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# Epidemiological and endoscopic profile of patients with upper gastrointestinal bleeding at a tertiary care center in Northern India: A retrospective analysis of 20 years

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## ABSTRACT

**Background:** Upper gastrointestinal (UGI) bleed is a common emergency presenting to emergency departments all over the world. Since the spectrum of UGI bleeding varies from region to region, it is important to know the profile of UGI bleed for proper management approach. Here, we present the endoscopic profile of UGI bleed presenting to a tertiary care setting in Northern India. **Aims and Objectives:** This study aimed to determine the epidemiological and endoscopic profile of patients with UGI over twenty years. **Materials and Methods:** The retrospective and observational study included adults patients (above 18 years of age) of either gender, who presented with UGI bleed at our center over a twenty year period from January 1999 to December 2018. **Results:** A total of 13418 patients with UGI bleed had esophagogastroduodenoscopy (EGD) done on them during this period. Six thousand one hundred and thirty-two patients (45.7%) were females while 7285 were males (54.3%). Mean age was 46 ± 16 years. The common endoscopic findings were peptic ulcer disease in 7508 (48.25%) patients followed by erosive gastritis in 2305 (14.81%), UGI tract malignancy in 1152 (7.8%). Variceal bleed was seen in 900 (5.77%) patients. **Conclusion:** Peptic ulcer related bleed is the most common cause of UGI bleed in our center. Portal hypertension is relatively less frequent a cause of UGI bleed in our place.

**Key words:** Upper gastrointestinal bleed; Esophagogastroduodenoscopy; Peptic ulcer disease

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## INTRODUCTION

Upper gastrointestinal bleeding (UGIB) is a common gastrointestinal (GI) emergency. It may present as melena and/or hematemesis and rarely as hematochezia and carries a significant morbidity and mortality.[1] A 2012 update on the burden of GI disease in the United States reports that GI hemorrhage still ranked 7th among the principal GI discharge diagnoses from hospital admissions in 2009, with a 22% increase compared with year 2000, and 10th among causes of death from GI and liver diseases.[2] The case fatality rate among hospitalized patients with UGIB has decreased over the past 20 years and ranges from 2.1% to 2.5% in U.S. nationwide database studies[3] to 10% in large, prospective, European, and observational studies.[4]

Patients can be divided as having either variceal or non-variceal sources of upper GI hemorrhage as the two have different management protocols and prognosis.[5] The first includes lesions that arise by virtue of portal hypertension, namely, gastroesophageal varices and portal hypertensive gastropathy, and the second includes lesions seen in the general population (peptic ulcer, erosive gastritis, reflux esophagitis, Mallory–Weiss syndrome, tumors, etc.). Advanced age has been consistently identified as a risk factor for mortality among patients presenting with upper

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GI bleed[6,7] presumably because of the high prevalence of comorbid illnesses[8] (such as cardiovascular disease) in elderly as compared with younger patients with upper GI bleed. Mortality rates ranging from 12% to 35% for those aged over 60 years, compared with <10% for patients younger than 60 years of age, have been reported in the previous studies[7,9] with overall mortality rates of 5–11%, representing a serious entity.[10] The incidence of upper GI bleeding is 2 fold greater in males than in females, in all age groups; however, the death rate is similar in both sexes.[11]

The primary diagnostic test for evaluation of UGIB is endoscopy. Early endoscopy and endoscopic appearance of certain lesions helps to guide care and thereby reduce the costs and duration of hospitalization.[12] There is paucity of data on clinical and endoscopic profile of patients of UGI bleed from India and particularly from this region. Therefore this study was planned with an aim to identify clinical and endoscopic profile of patients with UGIB coming to emergency department of our hospital.

### Aims and objectives

This study aimed to determine the epidemiological and endoscopic profile of patients with upper GI (UGI) over 20 years.

## MATERIALS AND METHODS

This was a retrospective and observational study based on the GI endoscopy data base of upper GI bleed adult patients of either gender who had undergone UGI endoscopy between January 1999 to December 2018 (a period of 20 years) in the Gastroenterology Department at Shri Maharaja Hari Singh (SMHS) Hospital which is a tertiary care hospital associated with Government Medical College Srinagar. The endoscopy unit of the hospital receives referrals from the eight associated hospitals of the medical college with bed strength of approximately 2500.

All esophagogastroduodenoscopy (EGDs) included in the analysis were performed by experienced gastroenterologists. Informed consent for endoscopy was obtained by the endoscopist before the procedure. EGD was performed per-orally in a standard manner with the patient in the left lateral position after inducing pharyngeal anesthesia with a topical anesthetic agent. Video endoscopes offered by two manufacturers (Olympus Optical Co., Ltd., Tokyo, Japan; and Fujinon, Saitama, Japan) were used.

