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Original Article

Surgery Section

Aetiology of Upper Gastrointestinal Bleeding at a Tertiary Care Centre in Goa, India: A Retrospective Study

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ABSTRACT

Introduction: Upper Gastrointestinal Bleeding (UGIB) is a common medical and surgical emergency associated with significant morbidity and mortality. The aetiological spectrum of UGIB varies by region, depending on demographic factors and the prevalence of underlying diseases. Knowledge of local aetiological patterns is essential for timely diagnosis and appropriate management.

Aim: To study the aetiological profile of patients presenting with UGIB.

Materials and Methods: The present hospital-based retrospective observational study was conducted at Goa Medical College and Hospital, Bambolim, Goa, India from January 2024 to December 2024. All patients presenting with clinical features of UGIB who underwent upper gastrointestinal endoscopy were included. The authors obtained demographic variables and endoscopic aetiologies from endoscopy records and medical case files. Data were analysed using descriptive statistics and associations with age and sex were evaluated.

Results: The study included 461 patients with UGIB. The mean age was 53.3±14.3 years, with a male predominance (347; 75.3%). Oesophageal varices were the most common cause of UGIB, accounting for 232 (50.3%) cases, followed by gastritis/erosive gastritis 95 (20.6%), peptic ulcer disease 52(11.3%), and malignancies of the oesophagus, stomach, and duodenum 58 (12.6%). Variceal bleeding was more common in males (206) and in the 41-60 year age group (145), whereas non variceal bleeding predominated in patients older than 60 years (95).

Conclusion: Oesophageal varices constitute the leading cause of UGIB in the current tertiary care centre in Goa. Awareness of the regional aetiological pattern aids in early anticipation of cause, prompt intervention and improved patient management.

Keywords: Endoscopy, Gastritis, Malignancy, Oesophageal varices, Peptic ulcer disease

INTRODUCTION

The UGIB is defined as bleeding originating proximal to the ligament of Treitz and commonly presents as haematemesis, melena or both [1]. It constitutes a frequent medical and surgical emergency and is associated with significant morbidity, mortality and healthcare burden worldwide. Despite advances in endoscopic techniques, pharmacotherapy, and critical care, UGIB remains a diagnostic and therapeutic challenge [2].

The aetiology of UGIB broadly includes variceal and non variceal causes. Peptic ulcer disease and oesophageal varices account for the majority of cases, while less common causes include erosive gastritis, Mallory-Weiss tear, malignancy, Dieulafoy's lesion, vascular ectasia and rare entities such as aortoenteric fistula [1]. The relative prevalence of these causes varies with geographic region, population characteristics, alcohol consumption patterns, prevalence of chronic liver disease and use of non steroidal anti-inflammatory drugs [2,3].

The epidemiology and aetiological spectrum of acute UGIB vary considerably between populations and geographical regions and may also change over time. Therefore, knowing the local aetiological pattern of UGIB helps anticipate the likely source of bleeding, guide early management and plan appropriate healthcare resources. The present study was therefore undertaken to evaluate the aetiological profile and demographic characteristics of patients presenting with UGIB at a tertiary care centre in Goa.

MATERIALS AND METHODS

The present hospital-based retrospective observational study was conducted in the Department of General Surgery, Goa Medical College and Hospital, Bambolim, Goa, India, using patient records from January to December 2024. Ethical approval was obtained from the Institutional Ethics Committee (IEC No. GMCIEC/2025/239) for the retrospective review of patient records.

Inclusion and Exclusion criteria: All patients presenting with clinical features suggestive of UGIB and undergoing endoscopy during the study period. Patients with UGIB who could not undergo endoscopic evaluation.

Study Procedure

Data were retrieved from endoscopy unit records and medical case files obtained from the Medical Records Department. The variables collected included age, sex, and endoscopic diagnosis (aetiology of bleeding). For patients with multiple endoscopic findings, the authors designated the lesion most likely responsible for the bleeding episode as the primary aetiology for analysis.

