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Endoscopic Evaluation among Patients Presenting with Upper Gastrointestinal Tract Bleeding

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ABSTRACT

Background: Bleeding from the upper gastrointestinal tract is a critical medical condition that requires prompt diagnosis and management. Endoscopic evaluation plays a pivotal role in identifying the source of bleeding, determining its severity, and guiding appropriate interventions. **Objective:** The objective of this study was to conduct a comprehensive endoscopic evaluation in patients who have presented with bleeding originating from the upper gastrointestinal tract. **Study Design:** Descriptive cross-sectional study. **Settings:** Department of Gastroenterology, Islamic International Medical College, Rawalpindi Pakistan. **Duration:** Study duration was 7 months from November 2021 to April 2022. **Methods:** Patients who were 18 years of age or older and presented with active or recent upper gastrointestinal bleeding, regardless of gender, and were scheduled for endoscopic examination, were incorporated into the study. Upper gastrointestinal endoscopies were performed. The procedure was involving the direct visualization of the esophagus, stomach, and duodenum using an endoscope. Any visible lesions or bleeding sources were documented. Data regarding the location and nature of bleeding sources and the endoscopic diagnosis were recorded in a standardized data collection form and analyzed by SPSS version 26. **Results:** The study included 59 patients with a mean age of 52.27 years. Esophageal endoscopic findings revealed "Grade I to III Esophageal varices (EV) being less common (3.4%, 11.9%, and 13.6% respectively). LAX LEs, esophagitis and Hiatus hernia were observed in 10.2%, 3.4%, and 6.8% of cases. Rarer findings, including Venules, Ecstatic vein, Candidiasis, and various combinations, each accounted for 1.7% of cases. Portal hypertension gastropathy was the most prevalent condition (20.3%), followed by Antral gastritis (45.8%), Erosive gastropathy (10.2%), and other less frequent conditions, such as fundal varices, GOVI varices, diffuse gastritis and Ulcer. Grade II and III EV, and PHTN gastropathy, were significantly more prevalent among males, while Antral gastritis was notably higher among females ($p < 0.05$). Although the endoscopic findings did not show any statistically significant differences based on gender ($p > 0.05$). **Conclusion:** PHTN gastropathy, antral gastritis, grade III EV and erosive gastropathy were the most common conditions among patients with Hematemesis, along with less frequent findings like grade I to III Esophageal varices, Venules, Ecstatic vein, Candidiasis, and combinations of these conditions.

Keywords: *Hematemesis, Upper GI, endoscopy, evaluation.*

INTRODUCTION

Upper gastrointestinal bleeding (UGIB) represents a medical and the surgical emergency. Despite a worldwide reduction in UGIB-related mortality, the frequency and fatality linked to gastrointestinal bleeding persist at elevated levels in low-income nations.[1] The occurrence of upper gastrointestinal bleeding varies between 48 and 160 patients per 100,000 individuals, with consistent documentation of a greater frequency in the elderly and male populations.[2] Due to the rising

prevalence of NSAID usage among the elderly population, approximately two-thirds of individuals presenting with the upper GI bleeding and are also influenced by a high prevalence of comorbidities.[4] Individuals experiencing upper gastrointestinal bleeding can be categorized into those with bleeding from variceal and non-variceal sources, each requiring distinct management protocols and exhibiting differing prognostic outcomes.[4] Variceal bleeding constitutes the predominant source of upper gastrointestinal bleeding cases. This pattern can be linked to the raised HCV prevalence in the Pakistan.[3]

Different imaging techniques are employed to investigate and determine the cause of upper gastrointestinal symptoms. Among these methods, upper gastrointestinal endoscopy (UGIE) holds a central position in diagnosing these conditions.[5] It allows the endoscopist to visually inspect the upper GI tract, perform biopsies of suspicious areas, and do so in a cost-effective manner.[5,6] UGIE not only contributes to establishing a conclusive diagnosis in such instances but also serves as a therapeutic tool in urgent scenarios like gastrointestinal bleeding. This capability enables the endoscopist to intervene at different stages of the disease progression.[5] The process is uncomplicated to execute and superior to radiological examinations, particularly when examining upper gastrointestinal bleeding and different inflammatory conditions affecting the esophagus, stomach, and duodenum, alongside specific vascular irregularities. Peptic ulcers contribute to 50% of cases of upper gastrointestinal bleeding (UGIB), while variceal diseases make up 5–30%, and Mallory–Weiss syndrome accounts for 5–15%.[7,8] Although advances in medication and endoscopic technology have enhanced prognosis, a minor proportion of patients still experience mortality globally.[7] Numerous investigations have illustrated several factors as the prevalent sources of upper gastrointestinal bleeding. Certain studies have indicated that variceal hemorrhage and erosive gastritis are the primary causes of such bleeding,[3,4,9] while other studies have identified peptic ulcers as a frequent factor.[9,11] This study has been done to perform an extensive endoscopic evaluation in individuals who had bleeding originating from the upper gastrointestinal tract.

