

Original Article

# Frequency of Different Causes of Upper GI Bleed Using Endoscopic Procedure

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## ABSTRACT

**Background:** Upper gastrointestinal (GI) bleeding is a significant clinical emergency that necessitates swift and precise diagnostic and therapeutic interventions. Due to its diverse etiologies, ranging from peptic ulcers to variceal bleeding, understanding these causes is crucial for effective management.

**Objective:** To evaluate the prevalence of various causes of upper GI bleeding through endoscopic examination.

**Methods:** This descriptive cross-sectional study was conducted at the Department of Gastroenterology, Asian Institute of Medical Sciences (AIMS), Hyderabad, involving 150 hemodynamically stable patients who had fasted for 6 to 8 hours. A comprehensive physical examination and detailed medical history preceded the endoscopic procedures. Data were captured on a structured proforma and analyzed using SPSS software, version 26.0.

**Results:** The cohort's mean age was 50.35 years (range 18-85 years), with a male predominance of 72%. Variceal bleeding was the most common finding (64.7%), followed by peptic ulcers (24%), Mallory-Weiss tears (12.7%), vascular anomalies (13.3%), gastric ulcers (7.3%), duodenal ulcers (6%), erosive gastritis (3.3%), and esophagitis (2.7%).

**Conclusion:** Upper GI bleeding predominantly affects older adult males, with variceal bleeding accounting for about two-thirds of cases. The diversity of underlying causes highlights the need for accurate diagnostics and tailored treatments for high-risk groups.

**Keywords:** Endoscopy, Gastrointestinal Bleeding, Mallory-Weiss Tears, Peptic Ulcers, Upper GI, Variceal Bleeding, Vascular Anomalies.

## INTRODUCTION

Upper gastrointestinal bleeding represents a critical medical emergency that necessitates prompt identification and intervention. Historically, endoscopy has served as the sole diagnostic method that allows direct visualization of the upper gastrointestinal tract, thereby playing an indispensable role in the diagnosis and management of this condition (1). The etiological factors contributing to upper GI bleeding are varied, ranging from benign to malignant origins. Predominantly, peptic ulcers emerge as the most frequent sources of bleeding, with a significant proportion being attributed to *Helicobacter pylori* infections (3). Furthermore, esophageal varices present a notable risk, particularly in individuals suffering from liver cirrhosis, and are known for their high bleeding potential (4).

Additionally, Mallory-Weiss tears, which are lacerations at the gastroesophageal junction often triggered by intense vomiting, constitute another significant cause (5). While less prevalent, conditions such as gastric and esophageal cancers, arteriovenous malformations, Dieulafoy lesions—which are marked by the presence of large-caliber vessels within the gastric wall—, and rare entities like aortoenteric fistulas and neoplasms including gastrointestinal stromal tumors (GISTs) and leiomyomas, as well as vascular anomalies like angiodysplasia, hemangiomas, and vasculitis, remain critically relevant (6). Moreover, inflammatory conditions such as gastritis and esophagitis, along with ulcers induced by medications like NSAIDs or aspirin, also hold substantial clinical importance (7).

Esophagogastroduodenoscopy (EGD) stands out as a vital procedure for pinpointing the origin of bleeding, thus facilitating the selection of optimal therapeutic strategies that significantly enhance patient outcomes. This less invasive approach helps in reducing

or altogether avoiding surgical interventions, which otherwise could severely compromise a patient's prognosis (8,9). The objective of increasing awareness and understanding of the diverse etiologies of upper GI bleeding is thus essential for effective diagnostic and therapeutic practices in medical settings. This comprehensive insight allows healthcare professionals to implement timely and appropriate interventions, ultimately improving the management and survival rates of affected patients.

## MATERIAL AND METHODS

In this descriptive cross-sectional study, 150 patients presenting with symptoms of upper gastrointestinal bleeding were recruited at the Department of Gastroenterology and Hepatology at the Asian Institute of Medical Sciences (AIMS) in Hyderabad. Participants were required to be hemodynamically stable and had to have abstained from eating for 6 to 8 hours before undergoing the endoscopic procedure. The study population included adults aged 18 years or older, diagnosed with cirrhosis, representing various genders, and who consented to participate in the research.