STATISTICAL ANALYSIS

Statistical analysis was performed using IBM Statistical Package for the Social Sciences (SPSS) Statistics version 31 (IBM Corp., Armonk, NY, USA). Continuous variables were reported as mean±Standard Deviation (SD), and categorical variables as frequencies and percentages. Associations between categorical variables were analysed using the Chi-square test. A p-value of <0.05 was considered statistically significant.

RESULTS

The study included 461 patients with UGIB. The mean age was 53.3±14.3 years (range: 19-93 years) and males constituted 347 (75.3%) of the study population [Table/Fig-1].

Oesophageal varices were the most common aetiology, accounting for 232 (50.3%) cases, followed by gastritis/erosive gastritis in 95 (20.6%) cases, malignancy in 58 (12.6%) and peptic ulcer disease in 52 (11.3%) cases [Table/Fig-2].

Bleeding type was significantly associated with sex and age group (both $p<0.001$) [Table/Fig-3].

Variables	n (%)
Gender	
Male	347 (75.3%)
Female	114 (24.7%)
Age (years)	
≤40	90 (19.5%)
41-60	223 (48.4%)
>60	148 (32.1%)

[Table/Fig-1]: Demographic profile of patients with Upper Gastrointestinal Bleeding (UGIB) (N=461).

Aetiology	n (%)
Oesophageal varices	232 (50.3%)
Gastritis/erosive gastritis	95 (20.6%)
Peptic ulcer disease (gastric+duodenal)	52 (11.3%)
Malignancy (oesophageal, gastric and duodenal masses/growths)	58 (12.6%)
Other causes*	24 (5.2%)

[Table/Fig-2]: Aetiological Spectrum of Upper Gastrointestinal Bleeding (UGIB) (N=461).
*Includes Mallory-Weiss tear and other rare causes

Variables	Variceal bleed (n=232)	Non variceal bleed (n=229)	p-value
Gender			
Male	206 (88.8%)	141 (61.6%)	<0.001
Female	26 (11.2%)	88 (38.4%)	
Age group			
≤40 years	34 (14.7%)	56 (24.5%)	<0.001
41-60 years	145 (62.5%)	78 (34.1%)	
>60 years	53 (22.8%)	95 (41.5%)	

[Table/Fig-3]: Association of type of bleeding with age and sex (N=461).

DISCUSSION

The mean age was 53.3±14.3 years, with most patients aged 41-60 years (48.4%). Males accounted for 75.3% of all cases. Paudel MS et al., in a study of 100 patients from a tertiary care centre in Nepal, reported a comparable mean age of 51.6 years, although the proportion of males was lower (59%). Chetia K and Borah RK in a retrospective study of 120 patients from North-East India, reported a mean age of 46.92 years with a marked male predominance (84%). Hence, the demographic profile of present study has been comparable to these studies [4,5].

In the present cohort, oesophageal varices were the predominant cause, accounting for 50.3% of cases, whereas non variceal bleeding accounted for 49.7%. In contrast, Muzellina VN et al., in a five-year retrospective study of 1,090 patients at a tertiary hospital in Jakarta, Indonesia, reported that non variceal bleeding accounted for 83.8% of cases, with variceal bleeding constituting only 16.2%. Erosive gastritis was the leading cause in their study (37.4%), followed by peptic ulcer disease (24.8%). In comparison, gastritis/erosive gastritis and peptic ulcer disease accounted for 20.6% and 11.3% of cases, respectively, in the current cohort. Malignancy-related bleeding was relatively more frequent in the present study (12.6%) than in the Indonesian cohort (9.5%). Although the mean ages were comparable between the two studies, the proportion of male patients was higher in the present cohort (75.3% versus 54.4%). These differences may reflect variations in the underlying burden of chronic liver disease, regional risk factors, referral patterns and endoscopic diagnostic practices [6].

