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A pan-Indian snapshot of upper gastrointestinal endoscopic findings: Evolving trends in disease and treatment (India gut scan study)

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Abstract
Background: Upper gastrointestinal (GI) diseases pose a significant clinical challenge in India, with patterns shaped by infection, lifestyle, and evolving treatment practices. Despite their prevalence, comprehensive multicentre data on endoscopic findings and management are scarce.
Aim: To characterize the spectrum of upper GI endoscopic diagnoses, demographic correlations, and therapeutic strategies in symptomatic Indian patients undergoing upper GI endoscopy.
Methods: This retrospective observational study analyzed demographic, clinical, and endoscopic data from 1,701 patients across 171 centres in India between April 2024 and March 2025. Information on demographics, lifestyle factors, presenting symptoms, *Helicobacter pylori* status, endoscopic findings, and acid-suppressive therapy prescriptions was collected and analyzed. Descriptive statistics and multivariable logistic regression identified predictors of endoscopic abnormalities.
Results: Dyspeptic (49%) and reflux symptoms (31%) were most common. Non-erosive gastritis (33.9%), erosive gastritis (25.6%), and reflux esophagitis (17.3%) predominated. 48% of the patients who were tested had *H. pylori* infection, reflecting a gradual decline in prevalence compared to earlier Indian studies. Despite this, *H.pylori* infection remained a strong predictor of gastritis, ulcer disease, and gastroduodenitis. Male sex elevated the odds of esophageal varices and erosive gastroduodenitis. The antrum was the main site affected in gastritis (73.8%). The most common type of reflux oesophagitis was mild to moderate (LA Grades A and B). Vonoprazan-based therapy was the most prescribed (32.3%), followed by rabeprazole (21.3%). Age, *H.pylori* status, alcohol intake, and geographic zone were significant predictors of findings.
Conclusion: The endoscopic yield for symptomatic Indian patients is notably high, largely dominated by gastritis and reflux esophagitis. The widespread use of vonoprazan signals its emerging role as a preferred acid-suppressive therapy. These findings highlight the need for ongoing surveillance, improved diagnostics, and personalized, evidence-based management to reduce disease burden and improve patient outcomes nationwide.

Keywords: Endoscopy, dyspepsia, gastritis, reflux esophagitis, *H. pylori*, vonoprazan

Introduction
India, a developing nation with immense demographic and dietary diversity, has a high burden of gastrointestinal (GI) disorders, where the overall prevalence of self-reported GI problems is approximately 18-20% [1]. Upper gastrointestinal (GI) diseases encompass a broad spectrum of pathologies affecting the esophagus, stomach, and duodenum.[2] The epidemiological distribution of upper GI diseases demonstrates significant variation across and within different geographic regions [2]. Upper GI endoscopy serves as an indispensable modality for both the diagnosis and treatment of a wide spectrum of upper GI pathologies [2].
Recent decades have witnessed pronounced shifts in the epidemiology and clinical profiles of upper GI lesions, driven by changes in aggressive and protective factors such as *H. pylori* prevalence, widespread adoption of acid-suppressive pharmacotherapy, and emerging lifestyle modifications associated with urbanization and interregional migration.[3] Although *H. pylori* infection remains prevalent, certain regions are showing evidence of decline, likely reflecting improvements in sanitation and socioeconomic status [3]. The enhanced availability of antacids is altering the manifestations of mucosal diseases [3].
Despite the recognized importance of upper GI endoscopy as a pivotal diagnostic and therapeutic modality, there remains a paucity of comprehensive epidemiological data from

multicentre cohorts in India, particularly regarding disease distribution, patient risk profiles, and real-world treatment strategies. This retrospective observational study systematically examines the endoscopic landscape and therapeutic practices in symptomatic patients presenting to gastroenterology clinics across India, with an emphasis on disease phenotypes, anatomical site involvement, and the evolving paradigm of acid-suppressive therapy. By delineating disease patterns and pharmacological trends at a multicentre scale, the study aims to enhance the understanding of upper GI disease burden, inform evidence-based resource utilization, and support optimization of patient management strategies on a national level.

Material and Methods

In this study, demographic, clinical, and endoscopic data of patients who underwent upper endoscopy between April 2024 and March 2025 in the participating 171 centres across India were gathered in a specific Excel database & anonymously reviewed. A structured data collection form designed for the study was used. Information collected included demographic & lifestyle information (age, sex, weight, area of residence, alcohol/caffeine/tea/smoking habit, NSAID intake, clinical presentation, *H. pylori* status, endoscopic findings, and treatment offered based on endoscopic findings). An independent ethics committee approved this study.

This study included individuals for whom an upper gastrointestinal endoscopy was advised for diagnostic purposes. Exclusion criteria comprised duplicate records, therapeutic endoscopy cases, and records with insufficient clinical or demographic information.

Data were anonymized prior to analysis using SPSS version 25. Descriptive statistics summarized prevalence, clinical features, and demographics. Categorical variables were expressed as frequencies and percentages. Group differences were assessed with chi-square tests ($p<0.05$). Multivariable logistic regression identified variables independently associated with specific endoscopic findings.

Results

A total of 2001 data collection forms were received, out of which 300 were ineligible due to incomplete documentation. Data from 1701 patient records were analysed, yielding a completeness rate of 85%. Demographic & lifestyle-related characteristics are summarized using descriptive statistics.

Table 1: Demographic Characteristics of the Study Cohort

Demographic Parameter	Total N=1701 (Mean (SD) or (n (%)	Total Males (N=1042) (Mean (SD) or (n (%)	Total Females (N=659) (Mean (SD) or (n (%)
Age (Years)	46.4 (16.8)	47.3 (17.1)	45.0 (16.3)
Weight (kg)	66.8 (12.9)	69.6 (12.2)	62.5 (12.8)
Alcohol (regular)	276 (16.2%)	267 (25.6%)	9 (1.4%)
Caffeine (regular)	519 (30.5%)	345 (33.1%)	174 (26.4%)
Current smoker	305 (17.9%)	288 (27.6%)	17 (2.6%)
Tea (Regular)	1355 (79.7%)	836 (80.2%)	519 (78.9%)
Current NSAIDs use	370 (21.8%)	248 (23.8%)	122 (18.5%)

(Regular alcohol intake was defined as the consumption of alcoholic beverages on four or more days per week, irrespective of the type or quantity of alcohol consumed. Regular tea/coffee intake was defined as the consumption of at least one cup per day.)

As shown in Table 1, data from 1,702 patients (mean age 46.4±16.8 years; mean weight 66.8±12.9 kg) were analyzed. 38.74% patients were females, and 61.26% were males. Comorbidity burden was modest: diabetes 21.9%, hypertension 20.8%, coronary artery disease 0.5%, and chronic kidney disease 0.2%.Regional analysis reflected broad geographic representation, with data collection spanning multiple zones across India.

