

# Upper GIS Endoscopy Indications of Patients Consulted at Internal Medicine Outpatient Clinics and Data Obtained According to These Indications

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## Abstract

**Background and aim:** Esophagogastroduodenoscopy is an innovative method used in order to diagnose esophagus, stomach, and duodenum diseases. Esophagogastroduodenoscopy is fundamental for the prognosis of various benign and malign upper gastrointestinal diseases, as well as for therapy or disease follow-up. The aim of the present study is to classify endoscopy results according to indications and to reveal which indications and results are most commonly seen. **Materials and methods:** The Esophagogastroduodenoscopy results of 6243 patients were evaluated retrospectively; all patients had applied to the Gaziosmanpasa Taksim Education and Research Hospital Department of Internal Medicine from 2010 to 2015 on either an outpatient or inpatient basis. **Results:** In our study, 2548 of the patients were male and 3695 were female. The mean age of the patients was  $49.37 \pm 16.90$  years. The indications for Esophagogastroduodenoscopy were dyspeptic symptoms for 72.8% of females and 70.4% of males. Anemia was the indication for 12.1% of females and 11.8% of males. Other indications included gastrointestinal bleeding, dysphagia, nausea and vomiting, gastroesophageal reflux disease symptoms and weight loss. Peptic ulcer disease was the result of Esophagogastroduodenoscopy for 55.7% of females and 50.6% of males. Gastric ulcer (15.2% of females and 16% of males), reflux esophagitis (8.1% of females and 10.1% of males), and duodenal ulcer (6.8% of females and 10.1% of males) were the other results. Malignancy was mostly observed in patients whose indications were anemia. **Conclusion:** The upper gastrointestinal system endoscopy continues to be an up-to-date method of displaying the effectiveness of diseases to assist in the diagnosis and treatment of the symptoms and complaints of the gastrointestinal system, particularly in the evaluation of patients having persistent symptoms.

## Keywords

### Endoscopy, Indications, Results

## 1. Introduction

Peptic ulcer disease (PUD), gastroesophageal reflux disease (GERD), and cancers are three of the most common healthcare topics worldwide [1]-[4]. The most common symptoms of these conditions are vomiting, nausea, heartburn, epigastric pain, retrosternal pain, and dysphagia. At present, the most popular technique for screening the interior surfaces of the gastrointestinal system (GIS) is endoscopy [5]. Currently, Esophagogastroduodenoscopy (EGD) is the technology used for standardized endoscopic imaging in order to diagnose the diseases of the esophagus, stomach, and duodenum in daily medical practice. Even though the upper GIS endoscopy is a practical method for diagnosis, therapy, and follow-up, the complications of performing upper GI endoscopy can cause negative effects such as perforation, hemorrhage, cardiac arrhythmia, aspiration, and even a Mallory-Weiss tear [6]. In 1988, the American Society for Gastrointestinal Endoscopy (ASGE) published codes to assist in the examination of the relationship between EGD accuracy and relevant endoscopic results [7]. However, the references for ordering an EGD can vary according to the population as they are created under particular circumstances of referral and epidemiological patterns of disease. Information on histological diagnosis is not available because of inadequacy of the records. Although biopsies are routinely taken from lesions, some patients don't accept to use them or some patients don't give them for pathological examination. As a result of these, our data about histological examination is inadequate.

The aim of the present study is to classify endoscopy results according to indications and to reveal which indications and results are most commonly seen. Thus we want to underline which symptoms or indications require the performance of upper GI endoscopy more than other symptoms or indications, especially to reveal which indications can strongly suggest malignancies.

