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A Study on Upper Gastrointestinal Diseases the Endoscopic Findings and Their Management

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Abstract

Background: Upper gastrointestinal (UGI) symptoms such as dyspepsia, heartburn, epigastric pain, and acid regurgitation are common clinical presentations that often require diagnostic evaluation to identify underlying organic pathology. Upper gastrointestinal endoscopy is the gold standard for diagnosing structural lesions and guiding appropriate management, particularly in patients with persistent symptoms or alarm features. However, the spectrum of endoscopic findings and their association with clinical risk factors vary across different populations.

Objectives: To evaluate the spectrum of upper gastrointestinal endoscopic findings in patients presenting with upper gastrointestinal symptoms, determine the association between demographic and clinical factors and abnormal endoscopic findings, and assess the management instituted according to endoscopic diagnosis.

Methods: A prospective observational study was conducted in the Department of General Surgery at CIMS, Chamarajanagar, over 12 months (June 2025 to July 2026). A total of 250 consecutive adult patients undergoing diagnostic upper gastrointestinal endoscopy for upper gastrointestinal symptoms were enrolled. Demographic characteristics, clinical presentation, lifestyle factors, endoscopic findings, and subsequent management were recorded. Associations between categorical variables were evaluated using the Chi-

square test or Fisher's exact test, with a p-value <0.05 considered statistically significant.

Results: The mean age of participants was 46.2 ± 15.1 years, and 58.4% were males. Heartburn (64.0%) and epigastric pain (59.2%) were the most common presenting symptoms. Abnormal endoscopic findings were identified in 200 (80.0%) patients, with gastritis (33.6%) being the most frequent diagnosis, followed by esophagitis (13.6%), gastritis with esophagitis (9.6%), gastroesophageal reflux disease (7.2%), and duodenitis (5.6%). Increasing age (>45 years; p=0.015), male sex (p=0.010), smoking (p=0.002), alcohol consumption (p=0.017), and NSAID use (p=0.016) were significantly associated with abnormal endoscopic findings. Dysphagia (p=0.041) and upper gastrointestinal bleeding (p=0.031) were significantly associated with clinically significant endoscopic lesions. Medical management was provided to all patients, while biopsy was performed in 8.4%, endoscopic intervention in 0.8%, and surgical and oncology referrals in 1.2% each.

Conclusion: Upper gastrointestinal endoscopy demonstrated a high diagnostic yield in patients with upper gastrointestinal symptoms, with gastritis representing the most common endoscopic finding. Older age, male sex, smoking, alcohol consumption, NSAID use, dysphagia, and upper gastrointestinal bleeding were significant predictors of abnormal endoscopic findings. Appropriate patient selection for endoscopy based on clinical risk factors and alarm symptoms may facilitate early diagnosis and timely management of significant upper gastrointestinal diseases.

Keywords: Upper Gastrointestinal Endoscopy, Dyspepsia, Gastritis, Esophagitis, Gastroesophageal Reflux Disease, Alarm Symptoms, Upper Gastrointestinal Diseases.

Introduction

Upper gastrointestinal (UGI) symptoms, particularly dyspepsia, are among the most common reasons for outpatient gastroenterology consultations worldwide. Dyspepsia is characterized by persistent or recurrent epigastric pain or discomfort, postprandial fullness, early satiety, bloating, nausea, and other upper gastrointestinal symptoms that significantly impair patients' quality of life and increase healthcare utilization. Current clinical guidelines recommend a structured approach to evaluation based on patient age, symptom severity, Helicobacter pylori status, and the presence of alarm features such as dysphagia, gastrointestinal bleeding, weight loss, anemia, or persistent vomiting, which may indicate underlying organic pathology requiring prompt upper gastrointestinal endoscopy. [1–5]

