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Research Article

Study the Clinical Profile and Endoscopic Findings in Patients with Upper Gastrointestinal Bleed

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Abstract

Introduction: Upper gastrointestinal bleeding (UGIB) is a common medical emergency associated with significant morbidity and mortality. It presents with varied clinical features and etiologies, necessitating early diagnosis and prompt management. Endoscopy remains the gold standard for identifying the source of bleeding and guiding therapy. The study aimed to study the clinical profile and endoscopic findings in patients presenting with upper gastrointestinal bleeding.

Materials and Methods: This prospective observational study was conducted at a tertiary care centre and included 130 patients aged ≥18 years presenting with hematemesis and/or melena. Detailed clinical history, including demographic characteristics, alcohol use, smoking status, and BMI, was recorded. Laboratory investigations such as complete blood count, coagulation profile, liver and renal function tests were performed. All patients underwent upper gastrointestinal endoscopy to identify the aetiology of bleeding. Data were analysed using appropriate statistical methods and expressed as mean, median, and proportions.

Results: The majority of patients belonged to the 31–50 years age group, with a male predominance (70%). Alcohol consumption (60%) and smoking (50%) were common risk factors. Most patients had normal BMI. Peptic ulcer disease was the most common cause of UGIB, with duodenal ulcers (29.23%) and gastric ulcers (24.62%) accounting for over half of cases. Esophageal varices contributed to a significant proportion of cases. Laboratory findings revealed anemia, deranged coagulation parameters, and evidence of hepatic dysfunction in many patients.

Conclusion: UGIB is most prevalent among middle-aged males and is strongly associated with modifiable risk factors such as alcohol and smoking. Peptic ulcer disease remains the leading cause, followed by variceal bleeding. Early endoscopic evaluation and comprehensive clinical assessment are essential for effective management and improved outcomes.

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1. INTRODUCTION

Upper Gastrointestinal Bleeding is defined as a form of bleeding arising from above the ligament of Treitz and is a common emergency condition encountered in clinical practice [1]. It occurs in about 50 to 150 cases per 100,000 population annually and continues to have significant morbidity and mortality even after advances in diagnosis and treatment [2]. Clinically, patients are usually diagnosed with hematemesis, melena or both, and the presentations may range from relatively mild and self-limiting forms to extremely life-threatening ones [3].

Various types of causes account for the etiology of upper GI bleed, but peptic ulcers are by far the most frequent (about 47%) [4]. Other common causes include esophageal varices, gastritis, Mallory-Weiss tears, and malignancy [5]. Upper GI bleeds exhibit variations in pattern depending on age, sex, alcohol abuse, smoking, the use of NSAIDs, and chronic liver diseases [6]. In developing countries such as India, there has been noted an increase in variceal bleedings due to high prevalence of alcohol-induced liver disease and hepatitis virus infection besides ulcers [7].

Currently, upper GI endoscopy (i.e., esophagogastroduodenoscopy) serves as a primary tool for the diagnosis and treatment of upper GI bleed [8]. It helps in the direct visualization of the area affected, evaluation of its seriousness, and implementation of therapies through such methods as injection, band ligation, or coagulation techniques [9]. Rapidly performed endoscopies, ideally, within 24 hours of admission, contribute to better patient outcomes since they lead to decreased rebleeding rate, lower need for surgical intervention, and shorter time spent at the hospital [10]. Endoscopic classification, such as Forrest score, can assist in determining the degree of the danger posed by the bleeding [11].

Apart from endoscopic examination, the patient must be evaluated according to their clinical profile and laboratory parameters, including hematological, coagulation, and biochemical tests [12]. They are necessary for establishing whether the patient suffers from anemia, coagulation disorders, or organ dysfunction (liver or kidneys), which considerably affect the condition's prognosis [9]. As new epidemiologic trends develop, and presentations change in their nature, studying the profiles of UGI bleeders in particular populations becomes necessary.

Therefore, the aim of the current study was to analyze clinical profiles and endoscopic features among patients suffering from upper gastrointestinal bleeding.

