

Cross Section Study of Endoscopic Findings in Patients Underwent Upper Endoscopy in Fayoum University Hospital

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Abstract

Background: Upper gastrointestinal (GI) symptoms are the commonest complaints among the general population and the diseases associated with them carries a significant risk of morbidity and mortality. As early diagnosis and appropriate management of the condition can prevent life threatening complications. Upper GI endoscopy is an effective diagnostic as well as therapeutic tool for the patients presenting with upper GI symptoms.

The objective of the study: is to determine the pattern of endoscopic findings in patients referred to endoscopy unit for upper gastrointestinal endoscopic procedures in Fayoum university hospital.

Methods: Cross sectional study comprises of 2281 patients presenting with upper gastrointestinal symptoms at Fayoum university Hospital, (both out-patients and referred patients) during the period from January 2018 to May 2020, who underwent upper GI endoscopy.

Results: our study showed that the most prevalent age group was aged between 41 and 60 years (37.6%) with male to female ratio

was nearly equal and the commonest single indication was epigastric pain and heart burn with percentage of 31.9%. PUD was the most common endoscopic findings either gastritis or erosive gastritis, duodenitis, duodenal and gastric ulcer.

Conclusion: PUD was the most common endoscopic findings in the studied group. Diagnostic and therapeutic role of EGD make it a great tool for management different GI tract pathologies.

Keywords: Upper gastrointestinal endoscopy, Gastrointestinal symptoms, Initial diagnostic, Therapeutic tool.

Introduction

Upper gastrointestinal (UGI) endoscopy is a valuable tool in the diagnosis and management of diseases affecting the esophagus, stomach and upper parts of the duodenum. ¹

In addition to direct inspection, endoscopies can be used for taking biopsies from suspicious lesions and doing certain therapeutic interventions such as sclerotherapy, banding, stricture stretching, gastrostomy and polypectomy. ²

Major diseases diagnosed with UGI endoscopy include gastro esophageal reflux disease (GERD), esophageal varices, peptic ulcer (gastric and duodenal) PUD and upper GI malignancies. GERD is a chronic disorder of the upper gastrointestinal tract with global distribution. Its prevalence has significantly increased in most countries over the past two decades. GERD results from excessive reflux of gastric contents into the esophagus that is normally prevented at the gastro esophageal junction. Major symptoms are heartburn and regurgitation.³

GERD is best diagnosed with esophageal pH endoscopy is recommended for those who fail to respond to medical treatment, those who complain from alarm symptoms (e.g. anemia, dysphagia, and weight loss or voice changes) and those with long-standing GERD to evaluate the presence of metaplasia or Barrett's esophagus (BE).⁴

Varices are dilated sub-mucosal veins, which commonly occur as consequences of portal hypertension. Mortality after an index hemorrhage in patients with varices is as high as 50% and with subsequent bleeding with 30% mortality rate. Endoscopy plays an essential role in the management of varices as it identifies patients in initial stage and helps to prevent variceal hemorrhage and helps to initiate specific therapies. UGI endoscopies are required to confirm the diagnosis and to prevent bleeding with direct measures like sclerotherapy and banding.⁵

Peptic ulcers are defects in the gastric or duodenal mucosa that extend through the muscularis mucosal layer.⁶

Upper GI endoscopy is recommended for evaluation of patients with suspected PUD because it provides an opportunity to visualize the ulcer directly, to determine the presence of active bleeding and to take biopsies. Endoscopy facilitates performance of rapid urease test which is one of the

preferred investigations for the presence of Helicobacter pylori infection. Infection with H.pylori is responsible for over 95% of duodenal ulcers and most gastric ulcers. Its eradication is necessary for long term cure.⁷ UGI endoscopy is more accurate than radiological investigations in diagnosis of UGI tumors and it offers the opportunity for early detection of these tumors in suspected patients. It is recommended for cancer screening in old patients who complain of unexplained and persistent recent-onset dyspepsia. Other possible indications include dyspepsia with chronic GI bleeding, progressive dysphagia, progressive weight loss, persistent vomiting, iron deficiency anemia, epigastric mass and suspicious barium meal results. Detection of UGI tumors early is associated with improved survival and the possibility of complete endoscopic resection.⁸

UGIE has been found to be both effective and a safe procedure that can be performed at large medical centers, small rural hospitals, outpatient clinics or even private offices.⁹

The endoscopy developments have enhanced the safety and diagnostic yield of endoscopy as well as providing therapeutic options making UGIE the most accurate and cost effective tool for evaluating patients with gastrointestinal related symptoms.¹⁰

Patients and Methods

This Study included 2281 patients with upper gastrointestinal symptoms who underwent upper GI endoscopy from January 2018 to May 2020 at the endoscopy unit of the tropical medicine department at Fayoum university hospital.