Upper gastrointestinal endoscopy remains the gold standard for evaluating patients with persistent dyspepsia and other upper gastrointestinal symptoms because it enables direct visualization of the esophagus, stomach, and duodenum while facilitating biopsy and therapeutic interventions when indicated.[1,2] Although many patients with dyspepsia have functional disease without structural abnormalities, endoscopy is invaluable for identifying clinically significant lesions including gastritis, esophagitis, peptic ulcer disease, gastroesophageal reflux disease (GERD), upper gastrointestinal bleeding, Barrett's esophagus, varices, and gastrointestinal malignancies.[2–6] Appropriate utilization of endoscopy is therefore essential to maximize diagnostic yield while avoiding unnecessary procedures.[6]

Several observational studies have reported that gastritis is the most frequent endoscopic finding among dyspeptic

patients, followed by esophagitis, peptic ulcer disease, and GERD, whereas upper gastrointestinal malignancies are relatively uncommon but clinically important because of their association with alarm symptoms.[7–15] The prevalence of these lesions varies according to patient demographics, lifestyle factors such as smoking and alcohol consumption, nonsteroidal anti-inflammatory drug (NSAID) use, regional prevalence of H. pylori infection, and referral practices.[3,5,7–15] Identification of clinical predictors associated with abnormal endoscopic findings can improve patient selection for endoscopy and facilitate timely diagnosis of significant gastrointestinal disease.[1,5,6]

The present study was undertaken to evaluate the demographic and clinical profile of patients undergoing upper gastrointestinal endoscopy, determine the spectrum of endoscopic findings, assess the association of demographic characteristics, lifestyle factors, NSAID use, and alarm symptoms with abnormal endoscopic lesions, and describe subsequent management based on endoscopic diagnosis.

Material and Methods

This prospective observational study was conducted in the Department of General Surgery at CIMS, Chamarajanagar over a period of 12 months, from June 2025 to July 2026. The study aimed to evaluate the endoscopic findings in patients presenting with upper gastrointestinal diseases, determine the spectrum and frequency of upper gastrointestinal lesions detected on upper gastrointestinal endoscopy, and assess the management instituted based on the endoscopic diagnosis. Ethical approval was obtained from the Institutional Ethics Committee prior to the commencement of the study. and written informed consent was obtained from all participants before enrollment.

The sample size was calculated using the single population proportion formula, $n = Z^2PQ/L^2$, where $Z = 1.96$at a 95% confidence level, $P = 28\%$, $Q = 72\%$, and the allowable error was kept at 5.6%. Based on these assumptions, the calculated minimum sample size was 247 participants. To account for possible exclusions and incomplete endoscopic examinations, the final sample size was rounded to 250 patients. The prevalence used for the calculation was adopted from the methodology reported by Ali et al[9]., who evaluated upper gastrointestinal endoscopic findings in dyspeptic patients.

A consecutive sampling technique was employed, and all eligible patients presenting with symptoms suggestive of upper gastrointestinal disease during the study period were included until the desired sample size was achieved. Adult patients aged 18 years and above presenting with dyspepsia, epigastric pain, heartburn, acid regurgitation, nausea, vomiting, dysphagia, hematemesis, melena, unexplained weight loss, early satiety, or persistent upper abdominal discomfort who were scheduled for diagnostic upper gastrointestinal endoscopy were included in the study. Patients younger than 18 years, those with previously diagnosed upper gastrointestinal malignancy, previous upper gastrointestinal surgery, severe cardiopulmonary illness precluding endoscopy, uncorrected coagulation disorders, pregnancy, incomplete endoscopic examinations, or refusal to provide consent were excluded.

A detailed clinical history was obtained from all participants using a structured case record form. Demographic details including age, sex, occupation,

dietary habits, smoking status, alcohol consumption, non-steroidal anti-inflammatory drug (NSAID) use, associated comorbidities, duration of symptoms, presenting complaints, and previous medical treatment were recorded. A comprehensive general physical examination and systemic examination were performed, and routine laboratory investigations, including complete blood count, liver function tests, renal function tests, coagulation profile, and other relevant investigations, were carried out whenever clinically indicated.