A total of 13,418 upper GI bleed patient records were retrieved and reviewed. Data extracted from their records included gender, age, indication for the procedure, and endoscopic diagnosis.

### Statistical analysis

Collected data were analyzed using statistical methods such as mean, standard deviation (SD), P value, and Chi-square test. The results were displayed in tables with categorical variables presented as numbers and percentages, and the continuous variables presented as mean±SD. The data were analyzed using SPSS version 22.

$P<0.05$ was considered significant.

## RESULTS

A total of 13,418 patients of upper GI bleed had EGD done on them during the period under review. Among these patients, 6843 (51%) presented with melena, 2549 (19%) presented with hematemesis, 3757 (28%) presented with both melena and hematemesis, and 268 (2%) patients presented with hematochezia. Seven thousand two hundred and eighty-five (54.3%) patients were males and 6132 patients (45.7%) were females. Mean age of our patients was found to be 46 years. About 69.5% of patients were from rural origin whereas 30.5% were urban.

In the present study, majority of upper GI bleed cases were non-variceal (94.33%), with portal HTN-related bleed accounting for only 5.77%. Most common cause of UGI bleed in our study was peptic ulcer disease (PUD) (48.2%) followed by erosive gastritis (14.18%), malignancy (7.8%), variceal bleed (5.77%), and erosive duodenitis (5.33%) (Table 1).

Data about the uncommon and rare causes of UGI bleed was also analysed.

Various rare etiologies were Dieulafoys lesion (0.61%), Mallory Weiss lesions (0.38%), Gastrointestinal stromal tumor (0.20%), Gastric polyps (0.80%), Ampullary tumor (0.19%) and Hemobilia (0.11%) (Table 2).

**Table 1: Common causes of UGI bleed in our study**

| Endoscopy findings | Frequency (n) | Percentage |
|---|---|---|
| Duodenal ulcer | 5496 | 35.33 |
| Erosive gastritis | 2305 | 14.81 |
| Gastric ulcer | 1476 | 9.48 |
| Erosive duodenitis | 830 | 5.33 |
| PHTN bleed | | |
| Esophageal varices | 690 | 4.43 |
| Gastric varices | 114 | 0.73 |
| PHGP | 96 | 0.61 |
| Malignancy | | |
| Stomach | 982 | 6.31 |
| Esophageal | 132 | 0.84 |
| Duodenal | 38 | 0.24 |
| Gastroduodenal ulcers | 536 | 3.44 |

UGI: Upper gastrointestinal

Percentage (%) of various endoscopic findings represents frequency out of all the causes and equals 100.

## DISCUSSION

UGI bleed is a common medical emergency associated with considerable morbidity and mortality along with an enormous financial burden on health services. Despite advances in diagnostic modalities and therapy, the mortality of GI bleeding has not decreased much during the past 30 years and has remained constant at around 5–10%.

A large geographic variation exists in the incidence of UGI bleed ranging from 48 to 160 cases/100,000 population/year with consistent reports of higher incidences among men and the elderly.[13-17] The differences in definition of UGIB in various studies, population characteristics, prevalence of gastroerosive medications, in particular aspirin and non-steroidal anti-inflammatory drugs (NSAIDs), and prevalence of *Helicobacter pylori* are possible explanations for this variations.

The upper GI endoscopy in UGIB is not only a reliable tool in identifying the cause of bleeding, but it has a potential role for therapeutic intervention immediately and with subsequent future prognostic assessment of the patients. Our study was aimed at understanding the clinical and endoscopic profile of UGIB patients over a period of 20 years in the northern part of India.

Mean age in our study was 46 years. Previously done studies from India have shown similar age profile of the patients. In a study done by Rathi et al., the mean age of patients presenting with UGIB was 42 years.[18] In another study by Lakhwani et al., in 2000, mean age of patients was 51.9 years.[19] Study by Anand et al., in 2014 had mean age of 49 years.[20]

Seven thousand two hundred and eighty-five (54.3%) patients were males and 6132 patients (45.7 %) were females. Majority of studies on this subject have shown the similar pattern of male predominance.

In a study by Mahajan et al., from other part of north India, upper GI bleeding was found to be more common in men (61.50%) as compared to women (38.50%).[21] In a study done by Singh and Panigrahi from coastal Odisha, India,[22] it was found that upper GI bleeding is more common in males than females with a male to female ratio of 6:1.

