Section: General Surgery

Original Research Article

STUDY OF CLINICAL AND ENDOSCOPIC PROFILE OF UPPER GASTROINTESTINAL BLEED IN TERTIARY CARE CENTRE, GOVERNMENT CHENGALPATTU MEDICAL COLLEGE AND HOSPITAL

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ABSTRACT

Background: Upper gastrointestinal bleeding (UGIB) is a common medical emergency associated with significant morbidity and mortality. Early identification of the cause through endoscopy is crucial for timely management. Understanding the clinical and endoscopic profiles of UGIB patients can aid in risk stratification and improve outcomes. This study aimed to assess the clinical and endoscopic patterns of patients presenting with UGIB. **Materials and Methods:** A prospective observational study was conducted over 12 months (August 2022 to August 2023) in the Department of General Surgery at Government Chengalpattu Medical College and Hospital. Eighty adult patients presenting with haematemesis or melena were enrolled after obtaining informed consent. Data were collected using a customised proforma, including detailed history, clinical examination, and baseline investigations. All patients underwent supervised upper gastrointestinal endoscopy to document lesions, with biopsies taken when necessary. **Result:** The mean age of patients was 47.24 ± 13.53 years, with 67 males (83.8%) and 13 females (16.3%). Smoking, alcohol use, and both habits were reported in 17 (21.3%), 11 (13.8%), and 32 (40.0%); drug abuse was present in 15 (18.8%). Endoscopic evaluation showed normal findings in 26 (32.5%) patients. Common abnormalities included oesophagitis (10, 12.5%), G1 oesophageal varices (9, 11.3%), G2 varices (6, 7.5%), duodenal ulcer (6, 7.5%), and various gastric erosions (16, 20.0%). Lifestyle factors were not significantly associated with abnormal endoscopic findings ($p>0.05$). **Conclusion:** Most patients with UGIB had identifiable endoscopic lesions, highlighting the importance of early endoscopic evaluation for diagnosis and management. Regional clinical data can guide preventive strategies and improve patient outcomes.

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) remains a significant medical emergency worldwide, contributing to notable morbidity and mortality, particularly in regions where cirrhosis and peptic ulcer disease are prevalent. Acute UGIB often manifests as hematemesis or melena and carries an in-hospital mortality ranging from approximately 5% to 10% depending on severity and comorbidities.[1]

The epidemiological patterns of UGIB exhibit considerable regional variation. In Western countries, peptic ulcer disease, especially bleeding from duodenal or gastric ulcers, accounts for nearly half of UGIB incidents.[2] By contrast, studies from tertiary centres in India reveal heterogeneous aetiology: some report portal hypertension-related variceal bleeding as predominant,[3] while others identify peptic ulcer disease as the leading cause.[4] Such disparities underline the importance of local data to guide diagnosis and management strategies.

Endoscopic evaluation within 24 hours is now established as the gold standard for diagnosing the source of UGIB, enabling both visualisation and therapeutic interventions, such as variceal band ligation or ulcer haemostasis, ultimately improving outcomes and reducing hospital stays.[5] However, data describing the regional clinical and endoscopic profiles of patients with UGIB remain sparse in many

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parts of India, including southern regions. Understanding site-specific patterns, including the frequency of normal findings, erosions, esophagitis, varices, ulcers, or neoplastic lesions, is essential for tailoring clinical protocols and resource allocation.[6] Furthermore, predisposing factors such as chronic alcohol consumption, NSAIDs use, or liver disease vary across populations, affecting the likelihood of certain endoscopic findings. Identifying these associations at a tertiary care centre aids in risk stratification and the development of preventive strategies.[7] In addition, clinical scoring systems, such as the Rockall and Glasgow-Blatchford scores, have been validated to predict outcomes in UGIB, helping clinicians identify patients at a higher risk of rebleeding or mortality. Incorporating these tools into routine assessment can improve triage and optimise the use of endoscopy and intensive care services.[8]

Another important aspect of UGIB management is pharmacological therapy, particularly the use of proton pump inhibitors (PPIs) in peptic ulcer bleeding and vasoactive agents such as octreotide in variceal bleeding. These measures, when combined with endoscopic intervention, have been shown to reduce rebleeding and improve survival outcomes significantly.[9] Finally, emerging data suggest that early detection of variceal bleeding may serve as an initial indicator of chronic liver disease, highlighting the importance of surveillance endoscopy in high-risk patients with cirrhosis. This preventive strategy could allow timely interventions and potentially lower mortality associated with massive variceal haemorrhage.[10]

This study aimed to assess the clinical and endoscopic profiles of patients presenting with UGIB at a tertiary care centre, with a focus on identifying the primary causes, such as oesophagitis, varices, erosions, ulcers, neoplasms, and normal findings, and to underscore the role of early endoscopic evaluation in diagnosis and management.

