Section: Surgery

Original Research Article

TO STUDY THE DIAGNOSTIC VALUE OF UPPER GASTROINTESTINAL ENDOSCOPY IN DYSPEPTIC PATIENTS IN CENTRAL INDIA

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Received *: 04/08/2026*
Received in revised form *: 31/08/2026*
Accepted *: 10/09/2026*

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DOI: 10.70034/ijmedph.2026.3.790

Source of Support: Nil,
Conflict of Interest: None declared

Int J Med Pub Health
2026; 16 (3); 5120-5124

ABSTRACT

Background: Dyspepsia is a common gastrointestinal disorder characterized by recurrent or persistent upper abdominal discomfort, including symptoms such as epigastric pain, postprandial fullness, early satiety, bloating, nausea, and vomiting. Its prevalence varies globally between 10–40% depending on diagnostic criteria, geographical factors, lifestyle, and healthcare availability. The aim is to evaluate the diagnostic utility of upper gastrointestinal endoscopy in dyspeptic patients from Central India by identifying common endoscopic findings, detecting organic gastrointestinal lesions, and correlating clinical symptoms with endoscopic abnormalities.

Materials and Methods: This hospital-based prospective observational study was conducted in the Department of Surgery, OPD, and Emergency Department of a tertiary care teaching hospital in Central India over a period of 2 years. A total of 110 dyspeptic patients were included in this study.

Results: Among chief complaints/dyspeptic symptoms, nausea was the most common symptom, reported in 64 (58.2%) patients, followed by epigastric pain in 58 (52.7%), vomiting in 55 (50.0%), loss of appetite in 52 (47.3%), indigestion in 49 (44.5%), heartburn in 45 (40.9%), food intolerance in 38 (34.5%), abdominal pain in 21 (19.1%), and regurgitation in 1 (0.9%) patient. The symptom distribution was statistically significant ($p < 0.001$).

Conclusion: We concluded that upper gastrointestinal (UGI) endoscopy plays an important role in the evaluation of patients presenting with dyspeptic symptoms. The procedure demonstrated a high diagnostic utility by identifying various organic causes responsible for dyspepsia. Gastritis was the most common endoscopic abnormality observed, suggesting that inflammatory gastric lesions are a major contributor to dyspeptic complaints.

Keywords: Dyspepsia, Upper gastrointestinal endoscopy, Diagnostic value, Endoscopic findings, Gastritis, Gastrointestinal malignancy, GERD, Peptic ulcer disease

INTRODUCTION

Dyspepsia is a common gastrointestinal disorder characterized by recurrent or persistent upper abdominal discomfort, including symptoms such as epigastric pain, postprandial fullness, early satiety, bloating, nausea, and vomiting. Its prevalence varies globally between 10–40% depending on diagnostic criteria, geographical factors, lifestyle, and healthcare availability. Due to its high frequency and impact on quality of life, dyspepsia is a significant clinical concern, especially in developing countries like India.[1] Clinically, dyspepsia is classified into organic and functional types. Organic dyspepsia occurs due to identifiable causes such as peptic ulcer disease, gastritis, gastroesophageal reflux disease (GERD), malignancy, or drug-related mucosal injury, whereas functional dyspepsia has no detectable structural or biochemical abnormality. Differentiating between these conditions is important

for proper management, though symptoms often overlap. Upper gastrointestinal (UGI) endoscopy or esophagogastroduodenoscopy (EGD) is an important diagnostic tool for dyspeptic patients as it allows direct visualization of the oesophagus, stomach, and duodenum. It helps detect mucosal abnormalities such as ulcers, inflammation, erosions, strictures, varices, and tumors, while also enabling biopsy for diagnosis of conditions like Helicobacter pylori infection, intestinal metaplasia, dysplasia, and early malignancy.[2] Endoscopy plays a crucial role in distinguishing organic diseases from functional disorders, especially in patients with alarm symptoms such as weight loss, anaemia, gastrointestinal bleeding, progressive dysphagia, persistent vomiting, or family history of cancer. Early detection allows timely treatment and improves patient outcomes.[3] Helicobacter pylori infection is a major contributor to dyspepsia and upper gastrointestinal diseases, including gastritis, peptic ulcer disease, gastric cancer, and MALT lymphoma. Its higher prevalence in developing countries makes endoscopic evaluation with biopsy essential for accurate diagnosis and management. Additionally, long-term use of drugs such as NSAIDs can cause gastric mucosal injury, ulcers, and gastritis, which can be effectively assessed through UGI endoscopy.[4,5]

Study aims: To evaluate the diagnostic utility of upper gastrointestinal endoscopy in dyspeptic patients from Central India by identifying common endoscopic findings, detecting organic gastrointestinal lesions, and correlating clinical symptoms with endoscopic abnormalities.

