

# Esophagogastroduodenoscopy at a Tertiary Care Hospital: Common Indications, Endoscopic Findings and Interventional Approach

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## ABSTRACT

**Objective:** Esophagogastroduodenoscopy (EGD) is frequently performed as a screening, diagnostic and therapeutic procedure in patients presenting to gastroenterology department. No data documentation of EGD with demographics, indications, findings and intervention performed is available for our tertiary care setup in recent years. The aim of this study is to assess the common indications, esophagogastroduodenoscopy (EGD) findings and therapeutic procedures performed in patients undergoing EGD for various gastrointestinal (GI) symptoms.

**Methodology:** A cross sectional study was conducted on 127 patients in Department of Gastroenterology, Pakistan Institute of Medical Sciences. Duration of study was six months. Collected data included name, age, gender, indications for EGD, mode of presentation, EGD findings and therapeutic procedures that were performed. Statistical package for social sciences version 23 was used to analyze the data.

**Results:** Mean age was  $47.85 \pm 6.74$  years with male to female ratio of 1.04. Most common indications for EGD included upper GI bleed 25.19% and dyspepsia 22.83%. The three most common EGD findings were esophageal varices (34.64%), portal gastropathy (24.4%) and mild gastritis (14.96%). Variceal banding was the most common procedure performed.

**Conclusion:** In our tertiary care hospital, upper GI bleed is the most common indication for EGD. Esophageal varices are the most common EGD finding encountered and variceal banding is the commonest procedure performed.

**Key words:** Esophagogastroduodenoscopy; EGD; Upper gastrointestinal endoscopy; Upper gastrointestinal bleed; Varices; Gastritis; Gastropathy; variceal banding

### Authors' Contribution:

<sup>1,2</sup>Conception; Literature research; manuscript design and drafting; <sup>2,3</sup> Critical analysis and manuscript review; <sup>4,5</sup>Data analysis; Manuscript Editing.

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## Introduction

Esophagogastroduodenoscopy (EGD) also known as upper gastrointestinal (GI) endoscopy includes visualization of the oropharynx, esophagus, stomach and proximal duodenum with simultaneous

assessment and understanding of the findings encountered. To ensure high quality EGD certain pre-requisites and during procedure elements are required. These include good team support, patient preparation, patient monitoring, informed consent,

high quality equipment, adequate sedation, comfortable oral and esophageal intubation, target organ assessment, tissue sampling, appropriate therapeutic approach, management of complications and reasonable duration. After the procedure smooth recovery and clear follow up plan at discharge is equally pivotal.<sup>1,2</sup> Indications of EGD can be diagnostic, screening or therapeutic. Diagnostic EGD is performed in patients with upper abdominal symptoms that are unresponsive to empiric therapy, dysphagia; odynophagia; persistent esophageal reflux, persistent vomiting, upper GI bleed, chronic blood loss or malena, corrosive intake, tissue sampling, weight loss, evaluation of diarrhea, etc. As a screening tool it is used in cases for dysplasia surveillance with barrett's esophagus, gastric cancer screening, upper GI malignancies with Lynch syndrome, esophageal varices, squamous cell carcinoma in patients with history of caustic ingestion, etc. Its therapeutic role is utilized in upper GI bleeding, prophylactic variceal banding, foreign body removal, placement of feeding tubes, polypectomy, dilatation; management of achalasia, and palliation, among others.<sup>3,4</sup> Acute upper GI bleed is one of the common causes of critical care admissions accounting for six to 13 percent mortality.<sup>5</sup> The most common causes of upper GI bleed include varices, duodenal or gastric ulcers, erosive esophagitis, erosive gastritis or duodenitis, portal hypertensive gastropathy, vascular ectasia, polyps, cancers and Mallory Weiss syndrome. No lesion or cause is identified in 3 percent of patients.<sup>6</sup> Variceal bleeding is not only a complication of cirrhosis but also represents progression of portal hypertension and decompensation of cirrhosis.<sup>7</sup> Patients who develop bleeding while on treatment with beta blocker have a poor prognosis.<sup>8</sup> For variceal hemorrhage endoscopic band ligation is the standard treatment but if band ligation is not technically feasible, sclerotherapy may be used. In cases of severe variceal bleeding or recurrence transjugular intrahepatic portosystemic shunt

placement may also be appropriate.<sup>9</sup> Toxic ingestions especially caustics lead to esophageal injuries resulting in chronic complications. Injury to lips, oropharynx and upper airway may also occur. EGD should be performed within 24 hours of ingestion to evaluate the extent of injury, guide management and predict prognosis.<sup>10</sup> The rationale of this study is to assess the common indications, endoscopic findings and therapeutic procedures performed in patients undergoing EGD for various GI symptoms.