MATERIALS AND METHODS

This prospective observational study was conducted with 80 patients in the Department of General Surgery at Government Chengalpattu Medical College and Hospital over 12 months, from August 2022 to August 2023. The study protocol was reviewed and approved by the Institutional Ethics Committee, and written informed consent was obtained from all participants before enrolment.

Inclusion Criteria

Patients aged ≥ 18 years who presented with haematemesis or melena, those with haemodynamic instability due to suspected upper gastrointestinal bleeding, and patients with decompensated liver disease who were referred for diagnostic endoscopy were considered eligible for inclusion.

Exclusion Criteria

Patients who were critically ill and unfit for endoscopy, pregnant women, children, those with severe coagulopathy or profound thrombocytopenia, gastrointestinal obstruction, poor nutritional status, or a known allergy to study-related medications, and those unwilling to participate were excluded.

Methods

Data were collected using a customised case-recording proforma. After detailed clinical evaluation and baseline investigations, patients were scheduled for upper gastrointestinal endoscopy, with all procedures performed under the direct supervision of the study guide. At admission, a thorough history was obtained regarding the onset, duration, and volume of haematemesis; whether it was the first or a recurrent episode; the nature of vomitus (fresh blood or mixed with food); history of coughing up blood; respiratory symptoms; weight loss; loss of appetite; and easy fatigability. Symptoms suggestive of liver cell failure, such as alopecia, gynecomastia in males, jaundice, ascites, and bleeding manifestations, including bruising and gum bleeding, were noted. The history of liver, kidney, or cardiovascular disease, recent or regular drug intake, and alcohol consumption were recorded.

All patients underwent a comprehensive clinical examination, including assessment of their general appearance, mental status, and skin condition, as well as evaluation of peripheral oedema, cardiac failure features, pulse rate, blood pressure, and jugular venous pressure. Abdominal examination assessed distension, umbilical position, dilated veins, peristalsis, hernias, striae, supraclavicular fullness, palpable masses, and ascites by fluid thrill or shifting dullness. A per rectal examination was routinely performed to detect melena and rectal deposits. Upper gastrointestinal endoscopy was performed using a PENsTAX LH-150 P11 fibre-optic endoscope under local pharyngeal anaesthesia with 10% lignocaine spray and continuous monitoring of vital parameters. The oesophagus, stomach, and duodenum were systematically examined, and the findings were documented. Lesions were classified as oesophagitis, varices, gastric or duodenal ulcers, erosions, gastritis, or neoplastic growths, and biopsies were obtained whenever indicated.

Statistical Analysis

The data were entered into Microsoft Excel and analysed using SPSS v13. Continuous variables are expressed as mean ± standard deviation, and categorical variables are expressed as frequency and percentage. The chi-square test was applied to evaluate associations between categorical variables, and Student's t-test was used for the comparison of continuous variables, where appropriate. A p-value of < 0.05 was considered significant.

RESULTS

The mean age was 47.24 ± 13.53 years old. There were 67 males (83.8%) and 13 females (16.3%). Smoking, alcohol use, and both habits were reported in 17 (21.3%), 11 (13.8%), and 32 (40.0%) patients,

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respectively. Drug abuse was present in 15 (18.8%) patients and absent in 65 (81.3%) patients. [Table 1]

Table 1: Baseline characteristics of study population

Variable	Category	Value / N (%)
Age (years)	Mean ± SD	47.24 ± 13.53
Gender	Male	67 (83.8%)
	Female	13 (16.3%)
Smoking and alcohol	Smoker	17 (21.3%)
	Alcoholic	11 (13.8%)
	Smoker + Alcoholic	32 (40.0%)
Drug abuse	Present	15 (18.8%)
	Absent	65 (81.3%)

The mean systolic blood pressure was 111.80 ± 15.37 mmHg, and the mean diastolic blood pressure was 74.50 ± 10.24 mmHg. The mean pulse rate was 95.95 ± 13.70 beats/min. The mean haemoglobin level was 11.74 ± 2.39 g/dl. [Table 2]