MATERIALS AND METHODS

Type of Study: A hospital-based, prospective, observational study.

Place of Study: Department of Surgery, Outpatient Department (OPD), and Emergency Department of a tertiary care teaching hospital located in Central India.

Study Duration: 2 years

Sample Size: 110 patients

Inclusion Criteria

- Age 18 years or above at the time of enrolment.
- Presenting with symptoms of dyspepsia defined as persistent or recurrent upper abdominal pain or discomfort, early satiety, postprandial fullness, nausea, belching or epigastric burning present for a minimum duration of four weeks.
- Willing and able to provide written informed consent for participation in the study and for undergoing upper GI endoscopy.
- Medically fit to undergo upper GI endoscopy as assessed by the attending clinician.
- Patients with both 'investigated' dyspepsia (referred for endoscopy with prior treatment) and 'uninvestigated' dyspepsia (presenting for the first time without prior endoscopy) were eligible for inclusion.

Exclusion Criteria

- Age below 18 years.
- Pregnancy or lactation.
- Active haematemesis or melaena requiring emergency endoscopic intervention (these patients were managed under the acute GI bleed protocol and were not enrolled in the study).
- Patients who had undergone upper GI endoscopy within the preceding six months for the same complaint.
- Known history of prior gastric or oesophageal surgery, including gastrectomy, oesophagectomy or bariatric surgery.
- Severe cardiopulmonary disease or other systemic illness rendering the patient unfit for endoscopy (e.g., refractory cardiac failure, severe chronic obstructive pulmonary disease with resting hypoxia, uncorrected coagulopathy with INR > 2.5).
- Patients with predominant symptoms of heartburn and acid regurgitation (GERD-predominant presentation) without significant associated dyspeptic symptoms.
- Patients with systemic illness clearly identified as the primary cause of upper gastrointestinal symptoms including diabetic gastroparesis, uraemic gastritis or hepatic failure where the systemic disease was the unambiguous aetiological factor.
- Refusal to provide informed consent.
- Patients unable to cooperate with endoscopic examination despite adequate preparation and explanation.

Study Variables:

- Frequency and distribution of specific endoscopic diagnoses in the study population.
- Prevalence of H. pylori infection (by histology) in the study population, and its association with specific endoscopic findings.
- Correlation of endoscopic findings with patient age, sex and socioeconomic status.
- Correlation of endoscopic findings with symptom duration, severity and the presence of alarm features.
- Correlation of endoscopic findings with NSAID use, tobacco use and alcohol consumption.
- Histopathological findings in patients with endoscopic gastritis, including grading of H. pylori density, inflammatory activity, atrophy and intestinal metaplasia.
- Prevalence of significant endoscopic findings in patients with versus without alarm features (sensitivity, specificity, positive predictive value and negative predictive value of alarm features for significant pathology).

Statistical Analysis

Data were entered into Excel and subsequently analyzed using SPSS and GraphPad Prism. Continuous variables were summarized as means with standard deviations, while categorical variables

were presented as counts and percentages. Comparisons between independent groups were performed using two-sample t-tests, and paired t-tests were applied for correlated (paired) data. Categorical data were compared using chi-square tests, with Fisher's exact test applied when expected cell counts were small. A p-value of ≤ 0.05 was considered statistically significant.

RESULTS

Table 1: Addiction Profile of Study Participants

Addiction Category	No. of Patients	Percentage (%)	P-value
No Addiction (NAD)	70	63.60%	< 0.001
Tobacco use (smokeless)	23	20.90%	
Smoking	10	9.10%	
Alcohol	9	8.20%	
Smoking + Alcohol + Tobacco	1	0.90%	
Smoking + Tobacco	1	0.90%	
Any form of addiction (total)	40	36.40%	

Table 2: Frequency Distribution of Chief Complaints / Dyspeptic Symptoms

Symptom / Chief Complaint	No. of Patients	Percentage (%)	P-value
Nausea	64	58.20%	< 0.001
Epigastric Pain	58	52.70%	
Vomiting	55	50.00%	
Loss of Appetite	52	47.30%	
Indigestion	49	44.50%	
Heartburn	45	40.90%	
Food Intolerance	38	34.50%	
Abdominal Pain	21	19.10%	
Regurgitation	1	0.90%	