### **Methodology**

A cross sectional study was conducted in the Department of Gastroenterology, Pakistan Institute of Medical Sciences (PIMS), from August 2019 to February 2020. Duration of study was six months. A total of 127 patients were included in the study. All patients who had complete data record available and had EGD done at Gastroenterology department of PIMS hospital were included in the study. Exclusion criteria included those with age less than 12 years, taking steroids or immune-suppressive medications, having serious co-morbid conditions, pregnancy or incomplete medical records. Those who had completely normal EGD were also excluded from the study population. All patients with non-randomized consecutive sampling were included. Conduction of the study was initiated after the approval from department (Ref F-51/2019/Gastro). Sample size was taken in context to different studies.<sup>11,12</sup> All patients underwent EGD in Gastroenterology Department at PIMS by consultant, associate consultant and assistant consultant level specialists having a minimum of three years of experience post specialization. 4% xylocaine was used as analgesic in the form of pharyngeal spray in all patients while intravenous midazolam was reserved for patients requiring sedation. Olympus CV-180 endoscope was used in all procedures. Data was collected from logbook of EGD and patient file record system that was previously maintained systematically on daily basis. Collected

data included name, age, gender, indications for EGD, mode of presentation, EGD findings and therapeutic procedures that were performed. Indications for EGD included upper GI bleed, dyspepsia, de-compensated liver disease, corrosive intake, vomiting, dysphagia, chronic liver disease, gastric cancer and esophageal cancer. EGD findings in esophagus, stomach and duodenum were noted separately. Statistical package for social sciences version 23 was used to analyze the data. The clinical data of the study patients were stated as number of patients and percentages. Mean and standard deviation were calculated for the continuous variable.

## Results

A total of 127 patients were included. Mean age was 47.85 years with SD of  $\pm 6.74$ . 65 (51.18%) were males while 62 (48.81%) were females. 50 (39.37%) patients presented via outpatient department and 77 (60.62%) patients presented via emergency or ward. 70 (55.11%) underwent diagnostic EGD while 57 (44.88%) had therapeutic or screening EGD. Most common indication encountered was GI bleed in 32 patients (25.19%) followed by dyspepsia in 29 (22.83%) and de-compensated liver disease in 21 (16.53%) patients as shown in Table I.

Overall the most common EGD findings were esophageal varices 34.64%, portal gastropathy 24.4% and mild gastritis 14.96%. Details including common findings in esophagus, stomach and duodenum individually are described in Table II. During EGD 57 (n) patients underwent intervention. Among interventions the most common was variceal banding in 26 (45.61%) patients followed by biopsy and dilatation in 23 (40.35%) and 8 (14.03%) patients respectively.

## Discussion

Mean age in our study was  $47.85 \pm 6.74$  years with male predominance. A similar age pattern was seen in a study conducted in Nigeria.<sup>13</sup> Our male to female ratio of 1.04 in study is consistent with local studies in Kharian and Hyderabad.<sup>14,15</sup> Factors that lead to

upper GI symptoms associated with male predominance can be smoking, bread earning, stress, outside junk food, etc. EGD was mostly performed for diagnostic evaluation in our study as was the case in another tertiary care hospital in Sindh.<sup>15</sup> This is probably due to the burden of referrals to a tertiary care hospital, cheap procedure cost and daily procedure list of EGD. Our setup is government funded and all EGDs are done at a very minimal cost. For this reason, many of the patients who present at PIMS hospital belong to low socioeconomic status. In our study, most common indication for EGD was upper GI bleed but it was the second leading indication for EGD in a study held in Nigeria.<sup>13</sup> PIMS hospital is a center for patient referrals especially with chronic liver disease, portal hypertension and hepatitis C. All of these lead to varices and portal gastropathy that are the main cause of upper GI bleed.<sup>5</sup> This may be the reason for high number of EGDs done in patients with upper GI bleed in our study. Liver Cirrhosis has also been found to be more prevalent in low socioeconomic status.<sup>16</sup> Dyspepsia was the second most common indication for EGD in our study while it was the primary indication in study held in Nigeria.<sup>13</sup>

