

ENDOSCOPIC FINDINGS IN RELATION TO AGE AND SYMPTOMS IN PATIENTS PRESENTING WITH DYSPEPSIA

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ABSTRACT

Objectives: To find the relative frequencies of different diseases causing dyspepsia, and to identify different diseases according to age.

Study Design: Prospective cross-sectional study.

Place and Duration of Study: Department of Gastroenterology, Pak Emirates Military Hospital Rawalpindi, from Jan 2017 to Oct 2017.

Material and Methods: Patients of age 18 to 80 years with dyspepsia non-responding or refractory to empiric therapy or those with alarm features were offered upper-gastrointestinal-endoscopy as per standard protocol and the results were recorded.

Results: A total of 667 patients with 65% males and 35% females were enrolled. Normal endoscopy was reported in 58.8% patients with 35% males and 24% females (total=667), whereas abnormal findings accounted to 41.2% patients with 30% males and 11.2% females. Mixed symptoms were the commonest complaint (75%). The median age group was 41-50 years with median symptom duration of <1 year and >1 <2 years for abnormal and normal endoscopic findings, respectively. Alarm features were present in 14.7% of the population with 60% corresponding to abnormal endoscopic findings. The most common alarm feature was dysphagia (38.8%). The most common endoscopic findings were non-specific findings including gastropathy/doudenopathy (49.6%), followed by hiatal-hernia (16.4%), growths/malignancies (8.4%) reflux-esophagitis (7.3%), ulcers (5.8%), Barret's-esophagus (4.4%), erosions (4%) and esophageal-candidiasis (1.4%).

Conclusion: Non-specific gastro-doudenopathy, hiatal-hernia, growths/malignancies, reflux-esophagitis, ulcers, Barret's-esophagus, erosions and esophageal-candidiasis were the commonest findings in descending order. Epigastric-pain as a symptom and erosions, ulcers and non-specific-findings as endoscopic-findings presented in younger population.

Keywords: Dyspepsia, Functional dyspepsia, Undiagnosed dyspepsia, Upper GI endoscopy.

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INTRODUCTION

Dyspepsia is defined as bothersome post-prandial fullness, early satiation, epigastric pain or burning or a combination of these symptoms and has been experienced by about 40% of the general population at some point in their lives¹. Undiagnosed dyspepsia has been reported to have a prevalence of 7%-45%, while the prevalence of functional dyspepsia lies between 11%-29.2% globally². Patients with dyspepsia were found to have made more than 11 million office visits annually to their family physicians³ and 50% of patients with undiagnosed dyspepsia

were estimated to be using medications most of the time for debilitating symptoms⁴.

Of all the causes of dyspepsia, functional dyspepsia is reported to be the commonest cause of dyspepsia worldwide⁵ and has been defined by Rome IV criteria as the presence of bothersome postprandial fullness, early satiation, epigastric pain or epigastric burning thought to originate from the gastroduodenal region in the absence of any organic, systemic or metabolic disease⁶.

Treatment response varies greatly between functional and organic dyspepsia (that includes causes like peptic ulcer disease, erosive esophagitis, hiatal hernia and gastroesophageal malignancies), with a high cure rate in peptic

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ulcer disease and reflux esophagitis but a higher mortality rate for patients with malignancies⁵.

Upper gastrointestinal endoscopic study is considered to be one of the most accurate methods to diagnose conditions causing dyspeptic symptoms⁷. A study from Denmark demonstrated that initial upper GI endoscopy followed by directed therapy was related to a lower economic burden than empiric treatment in case of *H. pylori* related dyspepsia⁸. It has been recommended by European and American guidelines to offer test and treat regimen for *H. pylori* infection in patients of less than 60 years of age with no alarm features on presentation and considering upper GI endoscopic studies for those with either alarm features or refractory dyspepsia i.e; dyspepsia not responding to optimal doses of empirical therapy⁹.

The pattern of endoscopic findings in dyspepsia varies considerably among different geographic locations and ethnic groups and the studies carried out in Pakistan have smaller cohorts. Secondly, a detailed account of the symptoms in relation to normal versus abnormal endoscopic findings and the relation of symptoms with alarm features in the two groups have not been studied in Pakistan.

MATERIAL AND METHODS

This was a prospective cross sectional study with sampling technique of non-probability convenience sampling. The study setting was the Gastroenterology Department of Pak Emirates Military Hospital Rawalpindi, from January 2017 to October 2017. The sample size was calculated using National Statistics Services Calculator with a 95% confidence level, a confidence interval of 0.04 and a standard error of 0.02 with a relative standard error of 3.87%.