Table 2: Zone-wise distribution of the patients

Zone	Total N=1701 (n (%))	Males N=1042 (61.26%) (n (%)	Females N=659 (38.74%) (n (%))
East	179 (10.5%)	122 (68.16%)	57 (31.84%)
North	228 (13.4%)	135 (59.21%)	93 (40.79%)
South	676 (39.7%)	410 (60.65%)	266 (39.35%)
West	618 (36.3%)	375 (60.68%)	243 (39.32%)

Dyspeptic symptoms were the most common presenting complaint (49%), followed by reflux symptoms (31%), in patients undergoing upper GI endoscopy

Table 3: Main Presenting Symptoms

Symptom	% population
Dyspeptic symptoms (Epigastric pain, bloating, fullness, belching)	49%
Reflux symptoms (Heartburn, regurgitation)	31%
Vomiting	10%
Gastrointestinal bleeding	6%
Dysphagia	2%
Anorexia/weight loss	2%

The *H. pylori* rapid urease test reports were available for 905 patients, out of which 436 (48%) were positive.

Main endoscopic findings

Non-erosive gastritis was the most commonly identified

lesion, accounting for 33.9% of cases, followed by erosive gastritis (25.6%) and reflux esophagitis (17.3%). Hiatus hernia and lax lower esophageal sphincter (LES) were observed in 10.9% and 10.8% of patients, respectively. Esophageal varices were present in 8.0%, and normal endoscopic findings were noted in 7.4% of the cohort.

These results highlight that inflammation-predominant pathologies, particularly gastritis and reflux-related findings, represent the majority of the endoscopic disease burden in this population, with structural and ulcerative lesions being substantially less frequent.

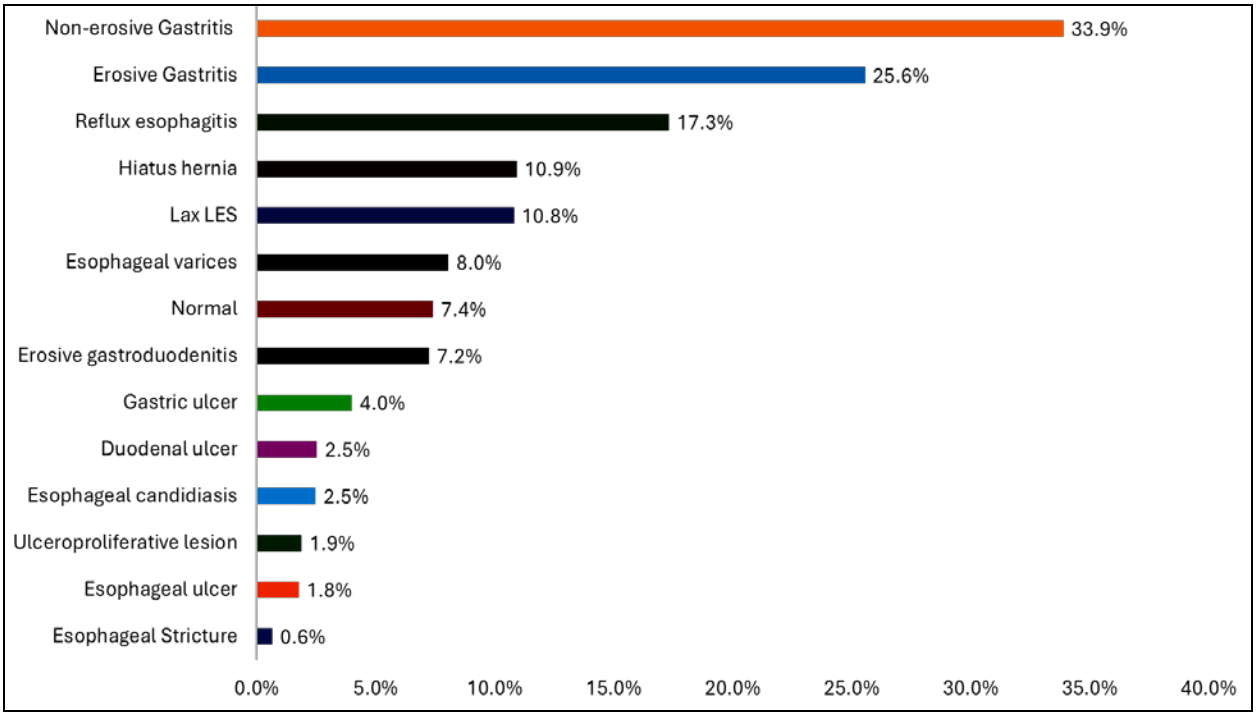


Fig 1: Prevalence of Major Endoscopic Diagnoses in the study cohort

Gender-stratified analysis of endoscopic findings revealed a consistently higher prevalence of most upper gastrointestinal lesions among male patients compared to females.

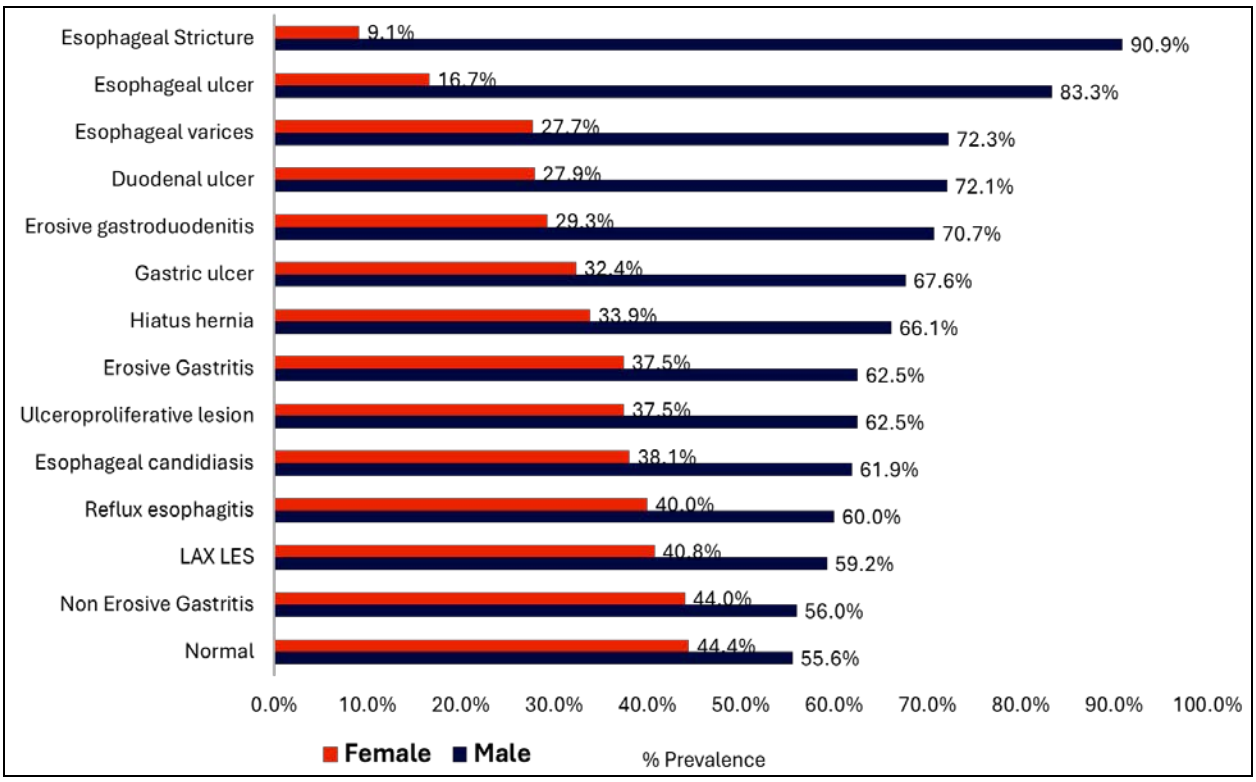


Fig 2: Sex-Specific Frequencies of Upper GI Pathologies Detected on Endoscopy

The majority of cases of non-erosive gastritis demonstrated antral involvement (73.8%). These findings clearly indicate

the predominance of antral localization in non-erosive gastritis, with other regions being affected far less frequently.