## 2. Materials and Methods

A retrospective study was performed at the GOP Taksim Education and Research Hospital Department of Internal Medicine from 2010 to 2015 on either an outpatient or an inpatient basis. GOP Taksim Education and research hospital is one of the biggest hospitals of Turkey. The number of admission to our inpatient and outpatient clinic per year is about 50.000 patients. The inclusion criteria were all patients undergoing upper GI endoscopy between 2010-2015 in our internal medicine unit. All endoscopy procedures were performed by same endoscopist and we used the data which this endoscopist recorded personally. We also matched them with hospital data. By this way, we made sure about the number of patients and results. It included 6243 patients. All patients underwent standard pre-procedure preparation that included an overnight fast; however, nasogastric drainage of the stomach was preferred for those with suspected gastric outlet obstruction. The main forms of analgesia and sedation used were throat spray with 2% lidocaine (Xylocaine®, AstraZeneca UK Limited, Luton, UK) and intravenous sedation with midazolam (Dormicum®, Roche, Switzerland), respectively. Data extracted from the records included the age and gender of the patients, principal indication for the procedure, and primary upper gastrointestinal endoscopy (UGIE) findings. Although biopsies were routinely taken from lesions in the stomach and esophagus for histology, information on histological diagnosis was not available because of inadequacy of the records. The study protocol was approved by the GOP Taksim Research and Education Hospital Ethics Committee, Istanbul, Turkey. This research received no specific grant from any funding agency in the public, commercial or not-for profit sectors. Competing interest: none to declare.

Descriptive statistics were expressed as mean and standard deviation; minimum and maximum for numerical variables; and as number and percentage for categorical variables, where appropriate.

## 2. Results

**Table 1** summarizes the characteristics of the study population. A total of 6243 patients underwent a complete UGIE over the period. 3695 (59.2%) of the patients were female; 1271 patients (20.4%) were in the 41 - 50 year

**Table 1.** Patient demographics.

	Patient group (n = 6243)	
	Mean ± SD/n, %	
Male Gender	2548	40.8
Female	3695	59.2
Age (years)	49.37	±16.90
10 - 20	171	2.7
21 - 30	799	12.8
31 - 40	1109	17.8
41 - 50	1271	20.4
51 - 60	1197	19.2
61 - 70	898	14.4
71 - 80	608	9.7
81 - 90	172	2.8
91 - 100	18	0.3

old age range; and 190 patients (3.1%) were over 81 years old. By far the most common primary indication for UGIE was dyspepsia occurring without any other symptoms, accounting for almost 2691 (72.8%) of females and 1794 (70.4%) of males. For 446 (12.1%) of the female patients and 301 (11.8%) of the male patients, the primary indication was anemia. Other notable primary indications were recurrent vomiting, dyspepsia associated with weight loss, GERD symptoms, and upper gastrointestinal (UGI) bleeding (**Table 2**). Endoscopic findings are presented in **Table 3**.

Half of the patients had peptic ulcer disease, and this was the most common finding. PUD, defined as gastritis, duodenitis, or both, was the most common positive finding. This was seen in 2061 (55.7%) of all female patients and 1293 (50.6%) of all male patients. Gastric ulcer (569 female patients accounting 15.2% of all females, 407 male patients accounting 16.0% of all males) was seen more frequently than duodenal ulcer (287 female patients accounting 6.8% of females, 245 male patients accounting 9.5% of males). Gastric cancer was found in 51 (1.4%) of female cases and in 45 (1.7%) of male cases. Duodenal cancer was found in just two female cases, and there was no duodenal cancer in the male patient group. Non-candida esophagitis was found in 304 (8.1%) of female patients and in 266 (10.3%) of male patients. Normal endoscopic findings were seen very rarely (39 female patients accounting 1.0% of all female patients, 19 male patients accounting 0.7% of all male patients). Mallory-Weiss syndrome (MWS) was seen in just one male patient. Other less commonly reported findings were esophageal varices, gastric polyps, and distal esophageal cancer. **Table 4** summarizes the endoscopic findings according to primary indication for UGIE. For all primary indications, the most common result was peptic ulcer disease. Normal endoscopic findings were most commonly seen with an anemia indication.

Reflux esophagitis was most commonly seen with a dyspepsia indication. Esophageal varices were most commonly seen with anemia and upper GIS bleeding indications. Esophageal cancer was most commonly seen with a dysphagia indication, and gastric cancer was most commonly seen with an anemia indication.