Patients of age 18 to 80 years, with dyspepsia non-responding or refractory to empiric therapy or those with alarm features (including vomiting, gastrointestinal bleeding, abdominal mass, dysphagia, unexplained weight loss and anemia) were included in the study and written informed consents was taken. The study used ROME IV

criteria for dyspepsia as 1 or more of the following 3 symptoms for 3 months within the initial 6 months of symptom onset: (1) post-prandial fullness, (2) early satiety, and (3) epigastric pain or burning⁹. Patients with acid regurgitation or heartburn as sole complaint were excluded along with the patients presenting with history of gastrointestinal organic disease or surgeries, those who had already been investigated using endoscopic study, patients who received *H. pylori* eradication therapy in the last 30 days or had been on proton pump inhibitors in the last 30 days and those who refused upper GI endoscopy.

Enrolled patients were assessed using a thorough history of dyspepsia and previous medication, presence of alarm features, a complete physical examination and investigations including complete blood count and blood chemistry. The severity of reflux esophagitis was graded using Los Angeles classification¹⁰. Superficial mucosal defects of <5 mm in diameter with flat edges that could be red, yellow or white were termed gastroduodenal erosions. Mucosal breaks of >5 mm in diameter were termed as gastroduodenal ulcers. Gastric metaplasia of distal esophagus (of more than 1 cm length above gastroesophageal junction) as diagnosed on endoscopic appearance was defined as Barret's esophagus, with metaplastic epithelium involving <3 cm termed short segment Barret's and that involving >3 cm termed long segment Barret's esophagus. Gastropathy and duodenopathy were used to define hyperemia or erythema of gastric and duodenal mucosa respectively. Hiatal hernia was classified as small when the size was less than 10 cm and large when greater than 10 cm. Where appropriate, the most clinically significant endoscopic finding was recorded for each patient. For example, a patient with both gastric erosions and duodenal ulcers was documented as having duodenal ulcer alone for this study. The order for the most important endoscopic findings was: gastric/esophageal malignancy >peptic ulcer >reflux esophagitis >duodenal/gastric erosions >duodenopathy/ gastropathy.

Continuous data was reported as median and inter-quartile range (IQR). Quantitative data

Table-I: Demographics of patients n (%).

Variable	n (%)
Total patients	667
Males	433 (65%)
Females	234 (35%)
Median age range (in years) for normal OGD finding	
Males	41-50
Females	41-50
Median age in years (IQR) for normal OGD finding	
Males	43 (28)
Females	45 (29)
Median age range (in years) for abnormal OGD finding	
Males	41-50
Females	41-50
Median age in years (IQR) for abnormal OGD findings	
Males	48 (30)
Females	50 (23)
Median symptom duration in months (IQR)	
Normal OGD findings	24 (24)
Abnormal OGD findings	24 (12)
Symptoms	
Mixed	500 (75%)
Post-prandial fullness	93 (13.9%)
Epigastric pain	74 (11%)
Alarm features	98 (14.7%, n=667)
Mixed	66 (67.3%, n=98)
Post-prandia fullness	21 (21.4%, n=98)
Epigastric pain	11 (11.2%, n=98)
Normal OGD	39 (40%, n=98)
Abnormal OGD	59 (60%, n=98)
Normal OGD finding	393 (58.8%, n=667)
Males	234 (59.5%)
Females	159 (40.5%)
Epigastric pain with normal OGD	338 (86%, n=393)
Post-prandial fullness with normal OGD	40 (10.2%, n=393)
Abnormal OGD	18 (4.5%, n=393)
Males	274 (41.2%, n=667)
Females	199 (30%)
Mixed symptoms with abnormal OGD	75 (11.2%)
Post-prandial fullness with abnormal OGD	162 (59.1%, n=274)
Epigastric pain with abnormal OGD	75 (27.3%, n=274)
Others	34 (12.4%, n=274)
IQR Inter-quartile range, OGD oesophgogastro-doudenoscopy	

was summarized as frequencies and percent-

ages. Descriptive statistics were used for the calculations. Data was analyzed using SPSS version 16.