In our study, 6843 (51%) patients presented with melena, 2549 (19%) presented with hematemesis, 3757 (28%) presented with both melena and hematemesis, and 268 (2%) patients presented with hematochezia. In a study by Mahajan et al.,[21] out of a total of 1270 patients, the majority (865, i.e., 68.11%) presented with both hematemesis and melena, while 266 (20.95%) presented with hematemesis only, and 139 (10.94%) had melena only. In studies done by Singh and Panigrahi[22] and Bambha et al.,[23] melena was the presenting complaint in 95.06% and 19% patients, respectively, and hematemesis was present in 43.09% and 28% patients, respectively, while both hematemesis and melena were seen in 41.78% and 52% patients, respectively.

When variceal versus non-variceal bleeding is considered as the etiology of the upper GI bleed, there are variable results in India and globally. There are studies showing portal hypertension-related bleed as the most common etiology of UGI bleed. Dilawari et al.,[24] Anand et al.,[20] and Mahajan et al.,[21] found variceal bleeding due to portal hypertension as the most frequent cause seen in 36%, 56%, and 53%, respectively. In contrast, Singh and Panigrahi,[22] Panigrahi and Mohanty[25] found duodenal ulcer disease as the most common endoscopic finding in UGI bleed patients. In a multicenter survey carried across UK hospitals,[26] the most common endoscopic diagnosis was peptic ulcer bleeding and the observed figure of 36% in this survey was similar to that reported in earlier series of UGI bleed.[16]

In the present study, majority of upper GI bleed cases were non-variceal (94.33%) with portal HTN-related bleed accounting for only 5.77%. Most common cause of UGI bleed in our study was PUD (48.2%) followed by erosive gastritis (14.18%), malignancy (7.8%), variceal bleed (5.77%), erosive duodenitis (5.33%), and other rare causes (4.62%) as shown in Table 1. The low percentage of variceal bleeding in our study could be because of the fact that alcohol-related liver disease in an uncommon heath issue in our place because of socioreligious taboo. In contrast, the high prevalence of peptic ulcer related bleed could be explained on high prevalence of *H. pylori* infections, smoking, and high NSAIDs intake.

Although peptic ulcer bleed and portal hypertension-related bleed accounts for majority of the case, non-variceal non-ulcer bleeding accounts for 34–64% of all presenting cases of non-variceal UGIB in various series.[26-28] These include a large variety of uncommon reasons which contribute to UGB and might become reasons for misdiagnosis and sometimes lead to fatal consequences. Among this special group of patients, various pathologies found in our study were Dieulafoys lesion (0.61%), Mallory-Weiss lesions (0.38%), GI stromal tumor (0.20%), gastric polyps (0.80%), ampullary tumor (0.19%) and hemobilia (0.11%). Anand et al.,[20] found 8.77% had Mallory–Weis tear, 4.38% had gastric malignancy, 1.75% had Dieulafoy's lesion, and 1.75% had duodenal polyp. In another study, Mahajan et al.,[21] reported 1.34% of patients with GIST 0.71% of

**Table 2: Uncommon and rarer causes of UGI bleed in our study**

| Endoscopy findings | Frequency (n) | Percentage |
|---|---|---|
| Severe esophagitis | 216 | 1.38 |
| Esophageal ulcer | 92 | 0.59 |
| Dieulafoy's lesion | 96 | 0.61 |
| Polyps | | 1.16 |
| Esophageal | 14 | |
| Gastric | 144 | |
| Duodenal | 44 | |
| Mallory weis tear | 48 | 0.38 |
| Gastric GIST | 32 | 0.20 |
| Ampullary tumor | 19 | 0.19 |
| Hemobilia | 18 | 0.11 |

UGI: Upper gastrointestinal

patients with Dieulafoy's lesion, and 0.47% of patients with Mallory–Weiss tear.

Their importance lies in the fact that these can cause rapid, recurrent, and massive hemorrhage with attendant high mortality rate. Besides repeated endoscopy, these need CT scan with angiography and prompt surgical intervention for proper management.

### Limitations of the study

Although major strength of this study is huge number of patients, limitation lies in the nature of the study that is observational and hospital based.

## CONCLUSION

This large single center study gives an impressive in depth data about various etiologies of UGI bleed. It remains a well known fact that the local demographic and endoscopic information is necessary for the proper management of UGI bleed patients. The pattern and frequency of various pathologies identified at upper GI endoscopy depend on various factors like alcohol intake, *H. pylori* infection among various communities. In addition, the entity non-ulcer and non-variceal bleed includes an important group of pathologies which must always be kept in consideration in upper GI bleed management.

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