Upper gastrointestinal endoscopy was performed after a minimum fasting period of six hours for solid food and two hours for clear liquids using a standard video gastroscope. Topical pharyngeal anesthesia was achieved with 10% lignocaine spray, and conscious sedation was administered whenever required according to institutional protocol. All procedures were performed by experienced consultant surgeons or senior surgical residents under supervision. The esophagus, gastroesophageal junction, stomach (including the fundus, body, antrum, and pylorus), duodenal bulb, and second part of the duodenum were examined systematically, and the endoscopic findings were documented immediately using a standardized reporting format.

Targeted biopsy specimens were obtained from suspicious malignant lesions, gastric ulcers, Barrett's esophagus, chronic gastritis requiring histopathological confirmation, and suspicious gastric or esophageal polyps whenever clinically indicated. The biopsy specimens were submitted for histopathological examination. Rapid urease testing for Helicobacter pylori infection was performed in selected patients according to institutional practice.

The primary outcome measure was the spectrum and frequency of upper gastrointestinal lesions detected on diagnostic upper gastrointestinal endoscopy. Secondary outcome measures included the clinical management instituted following endoscopic diagnosis, the requirement for medical treatment, endoscopic therapeutic intervention, biopsy, surgical referral, and oncology referral. Endoscopic findings were categorized into normal study, reflux esophagitis, gastritis, erosive gastritis, duodenitis, gastric ulcer, duodenal ulcer, hiatus hernia, Barrett's esophagus, esophageal varices, gastric and esophageal polyps, upper gastrointestinal malignancies, and other structural lesions. Clinically significant endoscopic findings were defined as lesions requiring specific medical, endoscopic, or surgical management.

Management was individualized according to the endoscopic diagnosis and prevailing institutional treatment protocols. Patients diagnosed with inflammatory conditions such as gastritis, reflux esophagitis, duodenitis, and peptic ulcer disease were managed with proton pump inhibitors, mucosal protective agents, and Helicobacter pylori eradication therapy wherever indicated. Patients presenting with upper gastrointestinal bleeding underwent appropriate endoscopic therapeutic interventions, including injection therapy, thermal coagulation, hemoclip application, or variceal band ligation, depending on the underlying pathology. Patients with suspicious malignant lesions underwent biopsy and were referred to the multidisciplinary oncology team for further evaluation and definitive management. Patients with benign strictures underwent endoscopic dilatation whenever indicated, while those requiring surgical intervention were managed according to standard surgical protocols.

All collected data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics version 22.0. Continuous variables were tested for normality using the Shapiro–Wilk test and were expressed as mean ± standard deviation, as appropriate. Categorical variables were summarized as frequencies and percentages. Associations between categorical variables were assessed using the Chi-square test or Fisher's exact test. A two-tailed P value of <0.05 was considered statistically significant.

All patient information was kept confidential throughout the study. Data were anonymized before analysis, and all study procedures were conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Results

A total of 250 patients presenting with upper gastrointestinal symptoms underwent upper gastrointestinal endoscopy during the study period. The mean age of the study population was 46.2 ± 15.1 years. The largest proportion of patients belonged to the 31–45 years age group (84; 33.6%), followed by 46–60 years (72; 28.8%), 18–30 years (52; 20.8%), and >60 years (42; 16.8%). Males constituted 58.4% (n=146) of the study population, while females accounted for 41.6% (n=104).

Regarding lifestyle and medication-related risk factors, 69 (27.6%) patients were smokers and 58 (23.2%) reported alcohol consumption. A history of non-steroidal anti-inflammatory drug (NSAID) intake was observed in 46 (18.4%) patients, whereas the majority (204; 81.6%) had no history of NSAID use (Table 1).

The most common presenting symptom was heartburn, reported by 160 (64.0%) patients, followed by epigastric pain in 148 (59.2%) patients. Other frequently reported symptoms included nausea/vomiting (46.4%), bloating (34.4%), and acid regurgitation (29.6%). Alarm symptoms were less common, with dysphagia observed in 22 (8.8%) patients, weight loss in 20 (8.0%), and upper gastrointestinal bleeding in 15 (6.0%) patients (Table 2).