Table 2: Clinical and laboratory parameters

Variable	Mean ± SD (Range)
Systolic BP (mmHg)	111.80 ± 15.37 (80–158)
Diastolic BP (mmHg)	74.50 ± 10.24 (50–110)
Pulse rate (/min)	95.95 ± 13.70 (65–122)
Haemoglobin (g/dl)	11.74 ± 2.39 (6–17)

Normal results were observed in 26 (32.5%) patients. Oesophagitis was observed in 10 (12.5%), gastric erosion in 3 (3.8%), G1 oesophageal varices in 9 (11.3%), and G2 oesophageal varices in 6 (7.5%). Duodenal ulcer was found in 6 (7.5%), diffuse gastric erosions in 8 (10.0%), antral gastric erosions in 5 (6.3%), gastric ulcer in 2 (2.5%), gastritis in 1 (1.3%), pan gastritis in 1 (1.3%), and antro-pyloric growth in 3 (3.8%) patients. [Table 3]

Table 3: Endoscopic findings

Variable	Category	N (%)
Endoscopic findings	Normal study	26 (32.5%)
	Oesophagitis	10 (12.5%)
	Gastric erosion	3 (3.8%)
	G1 oesophageal varices	9 (11.3%)
	G2 oesophageal varices	6 (7.5%)
	Duodenal ulcer	6 (7.5%)
	Diffuse gastric erosions	8 (10.0%)
	Antral gastric erosions	5 (6.3%)
	Gastric ulcer	2 (2.5%)
	Gastritis	1 (1.3%)
	Pan gastritis	1 (1.3%)
	Antro pyloric growth	3 (3.8%)

Abnormal endoscopic findings were observed in 12 (70.6%) smokers, 7 (63.6%) alcoholics, and 22 (68.8%) with both habits, while normal findings were seen in 5 (29.4%), 4 (36.4%), and 10 (31.3%), respectively (p = 0.926). Among those with drug abuse, 11 (73.3%) had abnormal findings and four (26.7%) had normal findings, compared to 43 (66.2%) and 22 (33.8%) with abnormal and normal findings, respectively, in those without drug abuse (p = 0.593). [Table 4]

Table 4: Association of lifestyle factors with endoscopic findings

Variable	Category	Endoscopic findings		p-value
		Abnormal	Normal	
Smoking and alcohol	Smoker	12 (70.6%)	5 (29.4%)	0.926
	Alcoholic	7 (63.6%)	4 (36.4%)	
	Smoker + Alcoholic	22 (68.8%)	10 (31.3%)	
Drug abuse	Present	11 (73.3%)	4 (26.7%)	0.593
	Absent	43 (66.2%)	22 (33.8%)	

DISCUSSION

In our study, the majority of participants were male, and various lifestyle habits, such as smoking, alcohol use, and drug abuse, were observed among a portion of the study population. Similarly, Swarnkar et al. conducted a hospital-based cross-sectional study involving 190 patients with acute upper GI bleeding. The mean age was 43.7 ± 15.42 years, slightly younger than our cohort (47.24 ± 13.53 years), and

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most patients were male (147, 77.4%), similar to our study (67, 83.8%).[11] Kumar and Mohamed studied 160 patients with hematemesis and melena, reporting a mean age of 47.15 ± 17.12 years, nearly identical to ours, with male predominance (124, 77.5%) compared to females (36, 22.5%), consistent with our findings.[12] Bhandary et al. reported a mean age of 54.37 ± 14.57 years, with 343 (83.66%) males and 67 (16.34%) females, supporting our observations.[13]

Similarly, Karanth et al. reported mean ages of 50.7 ± 17.3 years (Armed Forces) and 49.9 ± 17.3 years (tier-3 city), with male predominance in both cohorts (80.53% and 53.4%), higher female representation in the tier-3 city (46.6%), and greater alcohol use in the Armed Forces cohort (62.8% vs. 16.9%).[14] Similarly, Raj et al. studied 141 patients with a mean age of 48.62 ± 14.63 years, male predominance (81.6%), alcohol use in 48.2%, chronic liver disease in 28.4%, hypertension in 14.2%, and diabetes in 13.5%, aligning with our cohort characteristics.[15] Overall, our findings regarding age, gender distribution, and lifestyle habits are largely consistent with previous studies, reinforcing the observed demographic and behavioural patterns among patients with upper gastrointestinal bleeding.