Study design: Cross sectional study.

Sample population: 2281 patients with upper gastrointestinal symptoms who underwent upper GI endoscopy.

Sample size: sample size was calculated by epi info 2000 software based on prevalence of outcome at confidence interval 95% and 80% power of the study. The sample increased by 10% to overcome missing data.

Sample site: the endoscopy unit of the tropical medicine department at Fayoum university hospital.

Inclusion Criteria:

All patients whom indicated and underwent upper GI endoscopy of no specific gender, including all age groups and fulfilling the following criteria

Diagnostic indications:

- Persistent upper abdominal pain or pain associated with alarming symptoms such as weight loss or anorexia.
- Dysphagia, odynophagia or feeding problems.
- Intractable or chronic symptoms of GERD.
- Persistent vomiting of unknown etiology or hematemesis.
- Iron deficiency anemia with presumed chronic blood loss when clinically an upper gastrointestinal (GI) source is suspected.
- Chronic diarrhea or malabsorption.
- Assessment of acute injury after caustic ingestion.
- Surveillance for malignancy in patients with premalignant conditions such as polyposis syndromes, previous caustic ingestion, or Barrett esophagus.

Therapeutic indications:

- Foreign body removal.
- Dilation or stenting of strictures.
- Esophageal variceal ligation.
- Upper GI bleeding control.
- Placement of feeding tubes.
- Management of achalasia (botulinum toxin or balloon dilation).

Exclusion Criteria:

The patients whom contraindicated for upper GI endoscopy according to the last guidelines;

Absolute Contraindications

- Perforated bowel.
- Peritonitis.
- Toxic megacolon in an unstable patient.

Relative Contraindications

- Severe neutropenia.
- Coagulopathy.
- Severe thrombocytopenia or impaired platelet function.
- Increased risk of perforation including connective tissue disorders, recent bowel surgery or bowel obstruction.
- Aneurysm of the abdominal and iliac aorta.

All patients would be subjected to the following:

- 1- Complete medical history.
- 2- Thorough clinical examination.
- 3- Laboratory investigations will include: Complete Blood Count, prothrombin concentration and INR.
- 4- Consent approval.

Endoscopic procedure

Drugs:

1. Propofol ampoules.
2. Midazolam ampoules.

Equipments:

1. Olympus CV 180
2. Olympus CV 260

Technique:

Each patient was connected to the monitoring device and put in the left lateral position. After adequate sedation the scope was passed under direct vision on the patient tongue and uvula was at 6 o'clock position.

When the epiglottis, circo-arytenoid cartilage and vocal cords appeared the tip of the instrument was guided behind the circo-arytenoid cartilage and the patient was instructed to swallow.

The scope was advanced slowly to allow careful examination of the esophageal contour and mucosa then examined with inspection of gastro-esophageal junction and its level being determined in relation to the diaphragmatic hiatus.

The scope was passed to the stomach and advanced to the second part of the duodenum.

The duodenal mucosa was completely examined.

The scope was withdrawn and the stomach was examined in details starting with the antrum. The antrum was recognized by the absence of longitudinal folds then retro-flexion was done to evaluate the incisura and cardia. Then the scope is withdrawn after that the patient was transferred to the recovery unit.

All data were collected and recorded.

Results

Table 1: Description of demographic characters among study group.

The table illustrates that among study group 37.6% aged between 41 and 60 years followed by 33.9% aged between 21 and 40 years old, as regards gender 50.1% were females, versus 49.9% were males.

Variables	Number (n=2281)	
Age groups		
Less than 20 years	105	4.6%
21-40 years	774	33.9%
41-60 years	857	37.6%
61-80 years	514	22.5%
81-100 years	31	1.3%
Sex		
Male	1138	49.9%
Female	1143	50.1%

Regarding Frequency of different complains among study group.

Our thesis demonatrates that the highest percentage of complain was epigastric pain and heart burn with percentage of 31.9%, followed by 14.2% for follow up varices, then

12.7% for vomiting, and 10.3% for Haematemesis and melena, 9.3% for Screening for varices, and 32.9% of them had combine complains.