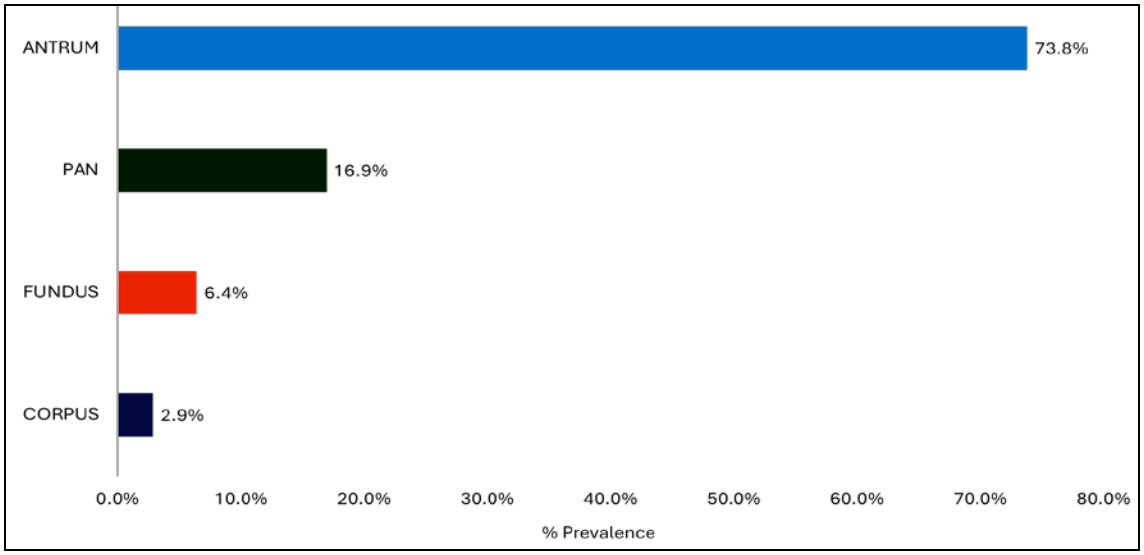


Fig 3: Anatomical Site Distribution in Non-Erosive Gastritis

Among patients with reflux esophagitis, Los Angeles (LA) Grade A was the most frequently observed (51.2%), followed by LA Grade B (30.5%).These findings indicate that mild-to-moderate forms of reflux esophagitis (Grades A and B) account for the majority of GERD cases in this cohort, while advanced erosive disease (Grades C and D) is relatively infrequent.

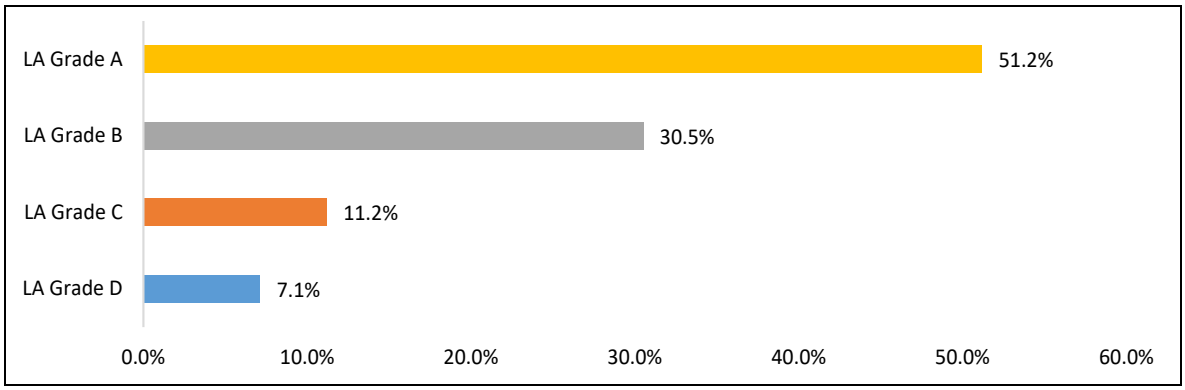


Fig 4: The distribution of GERD severity according to the LA grading

Moderate to large esophageal varices (Grades 2 and 3) were substantially more common than small varices (Grade 1) in the studied cohort.

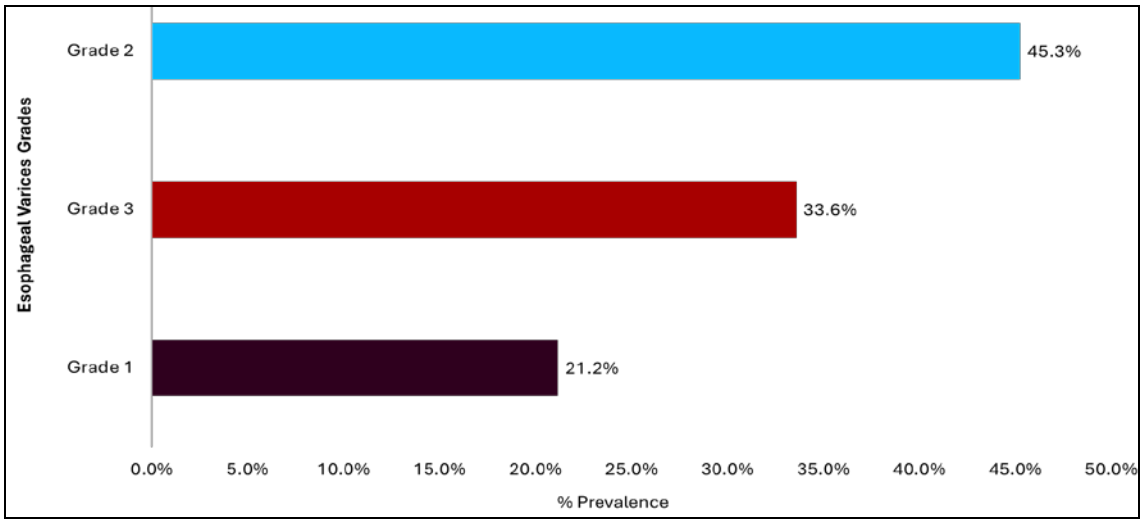


Fig 5: Prevalence of Esophageal Varices by Grade (%)