Among non variceal causes, gastritis and erosive gastritis accounted for 95 cases (20.6%), while peptic ulcer disease accounted for 52 cases (11.3%). In contrast, Paudel MS et al., reported duodenal ulcer as the most common aetiology, accounting for approximately 29% of cases, followed by oesophageal varices in 23% of patients and gastric ulcer in 14% of patients. Similarly, studies from other regions of India have reported peptic ulcer disease as either the leading or second most common cause of UGIB like in Chetia K and Borah RK, where the aetiological pattern was also predominantly non variceal, with peptic ulcer disease accounting for 54.16%, followed by gastro-oesophageal variceal bleeding (24.16%), erosive mucosal disease (14.17%) and neoplastic lesions (3.33%). The lower proportion of peptic ulcer disease observed in the present study may be due to the comparatively higher prevalence of alcohol-related liver disease in Goa resulting in a larger burden of variceal haemorrhage [4,5].

An important finding of the present study was the relatively high proportion of malignancy-related bleeding, which accounted for 58 cases (12.6%). In the five-year retrospective study by Bodh V et al., from Northern India involving 1,513 patients, neoplasms accounted for 3.3% of cases, with carcinoma stomach being the predominant malignancy (3.0%), followed by oesophageal (0.2%) and periampullary malignancy (0.1%). Similarly, Lakhwani MN et al., in a prospective study of 128 patients from Kuala Lumpur, reported malignancy in only 3.9% of patients presenting with UGIB. Thus, the proportion of malignancy-related bleeding in our cohort (12.6%) was approximately three to four times higher than that reported in these studies. This difference may reflect variations in the age distribution of study populations, referral patterns, regional disease burden and the criteria used for categorisation of endoscopic lesions. The inclusion of gastric and duodenal masses/growths under malignancy in the present study may also have contributed to the higher observed proportion. Nevertheless, the relatively high frequency of malignancy-related UGIB in our cohort emphasises the importance of meticulous endoscopic examination and appropriate biopsy of suspicious lesions, particularly in older patients presenting with UGIB [7,8].

The findings of the present study are also comparable with the prospective study by Prasad NRV et al., from South India, which provides an important regional comparison. In their cohort of 396 patients with acute UGIB, the mean age was 47.4 ± 13.3 years, 52.3% of patients belonged to the 41-60-year age group. Oesophageal varices were the most common endoscopic cause (35.9%), followed by erosive mucosal disease (29%) and peptic ulcer disease (27.5%). The proportion of variceal bleeding was substantially higher in our population (50.3% vs 35.9%). The similar predominance of variceal bleeding in two Indian tertiary-care populations, despite differences in proportion, suggests that regional patterns of chronic liver disease and referral characteristics may strongly influence the aetiological spectrum of UGIB. These findings highlight the clinical importance of identifying variceal bleeding early, particularly in Indian tertiary-care settings [9].

In the present study, oesophageal varices were the most common cause, accounting for 50.3% of cases. This finding is comparable to that of Mahajan P and Chandail VS, who reported portal hypertension-related causes in 53.62% of patients, with oesophageal varices being the most frequent endoscopic lesion (43.54%) among middle-aged and elderly patients in North India [10]. Similarly, Banerjee A et al., reported portal hypertension as the leading cause of UGIB in an eastern Indian cohort, accounting for 62.3% of cases, followed by peptic ulcer disease (16.7%) [11].

The findings of the present study have important clinical implications. In regions such as Goa, where variceal bleeding constitutes the predominant aetiology of UGIB, clinicians should maintain a high index of suspicion for portal hypertension and chronic liver disease when evaluating patients presenting with haematemesis or melena. Early resuscitation, timely endoscopic evaluation, and appropriate management of variceal bleeding remain crucial for reducing morbidity and mortality.

Limitation(s)

The study used a retrospective study design. It was a single-centre study, which may limit generalisability. The study did not assess

clinical outcomes such as rebleeding, need for intervention, or mortality.

CONCLUSION(S)

Oesophageal varices and gastritis/erosive gastritis are the leading causes of UGIB in this tertiary care centre in Goa, India. Knowledge of the local aetiological profile facilitates early anticipation of cause, timely intervention and improved patient management. Larger multicentric prospective studies are recommended to further validate these findings.

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