### 3. Discussion

This study retrospectively investigated the endoscopy results according to indications in a sample of the Turkish population. We found the most common primary indication for UGIE was dyspepsia occurring without any other symptoms and accounting for almost 72.8% of females and 70.4% of males, a finding which is in agreement with other published findings. As in our study, Ayuo *et al.* found the most common primary indication for UGIE in Kenya was dyspepsia [8]. Taye *et al.* [9], in a review of 10,000 endoscopies in Ethiopia between 1979 and 1994, showed that 59.4% were referred because of dyspepsia, whereas it was shown that in Nigeria in 2009, 61% of patients undergoing endoscopy had dyspepsia [10]. Generally, our findings are consistent with the concept that dyspepsia is a marker for various upper gastrointestinal pathologies that can only be differentiated by upper

**Table 2.** Primary indications for UGIE.

INDICATION	GENDER			
	FEMALE (n/%)		MALE (n/%)	
Dyspeptic symptoms	2691	72.8%	1794	70.4%
Dyspepsia & weightloss	92	2.5%	85	3.3%
GERD symptoms	71	1.9%	84	3.3%
Dysphagia	76	2.1%	47	1.8%
Nausea-vomiting	74	2.0%	26	1.0%
Upper GI bleeding	244	6.6%	212	8.3%
Anemia	446	12.1%	301	11.8%

**Table 3.** Primary upper GI endoscopic findings.

ENDOSCOPIC FINDINGS	GENDER			
	FEMALE n, %		MALE n, %	
Normal findings	39	1.0%	19	0.7%
Reflux esophagitis	304	8.1%	266	10.3%
Esophagealcandidiasis	3	0.1%	0	0.0%
Esophagealvarices	20	0.5%	33	1.3%
Hiatushernia	232	6.2%	166	6.4%
Esophagealcancer	8	0.2%	4	0.2%
Mallory-Weiss	0	0.0%	1	0.0%
Pepticulcerdisease	2061	55.7%	1,293	50.6%
Gastriculcer	569	15.2%	407	16.0%
Gastricpolyp	65	1.7%	39	1.4%
Pyloricstenosis	6	2.0%	2	1.0%
Gastriccancer	51	1.4%	45	1.7%
Gastricvarices	2	0.1%	2	0.1%
Duodenalulcer	287	6.8%	245	9.5%
Duodenaldiverticulum	35	0.9%	22	0.8%
Duodenalcancer	2	0.1%	0	0.0%

gastrointestinal endoscopy among other sophisticated and expensive tests. For 12.1% of the female patients and 11.8% of the male patients, the primary indication was anemia, which was the second most common indication. Unlike our study, many other published studies found dysphagia as the second most common indication. Ayuo *et al.* [8] found dysphagia to be the second most frequent indication for endoscopy, though distantly so, accounting for 13.3%. Other notable primary indications were recurrent vomiting, dyspepsia associated with weight loss, GERD symptoms, and UGI bleeding. The most common finding was PUD, defined as gastritis, duodenitis, or both. Half of the patients had PUD, and it was also the most common positive finding (55.7% of female patients, 50.6% of male patients). Unlike in our study, O. Ayuo *et al.* [8] determined normal findings in the majority (30.4%) of the patients. The study conducted by Loffeld *et al.* revealed that the prevalence of the gastritis incidence was 5.9% [11], and the prevalence stated in the study performed by Galban *et al.* [12] in Cuba was 91.6%. In the study of Galban *et al.* [12], erosive duodenitis (bulbitis) was found in 63.5% of male patients, in 54.4% of female patients, and in 57.8% in the total number of patients [11]. Gastric ulcer (15.2% of female patients, 16.0% of male patients) was seen more frequently than duodenal ulcer (6.8% of female patients, 9.5%

