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Upper endoscopic findings in young adult patients with uninvestigated dyspepsia

Ali Hussein Mohammed

*Internal Medicine Department, Faculty of Medicine ,Sohag University, Egypt

Abstract

Introduction: Dyspepsia is classified into organic and functional dyspepsia (FD) based on the endoscopic esults. Endoscopy is still a critical step in the diagnosis and treatment of dyspepsia.
This study aims to clarify the major endoscopic findings in young dyspeptic patients in Sohag University Hospital.
Patients and methods:A retrospective, cross-sectional research.
Inclusion standards: Age included was 18 to 40 years old, at least one of the following was **present in the patients:** Postprandial satiety, early satiety and or epigastric pain.
Exclusion standards: Weight loss, anemia, persistent vomiting, cancer, liver disease, gallstones, cholecystitis
Results: The total number of patients included in this study was 104 patients, 58 male (55.8%) ,46 female (44.2%). There were 46 patients (44.2%) presented by epigastric pain, 15 patients 14.4%) presented by early satiety, 31 patients (29.8%) presented by fullness and 12 patients (11.5%) presented by overlap symptoms. Endoscopy showed normal findings in 13 patients (12.5%), esophagitis in 12 patients (11.5%), H. pylori gastritis in 53 patients (51%), duodenal ulcer in 12 patients (11.5%), gastric ulcer in 1 patient (1%), malignancy in 2 patients (1.9%).
Discussion: H., pylori resemble the major endoscopic findings, no statistically significant correlation between presenting symptoms and endoscopic findings except for Duodenal ulcer, there was statistically significant increased percentage of duodenal ulcer in patients presented by overlap symptoms (5 patients, 41.7%) when compared with patients presented by epigastric pain (4 patients, 8.7%).
Conclusion: H., pylori gastritis is common among young dyspeptic patients.
Key words: Endoscopic findings, dyspepsia, H., pylori gastritis, peptic ulcer.

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*Correspondence : ahussein79@yahoo.com

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Introduction

Dyspepsia is considered as a common upper gastrointestinal (GI) condition. Dyspepsia sufferers range from 7% to 45% of the overall population in different nations. [1,2] Endoscopic findings differentiate dyspepsia into functional dyspepsia (FD) and organic dyspepsia.
The Rome IV Committee characterized FD as having at least one of the following.

symptoms in a patient: postprandial fullness, early satiation, or stomach burning or pain.
Furthermore, these symptoms must not be caused by any structural diseases and must remain for at least six months following the beginning of symptoms before a diagnosis is confirmed. epigastric pain syndrome (EPS), Postprandial distress syndrome (PDS), and EPS-PDS overlap are all subtypes of FD patients. [3]
It is unknown what causes the various degrees of indigestion illness.
Today, endoscopy is still an important step in the diagnosis and treatment of dyspepsia. It is an effective tool for distinguishing FD from clinically significant findings (CSFs) such as erosive esophagitis, Barrett's esophagus, peptic ulcer disease (PUD), and gastroesophageal cancer. If these lesions are discovered in their early stages, treatment success and quality of life will improve. Endoscopy, on the other hand, is an invasive and costly procedure. As a result, the most cost-effective approach would be to limit endoscopy to high-risk patients.
Although numerous guidelines for the management of dyspepsia have been presented, the optimum initial management method is still up for discussion. Patients without a clinically significant history, such as a family history of upper GI malignancy, unintended weight loss, symptoms of bleeding or iron deficiency anemia, progressive dysphagia, odynophagia, persistent vomiting, a palpable mass, or lyme disease, should undergo an empiric trial of proton pump inhibitors for 4 to 8 weeks in combination with noninvasive Helicobacter pylori testing and treatment before having an Endoscopy. [4,5]