Vonoprazan-based therapy was the most prescribed antisecretory regimen (32.3%) across all endoscopic diagnoses. Rabeprazole-based therapy ranked second (21.3%). Vonoprazan was used in 42% of patients with erosive gastroduodenitis, 41% with hiatus hernia, 30% with reflux esophagitis, 33% with Lax LES, 29% with esophageal varices, and 28% with gastric ulcer. Pantoprazole, omeprazole-, and dexlansoprazole-based regimens were prescribed less frequently across all diagnostic groups. These findings indicate a consistent preference for vonoprazan-based therapy across a spectrum of upper gastrointestinal pathologies, with rabeprazole serving as the predominant alternative

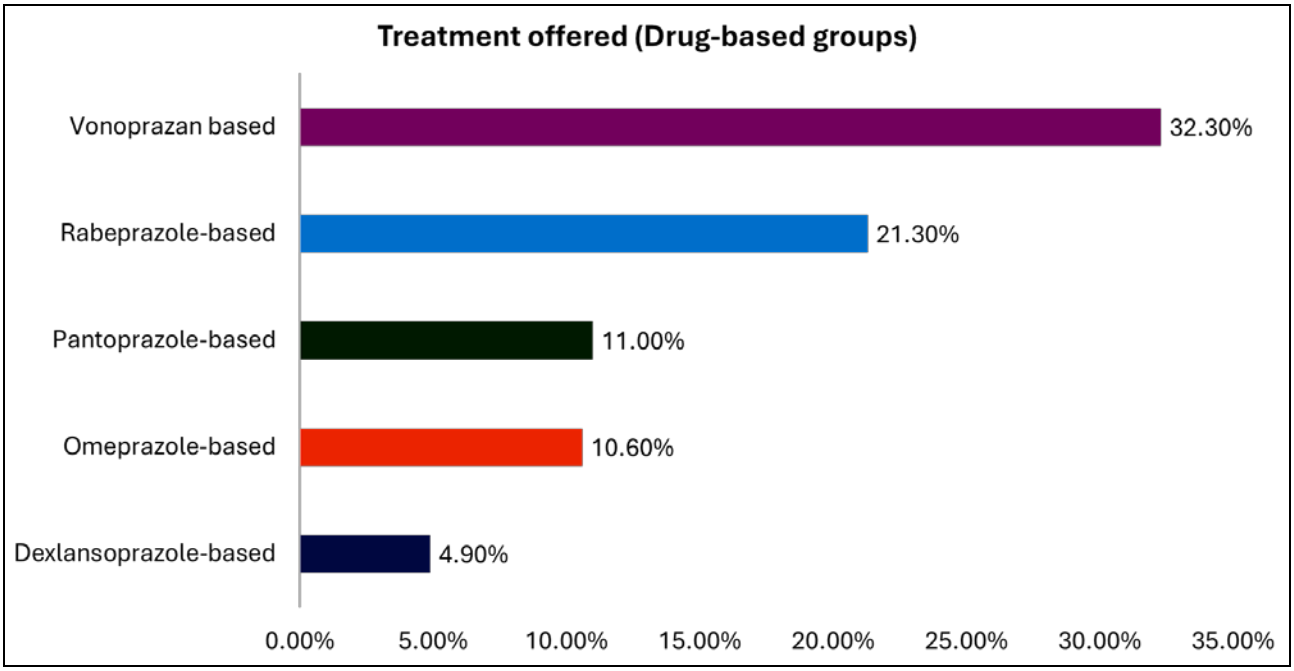
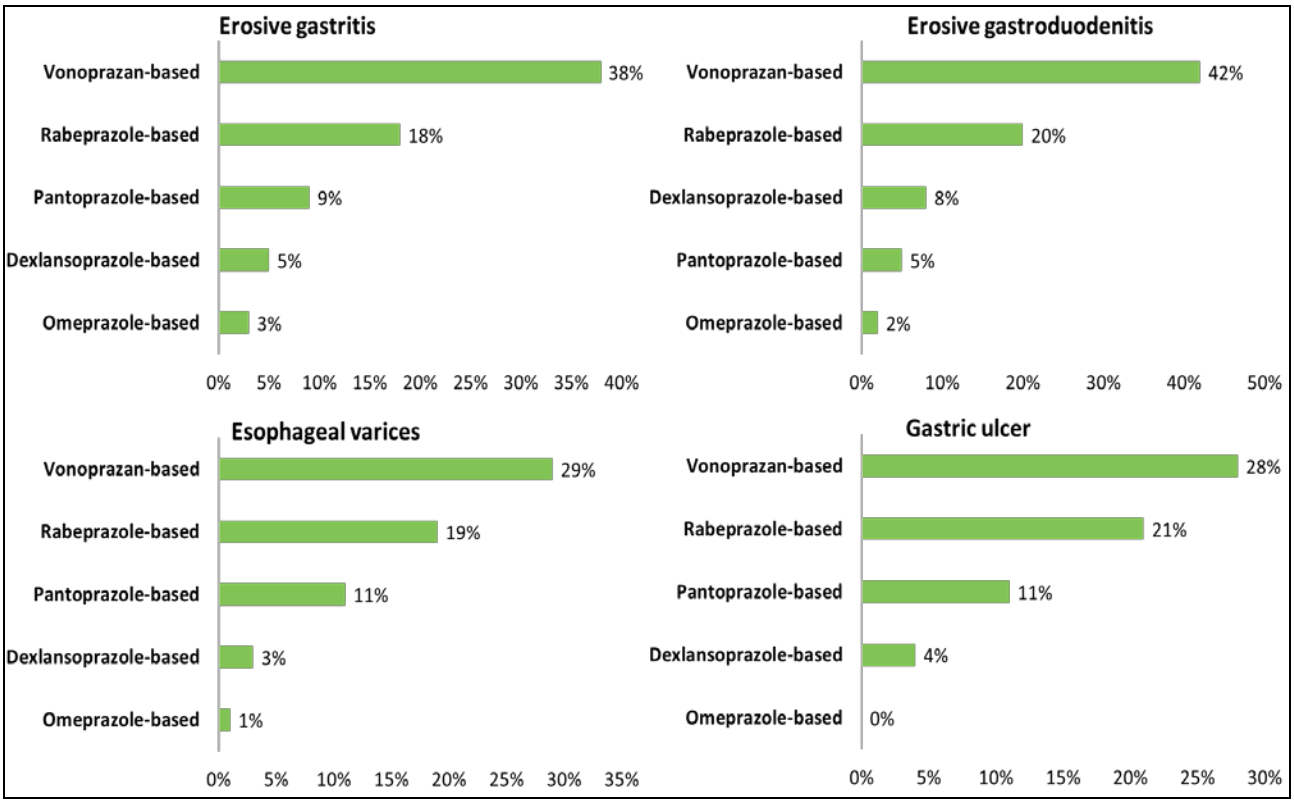


Fig 6: Most frequently used antisecretory drugs (PPI/PCAB) based on endoscopic findings