Table 3: Overall Diagnostic Yield of Upper GI Endoscopy

Endoscopic Outcome	No. of Patients	Percentage (%)	P-value
Abnormal (Pathological findings)	91	82.70%	< 0.001
Normal	19	17.30%	

Table 4: Simplified Grouped Endoscopic Diagnoses

Grouped Category	No. of Patients	Percentage of Total	Rank	P-value
Gastritis (all types incl. with Hiatus Hernia)	60	54.50%	1st	< 0.001
Normal	19	17.30%	2nd	
Upper GI Malignancy	7	6.40%	3rd	
GERD / Oesophagitis	5	4.50%	4th	
Peptic Ulcer Disease	3	2.70%	5th	
Duodenitis	3	2.70%	5th	
Other pathology (combined)	13	11.80%	—	

Table 5: Endoscopic Findings by NSAID Use

Endoscopic Finding	NSAID Yes	Percentage	NSAID No	Percentage	P-value
Gastritis	18	50.00%	33	44.60%	< 0.001
Normal	4	11.10%	15	20.30%	
Gastritis + Hiatus Hernia	0	0.00%	9	12.20%	
Malignancy	2	5.60%	5	6.80%	
GERD / Oesophagitis	2	5.60%	3	4.10%	
Peptic Ulcer Disease	1	2.80%	2	2.70%	
NSAID Gastropathy	1	2.80%	0	0.00%	
Other findings	8	22.20%	7	9.50%	

The study included 110 patients who underwent upper gastrointestinal (UGI) endoscopy for evaluation of dyspeptic symptoms. The addiction profile showed that 70 (63.6%) patients had no addiction (NAD), while 40 (36.4%) patients had some form of addiction. Among addicted patients, smokeless tobacco use was the most common addiction, seen in 23 (20.9%) patients, followed by smoking in 10 (9.1%) patients, alcohol consumption in 9 (8.2%) patients, smoking + alcohol + tobacco use in 1 (0.9%) patient, and smoking + tobacco use in 1 (0.9%) patient. The distribution of addiction status was statistically significant ($p < 0.001$).Among chief complaints/dyspeptic symptoms, nausea was the most common symptom, reported in 64 (58.2%) patients, followed by epigastric pain in 58 (52.7%), vomiting in 55 (50.0%), loss of appetite in 52 (47.3%), indigestion in 49 (44.5%), heartburn in 45 (40.9%), food intolerance in 38 (34.5%), abdominal pain in 21 (19.1%), and regurgitation in 1 (0.9%) patient. The symptom distribution was statistically significant ($p < 0.001$). Upper GI endoscopy revealed abnormal/pathological findings in 91 (82.7%) patients, while 19 (17.3%) patients had normal

endoscopic findings, showing a statistically significant diagnostic yield ($p < 0.001$). On detailed analysis of endoscopic diagnoses, gastritis (all types combined) was the most common finding, observed in 51 (46.4%) patients. Among these, pangastritis/diffuse gastritis was present in 22 (20.0%) patients, antral gastritis in 21 (19.1%) patients, and mild gastritis in 8 (7.3%) patients. Other endoscopic findings included gastritis with hiatus hernia in 9 (8.2%) patients, upper GI malignancy in 7 (6.4%) patients, GERD/oesophagitis in 5 (4.5%) patients, peptic ulcer disease in 3 (2.7%) patients, duodenitis in 3 (2.7%) patients, oesophageal candidiasis in 2 (1.8%) patients, and pyloric stenosis/mucosal lesion in 2 (1.8%) patients. Less common findings included oesophageal varices, suspected Barrett's oesophagus, NSAID gastropathy, obstruction/stricture, motility disorder, and other findings, each reported in 1 (0.9%) patient. After grouping endoscopic diagnoses, gastritis including gastritis with hiatus hernia was the leading diagnosis, found in 60 (54.5%) patients (rank 1). Normal endoscopy was seen in 19 (17.3%) patients (rank 2), followed by upper GI malignancy in 7 (6.4%) patients (rank 3), GERD/oesophagitis in 5 (4.5%) patients (rank 4), and peptic ulcer disease and duodenitis in 3 (2.7%) patients each (rank 5). Other combined pathologies accounted for 13 (11.8%) patients. Regarding NSAID use, 36 patients were NSAID users and 74 patients were non-users. Among NSAID users, gastritis was observed in 18 (50.0%) patients, normal endoscopy in 4 (11.1%) patients, malignancy in 2 (5.6%) patients, GERD/oesophagitis in 2 (5.6%) patients, peptic ulcer disease in 1 (2.8%) patient, NSAID gastropathy in 1 (2.8%) patient, and other findings in 8 (22.2%) patients. Among non-NSAID users, gastritis was found in 33 (44.6%) patients, normal findings in 15 (20.3%) patients, gastritis with hiatus hernia in 9 (12.2%) patients, malignancy in 5 (6.8%) patients, GERD/oesophagitis in 3 (4.1%) patients, peptic ulcer disease in 2 (2.7%) patients, and other findings in 7 (9.5%) patients. Among 110 patients, gastritis was the predominant endoscopic abnormality (60 patients, 54.5%), whereas upper GI malignancy was detected in 7 (6.4%) patients, highlighting the importance of upper GI endoscopy in the evaluation of dyspeptic patients.