And about Frequency of different endoscopic esophageal findings among study group: the highest esophageal findings by endoscope esophageal varices (25.6%) with (7.2%) grade II, then GERD (23.8%) of cases with 19.6% grade I, followed by Esophagitis 7.4% of cases followed by Esophageal moniliasis 5.2%

We found different endoscopic gastric findings among study group.: 23.3% of cases show gastritis by endoscope, 18.9% of them had erosive gastritis by endoscope, followed by 18.2% had Portal hypertensive gastropathy with (14.2%) of them grade I.

We did different interventions among study group: 47.8% of cases need intervention, 62.4% of them do biopsy, followed by 28.5% need for band ligation, 2.4% need Injection sclerotherapy, and 2.2% of all cases need combined intervention.

Discussion

Esophagogastroduodenoscopy (EGD) has become a key element in the diagnosis and treatment of esophageal, gastric, and small-bowel disorders. The many accepted indications for EGD include evaluation of dysphagia, GI bleeding, peptic ulcer disease, medically refractory GERD, esophageal strictures, celiac disease, and unexplained diarrhea. During EGD evaluation, diagnostic biopsies can be performed as well as therapies to achieve hemostasis and dilatation for significant strictures.¹¹

The Present study was conducted to assess the endoscopic role in upper gastrointestinal tract lesions among patient referred to Fayoum

university hospital with GIT symptoms. Either for diagnosis or therapy.

Our study included 2281 patients for whom EGD was done at endoscopy unit of Fayoum university hospital in period from January 2018 to May 2020.

Our results regarding the age showed that the most prevalent age group was aged between 41 and 60 years (37.6%) followed by 33.9% aged between 21 and 40 years old with the mean age was 47.5 years.

On near point, **Hassan et al., 2019** reported that 46.5 years is the mean age of the Egyptian population.¹² On the other hand, **Scheidl et al., 2020** which included younger patients the mean age was 32 years.¹³

Regarding to gender, our study showed that there is slight predominance of female gender patients in percent of 50.1%, versus 49.9% were males.

On our mirror side, **Aljebreen et al., 2013** had slight male gender predominance as (51%) were males and (49%) were females.¹⁴

And in the far way, **Puttaraju et al., 2019** revealed males were significantly predominant (60%) compared to females (40%).¹⁵

Our series showed that epigastric pain and heart burn were the predominant indications for EGD with percentage of 31.9%, followed by 14.2% for follow up varices, then 12.7% for vomiting, and 10.3% for Haematemesis and melena, 9.3% for Screening for varices, and 32.9% of them had combine complains.

This agreed with **Shashikumar et al., 2018** who reported that the most common indication for EGD was abdominal pain (32.1%) followed by dysphagia (22.2%).¹⁶

While in **obayo et al., 2015**, the epigastric pain was of more prevalence (51.6%), followed by dysphagia (13.6%).¹⁷

On contrast to them, **Aldujayn et al., 2018** described that The most common reasons for EGD were Gastrointestinal bleeding, dyspepsia and reflux symptoms (26.8%, 19.6% and 10.7% respectively).¹⁸

About Esophageal pathologies, **our study** revealed that the highest esophageal findings by endoscope were esophageal varices (25.6%) with (7.2%) grade II, then GERD (23.8%) of cases with 19.6% grade I, then Esophagitis 7.4% of cases followed by Esophageal moniliasis 5.2%.

But in **El hadi et al., 2014** Esophagitis Was described as the most common esophageal finding (42%) while esophageal varices were only (13.8%).¹⁹

And as known Egypt has the highest prevalence of hepatitis C virus infection (>10% of the general population). Going in line with the literature, we hypothesize that such high rates of esophageal varices could be HCV induced varices; however, this finding needs further confirmation as we do not know the HCV background of our patients.

On our side, **mohammad et al., 2019** which included 203 patients who underwent endoscopy in the study duration. Esophageal varices were found in 65% cases. There were more men (68%) with varices than women (32%).²⁰

On contrary, **Abd-El-Hafeez et al., 2016** described gastro-esophageal reflux as the most frequent finding by percent of 72% of his study group and the most frequent is grade B gastro-esophageal reflux (28%).²¹

this may be due to the differentiation of sample size. And **obayo et al., 2015** also showed that esophageal normal examination

(15.2%), oesophageal cancer (13.6%) While esophageal varices was the rarest findings 1.1%.¹⁷

Esophagitis has highest prevalence about 40% in **motamed et al., 2012** who did endoscopy for 150 patients of pediatric age suffering from recurrent abdominal pain.²²

Our results illustrate that there is a statistical significant difference between both genders as regards esophageal findings as esophageal mass, and moniliasis grade II, and III GERD, and grade II Esophageal varices with high percentage among males. However, there is no statistical significant difference between both genders.