2. MATERIALS AND METHODS

This prospective observational study was done at a tertiary care hospital for assessing the clinical profile and endoscopic findings of UGIB. One hundred and thirty patients fulfilling the predetermined inclusion and exclusion criteria were included in the study. The patients having hematemesis and melena aged 18 years and above presenting to a tertiary hospital were included in the study after giving an informed consent. The inclusion criterion for the study was presence of UGIB while patients having lower GI bleed, severely ill with other comorbid conditions making them unfit for undergoing an endoscopy, presence of any malignant condition in the GI tract, coagulopathy, and patients who refused to participate in the study were excluded. Detailed clinical assessment was made including history with stress laid on collecting information about age, gender, drinking habits, smoking habit, and associated other diseases. Systematic documentation of physical examination findings was made for all cases. BMI was calculated in all patients according to the formula and classified according to WHO classification. Data collection was done through standardized proformas.

Complete blood count (haemoglobin & platelets), coagulation profile (prothrombin time and INR), liver function test (albumin, bilirubin, AST, ALT) and renal function tests (blood urea & serum creatinine) were performed for all patients upon admission. All laboratory investigations were carried out in an automated analyzer of the institution.

In order to determine the source and cause of bleeding in patients, all of them had upper GI endoscopy. Endoscopic findings were categorized into various causes such as peptic ulcer disease, esophageal varices, gastric ulcer, gastritis, and other causes. All data thus gathered from the study population was entered in Microsoft excel and analyzed using SPSS v26.

3. RESULTS

The study included 130 patients with upper gastrointestinal bleeding, with the highest proportion observed in the 31–40 years (26.15%) and 41–50 years (24.61%) age groups, indicating predominance in middle-aged individuals. Males constituted 70% of cases, showing a clear male preponderance. A significant proportion of patients reported alcohol use (60%) and smoking (50%), highlighting important risk factors. Most patients had normal BMI (75.38%), with fewer being overweight, obese, or underweight. (Table 1)

Table 1: Baseline Demographic and Risk Factor Profile (n = 130)

Variable	Category	Number (n)	Percentage (%)
Age Group (years)	<20	1	0.76
	21–30	7	5.38
	31–40	34	26.15
	41–50	32	24.61
	51–60	26	20.00
	61–70	19	14.61
	>70	11	8.46
Sex	Male	91	70.0
	Female	39	30.0
Alcohol Use	Yes	78	60.0
Smoking	Yes	65	50.0
BMI Category	Normal	98	75.38
	Overweight	22	16.92
	Obese	7	5.38
	Underweight	3	2.30

Endoscopic evaluation revealed that peptic ulcer disease was the most common cause of upper gastrointestinal bleeding, with duodenal ulcers (29.23%) and gastric ulcers (24.62%) together accounting for more than half of the cases. Esophageal varices contributed notably, particularly Grade 3 (10%), while 10% of patients showed no active bleeding. Other causes such as Mallory-Weiss tear, gastritis, and esophagitis were less frequent. (Table 2)

Table 2: Endoscopic Findings in UGIB Patients (n = 130)

Endoscopic Finding	Number (n)	Percentage (%)
Duodenal Ulcer	38	29.23
Gastric Ulcer	32	24.62
Esophageal Varices Grade 3	13	10.00
No Active Bleeding	13	10.00
Esophageal Varices Grade 2	10	7.69
Mallory-Weiss Tear	9	6.92
Esophageal Varices Grade 1	4	3.08
Gastritis	4	3.08
Esophagitis	3	2.31
Portal Gastropathy	2	1.54
Varices (Unspecified)	1	0.77
Others	1	0.77

Gender-wise analysis showed that peptic ulcer disease was the predominant cause of bleeding in both males and females. Duodenal ulcers were slightly more frequent in females proportionally, while gastric ulcers were similarly distributed between sexes. Variceal bleeding, especially Grade 3, showed higher proportional occurrence in females, whereas Mallory-Weiss tears and portal gastropathy were more common in males. (Table 3).