Upper gastrointestinal endoscopy revealed abnormal findings in 200 (80.0%) patients, while 50 (20.0%) had a normal examination. Gastritis was the most frequently encountered lesion, affecting 84 (33.6%) patients, followed by esophagitis (34; 13.6%) and combined gastritis with esophagitis (24; 9.6%). Gastroesophageal reflux disease (GERD) was identified in 18 (7.2%) patients, whereas duodenitis was observed in 14 (5.6%) cases.

Peptic ulcer disease was less frequent, with gastric ulcers identified in 10 (4.0%) patients and duodenal ulcers in 7 (2.8%) patients. Other less common findings included hiatus hernia (1.6%), esophageal varices (0.8%), gastric malignancy (0.8%), and esophageal malignancy (0.4%) (Table 3).

The occurrence of abnormal endoscopic findings was significantly associated with several demographic and clinical factors. Patients aged >45 years had a significantly higher prevalence of abnormal endoscopic findings compared with younger patients ($\chi^2 = 4.66$, $p = 0.015$). Similarly, abnormal findings were significantly more common among male patients than females ($\chi^2 = 5.335$, $p = 0.010$).

Lifestyle-related factors also demonstrated significant associations. Smoking showed a strong association with abnormal endoscopic findings ($\chi^2 = 7.612$, $p = 0.002$). Likewise, alcohol consumption ($\chi^2 = 4.40$, $p = 0.017$) and NSAID use ($\chi^2 = 4.502$, $p = 0.016$) were significantly associated with the presence of abnormal endoscopic lesions (Table 4).

Among the evaluated alarm symptoms, dysphagia and upper gastrointestinal bleeding demonstrated statistically significant associations with clinically significant endoscopic lesions. Dysphagia was significantly associated with abnormal endoscopic findings (Fisher's Exact test, p = 0.041), while all patients presenting with upper gastrointestinal bleeding had significant endoscopic lesions (p = 0.031). In contrast, although patients with weight loss more frequently exhibited significant endoscopic lesions, the association did not reach statistical significance (p = 0.194) (Table 5).

Medical management constituted the primary treatment modality and was initiated in all 250 (100%) patients according to the endoscopic diagnosis. Histopathological biopsy was performed in 21 (8.4%) patients, predominantly among those with gastric ulcers, suspected malignancies, and selected inflammatory lesions requiring tissue diagnosis. Endoscopic therapeutic intervention was required in 2 (0.8%) patients with esophageal varices.

Surgical referral was advised for 3 (1.2%) patients, including those with gastric ulcer complications and upper gastrointestinal malignancies. Similarly, 3 (1.2%) patients with confirmed malignant lesions were referred for oncological evaluation and further management. Patients with inflammatory conditions such as gastritis, esophagitis, GERD, duodenitis, and hiatus hernia were managed conservatively with appropriate medical therapy, whereas targeted interventions including biopsy, endoscopic therapy, surgical referral, or oncology referral were undertaken whenever clinically indicated (Table 6). On follow up of referred patients it was that observed that Total esophagectomy with chemo radiation was done for Oesophageal carcinoma patient and Radical gastrectomy with chemo radiotherapy for Gastric Carcinoma patients. Polyps were resected by endoscopic submucosal resection.