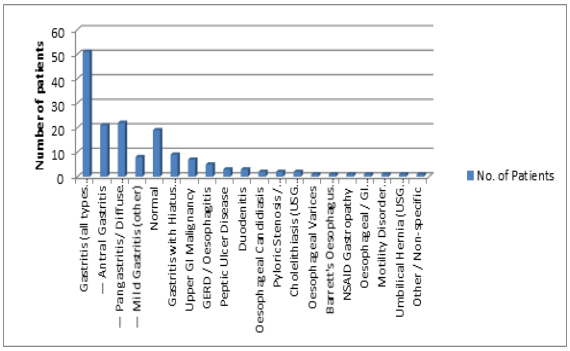

Figure 1: Distribution of Endoscopic Diagnoses — All Categories.

DISCUSSION

Dyspepsia is a common gastrointestinal disorder presenting with symptoms such as epigastric pain, nausea, vomiting, heartburn, indigestion, and early satiety. In the present study, 110 patients with dyspeptic symptoms underwent UGI endoscopy. Abnormal endoscopic findings were detected in 91 patients (82.7%), while 19 patients (17.3%) had normal findings. Similar high diagnostic yields were reported by Sharma et al,[6] and Kumar et al,[7] supporting the usefulness of endoscopy in dyspepsia evaluation. Gastritis was the most common endoscopic abnormality, observed in 60 patients (54.5%), including 22 patients (20.0%) with pangastritis/diffuse gastritis and 21 patients (19.1%) with antral gastritis. Similar findings were reported by Patel et al,[8] Singh et al,[9] and Reddy et al,[10] where gastritis was the predominant lesion. The occurrence of gastritis may be associated with Helicobacter pylori infection, dietary factors, tobacco use, alcohol intake, and drug-related mucosal injury. The most common symptom was nausea, reported by 64 patients (58.2%), followed by epigastric pain in 58 patients (52.7%), vomiting in 55 patients (50.0%), loss of appetite in 52 patients (47.3%), and indigestion in 49 patients (44.5%). Similar symptom patterns were reported by Mehta et al.[11] GERD/oesophagitis was found in 5 patients (4.5%), while gastritis associated with hiatus hernia was observed in 9 patients (8.2%), consistent with findings reported by Verma et al.[12] Peptic ulcer disease was detected in 3 patients (2.7%), similar to the observations of Gupta et al.[13] Upper gastrointestinal malignancy was identified in 7 patients (6.4%), emphasizing the importance of UGI endoscopy for detecting significant pathology, especially in patients with alarm symptoms, as highlighted by Das et al.[14] NSAID use was reported in 36 patients (32.7%), among whom gastritis was observed in 18 patients (50.0%) and NSAID-induced gastropathy in 1 patient (2.8%), similar to findings reported by Joshi et al.[15] The addiction profile showed that 40 patients (36.4%) had at least one addiction, with smokeless tobacco use being the most common, affecting 23 patients (20.9%). Similar associations between lifestyle factors and gastrointestinal abnormalities were reported by Nair et al.[16] The study demonstrates that UGI endoscopy has significant diagnostic value in dyspeptic patients, with gastritis being the commonest abnormality and the detection of malignancy in 7 patients highlighting its role in early diagnosis and management.

CONCLUSION

We concluded that upper gastrointestinal (UGI) endoscopy plays an important role in the evaluation of patients presenting with dyspeptic symptoms. The procedure demonstrated a high diagnostic utility by identifying various organic causes responsible for

dyspepsia. Gastritis was the most common endoscopic abnormality observed, suggesting that inflammatory gastric lesions are a major contributor to dyspeptic complaints. Other significant findings included upper gastrointestinal malignancy, GERD/oesophagitis, peptic ulcer disease, and duodenal lesions, highlighting the importance of endoscopy in detecting structural abnormalities. Risk factors such as tobacco use, smoking, alcohol consumption, and NSAID intake were frequently associated with upper gastrointestinal pathology. Although some patients had normal endoscopic findings, the procedure helped differentiate organic diseases from functional dyspepsia. The identification of serious conditions, particularly malignancy, emphasizes the need for early endoscopic evaluation in patients with persistent symptoms and risk factors. Thus, UGI endoscopy remains a valuable diagnostic tool for establishing the cause of dyspepsia and guiding appropriate treatment strategies.