Table 3: Gender-wise Distribution of Endoscopic Findings

Finding	Female (n=38)	Male (n=92)	Total
Duodenal Ulcer	12 (31.6%)	26 (28.3%)	38
Gastric Ulcer	9 (23.7%)	23 (25.0%)	32
Varices Grade 3	6 (15.8%)	7 (7.6%)	13
No Active Bleeding	3 (7.9%)	10 (10.9%)	13
Varices Grade 2	3 (7.9%)	7 (7.6%)	10
Mallory-Weiss Tear	1 (2.6%)	8 (8.7%)	9
Varices Grade 1	1 (2.6%)	3 (3.3%)	4
Gastritis	2 (5.3%)	2 (2.2%)	4
Esophagitis	1 (2.6%)	2 (2.2%)	3
Portal Gastropathy	0	2 (2.2%)	2

The distribution of endoscopic findings across age groups demonstrated that duodenal ulcer was the most common finding in nearly all age categories. Gastric ulcers were also frequent, particularly in older age groups. Variceal bleeding was more commonly observed in middle-aged individuals, while other lesions such as Mallory-Weiss tears, gastritis, and esophagitis occurred sporadically across age groups. Overall, peptic ulcer disease remained the predominant aetiology across all ages. (Table 4)

Table 4: Endoscopic Findings by Age Group in Upper Gastrointestinal Bleeding Patients (n = 130)

Finding	<20	21–30	31–40	41–50	51–60	61–70	71–80	>80
Duodenal Ulcer	1	3	8	10	9	3	3	1
Gastric Ulcer	0	2	6	8	7	6	3	0
Varices Grade 3	0	0	2	4	5	2	0	0
No Active Bleeding	0	0	2	4	4	3	0	0
Varices Grade 2	0	1	3	4	0	0	2	0
Mallory-Weiss Tear	0	1	1	3	2	2	0	0
Varices Grade 1	0	0	1	1	1	1	0	0
Gastritis	0	0	1	1	1	0	0	1
Esophagitis	0	1	1	0	0	1	0	0
Portal Gastropathy	0	0	0	1	0	1	0	0
Varices (Unspecified)	0	0	0	0	0	0	1	0
Other/Unspecified	0	0	0	0	0	0	1	0

Laboratory findings indicated that most patients presented with anaemia, with a mean haemoglobin of 8.15 g/dL. Platelet counts showed wide variability, suggesting possible underlying liver disease or coagulopathy. Coagulation parameters were deranged, with elevated PT and INR indicating impaired clotting function. Biochemical parameters revealed hypoalbuminemia and elevated bilirubin levels in many patients, along with mild to moderate liver enzyme elevation, suggesting associated hepatic dysfunction. (Table 5)

Table 5: Laboratory Parameters in UGIB Patients

Parameter	Mean	Median	Range	IQR	SD
Haemoglobin (g/dL)	8.15	7.80	4.40–11.90	6.43–9.65	2.04
Platelet Count (×10⁹/L)	157.35	126.00	0.90–515.00	95.25–208.25	96.66
PT (sec)	16.63	16.55	11.5–27.1	13.32–18.68	3.64
INR	1.61	1.40	0.83–9.33	1.21–1.64	0.86
Serum Albumin (g/dL)	2.89	2.79	1.51–4.95	2.25–3.32	0.83
Total Bilirubin (mg/dL)	2.93	2.14	0.33–18.00	1.11–4.28	2.61
Direct Bilirubin (mg/dL)	1.18	0.62	0.08–10.00	0.32–1.14	1.61
AST (U/L)	34.28	26.50	10–129	20–39.75	21.96
ALT (U/L)	52.35	42.00	15–143	32–63.50	31.91
Blood Urea (mg/dL)	37.32	36.00	26–68	32–38	8.28

4. DISCUSSION

In this current study, the occurrence of upper gastrointestinal bleed (UGIB) was predominantly in middle-age people, especially in the age groups 31-40 and 41-50 years, constituting a total of more than 50%. Consistent with the above observation, Mahajan *et al*. reported a higher occurrence of UGIB in individuals less than 60 years of age, but elderly individuals had multiple co-morbid conditions and risk factors like NSAID use [13]. Furthermore, a significant male preponderance was observed in this study, with males accounting for 70% of the cases, which can be attributed to greater exposure to risk factors among them. Consistent observations regarding the high incidence of UGIB among males have been reported previously by the studies conducted

by Mahajan *et al*., Singh & Panigrahi, and Rodrigues *et al*. [13-15].