Patients were selected using a non-probability consecutive sampling technique. Those included underwent a thorough physical examination and provided a comprehensive medical history. Patients with bleeding disorders, as verified through their medical history and records, those who had previously undergone a gastrectomy or bowel resection, or were already on anti-ulcer therapy were excluded from the study.

Before the endoscopy, a series of mandatory baseline investigations were conducted to assess the patients' health status. These included a complete blood count, stool analysis to detect occult blood, ova, and cysts, hepatitis serology, a coagulation profile, an abdominal ultrasound, an electrocardiogram (ECG), and a chest X-ray.

Upper gastrointestinal endoscopies were performed by experienced consultant gastroenterologists within 48 hours of the reported onset of bleeding. Each finding from the endoscopies was carefully documented using a structured proforma designed for this study. Data collected were analyzed with SPSS software, version 26.0. Statistical significance was established at a P-value of less than 0.05. To further refine the analysis, the findings from the endoscopies were stratified by age and gender to control for potential effect modifiers.

## RESULTS

In the study conducted at the Asian Institute of Medical Sciences, 150 participants with upper gastrointestinal bleeding were analyzed. The participants' mean age was 50.35 years, ranging from 18 to 85 years, with the majority falling between the ages of 41 and 70. The sample predominantly consisted of males, who constituted 72% of the study population. Significant comorbidities included diabetes mellitus and hypertension, affecting 40.7% and 53.3% of the participants, respectively. The duration of hospital stays was relatively brief, averaging 3.87 days, with a range from 1 to 7 days. Regarding the severity of liver disease, the majority of patients, 53.3%, were classified as Child Pugh Class A, with the remaining patients distributed between Class B and C, 26% and 20.7% respectively.

The endoscopic examination revealed that variceal bleeding was the most common condition, present in 64.7% of the cases. Peptic ulcers were also notably prevalent, accounting for approximately 24% of the cases. Other findings included Mallory Weiss tears in 12.7% of the patients, gastric ulcers in 7.3%, and vascular anomalies in 13.3%. Duodenal ulcers and erosive gastritis were less common, found in 6.0% and 3.3% of the cases, respectively. Interestingly, esophagitis was notably absent in most patients.

A comparative analysis based on age groups showed no statistically significant differences in the prevalence of the various gastrointestinal conditions, including variceal bleeding, peptic ulcers, duodenal ulcers, gastric ulcers, Mallory Weiss tears, erosive gastritis, vascular anomalies, and esophagitis, between younger and older patients. However, gender-based analysis indicated a significant correlation between variceal bleeding and gender, with a higher prevalence observed in males (78.4%) compared to females (21.6%). The study did not find any statistically significant gender differences in the prevalence of other gastrointestinal disorders.

**Table 1. Demographics of the patients**

Demographic Data	Frequency	Percentage
Age in years (Mean±SD)	50.35±15.65 (18-85)	95% C.I. (47.82----52.87)

Gender	Male	108	72.0%
	Female	42	28.0%
Age Group	18 – 30 Years	18	12.0%
	31 – 40 Years	29	19.3%
	41 – 50 Years	30	20.0%
	51 – 60 Years	29	19.3%
	61 - 70 Years	29	19.3%
	> 70 Years	15	10.0%
Daibetes Mellitus	Diabetic	61	40.7%
	Non-Diabetic	89	59.3%
Hypertension	Hypertensive	80	53.3%
	Non-Hypertensive	70	46.7%
Hospital Stays in days (Mean±SD)	3.87±1.50 (1-7)	95% C.I. (3.62----4.11)	
Child Pugh Class	A	80	53.3%
	B	39	26.0%
	C	31	20.7%