Upper gastrointestinal (UGI)tract neoplasm is usually advanced when it is detected, however in dyspeptic people, a low threshold of suspicion for gastric malignancy may lead to early detection and increased survival. However, cancer is only responsible for 1% to 2% of UGI tract diagnoses, and the rate is significantly lower in persons under the age of 50.[7] Gender, resource accessibility, and geographical disease risks may all influence age-specific cutoffs for endoscopic examination. [6,7]
Furthermore, if endoscopy is not performed, treating doctors are concerned about missing clinically significant endoscopic findings in young patients without warning signs, while it is unknown whether a high proportion of cases with symptoms will be neglected.
The purpose of this research is to clarify the key endoscopic findings in young dyspeptic patients at Sohag University Hospital, as well as to further examine the clinical diagnostic utility of endoscopy in dyspeptic patients who have no warning indications.
Patients and methods: The approach of the study was retrospective. A cross-sectional study. (Data-driven research).
This cross-sectional study includes patients who had endoscopy for dyspepsia.
Between January 2022 to December 2022, I worked in the endoscopic section of the Internal Medicine Department at Sohag University Hospital in Egypt.

Inclusion criteria:
The age range covered was 18 to 40 years old (Adolescents). [8] The patients had at least one of the following symptoms: Possible symptoms include postprandial satiety, early satiation, epigastric discomfort, or epigastric burning.
These symptoms must have been present for more than three months and must have begun during the last six months.

Exclusion criteria: a family record of upper GI malignancies, unintentional weight loss, blood loss or anemia caused by iron deficiency, progressive dysphagia, frequent vomiting, an apparent lump or lymph nodes enlargement, or jaundice; and a preponderance of gastroesophageal reflux disorder symptoms, especially reflux and heartburn.
A history of surgery for gastrointestinal cancer, liver illness, gallstones, or cholecystitis; previous or current use of certain pharmaceuticals such as proton pump inhibitors, H2 blockers, or anti-inflammatory drugs prior to the study.
Patients who have an addiction to opioids, alcohol, or other drugs.
All patients who satisfy the aforementioned criteria will be included in this study.
Before having an endoscopy, all study participants were thoroughly evaluated, including a full history

taking, physical examination, and demographic data (age, gender).
BMI), as well as routine laboratory tests (CBC, LFT, kidney function, random glucose levels, Helicobacter pylori test, and biopsy analysis for suspicious cases).
According to the Rome IV Committee criteria, we further classified the participants into three groups: PDS, EPS, and EPS-PDS.
Our university's ethics committee has approved this study as ethical.

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Statistical examination

The Statistical Program for Social Science (SPSS) version 24 was used to examine the data. The frequency and proportion of qualitative data were used. The quantitative results were presented as mean±SD. The mean (average) of a discrete collection of numbers is the total of the values divided by the number of values. The standard deviation (SD) of a set of numbers is a measure of their dispersion. A low SD suggests that the values are close to the set's mean, whereas a high SD shows that the values are spread out across a greater range.
The following tests were carried out:
When comparing greater than two groups (for normally distributed data), use a one-way analysis of variance (ANOVA). When comparing non-parametric data, the Chi-square test was utilized.
P-value (probability). P-values less than 0.05 were deemed significant. P-values less than 0.001 were regarded extremely significant. P-values greater than 0.05 were deemed insignificant.

Results

The total number of patients included in this study was 104 patients, 58 male patients (55.8%) ,46 female patients (44.2%) demographic data is described in table 1.

Table (1): Description of demographic data in all studied patients.

Demographic data		Studied patients. (N = 104)	
Sex	Male (N)	58	55.8%
	Female (N)	46	44.2%
Age (years)	Mean ±SD	27.01 ± 6.8	
	Min – Max (Y)	18 – 40	
Smoking	No	84	80.8%
	Yes	20	19.2%

Table (2) shows the description of symptoms in all studied patients. There were 46 patients (44.2%) presented by epigastric pain, 15 patients (14.4%) presented by early satiety, 31 patients (29.8%) presented by fullness and 12 patients (11.5%) presented by overlap symptoms.