Table 1: Baseline demographic and clinical characteristics (N=250)

Variable		n	%
Age group (years)	18–30	52	21
	31–45	84	34
	46–60	72	29
	>60	42	17
	Mean ± SD	46.2 ± 15.1	
Gender	Male	146	58
	Female	104	42
Smoking		69	28
Alcohol		58	23
NSAID intake		46	18

Table 2: Clinical presentation of patients (Multiple responses allowed)

Symptom	n	%
Heartburn	160	64
Epigastric pain	148	59
Nausea/Vomiting	116	46
Bloating	86	34
Acid regurgitation	74	30
Dysphagia	22	8.8
Weight loss	20	8
Upper GI bleed	15	6

Table 3: Upper gastrointestinal endoscopic findings

Finding	n	%
Normal study	50	20
Gastritis	84	34
Esophagitis	34	14
Gastritis + Esophagitis	24	9.6
GERD	18	7.2
Duodenitis	14	5.6
Gastric ulcer	10	4
Duodenal ulcer	7	2.8
Hiatus hernia	4	1.6
Esophageal varices	2	0.8
Gastric malignancy	2	0.8
Esophageal malignancy	1	0.4
Abnormal endoscopy	200	80

Table 4: Association of clinical factors with abnormal endoscopy

Variable		Abnormal (n=200)	Normal (n=50)	Chi-square value	P value
Age group (years)	>45 years	98	16	4.66	0.015*
	≤45 years	102	34		
Gender	Male	124	22	5.335	0.01*
	Female	76	28		
Smoking	Smoking	63	6	7.612	0.002*
	Non-smoker	137	44		
Alcohol	Alcohol	52	6	4.4	0.017*

	No alcohol	148	44		
NSAID intake	NSAID use	42	4	4.502	0.016*
	No NSAID	158	46		

Pearson Chi-square.

Table 5: Association between alarm symptoms and significant endoscopic lesions

	Variable	Significant lesion Present	Significant lesion Absent	P value
Weight loss	Present	18	2	0.194
	Absent	182	48	
Dysphagia	Present	21	1	0.041*
	Absent	179	49	
Upper GI bleeding	Present	15	0	0.031*
	Absent	185	50	

Fisher's Exact test.

Table 6: Management according to endoscopic diagnosis

Endoscopic diagnosis	n	Medical management n (%)	Biopsy n (%)	Endoscopic intervention n (%)	Surgical referral n (%)	Oncology referral n (%)
Normal endoscopy	50	50 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Gastritis	84	84 (100.0)	6 (7.1)	0 (0.0)	0 (0.0)	0 (0.0)
Esophagitis	34	34 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Gastritis with esophagitis	24	24 (100.0)	2 (8.3)	0 (0.0)	0 (0.0)	0 (0.0)
GERD	18	18 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Duodenitis	14	14 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Gastric ulcer	10	10 (100.0)	8 (80.0)	0 (0.0)	1 (10.0)	0 (0.0)
Duodenal ulcer	7	7 (100.0)	2 (28.6)	0 (0.0)	0 (0.0)	0 (0.0)
Hiatus hernia	4	4 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Esophageal varices	2	2 (100.0)	0 (0.0)	2 (100.0)†	0 (0.0)	0 (0.0)
Gastric malignancy	2	2 (100.0)	2 (100.0)	0 (0.0)	1 (50.0)	2 (100.0)
Esophageal malignancy	1	1 (100.0)	1 (100.0)	0 (0.0)	1 (100.0)	1 (100.0)
Total	250	250 (100.0)	21 (8.4)	2 (0.8)	3 (1.2)	3 (1.2)

Discussion

The present study evaluated the clinical profile, endoscopic findings, associated risk factors, and management of 250 patients undergoing upper gastrointestinal endoscopy. Abnormal endoscopic findings were observed in 80.0% of patients, indicating a high diagnostic yield among symptomatic individuals. This observation is consistent with previous studies that

demonstrated a high prevalence of organic lesions in carefully selected patients undergoing endoscopy for dyspepsia and upper gastrointestinal symptoms. [7–15] Current international guidelines recommend endoscopy in patients presenting with persistent symptoms or alarm features because of the increased likelihood of detecting clinically significant pathology. [1, 2, 5]