**Table I: Frequency of common indications for Esophagogastroduodenoscopy**

Indication	Number (n = 127)	Frequency %
Upper GI Bleed	32	25.19
Dyspepsia	29	22.83
De-compensated liver disease	21	16.53
Corrosive intake	15	11.81
Vomiting	11	8.66
Dysphagia	8	6.29
Chronic liver disease	7	5.51
Gastric cancer	2	1.57
Esophageal cancer	2	1.57

Target Organ	Finding	Number	Frequency %
Findings in Esophagus	Varices	44	34.64
	Erosive esophagitis	11	8.66
	Stricture	9	7.08
	Reflux esophagitis	6	4.72
	Hiatus hernia	3	2.36
	Achalasia	3	2.36
	Growth	3	2.36
	Food Bolus	2	1.57
	Candidiasis	2	1.6
	Mallory Weiss Tear	1	0.78
Findings in Stomach	Polyp	1	0.78
	Portal gastropathy	31	24.4
	Mild gastritis	19	14.96
	Ulcer	11	8.66
	Erosions	6	4.72
	Moderate gastritis	5	3.93
	Severe gastritis	5	3.93
	Growth	3	2.36
	Mallory Weiss Tear	1	0.78
Findings in Duodenum	Varices	1	0.78
	Ulcer	6	4.72
	Duodenitis	2	1.6
	Polyp	1	0.78

Dyspepsia was the first while upper GI bleed was the second most common indication for EGD in a study performed in Ghana.<sup>16</sup> A study performed in Kharian showed de-compensated liver disease and peptic ulcer disease as the most common indications for

EGD.<sup>14</sup> Indications for EGD have been reported variably in different studies. This may be attributed to diversity in age groups, ethnicity, socioeconomic group, geographical area, patient population at tertiary care or specialized centers. No standardization of terms was used among different studies which may also be the reason for prevalence of different common indications.

The most common finding on EGD in our study was varices accounting for 34.7% patients. This was also seen in local studies 26.2% and 32.2%.<sup>14</sup> Gastropathy (24.4%) and gastritis (22.82%) were the other two main findings on EGD in our study. Overall varices, gastropathy and gastritis are variably the top three common findings reported by different studies.<sup>14,15,16</sup> High incidence of esophageal varices is mostly because of chronic liver disease.<sup>17,18</sup> The commonest finding in Nigerian study was duodenal ulcer and gastritis.<sup>14</sup> Proton pump inhibitors are one of the main reasons for low incidence of ulcers in present time. Helicobacter Pylori is the single most important causative agent for gastritis.<sup>19</sup> Spicy food, smoking, stress and over the counter used drugs like non-steroidal anti-inflammatory drugs are among the other causes of gastritis.<sup>20</sup> Since the most common finding on EGD was varices, variceal banding was the most common procedure performed. Our study hospital is a tertiary care hospital that receives referrals for therapeutic procedures like banding, biopsy, dilatation and stenting.

Our study was a cross sectional that often does not reflect the trends accurately. It is dependent on the already documented records, quality of which varies depending upon persons who are documenting them. The study was conducted at a single centre. Most of the patients in our study belong to low socioeconomic group. The study duration was six months which is less to cover the population demographics. A comprehensive data from other tertiary care hospitals, EGD clinics and private setups in the region with a longer duration of study can depict the results efficiently.

## Conclusion

In our study upper GI bleed is the most common indication for EGD followed by dyspepsia. Varices, gastropathy and gastritis were the common endoscopic findings. Therapeutic endoscopic variceal banding is the most common procedure performed. There should be local guidelines for screening and management of varices and gastropathy. More low-cost specialized centers should be developed to treat upper GI bleed. Further studies should be performed to focus on the causative factors and possible preventive measures for varices, gastropathy and gastritis in our region.

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