METHODS

This descriptive cross-sectional study was conducted at gastroenterology department of Islamic International Medical College Rawalpindi. Study duration was 7 months from November 2021 to April 2022. All patients who were 12 years of age or older and presented with active or recent upper gastrointestinal bleeding, regardless of gender, and were scheduled for endoscopic examination, were incorporated into the study. All the patients with bleeding originating from lower gastrointestinal sources, pregnant or lactating women, individuals with a history of significant coagulopathy or bleeding disorders and those unable to provide informed consent for participation in the study were excluded. Eligible patients presenting with active or recent upper gastrointestinal bleeding were identified from the hospital's emergency department or outpatient clinics. Participants meeting the inclusion criteria were informed regarding the study's purpose and procedures, and verbal informed consent was obtained. Relevant demographic information like age, gender and medical history were collected from participants' medical records. Upper gastrointestinal endoscopies were performed by experienced endoscopists having minimum experience of 5 years. The procedure was involving the direct visualization of the esophagus, stomach, and duodenum using an endoscope. Any visible lesions or bleeding sources were documented. During endoscopy, if necessary, biopsies of suspicious lesions were obtained for histopathological examination. Therapeutic interventions for bleeding control, such as hemostatic clips or coagulation, was performed as per indication. Data regarding the location and nature of bleeding sources and the endoscopic diagnosis were recorded in a standardized data collection form. SPSS version 26 was used for the data analysis. Descriptive statistics was used to summarize demographic characteristics and endoscopic findings. Association between endoscopic findings and demographic characteristics was explored by apply required statistically tests and a p-value <0.05 was considered as significant.

RESULTS

A total of 59 patients were studied with mean age of 52.27 ± 20.86 years. Males were 49.2% and females were 50.8%. The esophageal endoscopic findings exhibit a wide array of conditions and their corresponding frequencies among the examined cases. The most prevalent condition like "Grade I Esophageal varices," "Grade II Esophageal varices," and "Grade III Esophageal varices" were less common, with frequencies of 3.4%, 11.9%, and 13.6%, respectively. Other conditions, such as "LAX LEs," "Esophagitis," and "Hiatus hernia," were observed in 10.2%, 3.4%, and 6.8% of cases, respectively. There were also rarer findings, including "Full of blood," "Venules," "Ecstatic vein," "Candidiasis," and various combinations of conditions, each accounting for 1.7% of cases. Furthermore, the endoscopic findings of the stomach in patients presenting with upper gastrointestinal bleeding showcase a variety of conditions and their respective frequencies like "PHTN gastropathy" was the most prevalent condition, accounting for 20.3% of cases, "Antral gastritis" was also notably common, affecting 45.8% of patients, suggesting inflammation in the stomach's antral region. Other findings included "Fundal

varices" in 5.1% of cases, "Erosive gastropathy" in 10.2% of cases, "GOVI varices" in 3.4% of cases, "Diffuse gastritis" in 3.4% of cases, "Ulcer" in 1.7% of cases, and "Full of blood" in 3.4% of cases. Table.1

Finding regarding esophagus varices grade II and III and PHTN gastropathy were significantly higher among males (p <0.05), while Antral gastritis was significantly higher among females (p <0.05) as shown in table 1.

Table 1: Endoscopic findings among patients with Hematemesis and association with gender (n=59)

Variables		Gender		Total	p-value
		Male	Female		
Esophagus	Normal	5(8.5%)	9(15.3%)	14(23.7%)	0.054
	Grade I Esophageal varices	2(3.4%)	0(0.0%)	2(3.4%)	
	Grade II Esophageal varices	5(8.5%)	2(3.4%)	7(11.9%)	
	Grade III Esophageal varices	7(11.9%)	1(1.7%)	8(13.6%)	
	LAX LES	1(1.7%)	5(8.5%)	6(10.2%)	
	Esophagitis	0(0.0%)	2(3.4%)	2(3.4%)	
	Hiatus hernia	2(3.4%)	2(3.4%)	4(6.8%)	
	Full of blood	2(3.4%)	0(0.0%)	2(3.4%)	
	Venules	0(0.0%)	2(3.4%)	2(3.4%)	
	Ecstatic vein	0(0.0%)	1(1.7%)	1(1.7%)	
	Candidiasis	0(0.0%)	1(1.7%)	1(1.7%)	
	Grade I Esophageal varices + venules	0(0.0%)	1(1.7%)	1(1.7%)	
	LAX Les + esophagitis	1(1.7%)	3(5.1%)	4(6.8%)	
	Esophagitis + hiatus hernia	0(0.0%)	1(1.7%)	1(1.7%)	
	Hiatus hernia + ecstatic vein	1(1.7%)	0(0.0%)	1(1.7%)	
	Esophagitis + candidiasis	1(1.7%)	0(0.0%)	1(1.7%)	
	Hiatus hernia + Severe erosive esophagitis	1(1.7%)	0(0.0%)	1(1.7%)	
Stomach	Normal	2(3.4%)	2(3.4%)	4(6.8%)	0.004
	PHTN gastropathy	11(18.6%)	1(1.7%)	12(20.3%)	
	Antral gastritis	6(10.2%)	21(35.6%)	27(45.8%)	
	Fundal varices	2(3.4%)	1(1.7%)	3(5.1%)	
	Erosive gastropathy	5(8.5%)	1(1.7%)	6(10.2%)	
	GOVI varices	1(1.7%)	1(1.7%)	2(3.4%)	
	Diffuse gastritis	0(0.0%)	2(3.4%)	2(3.4%)	
	Ulcer	1(1.7%)	0(0.0%)	1(1.7%)	
	Full of blood	1(1.7%)	1(1.7%)	2(3.4%)	
Duodenum	Duodenitis	4(6.8%)	5(8.5%)	9(15.3%)	0.773