Table (2): Description of symptoms in all studied patients :

Symptoms	Number	Percentage (%)
Epigastric pain	46	44.2
Epigastric fullness	31	29.8
Early satiety	15	14.8
Overlap symptoms	12	11.5

Table (3) shows the description of endoscopic findings in all studied patients. Endoscopic examination showed normal findings in 13 patients (12.5%), esophagitis in 12 patients (11.5%), H. pylori gastritis in 53 patients (51%), non-specific gastritis in 8 patients (7.7%), duodenal ulcer in 12 patients (11.5%), gastric ulcer in 1 patient (1%), malignancy in 2 patients (1.9%) and other findings in 7 patients (6.7%).

Table (3): Description of endoscopic findings in all studied patients.

Endoscopic Findings	Studied Patients. (N = 104)	
Normal findings	13	12.5%
Esophagitis	12	11.5%
H. pylori induced gastritis	53	51%
Non-specific gastritis	8	7.7%
Duodenal ulcer	12	11.5%
Gastric ulcer	1	1%
Malignancy	2	1.9%
Others	7	6.7%

Table (4) shows no statistically significant correlation **(p-value = 0.409)** between presenting symptoms and age. Patients presented with epigastric pain had the mean age of 27.7 ± 7.02 years, patients presented with early satiety had the mean age of 25 ± 6.4 years, patients presented with post-prandial fullness had the mean age of 26.3 ± 6.3 years and patients presented with overlap symptoms had the mean age of 28.7 ± 7.4 years.

No statistically significant correlation **(p-value = 0.064)** between presenting symptoms and sex. Sex was distributed as follows:

Patients presented with epigastric pain were 31 males (67.4%) and 15 females (32.6%), early satiety were 7 males (46.7%) and 8 females (53.3%)., post-prandial fullness were 12 males (38.7%) and 19 females (61.3%). While patients presented with overlap symptoms were 8 males (66.7%) and 4 females (33.3%).

No statistically significant correlation **(p-value = 0.075)** between presenting symptoms and smoking. There were 13 smoker (28.3%) in patients presented by epigastric pain, 0 smokers (0%) in patients presented by early satiety, 6 smokers (19.4%) in patients presented by post-prandial fullness and 1 smoker (8.3%) in patients presented by overlap symptoms.

Table (4): Correlation between symptoms and demographic data.

Demographic data		Symptoms								Stat. test	P-value
		Epigastric pain (n = 46)		Early satiety (n = 15)		Fullness (n = 31)		Overlap (n = 12)			
Age (years)	Mean	27.7		25		26.3		28.7		F = 0.97	0.409 NS
	±SD	7.02		6.4		6.3		7.4			
Sex	Male	31	67.4%	7	46.7%	12	38.7%	8	66.7%	X^2 = 7.25	0.064 NS
	Female	15	32.6%	8	53.3%	19	61.3%	4	33.3%		
Smoking	No	33	71.7%	15	100%	25	80.6%	11	91.7%	X^2 = 6.9	0.075 NS
	Yes	13	28.3%	0	0%	6	19.4%	1	8.3%		

X^2: Chi-square test. F: F value of ANOVA test. NS: p-value > 0.05 is considered non-significant.

Table (5) shows no statistically significant correlation **(p-value = 0.409)** between presenting symptoms and age. Patients presented with epigastric pain had the mean age of 27.7 ± 7.02 years, patients presented with early satiety had the mean age of 25 ± 6.4 years, patients presented with post-prandial fullness had the mean age of 26.3 ± 6.3 years and patients presented with overlap symptoms had the mean age of 28.7 ± 7.4 years.

