

## Original Article

**Upper Gastrointestinal Endoscopy: A Clinical Audit of Indications and Diagnosis. A 5-Year Data Analysis of Tertiary Care Centre****Ayesha Waheed, Talha Ghafoor Sial, Mehrin Farooq, Shamail Zafar***Ghurki Trust Teaching Hospital / Lahore Medical & Dental College Lahore***Abstract**

**Objective:** The primary objective of this clinical audit is to evaluate the indications for upper GI endoscopy, assess the diagnostic yield, and identify the prevalence of diseases diagnosed during these procedures in a tertiary care centre.

**Methods:** This study of 864 patients took place at Department of Medicine/Gastroenterology, Ghurki Trust Teaching Hospital Lahore. A collaborative team, including experienced Gastroenterologist, Physicians, nurses, and data analysts, undertook a comprehensive review of upper GI endoscopy records. Detailed criteria for indications, diagnostic efficacy, and specific disease diagnoses were established, as per established clinical guidelines and prior research. Data was analyzed using SPSS Statistics version 24.

**Results:** Out of 864 patients, 440 (50.9%) were females and 424 (49.0%) males making it approximately 1:1. Epigastric pain was the primary indication for UGIE (n=263) (30.4%) followed by Retrosternal burning (n=123) (14.2%). The commonest age group for endoscopy was 31- 40years (n=197) (22.8%). GERD, Gastritis, Duodenitis were the commonest findings on UGIE. Only 34 (3.93%) patients had no positive finding. Corrosive intake history had the lowest indication rate (n=18) (2.08%) present only in females.

**Conclusion:** This clinical audit contributes to a more informed and evidence-based approach to upper GI endoscopy. Epigastric pain was the most common indication and GERD was the predominant finding. By assessing indications, diagnostic efficacy, and diseases diagnosed, we aim to optimize the utilization of this procedure, enhance diagnostic precision, and improve patient outcomes for those with upper GI disorders.

**Keywords:** Endoscopy, Gastritis, GERD, Pain Epigastrium

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**Introduction**

Gastrointestinal (GI) disorders are common health issues that affect a significant proportion of the general population<sup>1</sup>. These disorders can range from mild, self-limiting conditions to more serious and chronic diseases. According to guidelines<sup>2</sup>, patient age > 55 with dyspepsia/ epigastric pain and with alarming symptoms vomiting, dysphagia, weight loss, atypical chest pain, GI bleed, esophageal varices in CLD should be advised UGIE.

Upper gastrointestinal (GI) endoscopy is a pivotal diagnostic and therapeutic tool in the assessment and management of a wide spectrum of upper GI disorders<sup>3</sup>. Ensuring the appropriateness of indications, evaluating diagnostic

efficacy, and understanding the range of diseases diagnosed through this procedure are essential steps in enhancing the quality of patient care and optimizing healthcare resources. Therapeutically, it is used for band ligation, Sclerotherapy, Esophageal/Pyloric dilatation and PEG tube insertion. Biopsies can also be taken to diagnose suspicious lesions / H-Pylori infection. In addition, physicians can diagnose functional upper GI disorders by excluding other pathologies.<sup>4</sup>

This clinical audit seeks to comprehensively examine the indications for upper GI endoscopy, assess the diagnostic efficacy, and analyze the diversity of diseases diagnosed within a cohort of patients visiting Endoscopy unit of a tertiary care center. By delving into the specifics of these upper GI procedures, we aim to provide insights

that will contribute to an evidence-based approach, optimize the use of this valuable medical resource, and ultimately improve patient outcomes.

### Methods

This was a retrospective review of the records of all patients who underwent UGIE in the gastroenterology ward of GTTH from Dec 2018-Dec 2023. The data variables collected for each patient were age, gender, indications, and endoscopic findings. Olympus endoscope system was used as standard for EGD. Procedures were performed after an overnight fasting and informed written consent was obtained. 4% xylocaine solution was used as a local pharyngeal anesthetic and midazolam was used for sedating anxious patients and who required variceal band ligation or dilatation. The endoscopic procedures were performed in mostly out-setting patients who either came to outdoor department or referrals from other private clinics. Patients were observed for approximately one hour for any post-endoscopy complications.