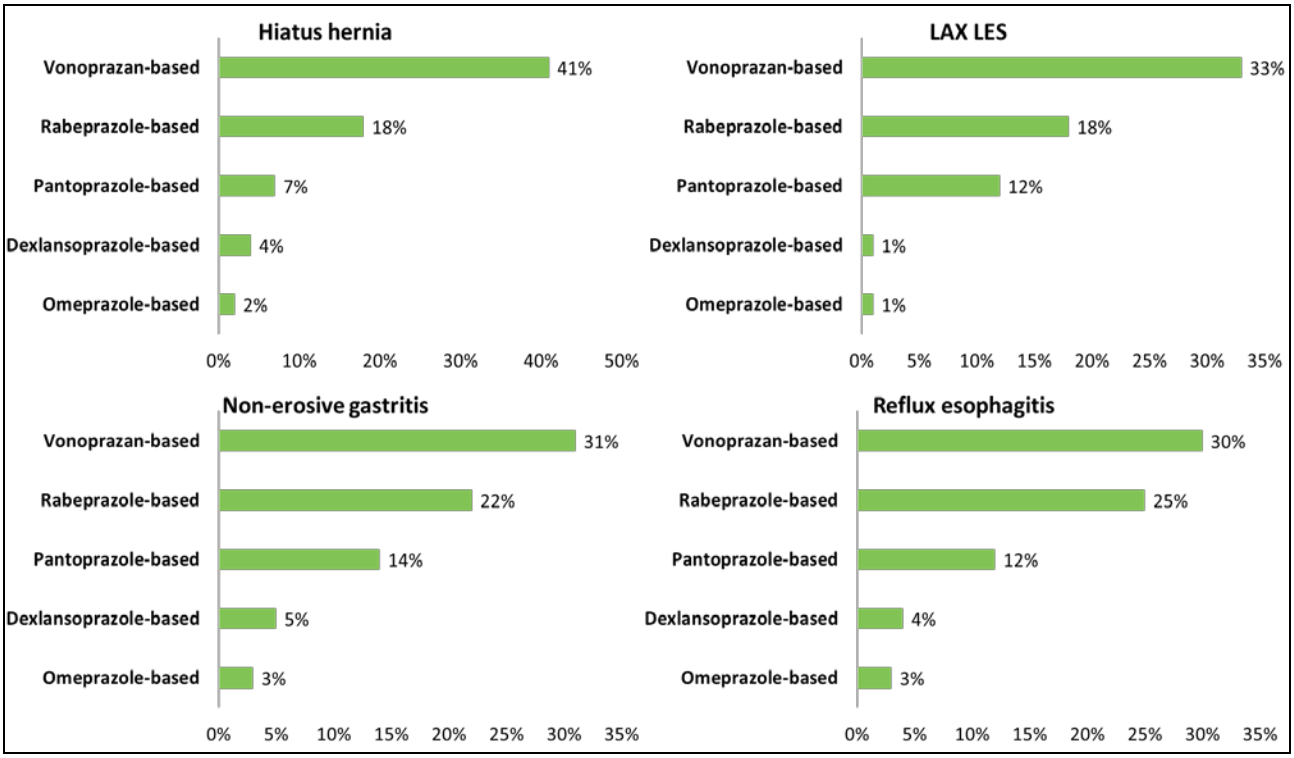


Fig 7: Antisecretory drugs (PPI/PCAB) offered based on different endoscopic findings

Table 4: Overview of multivariable logistic regression analysis

Covariate	Non-erosive gastritis	Erosive gastritis	Reflux esophagitis	Hiatus hernia	Esophageal varices	Erosive gastroduodenitis	Gastric ulcer	LAX LES
Age (years)	0.99 (0.98-0.99)**	1.00 (0.99-1.00)	1.02 (1.01-1.03)**	1.02 (1.01-1.04)**	1.07 (1.02-1.12)**	1.02 (1.01-1.04)**	1.03 (1.01-1.04)**	0.98 (0.96-1.00)*
Gender (male)	1.04 (0.83-1.31)	1.17 (0.90-1.51)	1.72 (1.22-2.40)**	1.30 (0.95-1.78)	1.28 (0.69-2.38)	1.44 (1.03-2.01)*	1.77 (1.31-2.40)**	2.03 (1.50-2.76)**
Weight (kg)	1.00 (0.99-1.01)	1.00 (0.99-1.01)	1.01 (0.99-1.02)	1.00 (0.99-1.01)	1.02 (0.99-1.05)	1.00 (0.99-1.02)	1.00 (0.99-1.02)	1.00 (0.99-1.01)
H. pylori positive	1.67 (1.32-2.09)**	1.44 (1.07-1.95)*	1.27 (0.93-1.73)	1.38 (1.03-1.84)*	1.68 (1.09-2.57)*	1.97 (1.31-2.42)**	1.44 (1.02-2.04)*	1.07 (0.86-1.34)
Smoking (smoker)	1.29 (0.98-1.70)	1.47 (1.02-2.12)*	1.30 (0.91-1.85)	1.16 (0.75-1.79)	1.16 (0.47-2.88)	1.86 (1.17-2.95)*	1.75 (1.19-2.57)*	1.33 (0.94-1.88)
Alcohol (regular)	1.02 (0.71-1.45)	1.39 (0.88-2.19)	0.99 (0.60-1.65)	1.06 (0.63-1.79)	1.15 (0.42-3.15)	1.46 (0.82-2.59)	1.40 (0.82-2.37)	1.06 (0.64-1.76)
NSAID use	1.28 (0.89-1.83)	1.16 (0.75-1.79)	1.09 (0.74-1.60)	1.14 (0.67-1.94)	0.37 (0.16-0.86)*	1.42 (0.89-2.28)	1.32 (0.86-2.01)	1.14 (0.60-1.94)
Diabetes (yes)	1.13 (0.95-1.34)	1.02 (0.78-1.34)	1.09 (0.86-1.39)	1.06 (0.80-1.41)	1.48 (0.93-2.37)	1.09 (0.86-1.39)	0.95 (0.72-1.26)	0.91 (0.74-1.12)
Hypertension (yes)	0.98 (0.80-1.20)	1.09 (0.82-1.47)	1.49 (1.09-1.98)*	1.02 (0.70-1.47)	0.86 (0.50-1.48)	1.42 (0.89-2.28)	1.13 (0.78-1.63)	0.97 (0.76-1.25)
Coronary artery disease (yes)	1.48 (0.83-2.63)	1.14 (0.52-2.52)	0.97 (0.46-2.06)	1.15 (0.47-2.81)	0.53 (0.24-1.18)	0.65 (0.24-1.80)	1.02 (0.46-2.24)	0.29 (0.09-0.91)*
Caffeine (regular)	1.18 (0.94-1.48)	1.04 (0.78-1.38)	1.24 (0.87-1.77)	1.08 (0.71-1.64)	0.57 (0.21-1.52)	1.15 (0.80-1.66)	1.14 (0.78-1.67)	0.89 (0.66-1.19)
Zone: WEST (vs SOUTH)	1.55 (1.21-1.98)**	0.55 (0.42-0.72)**	0.86 (0.49-1.50)	1.69 (1.20-2.40)**	0.52 (0.34-0.80)**	1.72 (0.88-2.26)	1.69 (1.08-2.64)*	2.24 (1.55-3.24)**
Zone: NORTH (vs SOUTH)	1.33 (0.98-1.80)	0.58 (0.46-0.74)**	0.62 (0.30-1.27)	1.28 (0.88-1.86)	1.26 (0.75-2.10)	1.16 (0.83-1.62)	1.08 (0.61-1.92)	1.82 (1.25-2.66)**
Zone: EAST (vs SOUTH)	0.72 (0.40-1.28)	1.00 (0.49-2.14)	0.41 (0.23-0.77)**	0.56 (0.29-1.09)	3.19 (1.76-5.79)**	0.73 (0.33-1.61)	0.86 (0.38-1.93)	1.09 (0.60-1.98)