No statistically significant correlation **(p-value = 0.064)** between presenting symptoms and sex. Sex was distributed as follows; patients presented with epigastric pain were 31 males (67.4%) and 15 females (32.6%).Patients presented with early satiety were 7 males (46.7%) and 8 females (53.3%).Patients presented with post-prandial fullness were 12 males (38.7%) and 19 females (61.3%).Patients presented with overlap symptoms were 8 males (66.7%) and 4 females (33.3%).No statistically significant correlation **(p-value = 0.075)** between presenting symptoms and smoking. There were 13 smoker (28.3%) in patients presented by epigastric pain, 0 smokers (0%) in patients presented by early satiety, 6 smokers (19.4%) in patients presented by post-prandial fullness and 1 smoker (8.3%) in patients presented by overlap symptoms.

Table (5): Correlation between symptoms and endoscopic findings.

Endoscopic Findings	Symptoms								X^2	P-value
	Epigastric pain (n = 46)		Early satiety (n = 15)		PP fullness (n = 31)		Overlap (n = 12)			
Normal findings	6	13%	3	20%	2	6.5%	2	16.7%	2.01	0.57 NS
Esophagitis	8	17.4%	0	0%	4	12.9%	0	0%	5.1	0.163 NS
H. pylori gastritis	20	43.5%	9	60%	19	61.3%	5	41.7%	3.2	0.353 NS
Non-specific gastritis	2	4.3%	2	13.3%	4	12.9%	0	0%	3.5	0.310 NS
Duodenal ulcer	4	8.7%	1	6.7%	2	6.5%	5	41.7%	12.1	0.007 S
Gastric ulcer	1	2.2%	0	0%	0	0%	0	0%	1.27	0.736 NS
Malignancy	2	4.3%	0	0%	0	0%	0	0%	2.57	0.463 NS
Others	4	8.7%	1	6.7%	1	3.2%	1	8.3%	0.93	0.816 NS

X^2: Chi-square test. F: F value of ANOVA test. NS: p-value > 0.05 is considered non-significant

Table(6) shows no statistical significant correlation **(p-value > 0.05)** between presenting symptoms and endoscopic findings except for **Duodenal ulcer** there was statistically significant **(p-value = 0.007)** increased percentage of duodenal ulcer in patients presented by overlap symptoms (5 patients, 41.7%) when compared with patients presented by epigastric pain (4 patients, 8.7%), patient presented by early satiety (1 patient, 6.7%) and patients presented by post prandial fullness (2 patients , 6.5%).

Table (6): Correlation between symptoms and endoscopic findings.

Endoscopic Findings	Symptoms								X^2	P-value
	Epigastric pain (n = 46)		Early satiety (n = 15)		PP fullness (n = 31)		Overlap (n = 12)			
Normal findings	6	13%	3	20%	2	6.5%	2	16.7%	2.01	0.57 NS
Esophagitis	8	17.4%	0	0%	4	12.9%	0	0%	5.1	0.163 NS
H. pylori gastritis	20	43.5%	9	60%	19	61.3%	5	41.7%	3.2	0.353 NS
Non-specific gastritis	2	4.3%	2	13.3%	4	12.9%	0	0%	3.5	0.310 NS
Duodenal ulcer	4	8.7%	1	6.7%	2	6.5%	5	41.7%	12.1	0.007 S
Gastric ulcer	1	2.2%	0	0%	0	0%	0	0%	1.27	0.736 NS
Malignancy	2	4.3%	0	0%	0	0%	0	0%	2.57	0.463 NS
Others	4	8.7%	1	6.7%	1	3.2%	1	8.3%	0.93	0.816 NS

X^2: Chi-square test. F: F value of ANOVA test. NS: p-value > 0.05 is considered non-significant.