Also there is a statistical significant high percentage of Esophageal stricture, Esophageal moniliasis, Esophageal web, grad IV GERD and grades of Esophageal varices among older age (>60 years old).

In addition, there is a statistical significant high percentage of esophagitis among younger age <40 years old.

About endoscopic finding of gastric pathologies Our study demonstrated that 23.3% of cases show gastritis by endoscope, 18.9% of them had erosive gastritis by endoscope, followed by 18.2% had Portal hypertensive gastropathy with (14.2%) of them grade I and the rarest findings was gastric mass 1.2%.

This agrees with **obayo et al., 2015** where gastritis 40.2%.¹⁷ Also **Segni et al., 2014** and **Elhadi et al., 2014** demonstrated that gastritis was highly prevalent 61%, 54.9% respectively.^{23&24}

This may be due to NSAIDS and H pylori prevalence in our country, but our study lacks data about them contrary to **Segni et al., 2014** whose study denoted relation of H pylori and findings in dyspeptic patients.²³

In our series gastric ulcer was frequently diagnosed and reported in 112 patients (4.9%) while duodenal ulcer was diagnosed in 90 patients (3.9%).

Gyedu et al., 2014 mentioned Peptic ulcer disease (PUD) defined as gastritis, duodenitis or both, was the most common positive finding. This was seen in 27.4% of all cases. Gastric ulcer (4.7%) was seen more frequently than duodenal ulcer (3.0%)²⁵ controversy **Adwoa et al., 2019** reported that duodenal ulcer is more than gastric ulcer by ratio of 6.1:1.²⁶

Our series demonstrate that there is a statistical significant difference between both gender as regards gastritis and erosive gastritis with higher percentage among females and as regards grade I Portal hypertensive gastropathy with high percentage among males.

And also we have a significant high percentage of gastritis, and gastric erosion among younger age cases less than 40 years old. In addition, there is a statistical significant high percentage of fundal varix, gastric ulcer, and gastric mass and grade III Portal hypertensive gastropathy among older age (>60 years old).

One of the common GI disorders needing endoscopic assessment and management is upper gastero-intestinal bleeding (UGIB) either variceal or non-variceal whether acute or chronic (hematemesis, melaena and anemia).

In our study we did EGD for 13.8% of our patients due to acute and chronic UGIB. Most of them presented with hematemesis 10.3% followed by 3.5% with anemia.

During his study period, **Alatise et al., 2014** (12.4%) of 2,320 patients who underwent upper GI endoscopies had UGIB. Of these, the main clinical presentation included passage of

melaena stool in (93.4%) of individuals, (60.3%) had haematemesis, (38.3%) had haematochezia, and (56.1%) were dizzy at presentation. Observed in 88 (30.6%) of UGIB patients, duodenal ulcer was the most common cause, followed by varices (18.1%) and gastritis (17.1%).²⁷

Manko et al., 2020 mentioned that One hundred and forty-four patients had UGI endoscopy for UGIB during the study period. The most common cause of UGIB was esophageal varices (46.5%) followed by erosive mucosal diseases: gastritis/duodenitis (29.9%), esophagitis (8.3%). Less common causes were PUD in five (3.5%), gastric tumor in two (1.4%), hiatus hernia in one (0.7%), and portal hypertensive gastropathy in one (0.7%). Thirteen patients (9.0%) had normal findings.²⁸

Our study revealed 2.2% of all patients diagnosed to have suspected **malignant lesions** in the form of gastric mass (1.4%), esophageal mass (0.6) and duodenal mass (0.4%). it is worthy to mention that the incidence of malignancy may be not totally accurate as some tumors presented by ulcers not mass and we don't have the definite histopathological diagnosis for these ulcers or lesions.

Also Sadiq et al., 2020 suspected UGI malignancies in 2.9% of the total number of patients studied with gastric accounting for (2.1%) and esophageal (0.8%).²⁹

While Gado et al., 2015 has detected (1%) of patients with UGI malignancy among patients with dyspepsia. No cases of esophageal cancer were reported in this study because most patients with esophageal cancer initially present with dysphagia and these patients were excluded from the study.³⁰

The factors responsible for delay in detection of gastric tumors are underuse of diagnostic

tests, late referrals for UGI endoscopy, misdiagnosis and injudicious use of acid suppression therapy. Perhaps the most important reason for performing diagnostic endoscopy is to detect gastric cancer at an early stage. However, in its early stage, gastric cancer presents with symptoms that are often indistinguishable from those of benign gastric ulceration; therefore, all patients who are in the age group at risk of gastric cancer should undergo early endoscopy rather than trials of medical therapy that may delay diagnosis.