Table 2: Endoscopic findings among patients with Hematemesis and association with age (n=59)

Variables		Age group				Total	p-value
		15-30 years	31-45 years	46-60 years	>60 years		
Esophagus	Normal	4(6.8%)	1(1.7%)	5(8.5%)	4(6.8%)	14(23.7%)	0.432
	Grade I Esophageal varices	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	2(3.4%)	
	Grade II Esophageal varices	2(3.4%)	0(0.0%)	4(6.8%)	1(1.7%)	7(11.9%)	
	Grade III Esophageal varices	0(0.0%)	1(1.7%)	4(6.8%)	3(5.1%)	8(13.6%)	
	LAX LEs	1(1.7%)	2(3.4%)	1(1.7%)	2(3.4%)	6(10.2%)	
	Esophagitis	1(1.7%)	1(1.7%)	0(0.0%)	0(0.0%)	2(3.4%)	
	Hiatus hernia	0(0.0%)	1(1.7%)	2(3.4%)	1(1.7%)	4(6.8%)	
	Full of blood	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	2(3.4%)	
	Venules	0(0.0%)	0(0.0%)	2(3.4%)	0(0.0%)	2(3.4%)	
	Ecstatic vein	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
	Candidiasis	1(1.7%)	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	
	Grade I Esophageal varices + venules	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
	LAX Les + esophagitis	3(5.1%)	1(1.7%)	0(0.0%)	0(0.0%)	4(6.8%)	
	Esophagitis + hiatus hernia	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
	Hiatus hernia + ecstatic vein	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
	Esophagitis + candidiasis	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
	Hiatus hernia + Severe erosive esophagitis	0(0.0%)	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	
Stomach	Normal	0(0.0%)	1(1.7%)	0(0.0%)	3(5.1%)	4(6.8%)	0.282

	PHTN gastropathy	2(3.4%)	1(1.7%)	7(11.9%)	2(3.4%)	12(20.3%)	
	Antral gastritis	8(13.6%)	3(5.1%)	8(13.6%)	8(13.6%)	27(45.8%)	
	Fundal varices	1(1.7%)	0(0.0%)	0(0.0%)	2(3.4%)	3(5.1%)	
	Erosive gastropathy	0(0.0%)	2(3.4%)	1(1.7%)	3(5.1%)	6(10.2%)	
	GOVI varices	0(0.0%)	0(0.0%)	2(3.4%)	0(0.0%)	2(3.4%)	
	Diffuse gastritis	1(1.7%)	1(1.7%)	0(0.0%)	0(0.0%)	2(3.4%)	
	Ulcer	0(0.0%)	0(0.0%)	1(1.7%)	0(0.0%)	1(1.7%)	
	Full of blood	0(0.0%)	0(0.0%)	1(1.7%)	1(1.7%)	2(3.4%)	
Duodenum	Duodenitis	0(0.0%)	3(5.1%)	2(3.4%)	4(6.8%)	9(15.3%)	0.329

In this study the endoscopic finings among patient with upper GI bleeding were statistically insignificant according to gender (p>0.05). Table.2

DISCUSSION

Upper gastrointestinal tract bleeding is a significant medical concern that requires prompt diagnosis and intervention. Endoscopy provides real-time visualization, enabling clinicians to pinpoint the exact location of the bleeding source. This precision is instrumental in guiding subsequent management decisions. This study has been done to determine the endoscopic assessment in patients who have exhibited upper gastrointestinal tract bleeding. In this study a group of 59 individuals participated in the study, with an average age of 52.27 ± 20.86 years. Among them, 49.2% were male, and 50.8% were female. In the comparisons of this study KHAN MS et al[11] reported that the overall average age was 47.23 ± 9.45 years, with 94 (69.12%) male patients and 42 (30.88%) female patients. In another study by Kausar S et al[12] reported that the patients' average was 52.20 years and out of these cases males were 58% and females were 42%. Our findings were also supported by the Bhandary NM et al[13] as the overall average age of the patients was 54.37 years, while inconstantly they found males in majority 83.66% compared to females 16.24%. It's crucial to emphasize that the dominance of males in upper GI bleeding is not absolute, and the prevalence of specific risk factors and causes may vary among different populations and over time. Healthcare professionals should consider individual patient characteristics and tailor their assessments and treatments accordingly.