Multivariable logistic regression analysis found multiple independent factors for the diverse upper gastrointestinal endoscopic findings. Increasing age was associated with higher odds of hiatus hernia (OR 1.02, 95% CI 1.01-1.03, p<0.001) and esophageal varices (OR 1.03, 95% CI 1.01-1.04, p<0.01), but with slightly lower odds of non-erosive gastritis (OR 0.99, 95% CI 0.98-0.99, p<0.001). Male gender conferred significantly higher odds for esophageal varices (OR 0.99, 95% CI 0.98-0.99), erosive gastroduodenitis ("OR"=1.72,95%" CI":1.10"-" 2.68), and was associated with a lower risk of non-erosive gastritis ("OR"=0.69,95%" CI":0.54"-" 0.87).*H. pylori* positivity was a consistent risk factor, associated with non-erosive gastritis (OR 1.67, 95% CI 1.23-2.27, p<0.01), erosive gastritis (OR

1.44, 95% CI 1.07-1.95, $p<0.05$), gastric ulcer (OR 2.14, 95% CI 1.03-4.44, $p<0.05$), and erosive gastroduodenitis (OR 1.97, 95% CI 1.17-3.32, $p<0.01$). Regular alcohol intake was associated with a higher risk of gastric ulcer (OR 2.20, 95% CI 1.16-4.15, $p<0.05$).

Geographic zone was relevant: compared with the South, the West was associated with increased odds of non-erosive gastritis (OR 1.55, 95% CI 1.21-1.98, $p<0.01$) and erosive gastroduodenitis (OR 1.69, 95% CI 1.08-2.64, $p<0.05$), the North with higher odds of reflux esophagitis (OR 0.58, 95% CI 0.40-0.84, $p<0.01$), and the East with higher odds of esophageal varices (OR 3.19, 95% CI 1.76-5.79, $p<0.001$).

No strong or consistent associations were observed for diabetes, hypertension, or coronary artery disease across endoscopic outcomes. These estimates are derived from a limited number of cases and should be regarded with caution.

Discussion

This large, multicentre, retrospective study provides a comprehensive snapshot of the spectrum of upper gastrointestinal (GI) diseases, their demographic correlates, and evolving treatment patterns in India. Our findings illuminate several key trends that reflect both global patterns and unique regional characteristics of the Indian population.

In the present study, dyspeptic symptoms represented the predominant indication for upper gastrointestinal endoscopy, accounting for 49% of all presenting complaints. This finding is consistent with prior local studies from India, where Ainapure, *et al*. (2018) [4] and Shin *et al*. (2022) [5] reported dyspepsia as the leading complaint among endoscopy patients, with prevalence rates of 49.7% and 39.1%, respectively. These data underscore the persistently high burden of dyspeptic symptoms in Indian gastroenterology practice, reflecting both patient healthcare-seeking patterns and the central role of dyspepsia in clinical decision-making for endoscopy referrals.

In the present cohort, gastritis encompassing both non-erosive and erosive variants emerged as the predominant pathology, underscoring the central role of mucosal inflammation as a leading indication for endoscopic evaluation. Several factors could account for this persistence of mucosal pathology despite waning *H. pylori* infection rates. Increasing exposure to dietary irritants, such as spicy and processed foods, growing use of over-the-counter analgesics and NSAIDs, and higher rates of alcohol consumption may all contribute to mucosal injury [1]. Similarly, modern lifestyle stressors and altered eating patterns particularly late-night meals and irregular food timing are now recognized as functional and inflammatory triggers for chronic gastritis [1].

The robust and consistent association between *H. pylori* positivity and various mucosal pathologies-demonstrated by increased adjusted odds ratios for non-erosive gastritis (OR 1.67), erosive gastritis (OR 1.44), gastric ulcer (OR 2.14), and erosive gastroduodenitis (OR 1.97) -reinforces its role as the major etiologic agent driving upper gastrointestinal morbidity in this population. However, the disease landscape shows signs of evolution. Notably, the high prevalence of reflux esophagitis (17.3%) observed in this study points toward a shift often attributed to "westernization" namely, dietary transition, increased prevalence of obesity, and lifestyle changes now being seen across urban and semi-urban Indian settings. The coexistence of traditional infection-associated disorders and acid-related pathologies typifies a dual disease burden, presenting new challenges for gastroenterologists in terms of diagnosis, management, and public health strategy in contemporary India.

Table 5: Prevalence of Endoscopic findings in different similar studies in India

Study	Gastritis	Reflux esophagitis	Duodenitis	Peptic ulcer (Gastric+duodenal)
Javali, *et al* (2015)[7]	39.3%	6.8%	6.16%	3.3%
Chellappa, *et al* (2015)[11]	10.3%	12.7%	1.3%	2.2%
Arjun, *et al* (2015)[8]	79.1%	2.37%	33.4%	-
Padma S, *et al* (2018)[6]	44.1%	8.1%	2.1%	9.1%
Antony B, *et al* (2016)[9]	51.1%	16 .1%	22%	6.9%
Sumathi, *et al* (2008)[12]	12.2%	5.1%	7.7%	16.2%
Desai, *et al* (2017)[13]	23.4%	4.43%	-	25.92%
Khan Y, *et al* (2014)[14]	25.1%	3.5%	5.1%	10.7%
Kumar S, *et al* (2014)[15]	48.2%	8.4%	53.2%	25.2%
Ingty, *et al* (2016)[16]	28.5%	9.5%	15.3%	6.8%
Kulkarni, *et al* (2024)[17]	18%	3.6%	1.06%	8.66%
Ainapure R, *et al* (2018)[4]	45.65%	6.83%	5.90%	9.31%
Present study	59.9%	17.3%	7.2%	6.5%

In this study, the most pronounced gender disparities were observed in esophageal stricture (males: 90.9%, females: 9.1%) and esophageal ulcer (males: 83.3%, females: 16.7%). Other common pathologies, such as esophageal varices, duodenal ulcer, erosive gastroduodenitis, and gastric ulcer, also showed a distinctly higher prevalence among males. These findings are consistent with large-scale international data. For example, a significant Iranian cohort study (n=4,700) demonstrated that GERD, gastric ulcer, duodenal ulcer, hiatal hernia, and erosive gastropathy were significantly more prevalent in men, with male gender independently predicting a higher risk for these lesions after age adjustment[18]. Similarly, a multicentre analysis of almost 28,000 upper GI endoscopies found elevated rates of esophagitis, gastric ulcer, duodenitis, and duodenal ulcer in males, with a higher incidence of hiatal hernia among females [19]. These gender differences may be partly explained by higher exposure to environmental risk factors among men. In addition, biological factors play an important role. The anti-inflammatory properties of estrogen and enhanced esophageal epithelial resistance to refluxate in females are believed to contribute to the lower incidence and severity of GERD spectrum diseases in women [20]. In the context of peptic and erosive diseases, estrogen appears

to confer protective effects by strengthening mucosal defences and diminishing susceptibility to mucosal injury [20]. Collectively, these mechanisms underlie the observed sex- and gender-based differences in upper GI pathology, and highlight the need for gender-sensitive approaches to both clinical assessment and prevention.