Figure 1: Causes of Upper Gastrointestinal Bleeding

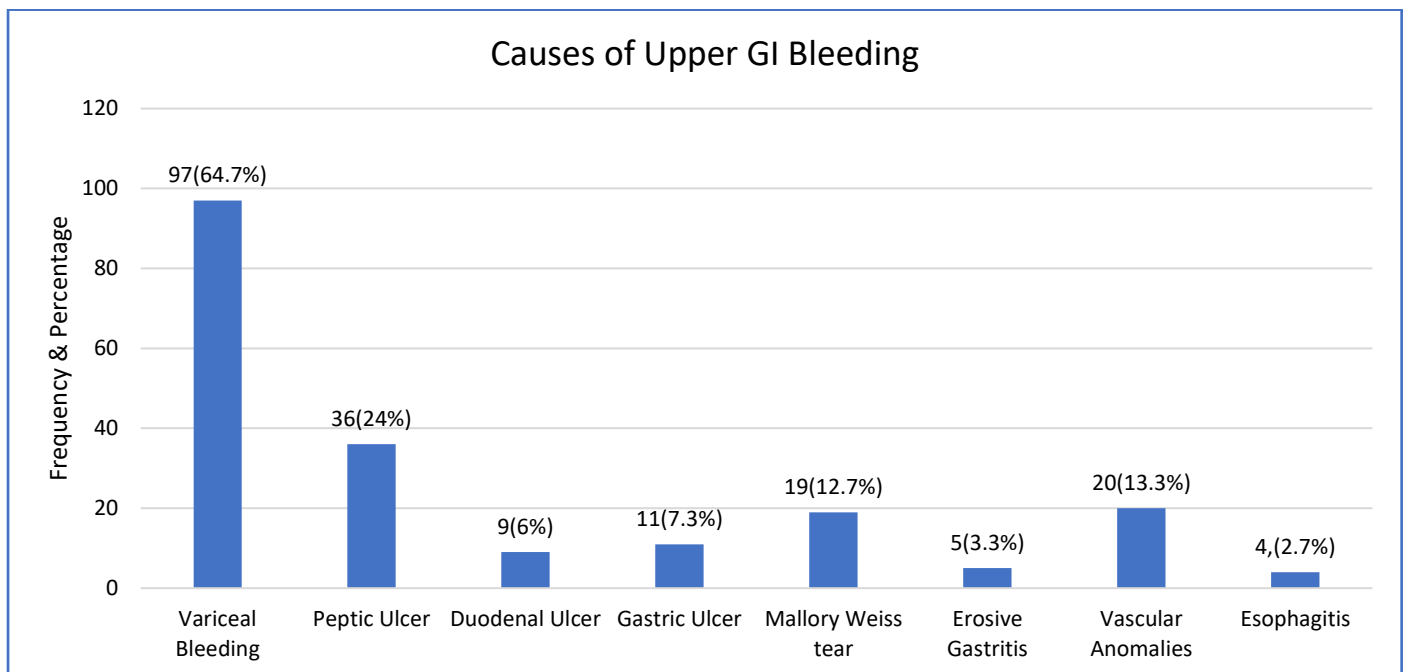


Table 2. Different Causes of Upper GI Bleed Using Endoscopic Procedure with Age &amp; Gender

Causes n (%)	Age		Total n (%)	P-value
	18-50 years (n=77)	>50 years (n=73)		
Variceal Bleeding	46 (47.4%)	51 (52.6%)	97 (64.7%)	0.195
Peptic Ulcer	17 (47.2%)	19 (52.8%)	36 (24.0%)	0.571
Duodenal Ulcer	4 (44.4%)	5 (55.6%)	9 (6.0%)	0.670
Gastric Ulcer	5 (45.5%)	6 (54.5%)	11 (7.3%)	0.685
Mallory Weiss tear	8 (42.1%)	11 (57.9%)	19 (12.7%)	0.389
Erosive Gastritis	2 (40.0%)	3 (60.0%)	5 (3.3%)	0.475
Vascular Anomalies	10 (50.0%)	10 (50.0%)	20 (13.3%)	0.898
Esophagitis	1 (25.0%)	3 (75.0%)	4 (2.7%)	0.290