Risk factor analysis in our current study showed that 60% of patients had consumed alcohol and about 50% were active smokers. Alcohol consumption is significantly linked with variceal bleeds due to its role in causing liver cirrhosis and portal hypertension. Similarly, increased risk of major gastrointestinal bleeds associated with the intake of alcohol was observed in a study by Strate *et al*. [16]. In terms of nutrition status, most of the subjects in the current study had normal Body Mass Index (BMI), similar to the observations made by Mohammad Iltaf *et al*. where UGIB cases did not differ according to BMI [17]. Undernutrition and obesity could also have an important role in GI pathology especially in middle-aged people.

Peptic ulcer disease emerged as the commonest etiology of UGIB, contributing to more than half of the cases and duodenal ulcers were slightly predominant in comparison to gastric ulcers in this study. Similarly, in another study conducted by Lanas *et al*., peptic ulcer disease was identified as the commonest etiology of UGIB among the global population [18]. Esophageal varices, representing about 20% of the cases in our study, indicate the prevalence of chronic liver diseases among the study subjects. Comparable findings were also reported by Romcea *et al*. and Qureshi *et al*. in which the contribution of variceal bleeds was reported, especially in middle-aged male subjects [19, 20]. Mallory-Weiss tear and other mucosal lesions were also contributing factors in UGIB with similar contributions seen in other reports. On gender-specific analysis, peptic ulcer disease emerged as the commonest cause among males, while the relative incidence of variceal bleeds was found to be high in females.

On laboratory tests in our study, the presence of anaemia with a mean hemoglobin level of 8.15 g/dL was observed which reflected blood loss. Similar observations regarding hemoglobin level were made by Kim *et al*. [21]. Variability in platelets and thrombocytopenia noted in some of the cases of our study can be attributed to the presence of underlying liver disease as indicated by Chu *et al*. [22]. Thrombo-coagulopathy was another common finding seen among study subjects which worsens the prognosis and is similar to observations made by Jairath *et al*. and Shingina *et al*. in which there is a positive correlation between elevated INR and mortality [23, 24]. Hypo-albuminaemia and increased levels of bilirubin observed in some subjects reflect liver dysfunction, as suggested in studies conducted by Tung *et al*. and Mandal *et al*., in which the mentioned biochemical parameters were identified as predictors of poor prognosis in UGIB [25, 26]. Renal dysfunction in some patients was an additional finding and reflects the complications associated with UGIB.

There are several limitations to this study which need to be addressed. Firstly, as the study was carried out at a single center only, the results may not be representative of the general population and cannot be extrapolated to community-based settings. Second, the sample size used for the purpose of this study was adequate but small for performing sub-group analysis with respect to less common causes of UGIB. Third, the nature of this study being retrospective limits the possibility of establishing causative relationships between risk factors and outcomes of interest. Furthermore, long-term follow-up of patients was not considered as part of the study which prevents the determination of re-bleed and mortality rates along with long-term prognosis of cases. Potential confounders like the Helicobacter pylori status, detailed NSAID usage, and socio-economic data were not incorporated into this study design.

5. CONCLSUION

UGIB continues to be a critical health problem characterized by preponderance among male adults and high correlation with risk factors like alcohol intake and smoking. The current investigation indicates that peptic ulceration is the most common etiology for UGIB, followed by varices of the esophagus, which emphasizes the coexistence of ulceration and liver disease. Endoscopy appears to be critical for prompt diagnosis and management, which allows the detection of the bleeding site and implementation of proper treatment strategies. Anemia, coagulopathy, and impaired function of the liver in a large percentage of subjects are indicative of the necessity of thorough clinical and laboratory testing in the cases of UGIB.

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