In the present study, the antrum emerged as the predominant site affected in non-erosive gastritis (73.8%), followed by pan-gastritis (16.9%), fundus (6.4%), and corpus (2.9%). The predominance of antral involvement in gastritis reflects the unique physiological vulnerability of the antrum higher acid exposure, reduced mucosal defence, and preferential *H. pylori* colonization compounded by NSAID use, bile reflux, and lifestyle irritants. Cases of pan-gastritis and fundic involvement are likely indicative of more advanced or diffuse gastritis, which may arise from prolonged *H. pylori* infection or additional inflammatory stimuli beyond *H. pylori* [21]. The relative rarity of corpus-predominant gastritis (2.9%), meanwhile, may point toward underlying atrophic changes or autoimmune phenomena; these patterns have established links with a heightened risk for gastric neoplasia and therefore warrant particular clinical vigilance [22]. These findings are in line with global literature, which consistently identify antral-predominant chronic gastritis as the most common morphological pattern in both symptomatic and asymptomatic populations [23, 24, 25].

There was a distinctly descending gradient in esophagitis severity, with the majority of cases (81.7%) classified as mild (LA Grade A/B), while advanced grades (C/D) were infrequent. This distribution is consistent with previous studies, such as Argaw *et al.* [26] and likely reflects earlier detection, enhanced awareness, broader therapeutic access, and more widespread utilization of endoscopy in the population. The majority of patients with esophageal varices presented with moderate (Grade 2) or large (Grade 3) lesions, with small varices (Grade 1) less common, similar pattern also reported by Khan *et al.* [27] The observed predominance of advanced varices likely stems from delayed presentation, advanced liver disease, or endemic hepatitis, highlighting the importance of early screening, risk stratification, and aggressive preventive management (e.g., beta-blockers, endoscopic band ligation) to mitigate bleeding risk and disease burden.

Vonoprazan-based therapy is the leading regimen for conditions such as erosive gastritis, erosive gastroduodenitis, esophageal varices, gastric ulcer, hiatus hernia, Lax LES, non-erosive gastritis, and reflux esophagitis, consistently accounting for 28-42% of cases depending on the indication. This aligns with recent meta-analyses and clinical guidelines, which highlight vonoprazan's superior or equivalent efficacy compared to traditional PPIs, particularly for erosive esophagitis, severe GERD, and peptic ulcers, due to more potent, stable, and rapid acid inhibition [28, 29, 30]. The high utilization of vonoprazan, relative to traditional PPIs, reflects both emerging evidence and clinical preference for addressing PPI-refractory or high-burden acid-related diseases, supporting its role as either a first-line or rescue therapy in acid-related mucosal damage [28, 29, 30]. Vonoprazan's pharmacological advantages include minimal influence from meal timing or CYP2C19 genetic variability, a problem with some traditional PPIs, making it a more consistent choice across diverse patient populations [29]. These characteristics likely underpin its leading use in a variety of upper GI pathologies in your cohort and reinforce its growing adoption in clinical gastroenterology. Rabeprazole emerges as the second most frequently used agent, with its more predictable metabolism and favourable safety profile, [31] especially in the context of *H.pylori* eradication, also contributing to its high utilization rates.

The study's demographic and logistic regression analysis revealed several clinically relevant associations: Age, *H. pylori* positivity, and regular alcohol intake increased the risk of several major GI disorders, particularly varices, gastritis, and ulcers, mirroring risk factor profiles observed worldwide [24]. The higher odds of non-erosive and erosive gastroduodenitis in the West and the increased risk of esophageal varices in the East suggest underlying differences in *H. pylori* strains, dietary habits, or potentially the prevalence of chronic liver disease across India. The latter is a critical public health concern that requires targeted screening and management strategies. Regional variation in disease prevalence suggests influences of local diet, healthcare access, and environmental exposures, warranting further study. The significant association of regular alcohol intake with gastric ulcer (OR 2.20) reinforces the role of known mucosal irritants. The lack of strong association with NSAIDs could be due to under-reporting or the protective effect of widespread PPI/P-CAB use.

The main limitations of this study include its retrospective observational design, which may result in underreporting or misclassification due to reliance on existing medical records. Selection bias is possible, as only symptomatic patients undergoing upper GI endoscopy at speciality clinics were included, excluding asymptomatic or conservatively managed individuals. Some clinical and demographic data were incomplete, and *H. pylori* testing was not conducted systematically. Regional differences observed might be influenced by healthcare access and referral patterns rather than true population prevalence. Variability in endoscopist technique and interpretation could affect grading and site identification. Finally, medication use patterns may reflect local prescribing behaviours and socioeconomic factors, limiting the generalizability of findings. Prospective multicentre and population-based studies are needed to overcome these limitations and provide broader epidemiological insights.

Conclusion

These findings highlight the evolving landscape of upper GI disease presentation and management in India. Non-erosive and erosive gastritis, as well as reflux esophagitis, remain the largest diagnostic groups, with *H. pylori* positivity and male sex acting as consistent risk factors for advanced and complicated disease. The adoption of vonoprazan as the leading acid-suppressive therapy across a spectrum of endoscopic diagnoses signals a rational, evidence-based response to the limitations of traditional PPI therapy and is likely to have a transformative effect on patient outcomes in the years ahead. Greater attention to demographic, regional, and behavioural risk profiles will help target interventions where they are most needed and continue to advance the standard of care for upper gastrointestinal disorders in India.