The EGD has many aspects and scopes in the therapeutic management of GIT disorders, from this fact side, we did intervention for 47.8% of our patients, the most common one was biopsy aiming to determine the nature of pathology either benign or malignant and to define the histopathology of lesions guiding us to the proper management plan.

Adding to us the ability to manage the cases of upper GI bleeding due to gastrointestinal varices either through band ligation or injection sclerotherapy or both together.

Our study reported that esophageal varices presented by 25.6 % and 28.5% of them were made intervention of band ligation that's for large varices grades II & III & IV while 1.3% (14 cases) needed dual intervention by band ligation and injection.

And Alatise et al., 2014 mentioned that (40.4%) of patients had injection sclerotherapy and variceal band ligation, respectively. The overall rebleeding rate for endoscopic therapy for varices was 16.7%.

The main limitation of this serious is the relative small sample size and the procedures were performed in a single institute, multicenter studies are giving results of better diagnosis with wider scope and variation. And also due to the ongoing COVID-19 pandemic, it has become difficult to perform routine

endoscopic procedures, only urgent endoscopies were performed from March 2020 to May 2020, so the number of endoscopies reduced.

Summary

Upper gastrointestinal (GI) symptoms are the commonest complaints among the patients, for which they seek medical advice. Diseases associated with these symptoms are important causes of morbidity and mortality worldwide. The common upper GI symptoms in presence we do endoscopy for are dyspepsia, dysphagia, gastrointestinal bleeding, progressive unintentional weight loss, persistent vomiting of unknown cause, anemia and epigastric mass.

Gastrointestinal endoscopy (UGIE) is one of the most commonly performed endoscopic procedures and provides useful information in patients with gastro-duodenal disorders. It gives a better diagnostic yield over radiology particularly in the investigation of upper gastrointestinal bleeding, inflammatory conditions of the UGI track like esophagitis, gastritis and duodenitis as well as the diagnosis of Mallory Weiss tears and vascular malformations. UGIE has been found to be both effective and a relatively safe procedure that can be performed at large medical centers, small rural hospitals, outpatient clinics or even private offices. Establishing causes of UGI diseases leads to more efficient treatment and consequently decreases morbidity and mortality rates.

This study aims to document the demographic characteristics, indications and endoscopic findings of patients undergoing UGIE at Fayoum university hospital.

This study is across-sectional design to consecutively recruit 2281 either admitted or outpatient clinic to the endoscopy unit of the tropical medicine department at Fayoum

university hospital. Demographic data and indications for the UGIE were recorded. Endoscopic findings per each participant were recorded.

Our result showed that the main age group was 41-60 by 37.6 %, male to female ratio was nearly equal and the commonest single indication was epigastric pain and heart burn with percentage of 31.9%.PUD was the most common endoscopic findings either gastritis or erosive gastritis, duodenitis, duodenal and gastric ulcer Which may be due to life style, H-pylori and inappropriate use of NSAIDS among our community.

Esophageal varices are the most common pathology at the esophageal level and this may be due to high prevalence of HCV in Egypt.

Therapeutic role of EGD gives us the ability to help our patient either through biopsy which helps in differentiation of pathology nature or control cases of UGIB through management of variceal bleeding with band or injection sclerotherapy or vascular malformation bleeding through APC. Also dilatation of esophageal stricture helps some cases in our study.

Conclusion

The most common indication for undergoing UGIE at Fayoum university hospital was epigastric pain and heart burn in the absence of any other symptom. While the most common gastrointestinal pathologies of patient symptomatology necessitating endoscopic evaluation were PUD. Also, esophageal varices were common esophageal findings especially large ones for which band ligation was done, decreasing mortality rate for those patients. Diagnostic and therapeutic

role of EGD make it a great tool for management different GI tract pathologies.

Recommendations

We recommend documentation of histopathological findings of biopsied lesions to be included in future studies for more accurate identification of nature of pathologies. Further studies are needed to characterize epidemiology of UGI diseases and Comparison studies between different nations also recommended determining different risk factor for upper GI pathologies.

Raise awareness of our community about the helpful role of EGD either in diagnosis or management of esophageal, gastric and duodenal pathologies.

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