Discussion

Dyspepsia is characterized as chronic or recurring upper abdominal pain or discomfort exhibited as epigastric pain or discomfort, postprandial fullness, quick satiety, gas and nausea, eructation, or burning [9,10]

Dyspepsia is a widespread gastrointestinal condition that affects more than 80% of individuals at some point in their lives. [11] Dyspepsia is responsible for 2-5% of all adult consultations in primary healthcare settings, while up to 40% of the overall population experiences symptoms associated to dyspepsia. The precise incidence of dyspepsia is unknown; however, it varies by gender and place of origin. [12]

Dyspepsia is a poorly understood illness that is assumed to be caused by anatomic or functional abnormalities of the upper GI tract. [13] In the absence of structural disease, functional dyspepsia (FD) is characterized as one or more of the symptoms that include pain in the epigastric region, epigastric burning, quick satiety, and postprandial sensation of fullness, present for the preceding three months, with symptoms beginning for a minimum of 6 months prior to diagnosis. [14]

Dyspepsia challenges clinicians with diagnostic and treatment concerns. [15] because dyspepsia is essentially a collection of recurrent and remitting symptoms. [16] Clinical image, population demographics, risk factors, medical history, and symptoms are all ineffective at distinguishing anatomical from functional dyspepsia. [17,10] Therapeutic trials, H. pylori testing, and eradication, upper GI radiography, and endoscopy are all options for examining dyspeptic individuals. [18,10]

Gastrointestinal endoscopy is the gold standard in examining dyspeptic patients due to its simplicity, dependability, diagnostic superiority, and capacity to administer biopsies and/or therapeutic procedures. [15] A negative endoscopy can be quite encouraging, and it can lead to a reduction in drug use. [11,19]

Upper gastrointestinal tract (UGI) cancer is often established at the time of diagnosis, although in dyspeptic individuals, an elevated level of suspicion for gastrointestinal malignancy may result in early detection and increased survival. However, cancer is responsible for just 1-2% of UGI tract diagnoses and much fewer in persons under the age of 50. Age-specific endoscopic examination thresholds

may range depending on gender, resource availability, and area disease-specific hazards. [18]
From January 2022 to December 2022, 104 patients underwent endoscopy for dyspepsia at the endoscopy unit, internal medicine department, Sohag university hospital, Egypt, to clarify the significant endoscopic findings, and to further discover the clinical diagnostic benefits of endoscopy in dyspeptic patients with no warning symptoms.

Regarding demographic data in all studied patients, the mean age of all studied patients was 27.01 ± 6.8 years with minimum age of 18 years and maximum age of 40 years. There were 58 males (55.8%) and 46 females (44.2%) in the studied patients. There were 20 smoker patients (19.2%) in the studied patients.
Al-Abachi conducted a single-center cross-section descriptive study on 372 individuals who reported with dyspepsia and conducted endoscopic examination. The average age was 35.7 13.5 years (range: 18-80 years). There were 198 female patients.[20] .A prospective research was also undertaken on 120 dyspeptic participants (47 males and 73 females) ranging in age from 16 to 75 years. [19]
Prospective observational research was conducted on 282 people with undiagnosed dyspepsia. The average age was 44 years, with a range of 16 to 87 years. Around 35% of the patients were men. There were 45 smokers (16%) among the patients. The age range in this study is limited to 40 due to a lack of data in this age group, particularly in developing countries, despite the fact that the afflicted patients are elderly in developed countries due to a larger frequency of senior people. [22] Unlike in the research we conducted, female gender was previously recognized as an indicator for FD, and a meta-analytical analysis by Kim and Kim found a greater frequency in female gender in various locations of the world. [23]
Regarding symptoms, 46 patients (44.2%) showed up epigastric discomfort, 15 patients (14.4%) presented with early satiety, 31 individuals (29.8%) presented with fullness, and 12 patients (11.5%) revealed with overlap symptoms. This might be explained through the fact that the frequency of infection with Helicobacter pylori is high.[24]
Similarly, Al-Abachi found that 61.6% of all patients presented with epigastric discomfort [20]
Three studies from the United States, Brazil, and Iran found that epigastric pain was the most common presenting symptom of dyspepsia in 76.6%, 68%, and 67% of patients, respectively. [21,25,26] According to Talley, around 38% of individuals with FD have postprandial distress syndrome (PDS), 27% have epigastric pain syndrome (EPS), and 35% have criteria for both of them.[16]
When dyspepsia was investigated using endoscopy, the current study discovered that 12.5% of patients had negative findings, while the positive findings were primarily related to H pylori gastritis (51%), esophagitis (11.5%), ulceration of the duodenum (11.5%), non-specific gastritis (7.7%), and malignancies (1.9%) with variable rates.
Gastric ulcer (1.6-8.2%), duodenal ulcer (2.3-12.7%), esophagitis (0-23.0%), and gastric malignancy (0-3.4%) are the most often reported signifycant endoscopic abnormalities.[27] Dyspeptic symptoms are only sometimes induced by gastroesophageal cancer.[28] While stomach or esophageal tumors is a rare finding in dyspepsia patients, excluding malignancies is a typical cause for conducting endoscopy. [29]
According to Harer and Hasler, 70% of individuals with dyspepsia show negative endoscopic results, and 50% to 60% are eventually diagnosed with FD. [30]Abdeljawad et al. from Atlanta (USA) found the following endoscopic results in 650 patients: normal and mild abnormalities 49.4%, non-erosive diseases 36.9%, erosive diseases 7.4%, esophagitis 7.9%, peptic ulcerations 4.3%, and cancer 0.8%. [26] Gado et al. discovered normal and modest abnormalities in 65% of 1400 Egyptian patients, peptic ulcers in 18%, esophagitis in 14%, erosive diseases in 8%, and gastric cancer in 1%. [18]
These variations may be explained by our study's overrepresentation of individuals with a history of GI illness, as well as the small sample size.
Considering relationship across symptoms and demographic information; no significant associations were found between demographic data (age, gender, and smoking) and symptoms.
A cross-sectional retrospective analysis of 733 individuals who had endoscopy for dyspeptic