Causes n (%)	Gender		Total n (%)	P-value
	Male (n=108)	Female (n=42)		
Variceal Bleeding	76 (78.4%)	21 (21.6%)	97 (64.7%)	0.019
Peptic Ulcer	27 (75.0%)	9 (25.0%)	36 (24.0%)	0.646
Duodenal Ulcer	7 (77.8%)	2 (22.2%)	9 (6.0%)	0.515
Gastric Ulcer	9 (81.8%)	2 (18.2%)	11 (7.3%)	0.359
Mallory Weiss tear	15 (78.9%)	4 (21.1%)	19 (12.7%)	0.337
Erosive Gastritis	4 (80.0%)	1 (20.0%)	5 (3.3%)	0.569
Vascular Anomalies	14 (70.0%)	6 (30.0%)	20 (13.3%)	0.831
Esophagitis	4 (100.0%)	0 (0.0%)	4 (2.7%)	0.265

## DISCUSSION

Upper gastrointestinal bleeding presents a significant medical challenge, necessitating prompt diagnosis and management to mitigate the severe implications of this condition. Endoscopy, a pivotal diagnostic tool, allows for the direct visualization of the gastrointestinal tract, thereby enabling the identification, sizing, and localization of the sources of bleeding. Among these, peptic ulcer disease (PUD) emerges as a predominant cause, primarily attributed to *Helicobacter pylori* infection, the excessive use of nonsteroidal anti-inflammatory drugs (NSAIDs), alcohol abuse, and smoking. These ulcers, when they bleed, significantly contribute to upper GI bleeds (12,13).

Esophageal varices, typically resulting from liver cirrhosis, represent another major source of upper GI bleeding. The bursting of these enlarged veins can lead to massive bleeding events, underscoring the importance of endoscopy in grading varices and determining appropriate treatment strategies (14). Similarly, Mallory-Weiss tears, lacerations in the mucosal lining due to intense vomiting, often exacerbated by factors such as binge drinking or eating disorders, are also discernible through endoscopic examination (15).

The role of endoscopy extends to the detection of less common but clinically significant conditions such as gastric cancer. By identifying suspicious lesions or tumors that may cause bleeding, endoscopic evaluation plays a crucial role in the early detection and management of gastric cancer, facilitating timely therapeutic interventions (16).

The current study revealed that variceal bleeding was the most frequently observed condition, accounting for 64.7% of cases, followed by peptic ulcers at 24%. This finding aligns with other studies where variceal bleeding and peptic ulcers were prominent causes of upper GI bleeds. For instance, a study indicated that varices and gastric ulcers were the most common findings, with varices being particularly prevalent in contexts with high rates of liver cirrhosis (17,18,19).

Despite these insights, the study has limitations. The cross-sectional nature restricts causal inferences, and the sample, though adequate, may not reflect wider population variances. Furthermore, the study's reliance on endoscopic findings alone might overlook other contributory factors not detectable through this method alone.

Strengths of this research include its systematic approach to data collection and analysis, which offers a detailed perspective on the prevalence and nature of upper gastrointestinal conditions in a hospital setting. Additionally, the diverse age and gender representation in the study enhance the generalizability of the findings within similar demographic contexts.

Overall, the critical role of endoscopy in the diagnosis and management of upper gastrointestinal bleeding is reinforced by this study. Through direct assessment, endoscopy not only aids in determining the cause of bleeding but also facilitates the planning of effective treatment strategies, thereby improving patient outcomes. Further research should aim to integrate more comprehensive diagnostic tools and broader population studies to enhance the understanding and management of upper GI bleeding.

## CONCLUSION

In conclusion, upper gastrointestinal bleeding predominantly affects older adult males, with variceal bleeding constituting approximately two-thirds of all cases observed. Other significant contributors include peptic ulcers and Mallory-Weiss tears, alongside gastric and duodenal ulcers among other pathologies. This diversity underscores the complexity of diagnosing and managing upper GI bleeding. Accurate and timely diagnostics are crucial for effective treatment, particularly for high-risk groups. It is imperative to tailor interventions to address the specific etiologies identified via endoscopy, emphasizing the need for continued advancement in diagnostic techniques to enhance patient outcomes in this high-risk patient population.

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