**Table 4.** Endoscopic findings according to primary indications for UGIE.

Indication (n/%)	Dyspeptic symptoms	Dyspepsia & weight loss	GERD symptoms	Dysphagia	Nausea-vomiting	Upper GI bleeding	Anemia
Normal findings	19 (0.38%)	4 (2%)	4 (1.7%)	1 (0.9%)	1 (0.8%)	9 (1.6%)	22 (2.6%)
Reflux esophagitis	555 (11.3%)	19 (9.6%)	131 (56.7%)	17 (13.9%)	10 (8.7%)	44 (7.6%)	55 (6.4%)
Esophageal varices	12 (0.24%)	1 (0.51%)	2 (0.8%)	2 (1.6%)	0	26 (4.5%)	30 (3.5%)
Hiatus hernia	368 (7.5%)	10 (5.1%)	31 (13.4%)	11 (8.9%)	15 (13.1%)	35 (6.2%)	76 (8.9%)
Peptic ulcer disease	2699 (55.2%)	84 (42.9%)	20 (8.6%)	60 (48.8%)	50 (43.6%)	84 (14.8%)	366 (43.1%)
Gastric ulcer	659 (13.9%)	36 (18.4%)	25 (10.8%)	14 (11.4%)	24 (20.9%)	176 (31%)	164 (19.3%)
Gastric polyp	79 (1.6%)	3 (1.5%)	1 (0.43%)	3 (2.4%)	2 (1.6%)	8 (1.4%)	33 (3.9%)
Gastric cancer	23 (0.47%)	21 (10.8%)	0	5 (4%)	2 (1.6%)	21 (3.7%)	26 (3%)
Duodenal ulcer	420 (8.6%)	17 (8.6%)	17 (7.6%)	8 (6.5%)	10 (8.9%)	157 (27.6%)	67 (7.9%)
Duodenal diverticulum	49 (0.91%)	1 (0.5%)	0	2 (1.6%)	1 (0.8%)	7 (1.6%)	9 (1.4%)

of male patients). Unlike in our study, many studies found duodenal ulcer more frequently. The studies performed in Holland [11] and Cuba [12] revealed that the prevalences of gastric ulcer were 1.8% and 6.2% and of duodenal ulcer were 2.1% and 15.8%, respectively. Gastric cancer was found in 1.4% of female cases and in 1.8% of male cases. Duodenal cancer was found in just two female cases. There was no duodenal cancer in the male patient group. Syam *et al.* [13] found gastric and duodenal cancer equally (15.4%). They found GIS cancer more frequently. This result can be caused by feeding habits. Esophageal cancer was most commonly seen with a dysphagia indication and gastric cancer was most commonly seen with an anemia indication. According to these results, anemia and dysphagia, together or separately, can be cancer symptoms. Physicians must pay attention to these symptoms independent of patient age. Non-candida esophagitis was found in 8.1% of female patients and 10.3% of male patients. A study performed retrospectively by Loffeld *et al.*

[11] from January 1992 to December 2011 revealed that 16% of 29,218 patients had esophagitis. A research study conducted from 1993 to 1994 in Finland stated that the prevalence of esophagitis was 12% in the 15 - 44 year old patient group and 15% in the over 45 year old patient group [10]. Endoscopic research performed on 3556 patients in Cuba by Galban *et al.* from May to November of 2007 revealed that esophagitis was observed in 25.2% of the participants [14]. Normal endoscopic findings were seen very rarely (1.0% of female patients, 0.7% of male patients). Unlike in our study, O. Ayuo *et al.* [8] had normal findings in the majority (30.4%) of the patients. Actually, this is surprising because in our country the majority of patients with dyspeptic symptoms have pathology. This result can be caused by feeding habits and unconscious drug usage. It also can be caused by low socio-economic status of patients living around our hospital. As a result of this, upper GIS endoscopy should be performed on patients who have persistent dyspeptic or other GIS symptoms. For all primary indications, the most common result is peptic ulcer disease. Normal endoscopic findings are most commonly seen with an anemia indication. Reflux esophagitis is most commonly seen with a dyspepsia indication. Esophageal varices are most commonly seen with anemia and upper GIS bleeding indications. Esophageal cancer is most commonly seen with dysphagia indication, and gastric cancer is most commonly seen with an anemia indication.

#### 4. Conclusion

As a result of our findings, we conclude that the upper gastrointestinal system endoscopy continues to be an up-to-date method of displaying the effectiveness of diseases to assist in the diagnosis and treatment of the symptoms and complaints of the gastrointestinal system, particularly in the evaluation of the patients having persistent symptoms. Anemia and dysphagia can be alarm symptoms for malignancies. Performing upper GI endoscopy is cheap and relatively safe. Patients having persistent dyspeptic symptoms, anemia, dysphagia, or weight lost, should have this procedure performed.

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