References

1. Dawoodi S, Dawoodi I, Dixit P. Gastrointestinal problem among Indian adults: Evidence from longitudinal ageing study in India 2017-18. Front Public Health. 2022;10:911354. doi:10.3389/fpubh.2022.911354.
2. Munema F, Rambau P, Byabato S, Binde A, Mabega N. Endoscopic and clinicopathological patterns of upper gastrointestinal conditions with endoscopic examinations at Bugando Medical Centre, Mwanza, Tanzania. Eur J Prev Med. 2025;13(2):34-42. doi:10.11648/j.ejpm.20251302.11.
3. De Francesco V, Russo T, Lecce M, *et al*. Prevalence of endoscopic and histological lesions at upper endoscopy: A cross-sectional, multicentre study in clinical practice. GE Port J Gastroenterol. 2025;32(1):1-8. doi:10.1159/000537685.
4. Ainapure R, Tanga V. A clinico-endoscopic study of upper GI disorders in rural population. Int Surg J. 2018;5:1111-3. doi:10.18203/2349-2902.isj20180840.
5. Shin M, George R, Goudar SR, D'Souza S, Masoodi I. Spectrum of upper gastrointestinal endoscopic findings and therapeutic interventions in patients presenting with upper gastrointestinal complaints: A tertiary care study. Niger J Med. 2022;31:396-400. doi:10.4103/NJM.NJM_55_22.
6. Padma S, Murugan R. Disease pattern by upper gastrointestinal endoscopy in rural areas of Tiruchirappalli district: A retrospective study and comparative analysis. Int Surg J. 2018;5:965-70. doi:10.18203/2349-2902.isj20180812.
7. Javali S, Madan M, Harendrakumar ML, Mahesh MS. Role of endoscopy in evaluating upper gastrointestinal tract lesions in rural population. J Dig Endosc. 2015;6:59-65. doi:10.4103/0976-5042.159238.
8. Arjun B, Annamalai A, Balamurugan R, Shivekar SS, Kaviraj M. A clinico-endoscopic study of upper GI disorders in rural population of Pondicherry. Int J Curr Res Rev. 2015;7(20):37-40.
9. Babu Antony T, Vijayasarathy S. Trends and patterns of diagnosis by upper GI endoscopy in dyspeptic patients: A retrospective study. IAIM. 2016;3(8):132-9.
10. Mohiuddin MK, Chowdavaram S, Bogadi V, Prabhakar B, Rao KP, Devi S, *et al*. Epidemic trends of upper gastrointestinal tract abnormalities: Endoscopic data evaluation. Asian Pac J Cancer Prev. 2015;16(14):5741-7. doi:10.7314/apjcp.2015.16.14.5741.
11. Chellappa PM, Ebenezer R, Philip JT, Cyriac T. Spectrum of upper GI disease in rural Kerala: Upper GI endoscopy-assisted study. Int J Biomed Adv Res. 2015;6(1):32-5.
12. Sumathi B, Navaneethan U, Jayanthi V. Appropriateness of indications for diagnostic upper gastrointestinal endoscopy in India. Singapore Med J. 2008;49(12):970-6.
13. Desai S, Mahanta B. Clinico-endoscopic profile of patients presenting with dyspepsia. Clin Epidemiol Glob Health. 2017;6(1):34-8.
14. Khan Y, Mohanty SK, Kumar H, Pandey S. Upper gastrointestinal endoscopic findings in dyspepsia: Experience at CIMS, Bilaspur. IOSR J Dent Med Sci. 2014;13(5):8-12.
15. Kumar S, Pandey HI, Verma A, Pratim P. Prospective analysis of 500 upper GI endoscopy cases at Tata Main Hospital. IOSR JDMS. 2014;13(1):21-5.
16. Ingty M, Magadum SB, Pawar VR. Pattern of upper GI diseases based on endoscopy in rural Maharashtra. IJSR. 2016;5(6):1-4.
17. Kulkarni A, Mandolkar S, Asha J, Ramakrishna. Pattern and frequency of upper GI diseases at tertiary care hospital. Res J Med Sci. 2024;18:532-5. doi:10.36478/makrjms.2024.4.532-535.
18. Boghratian AH, Hashemi MH, Kabir A. Gender-related differences in upper gastrointestinal endoscopic findings: Assessment of 4,700 cases from Iran. J Gastrointest Cancer. 2009;40(3-4):83-90. doi:10.1007/s12029-009-9087-6.
19. Abu-Freha N, Gat R, Philip A, Yousef B, Ben Shoshan L, Yardeni D, *et al*. Indications and findings of upper endoscopies: Gender comparison. J Clin Med. 2021;10(8):1620. doi:10.3390/jcm10081620.
20. Kim YS, Kim N, Kim GH. Sex and gender differences in gastroesophageal reflux disease. J Neurogastroenterol Motil. 2016;22(4):575-88. doi:10.5056/jnm16138.
21. Hasan MQ, Shahin-ul-Islam M, Mollick SH, Perveen I, Raihan A. *Helicobacter pylori* eradication therapy in erosive and non-erosive gastritis. J Enam Med Coll. 2014;4(1):15-20. doi:10.3329/jemc.v4i1.18063.
22. Carrasco G, Corvalan AH. *Helicobacter pylori*-induced chronic gastritis and gastric cancer risk. Gastroenterol Res Pract. 2013;2013:393015. doi:10.1155/2013/393015.
23. Zuzek R, Potter M, Talley NJ, Agréus L, Andreasson A, Veits L, *et al*. Prevalence of histological gastritis and association with epigastric pain. Dig Dis Sci. 2024;69(2):528-37. doi:10.1007/s10620-023-08170-2.
24. Yang YY, Li KM, Xu GF, Wang CD, Xiong H, Wang XZ, *et al*. Clinical patterns of chronic erosive gastritis: Real-world multicenter study. World J Gastroenterol. 2024;30(9):1108-20. doi:10.3748/wjg.v30.i9.1108.
25. Silva SZ, Moraes Rde AC, Ribeiro AJR, Lima Júnior RC, Silva Júnior AEV, Costa DC, *et al*. Symptom-endoscopy correlation in Maranhão, Brazil. Acta Cir Bras. 2024;39:e395824. doi:10.1590/acb395824.
26. Argaw AM, Ethiopia SS, Lelisa G, Fisseha H, Mulugeta B. Indications and findings of upper GI endoscopy in Ethiopia: Cross-sectional study. Clin Exp Gastroenterol. 2023;16:187-96. doi:10.2147/CEG.S436329.
27. Khan IA, Saleem A, Yousaf S, Sarfraz M, Alam MA, Mohsin A. Esophageal varices in liver cirrhosis patients. Pak J Med Health Sci. 2020;14(2):365-8.
28. Simadibrata DM, Lesmana E, Fass R. Vonoprazan efficacy in PPI-resistant GERD: Systematic review & meta-analysis. J Gastroenterol Hepatol. 2024;39(5):796-805. doi:10.1111/jgh.16475.
29. Spechler S, Kolb JM, Dunbar K, *et al*. American Foregut Society white paper: Potassium-competitive

acid blockers in GERD. Foregut. 2025;5(3):195-215. doi:10.1177/26345161251325874.
30. Upadhyay R, Soni NK, Vora A, *et al*. API consensus recommendations for vonoprazan in acid peptic disorders. J Assoc Physicians India. 2025;73(2):68-77.
31. Kusano M, Kuribayashi S, Kawamura O, Shimoyama Y, Hosaka H, Nagoshi A, *et al*. Review of gastric acid-related disease management with rabeprazole. Clin Med Insights Gastroenterol. 2011;3:31-43. doi:10.4137/CGast.S5133.

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