SPSS version 24 was used for data entry and analysis. Descriptive variables were expressed as frequencies and percentages. Alarm symptoms were recognized as upper GI bleed, dysphagia, vomiting, weight loss and severe iron deficiency anemia. The probability of picking up a positive finding on UGIE was expressed as Odds ratio (OR) with 95% confidence intervals. The level of significance was set at  $p < 0.05$ .

### Results

Total of 864 patients was included in the study. Males and females were almost equally proportionate (49.0% and 50.9% respectively) with females slightly higher in proportion. Majority of patients belong to early middle

**Table 1:** Age distribution of patients.

Age Range (years)	Male N	%	Female N	%
10-20	19	4.4	26	5.9
21-30	104	24.5	91	20.6
31-40	87	20.5	110	25
41-50	73	17.2	100	22.7
51-60	70	16.5	71	16.1
>60	71	16.7	42	9.5
<b>Total</b>	<b>424</b>	<b>49.1 %</b>	<b>440</b>	<b>50.9 %</b>

age group i.e. 31-40 whereas only 15.1% were over 60 years old and only 5.2% were between 10-20 year of age. Table 1 gives the age and gender distribution.

Most common reason for UGIE was Epigastric pain (30.4%). Others major indications include vomiting, retrosternal burning, screening for varices, upper GI bleed and screening for anemia. In 3.9% patients, endoscopic findings were normal. However, most prominent

**Table 2:** Reasons of UGIE

Indications	Number of Patients	Percentage
Epigastric pain	263	30.4 %
Retrosternal burning	123	14.2 %
Vomiting	100	11.5 %
Dysphagia	58	6.7 %
Screening for varices (CLD)	97	11.2 %
Screening for anemia	82	9.4 %
Hematemesis	62	7.17 %
Melena	61	7.06 %
Corrosive intake	18	2.08 %

**Table 3:** Endoscopic Findings

Endoscopic Findings	Number of Patients	Percentage
GERD	390	34.7 %
Gastritis	311	24.4 %
Duodenitis	140	11.5 %
Gastric Ulcer	20	2.3 %
Duodenal Ulcer	60	6.9 %
Hiatus Hernia	86	1.8 %
Schatzki ring	25	4.0 %
Esophageal Growth	42	2.3 %
Esophageal/Gastric varices	60	6.9 %
Gastric Growth	18	0.9 %
Normal Findings	34	3.9 %

findings were GERD, Gastritis, Duodenitis, Gastric and Duodenal ulcers. In 200 patients, there were combined findings. Table 2 & 3 shows primary indications as well as major findings on UGIE respectively.

Combined findings/lesions were found in 400 patients and majority of them were having Epigastric pain, Retro-

**Table 4:** Final Diagnosis

Diagnosis	Incidence
Esophagitis	60 %
Gastritis	78%
Duodenitis	35%
Duodenal Ulcer	11%
Gastric Ulcer	5 %
Esophageal Growth	5 %
Gastric Growth	9 %
Esophageal varices	25 %
Hiatus Hernia	45 %
Achalasia	2%
Esophageal Stricture	4%
Food Impaction	1%
Normal	28 %

sternal Burning and vomiting as indications of endoscopy. Table 4 shows endoscopic findings of these three main indications.

Data was analyzed for having a positive abnormal finding against a specific indication of endoscopy procedure. It was seen that Pain Epigastrium, Retrosternal

**Table 5:** Relationship between Endoscopy indication and abnormal positive endoscopic finding.

Indication	Normal Finding	Positive Finding	OR (95% CI)	P value
Epigastric Pain	234 (50.1%)	209 (46.4%)	2.1 (1.57-2.82)	<0.001
Heart Burn	196 (33.4%)	235 (47.1%)	7.8 (4.04-15.07)	<0.001
Vomiting	84 (16.7%)	104 (21.0%)	3 (1.28-7.06)	0.012
Dysphagia	34 (7.6%)	45 (11.0%)	1.25 (0.69-2.25)	0.457
Screening for varices	36 (10.9%)	96 (25.1%)	2.25 (1.14-4.44)	0.019
Screening for anemia	78 (12.6%)	86 (14.6%)	2.6 (0.93-7.29)	0.069
Hematemesis	178 (33.7%)	198 (38.0%)	0.57 (0.11-3.89)	<0.001
Melena	168 (23.8%)	156 (21%)	0.67 (0.11-3.99)	<0.001

Burning, Hematemesis and Malena were four indications against which statistically significant abnormal finding was found p value <0.05. Table 5 shows a detailed analysis of this and other major indications.

