MCH Pg, MCHC%, Serum iron and Serum ferritin in female with normal menstrual flow or female with heavy menstrual flow.

**Table 9:** Ugi Finding on Endoscopic Evaluation in Different Age Group

UGI Finding	Age group (yrs)			Total
	16-25	26-35	36-45	
Oesophagitis	1	1	1	3
Erosive gastritis	1	1	3	6
Diffuse superficial gastritis	0	5	11	16
Antral gastritis with DU	0	2	4	6
Gastric ulcer	0	2	0	2
Chronic atrophic gastritis	0	0	2	2
No finding	4	6	6	16
Total	6	17	27	50

On endoscopic evaluation 34/50 (68%) showed (upper GIT) abnormalities and included oesophagitis 3(6%), erosive gastritis 5(10%), diffuse gastritis 16(32%), antral gastritis with duodenal ulcer 6(12%), gastric ulcer 2(4%) and chronic atrophic gastritis 2(4%), 16(32%) patients showed no abnormalities. 2/6(33%) of 16-25 age group patients, 11/17(64.7%) of 25-36 age group and 21/27(77.7%) of 36-45 age group subject showed abnormalities. This difference in different group was not significant. But individual groups had significant number of UGI lesions.

**Table 10:** Ugi Finding on Endoscopic Evaluation in Female with Normal and Heavy Menstrual Flow.

UGI Finding	Menstrual flow	
	Normal menstrual flow n=28	Heavy menstrual flow n=22
Oesophagitis	3	3
Erosive gastritis	3	2
Diffuse superficial gastritis	8	8
Antral gastritis with DU	2	4
Gastric ulcer	2	0
Chronic atrophic gastritis	0	2
No finding	10	6
Total	28	22

Both group had significant number of UGI lesion, but difference was not significant. 18/28(64%) in normal menstrual flow and 16/22 (72%) in heavy menstrual flow had UGI lesions.

**Table 11:** Correlation of Rapid Urease Test (H. Pylori) With UGI Endoscopic Finding

UGI finding	Rapid urease test	
	Positive (+ve)	Negative (-ve)
Oesophagitis	2	1
Erosive gastritis	3	2
Diffuse superficial gastritis	14	2
Antral gastritis with DU	6	0
Gastric ulcer	1	1
Chronic atrophic gastritis	1	1
No finding	3	13
<b>Total</b>	<b>30</b>	<b>20</b>

Out of 30 patients (60% of all patients in study population) positive for rapid urease test (H. pylori), 2 out of 3 in oesophagitis, 3 out of 5 in erosive gastritis, 14 out of 16 in diffuse gastritis, 6 out of 6 in antral gastritis with duodenal ulcer, 1 out of 2 in gastric ulcer and 1 out of 2 in chornic atrophic gastritis positive for rapid urease test. This was statistically significant, p<0.05.Three normal patients on endoscopy were positive for rapid urease H. pylori.

## Discussion

The present study was designed to find out UGI lesions in premenopausal female with anaemia. Which was either responsible or contributory to causing anemia. The mean age in study group was 34.7 yrs, (7.09 years was S.D.). Maximum number of patients in study group belongs to 36-45 years age group. The study group population show 44% females had heavy menstrual flow and 56% females had normal menstrual flow. This was contrary to previous study<sup>[4]</sup> where 55% had heavy menstrual flow and 45% had normal menstrual flow. No significant difference was observed in severity, history of anaemia and mean value of Hb% (8.00±1.22 versus 8.05±1.32), PCV% MCV cmm, MCH pgm, MCHC%, S. ferritin (20.89±5.57 versus 19.31±5.56), S. iron between the patients with normal menstrual and heavy menstrual flow. In our study maximum number of patients had three children. The mean parity was 2.3 with S.D. 1.35. There was no significant correlation found between severity of anaemia and parity status ( $p>.05$ ). In our study  $n=28(56\%)$  patients had upper GI symptoms, such as epigastric discomfort and dyspepsia,  $n=21(42\%)$  complained of lower GI symptoms, such as mild lower abdominal pain, loose stool or constipation and  $n=11(22\%)$  patients had symptoms referring to both upper and lower GI tract. There was no significant correlation found between GI symptoms and upper gastrointestinal lesions. Previous Studies<sup>[5]</sup> showed that site specific symptoms were significantly associated with lesion in the portion of the gastrointestinal tract where the symptoms originated, and these symptoms were predictive of abnormal findings. Whereas other<sup>[6]</sup> have found symptoms to be unhelpful in localizing pathology. On endoscopic evaluation 34/50 (68%) showed (upper GIT) abnormalities included both bleeding and nonbleeding associated lesions. Bleeding associated lesions were erosive gastritis 5(10%), antral gastritis with duodenal ulcer 6(12%), gastric ulcer 2(4%) and non-bleeding associated lesions were diffuse gastritis 16(32%), oesophagitis 3(6%), chronic atrophic gastritis 2(4%). 16(32%) patients showed no abnormalities. Similar results were found by others<sup>[4]</sup>. Present results was in keeping with previous study<sup>[6]</sup> where 7 out of 19 were discovered to have gastrointestinal disease by upper endoscopy findings were duodenal ulcer and *Helicobacter pylori* (*H. pylori*) gastritis (one), oesophagitis and *H. Pylori* gastritis (one) erosive oesophagitis (one), gastric arteriovenous malformation (one), and nodular/erosive *H. pylori* gastritis (two). However, in that study only bleeding lesions were considered as likely cause of iron deficiency anaemia and moreover the inclusion criteria of patients different.

In another study<sup>[7]</sup> 6% of premenopausal women with iron deficiency anaemia upper GI bleeding lesions detected, but, also in this study non-bleeding associated disease were not considered. On applying rapid urease test, 30/34 (88.2%) individuals were found to be positive in patients with UGI lesions on upper endoscopic evaluation, this was statistically significance ( $p<.05$ ). 2 out of 3 in oesophagitis, 3 out of 5 in erosive gastritis, 14 out of 16 in diffuse gastritis, 6 out of 6 in antral gastritis with duodenal ulcer, 1 out of 2 in gastric ulcer and 1 out of 2 in chronic atrophic gastritis positive for rapid urease test. In our study we found UGI lesions more frequent 16/22 (72%) in patients with heavy menstrual flow as compared to 18/28 (64%) in patients with normal menstrual flow. Previous study<sup>6</sup> show similar results. In our study UGI lesions increased with age of patients 2/6 (33%) of 16-25 age group patients, 11/17 (64.7%) of 25-36 age group and 21/27 (77.7%) of 36-45 age group subjected showed abnormalities.

Because incidence of *H. pylori* increased with age. A limitation of our study concern the entity of menstrual flow, which was referred by the women themselves. History has been reported to be unreliable in quantifying menstrual loss on other hand, many women have been shown to underestimate their menstrual blood loss. Albeit the aim of the study was not to determine the gynaecological causes of iron deficiency anaemia, but rather to establish whether premenopausal women with anaemia, including those with a heavy menstrual flow, would benefit from GI evaluation.

## Conclusion

In our study iron deficiency anaemia was observed in all patients. Neither the severity of anaemia nor the serum ferritin level was found to have any significant correlation with the amount of menstrual flow. UGI endoscopic revealed statistically significant abnormal lesions in premenopausal patients.

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**Conflicts Of Interest:** None

**Ethical Approval:** Yes

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