RESULTS

A total of 667 patients were enrolled in the study with clinical symptoms correlating to dyspepsia, of which 65% (433) were males and 35% (234) females. Patients with normal endoscopic findings were in abundance as compared to those with abnormal findings (table-I). The median age range for males and females for both normal and abnormal endo-scope findings was the same i.e. 41-50 years. Median symptom duration was different for patients with normal and abnormal endoscopic findings, i.e. patients tend to present earlier with abnormal endoscopic findings. Mixed symptoms were the main symptom subtype (75%), followed by post-prandial fullness (13.9%) and epigastric pain (11%). Alarm features were present in 14.7% of the cohort with 60% of the patients corresponding to abnormal endoscopic findings (table-II). For those with normal endoscopic findings, 35% were males and 24% females, with mixed symptoms being the predominant complaint (86%), followed by epigastric pain (10.2%) and post-prandial fullness (4.5%). Males were in abundance (30%) as compared to females (11.2%) with abnormal endoscopic findings. Mixed symptom was the chief complaint for abnormal endoscopy group (59.1%), followed by post-prandial fullness (27.3%) and epigastric pain (12.4%).

Dysphagia was the predominant alarm feature, accounting to 38.8%, followed by weight loss (21.4%), anemia (16.3%), vomiting (13.3%), upper GI bleed presenting either as malena or hematemesis (8%) and others (2%) including more than one alarm features (table-II).

The most common endoscopic findings noted were non-specific findings (49.6%) including gastropathy (40.1%), gastroduodeno-pathy (5.5%) and doudenopathy (4%). Hiatal hernia was the second most common finding (16.4%) with small hiatal hernia in abundance as compared to larger ones (table-III). The third most common

finding were growths (8.4%), with gastric growths (5.1%) being the predominant lesion. Reflux esophagitis was seen in 7.3% of the patients with Los Angeles Class B being the

dominantly short segment (4%), erosions (4%) predominantly duodenal (2.5%) and esophageal candidiasis (1.4%) were seen in the mentioned frequencies (table-III).

Table-II: Frequency of alarm features in patients presenting with dyspepsia.

Alarm feature	Frequency (%), n=98
Dysphagia	38 (38.8%)
Weight loss	21 (21.4%)
Anemia	16 (16.3%)
Vomiting	13 (13.3%)
Upper GI bleed	8 (8.2%)
Others	2 (2%)

Table-III: Frequency of different diseases in abnormal OGD findings.

Endoscopic finding	Frequency (%), n=274
Nonspecific findings	136 (49.6%)
Gastropathy	110 (40.1%)
Antral	78 (28.5%)
Diffuse	23 (8.4%)
Fundal	9 (3.3%)
Gastro-doudenopathy	15 (5.5%)
Doudenopathy	11 (4%)
Hiatal hernia	45 (16.4%)
Small	43 (15.7%)
Large	2 (0.7%)
Growths	23 (8.4%)
Gastric	14 (5.1%)
Esophageal	5 (1.8%)
Duodenal	2 (0.7%)
Gastro-esophageal junction	2 (0.7%)
Reflux esophagitis	20 (7.3%)
Los Angeles Class A	5 (1.8%)
Los Angeles Class B	8 (3%)
Los Angeles Class C	5 (1.8%)
Los Angeles Class D	2 (0.7%)
Ulcers	16 (5.8%)
Duodenal	11 (4%)
Gastric	3 (1%)
Gastro-doudenal	2 (0.7%)
Barret's esophagus	13 (4.4%)
Short segment	11 (4%)
Long segment	2 (0.7%)
Erosions	11 (4%)
Duodenal erosions	7 (2.5%)
Gastric erosions	6 (2.2%)
Esophageal candidiasis	4 (1.4%)
Others*	4 (1.4%)

*Gastric foreign body, duodenal diverticulum, pseudo-varices, external compression on gastric body

commonest (3%). Ulcers (5.8%) predominantly duodenal (4%), Barret's esophagus (4.4%) pre-

Relatively younger patients (age ≤44 years) presented with erosions, ulcers and non-specific

findings as compared to Barret's esophagus, growths/malignancies, hiatal hernia, esophageal candidiasis and reflux esophagitis, which were found in patients with age ≥ 52 years (table-IV). The age distribution in relation to symptoms showed an almost equal median age for both normal and abnormal endoscopic findings in case of mixed symptoms and those with post-prandial fullness. The median age for epigastric pain alone was considerably low in normal OGD group (table-V).

contrast to a study where the median duration of symptom recorded was 24 months⁵. The median age range for both the groups was recorded to be 41-50 years which is in accordance to similar studies from Pakistan and India^{14,17} but in contrast to other studies with a mean age of 49.7 \pm 15.9 years for clinically significant endoscopic findings⁵.