The majority of participants belonged to the 31–45-year age group, while the mean age was 46.2 ± 15.1 years. Male patients constituted 58.4% of the study population. Increasing age was significantly associated with abnormal endoscopic findings (p=0.015), with patients older than 45 years demonstrating a higher frequency of abnormalities. This finding supports current dyspepsia guidelines recommending greater emphasis on endoscopic evaluation in older individuals because of the increased probability of organic disease and malignancy. [1,5] Similar observations have been reported in previous studies evaluating dyspeptic patients.[8–15]

Heartburn (64.0%) and epigastric pain (59.2%) were the predominant presenting symptoms, followed by nausea or vomiting and bloating. These findings are comparable to those reported by Singh et al., Wani et al., Ali et al., and Almeida et al., where epigastric pain and heartburn were the leading indications for upper gastrointestinal endoscopy. [7–10,15] Although these symptoms are common in functional dyspepsia, persistent symptoms warrant endoscopic evaluation to exclude structural disease.[1,5]

Gastritis was the most common endoscopic diagnosis (33.6%), followed by esophagitis (13.6%), combined gastritis with esophagitis (9.6%), GERD (7.2%), and duodenitis (5.6%). Peptic ulcers and upper gastrointestinal malignancies were relatively infrequent but clinically significant findings. These results are in agreement with several regional studies reporting gastritis as the predominant abnormality among dyspeptic patients. [7–15] Gastritis is commonly associated with Helicobacter pylori infection, dietary factors, and NSAID exposure, highlighting the importance of guideline-directed testing and eradication therapy where appropriate. [3]

Smoking, alcohol consumption, and NSAID use were significantly associated with abnormal endoscopic findings in the present study ($p<0.05$). These observations are biologically plausible because tobacco, alcohol, and NSAIDs contribute to gastric mucosal injury, impaired mucosal defense, and peptic ulcer formation. Current clinical guidelines recognize these factors as important contributors to upper gastrointestinal pathology and recommend appropriate risk assessment during clinical evaluation.[1–5]

Among alarm symptoms, dysphagia (p=0.041) and upper gastrointestinal bleeding (p=0.031) showed significant associations with major endoscopic lesions, whereas weight loss was not statistically significant. These findings reinforce existing recommendations that patients presenting with dysphagia or gastrointestinal bleeding should undergo urgent endoscopic evaluation to identify potentially serious conditions such as malignancy, bleeding ulcers, or esophageal pathology.[2,4] Although weight loss is traditionally regarded as an alarm feature, its predictive value may vary depending on the study population and sample size.[1,5]

Management was appropriately tailored according to endoscopic diagnosis. All patients received medical treatment, while biopsies were performed in suspicious lesions, gastric ulcers, and malignancies. Endoscopic intervention was required only for esophageal varices, and patients with malignant lesions were referred for surgical and oncological management. These findings

reflect current evidence-based recommendations advocating lesion-specific management, biopsy of suspicious lesions, and multidisciplinary care for gastrointestinal malignancies and bleeding disorders.[2–4]

Overall, the findings of the present study demonstrate that upper gastrointestinal endoscopy is an effective diagnostic modality in patients with upper gastrointestinal symptoms, particularly among older patients, males, smokers, alcohol users, NSAID users, and individuals presenting with alarm symptoms. Appropriate patient selection based on clinical risk factors can improve diagnostic yield while ensuring timely detection and management of significant gastrointestinal disease.

Conclusion

Upper gastrointestinal endoscopy demonstrated a high diagnostic yield in patients presenting with upper gastrointestinal symptoms, with abnormal findings identified in the majority of cases. Gastritis was the most common endoscopic diagnosis, followed by esophagitis and gastroesophageal reflux disease, while significant lesions, including peptic ulcers and malignancies, were detected in a small but clinically important proportion of patients. Older age, male sex, smoking, alcohol consumption, NSAID use, dysphagia, and upper gastrointestinal bleeding were significantly associated with abnormal endoscopic findings. These results support the appropriate use of upper gastrointestinal endoscopy, particularly in patients with alarm symptoms and established clinical risk factors, to facilitate early diagnosis and timely management.

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