REFERENCES

1. Spechler SJ. Barrett's esophagus and esophageal adenocarcinoma: pathogenesis, diagnosis, and therapy. Medical Clinics. 2002 Nov 1;86(6):1423-45.
2. Shaib Y, El-Serag HB. The prevalence and risk factors of functional dyspepsia in a multiethnic population in the United States. Official journal of the American College of Gastroenterology| ACG. 2004 Nov 1;99(11):2210-6.
3. Shrestha S, Paudel P, Pradhan GB, Shrestha L, Bhattachan CL. Prevalence study of H. pylori infection in dyspeptic patients coming to Nepal Medical College Teaching Hospital, Jorpati, Kathmandu. Nepal Med Coll J. 2012 Sep 1;14(3):229-33.
4. Katelaris PH, Tippett GH, Norbu P, Lowe DG, Brennan R, Farthing MJ. Dyspepsia, Helicobacter pylori, and peptic ulcer in a randomly selected population in India. Gut. 1992 Nov 1;33(11):1462-6.
5. Khurram M, Khaar HT, Hasan Z, Umar M, Javed S, Asghar T, Minhas Z, Akbar A, Atta N, Nassar F, Masoom A. A 12 years audit of upper gastrointestinal endoscopic procedures. Journal of the College of Physicians and Surgeons--pakistan: JCPSP. 2003 Jun 1;13(6):321-4.
6. Sharma K, Sharma V, Sharma SS. Dye-sensitized solar cells: fundamentals and current status. Nanoscale research letters. 2018 Dec;13(1):381.
7. Kumar S, Nyodu R, Maurya VK, Saxena SK. Morphology, genome organization, replication, and pathogenesis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). InCoronavirus disease 2019 (COVID-19) 2020 (pp. 23-31). Springer, Singapore.
8. Patel NS, Patel TK, Patel PB, Naik VN, Tripathi CB. Hospitalizations due to preventable adverse reactions—a systematic review. European journal of clinical pharmacology. 2017 Apr;73(4):385-98.
9. Singh D, Agusti A, Anzueto A, Barnes PJ, Bourbeau J, Celli BR, Criner GJ, Frith P, Halpin DM, Han M, Varela MV. Global strategy for the diagnosis, management, and prevention of chronic obstructive lung disease: the GOLD science committee report 2019. European Respiratory Journal. 2019 May 18;53(5).
10. Reddy CK, Dubey H, Koishida K, Nair A, Gopal V, Cutler R, Braun S, Gamper H, Aichner R, Srinivasan S. Interspeech 2021 deep noise suppression challenge. arXiv preprint arXiv:2101.01902. 2021 Jan 6.
11. Bhandari S, Mehta S, Khwaja A, Cleland JG, Ives N, Brettell E, Chadburn M, Cockwell P. Renin–angiotensin system inhibition in advanced chronic kidney disease. New England Journal of Medicine. 2022 Dec 1;387(22):2021-32.
12. Verma D, Garg PK, Dubey AK. Insights into the human oral microbiome. Archives of microbiology. 2018 May;200(4):525-40.
13. Gupta N, Agrawal S, Ish P, Mishra S, Gaind R, Usha G, Singh B, Sen MK, Safdarjung Hospital COVID 2019 working group. Clinical and epidemiologic profile of the initial COVID-19 patients at a tertiary care centre in India. Monaldi archives for chest disease. 2020 Apr 10;90(1).
14. Das P, Chakraborty G, Roeser J, Vogl S, Rabeah J, Thomas A. Integrating bifunctionality and chemical stability in covalent organic frameworks via one-pot multicomponent reactions for solar-driven H2O2 production. Journal of the American Chemical Society. 2023 Jan 25;145(5):2975-84.
15. Joshi RP, Eickholt J, Li L, Fornari M, Barone V, Peralta JE. Machine learning the voltage of electrode materials in metal-ion batteries. ACS applied materials & interfaces. 2019 Apr 29;11(20):18494-503.
16. Nair SG, Jain NA. Analysis of Novel Drug Approvals in 2024–2025: Chemical Attributes, Biological Mechanisms, and Advances in Synthesis. Medicinal and Medical Chemistry. 2026 Jan 1;3(1):27-35