## Discussion

Upper GI endoscopy is an important tool used both for diagnostic and therapeutic interventions for GI disorders. It has been estimated that around 1% of general population undergoes endoscopy procedure each year<sup>5</sup>, further validating its importance. Lots of studies have been done to assess the role of upper GI endoscopy in various gastrointestinal disorders. Our study aims at studying the indications and findings of upper GI endoscopy in patients who are being referred to tertiary care center from rural suburbs near Lahore. This study was a retrospective study and included around 864 patients over a time period of five years.

Our study has various interesting findings which make it unique as compared to previous work on this topic. Most of the patients presenting for endoscopy at our center were less than 40 years of age. It is quite similar to another study done in Bangladesh where majority of patients who presented for endoscopy with the complaints of dyspepsia were less than 40 years of age<sup>6</sup>. While,

this demographic factor is contrary to similar study on a different cohort of patients in western population where maximum patients were in 4th decade of life<sup>7</sup>. Male to female ratio was 1:1 in our study group which is also comparable to work at other centres<sup>8</sup> and general gender distribution in our country.

Around 96% of our endoscopy procedures were having a positive finding which is far more than the study by Naji et al<sup>9</sup> where 69% of endoscopies were positive for a finding and another study by Khurram M et al<sup>5</sup> had a findings rate of 82.6%. In any Endoscopy center the number of normal endoscopies show the low turnover of variety of cases. In our study normal endoscopy was found in just 3.4% of patients which is quite low as compared to previous work which was also done on similar cohorts of patients in a tertiary Center of Lahore where more than 25 % of patients were having normal endoscopies<sup>10</sup>. In a study which was done on a refugee cohort of patients who underwent procedure for Dyspepsia, normal endoscopy was reported in 28 % of patients<sup>11</sup>. As most of the patients were referred to our tertiary care center, so this may be the reason of high findings rate and also it is a multidisciplinary hospital so patients with advanced diseases were coming to our center. Same was the reason for our patients to have multiple endoscopic findings at the same time as compared to above mentioned trials.

Epigastric pain was the most frequent complaint for which patients were evaluated. In contrast to study done by Khurram et al<sup>5</sup> In Pakistani population Dyspepsia was the most frequent indication and similarly in a study done in India 60% of patients presented with Dyspepsia as the major indication of Endoscopy<sup>12</sup>. Our patients may be the ones who are presenting late to hospital leading to advancement of disease and it may be the reason that pain becomes the predominant presenting complaint. In an African study<sup>13</sup> done in a tertiary care center like our pain epigastrium was the major complaint with which the patients were presenting. Amongst the top three complaints retrosternal Burning and vomiting were the other ones which were concomitantly present in our patients along with pain epigastrium, and together they amounted to be around 55% of the total indications. It also shows the complexity of symptoms in our cohort which is different from other studies.<sup>14</sup>

Gastroscopy with positive findings were most commonly seen in patients who presented with symptoms of pain epigastrium, heartburn, Hematemesis and Malena with p value less than 0.05. It is quite evident that these symptoms do have a cause in the esophagus and stomach in maximum number of patients. In a Pakistani study<sup>15</sup> and a Nigerian study<sup>16</sup> similar findings were seen.

An interesting indication of endoscopy was corrosive intake, with a total of 18 endoscopies done for this reason.

All the patients for this indication were between the ages 20–25 years and all of them were female. An easy access to corrosives in the form of washroom cleaners may be the reason for this.

Main strength of our study is the clinical data of presentation and findings of patients with upper GI disorders of rural background of Lahore district. As GTTH is the single largest hospital of Lahore draining maximum number of villages of Lahore and Kasur districts. It will help the authorities to draft mechanisms to reduce spread of GI disorders and have data of common GI symptoms in rural populations.

Limitations of Study:

- i) It was a single center study and may not be an exact representation of all the rural population.
- ii) Since it was a retrospective study so proper causative extrapolations may not be drawn amongst the study variables.
- iii) Biopsy was not done on every patient, so a microscopic cause of disease may have been missed.

### Conclusion

Upper GI endoscopy is an effective diagnostic and therapeutic tool for diagnosing Upper GI disorders. In our rural population Pain epigastrium, retrosternal Burning and vomiting were most common presenting indications and GERD was the most common endoscopic finding, followed by Gastritis and Duodenitis.

**Conflict of Interest:** None

**Funding Source:** None

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