Alarm features presented in higher frequency in the group with abnormal endoscopic findings (60%) in accordance to similar studies^{5,6,19}. The most common alarm feature recorded

Table-IV: Age in relation to different endoscopic findings.

Endoscopic findings	Median age in years (IQR)
Non specific findings	44 (26)
Hiatal hernia	55 (24)
Reflux esophagitis	56.5 (26.7)
Barret's esophagus	52 (32.5)
Growths/malignancies	55 (20.5)
Erosions (gastric, duodenal, gastro-doudenal)	40 (26)
Ulcers (gastric, duodenal, gastro-doudenal)	44 (31)
Esophageal candidiasis	56 (54)

IQR Inter-quartile range

Table-V: Age in relation to different symptoms with normal and abnormal endoscopic findings.

Symptom	Median age in years (IQR) with normal OGD	Median age in years (IQR) with abnormal OGD
Mixed symptoms	46 (24)	45 (15)
Post-prandial fullness	55 (24)	54.5 (20)
Epigastric pain	35 (29)	55 (21)

OGD Oesophago-gastro-doudenoscopy, IQR Inter-quartile range

DISCUSSION

The study showed a male predominance with 65% versus 35% female population with a male to female ration of 1.8:1 in contrast to Western studies with female predominance^{5,11-13} but in accordance to studies from India¹⁴⁻¹⁶. Patients with normal endoscopic findings were in abundance (58.8%) in accordance to a similar study from Peshawar, Pakistan¹⁷ but in contrast to a study from India¹⁴. In comparison, pooled prevalence of endoscopic findings in Asian patients with dyspepsia and normal endoscopic findings was 85.85% and that for Western population is 67.2%¹⁸. The patients who turned out to have abnormal endoscopic findings tend to present earlier (6 months to 1 year) as compared to those with normal endoscopic findings in

was dysphagia (38.8%), followed by weight loss, anemia, vomiting and upper GI bleed, in contrast to a similar study where weight loss was the predominant alarm feature⁵.

The most common endoscopic finding recorded was non-specific gastropathy (40.1%), followed by hiatal hernia, growths (gastric, duodenal and esophageal), reflux esophagitis, ulcers (gastric, duodenal and gastroduodenal), Barret's esophagus, erosions (gastric, duodenal and gastrodoudenal) and esophageal candidiasis in accordance to studies from Pakistan (Multan)²⁰ and India¹⁴ but in contrast to a study from Peshawar (Pakistan)¹⁷. In a similar study, the most common endoscopic finding for Asian population was peptic ulcer (11%), whereas

for those in the Western group was reflux esophagitis (25%)¹⁷. The frequency of duodenal ulcer versus gastric ulcer in our study was 4:1 with a male to female ratio of 6:1 which is in accordance to a study from Pakistan but in contrast to similar study from Peshawar¹⁷, India¹⁴ and many Western studies¹⁴. The median age for gastroduodenal ulcers was 45 years which is in accordance to similar studies from India^{14,21}.

Gastric malignancy was reported to be 5.1% which was higher from similar studies carried out in India¹⁴, Nigeria, Africa and other parts of the world²⁰⁻²³. Esophageal and duodenal malignancies accounted to 1.8% and 0.8% respectively which were considerably low as compared to a study from India¹⁴.

Clinically significant endoscopic findings were seen in age ≥ 52 years except for erosions and ulcers which is in slight contrast to a multicenter Western study that showed nonspecific endoscopic findings correlating to age ≤ 45 years and clinically significant endoscopic findings correlating to age ≥ 45 years¹⁸. Age ≥ 52 years, male gender and a short duration of symptoms were found to predict significant endoscopic pathology in this study.

H. pylori status and histopathological diagnosis were not included in our study. Furthermore the sampling method employed was convenience sampling. These are the lacunae that need rectification for future analytical studies.

CONCLUSION

Non-specific gastro-duodenopathy, hiatal-hernia, growths/malignancies, refluxesophagitis, ulcers, Barrett's-esophagus, erosions and esophageal-candidiasis were the commonest findings in descending order. Epigastric-pain as a symptom and erosions, ulcers and non-specific-findings as endoscopic-findings presented in younger population.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

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