symptoms between January 2011 and December 2017 was done. There were no significant variations in symptoms between age groups in this investigation. [12] Seid et al. also conducted cross-sectional research on 318 randomly chosen outpatients with gastrointestinal problems from September 1 to December 30, 2015. It found no significant relationship between sex, age, and uninvestigated dyspepsia.[31]

Similarly, the findings of a population-based study found no significant link between the incidence of dyspepsia symptoms and demographic information (age and smoking), with the exception that dyspepsia was more prevalent in women (p=0.001).[32]

While Stanghellini also observed that dysmotility-like symptoms greatly improved with age. [33]

The observed differences across studies may be explained in part by differences in geographical region, study design, and demographic.

as regard correlation between symptoms and endoscopic findings, no statistically significant relationship (p-value > 0.05) between presenting symptoms and endoscopic outcomes except for Duodenal ulcer, where there was a statistically significant (p-value = 0.007) increased incidence of duodenal ulcer in patients with overlap symptoms (5 patients, 41.7%) when compared to patients with epigastric pain (4 patients, 8.7%), patients with early satiety (1 patient, 6.7%) , as well as individuals with post-prandial fullness (2 patients, 6.5%).

Jung et al. discovered no significant difference in endoscopic results between dyspepsia and asymptomatic patients (41.0% vs. 37.4%, p>0.05). It was no difference in the occurrence of gastr-ointestinal reflux or peptic ulceration between those who had dyspepsia and those who did not. Peptic ulcer was more common in patients with reflux symptoms than in those without symptoms (12.3% vs. 9.0%, p=0.03). [17]

Conclusions:

The most common presenting symptom of dyspepsia was epigastric pain. H pylori gastritis was the most prevalent endoscopic finding. As a result, the primary cause of dyspepsia was structural. There was a higher prevalence of duodenal ulcers among individuals with overlap symptoms.

Study limitations:

Certain limitations also need to be addressed. Firstly, it was single center research, which, potentially limiting its external validity. Finally, the relatively small sample size.

Recommendations:

For further confirmation of these findings, more well-designed prospective research projects with a bigger sample size are necessary.

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