In this study the PHTN gastropathy (20.3%), antral gastritis (45.8%), erosive gastropathy (10.2%), grade II and III Esophageal varices 11.9%, and 13.6% respectively were commonest endoscopic observations and other less frequent conditions, such as fundal varices, esophagitis, hiatus hernia, diffuse gastritis and ulcer. In the comparison of this study Mokhles WG et al[14] reported that the esophageal varices were observed in 18.86% study cases, while 26.41% cases were found to have duodenal ulcers. Gastric ulcers were diagnosed in 29.2% cases, whereas 13.2% patients were identified as having gastric carcinoma, gastro-duodenal erosions were noted in 8.49% study subjects, Mallory Weiss tears occurred in three patients (2.83%), and one patient exhibited an esophageal growth.[14] In the line of this series Bhandary NM et al[13] reported that the predominant lesion in upper gastrointestinal bleeding cases was esophageal varices, accounting for 44.88% of cases, second most common cause was peptic ulcer disease 35.12%, with gastric ulcers 24.63% being more prevalent than duodenal ulcers 14.39%, portal hypertensive-related causes, including portal hypertensive gastropathy and portal duodenopathy, were observed in 35.36% of patients, Mallory Weiss tears were seen in 6.34% of cases, and approximately 7.32% of patients had previously undergone EVL with ulcers.[13] Jemilohun AC et al[15] reported that the primary endoscopic discovery was peptic ulcer disease, identified in 77 cases, making up 45.8% of the total. Following this, esophagogastric varices were observed in 27 cases, representing 16.1% of the findings. Erosive mucosal disease accounted for 25 cases, equivalent to 14.9%, while portal hypertensive gastropathy was present in 15 cases, constituting 8.9%. Suspected malignancies were identified in 11 cases, making up 6.6% of the cases, followed by hemorrhagic gastritis in 7 cases (4.2%), gastric antral vascular ectasia in 2 cases (1.2%), and Mallory-Weiss tear in 1 case (0.6%).[15] In few other studies also found some relevant finsings.[17-19] In this study grade II and III EV, and PHTN gastropathy, were significantly more prevalent among males, while Antral gastritis was notably higher among females ($p < 0.05$). Although the endoscopic findings did not show any statistically significant differences based on gender ($p > 0.05$). Our study's endoscopic findings revealed some variations when compared to other research conducted on patients presenting with hematemesis. Several factors could account for these differences. Firstly, the demographic composition of our patient cohort may have played a significant role. Factors like age, gender distribution, and the prevalence of underlying health conditions can greatly influence the spectrum of conditions observed during endoscopy. Additionally, regional and demographic diversity may have contributed, as the causes of hematemesis can differ geographically due to variations in dietary habits, infectious disease prevalence, and genetic predispositions. Furthermore, differences in the sample size and selection criteria can impact results. Smaller sample sizes may not fully represent the broader

population and this was the significant limitation of this study. After taking above scenario, further collaborative research and comprehensive analysis may help elucidate the underlying reasons for these variations and advance our understanding of the causes of hematemesis.

CONCLUSION

PHTN gastropathy, antral gastritis, grade III esophageal varices, and erosive gastropathy were observed to be the most frequently encountered conditions among patients undergoing upper GI endoscopy due to Hematemesis. These findings underscore the clinical significance of these conditions in patients experiencing hematemesis. These findings offer valuable insights for clinicians and healthcare providers, emphasizing the importance of a thorough endoscopic evaluation in patients with hematemesis. Early diagnosis and appropriate management of these common conditions, particularly PHTN gastropathy and antral gastritis, are essential in providing effective care and improving patient outcomes.

LIMITATIONS

The limited study sample size can limit the statistical power and generalizability of the findings. Additionally, endoscopic assessments may not always provide a comprehensive clinical picture, lacking details on patient history, comorbidities, medications, and other essential clinical data.

SUGGESTIONS / RECOMMENDATIONS

Further scale studies and clinical investigations are warranted to gain a deeper understanding of the underlying mechanisms and risk factors associated with these gastrointestinal conditions in patients presenting with hematemesis.

CONFLICT OF INTEREST / DISCLOSURE

None.

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