In our study, the participants' blood pressure and pulse rate were within a moderate range, and some individuals showed mild anaemia based on haemoglobin levels. Similarly, Raj et al. reported a mean pulse of 98 ± 17 bpm, hemoglobin 8.6 ± 2.6 g/dL, hematocrit 26.4 ± 7.3%, and elevated liver enzymes (AST 244.53 ± 584.57 U/L, ALT 57.5 ± 74.3 U/L), with higher shock index in non-survivors (1.18 ± 0.27) and significantly elevated Rockall and Glasgow-Blatchford scores in patients with poor outcomes, consistent with our findings.15 Likewise, Jaben et al. reported a mean admission haemoglobin of 8.8 g/dL, with vital signs remaining similar across groups and no significant differences in hemodynamic parameters.[16] These findings indicate that the hemodynamic and haematological profiles observed in our study are consistent with prior research, supporting their relevance in assessing patient severity and prognosis in upper gastrointestinal bleeding.

In our study, a portion of the patients had normal endoscopic findings, whereas various pathological conditions, such as oesophagitis, gastric and duodenal erosions, oesophageal varices, ulcers, gastritis, and other gastric lesions, were observed in the remaining participants. Similarly, Karanth et al. reported gastric varices with portal hypertensive gastropathy as the most common finding in the Armed Forces cohort (37, 23.9%) and gastritis in the tier-3 city cohort (116, 65.17%). Duodenal ulcers were seen in 11 (8.94%) in the Armed Forces cohort and 1 (0.57%) in the tier-3 city cohort, while malignancies and oesophagal varices were reported in both cohorts.[14] Likewise, Syahridho et al. found non-variceal bleeding to be predominant (63/72, 87.5%), with peptic ulcer as the most common diagnosis (43/72, 59.72%), followed by erosive gastritis (33/72, 45.83%), esophagitis (27/72, 37.5%), duodenitis (26/72, 36.11%), and variceal bleeding in 9 patients (12.5%).[17]

Similarly, Raj et al. observed oesophageal varices in 52.9% of patients, gastric ulcer in 11.5%, duodenal ulcer in 5.8%, oesophagitis in 4.8%, post-EVL ulcers in 2.9%, and normal studies in 5.8%.[15] Jaben et al. reported that among patients with a defined bleeding source, 49% had upper GI bleeds, most commonly peptic ulcers (31%), oesophageal varices (18%), oesophagitis (9%), and arteriovenous malformations (9%), while lower GI bleeds (22%) were mainly due to haemorrhoids and diverticulosis (8% each).[16] These results confirm that a range of upper gastrointestinal pathologies contribute to bleeding, with our observations closely reflecting the trends reported in earlier studies.

In our study, abnormal endoscopic findings were common among participants who smoked, consumed alcohol, or both, as well as among those with a history of drug abuse. However, no statistically significant association was found between these lifestyle factors or drug abuse and the presence of endoscopic abnormalities. Similarly, Karanth et al. reported alcohol consumption in 62.83% of patients in the Armed Forces cohort and 16.9% in the tier-3 city cohort, with tobacco use in 29.2% and 22.5%, respectively.[14] Likewise, Strate et al. found that alcohol intake, especially liquor and moderate consumption (15–29 g/day), increased the risk of UGIB (RR 1.35; 95% CI, 0.66–2.77), whereas smoking showed no significant association, with no dose-response effect observed (current smokers RR 0.90; past smokers RR 1.11).[18]

Similarly, Syahridho et al. observed a significant relationship between UGIB and drugs, portal hypertension, and hepatitis ($p = 0.013$, $p = 0.000$, $p = 0.002$), respectively, while smoking and alcohol were common.[17] Overall, although smoking, alcohol, and drug use were common in our cohort, they did not show a significant correlation with endoscopic abnormalities, reflecting the findings reported in earlier research.

Limitations

This study was conducted at a single tertiary care centre, which may limit the generalisability of the findings. Additionally, reliance on self-reported histories of alcohol, smoking, and drug use could introduce reporting bias, and the short-term follow-up period precluded the assessment of long-term outcomes.

CONCLUSION

In this study of patients with upper gastrointestinal bleeding, abnormal endoscopic findings were present in the majority of patients, with varices, oesophagitis, and erosions being common. Lifestyle factors such as smoking, alcohol use, and drug abuse showed a high prevalence but were not statistically associated with endoscopic abnormalities. Early endoscopic

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evaluation remains crucial for the accurate diagnosis and timely management of UGIB. Future studies with larger multicentre cohorts and longer follow-ups are recommended to validate these findings, assess long-term outcomes, and explore preventive strategies tailored to regional risk factors.

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