Section: General Surgery

Original Research Article

A DESCRIPTIVE STUDY OF UPPER GASTROINTESTINAL ENDOSCOPY FINDINGS IN SYMPTOMATIC GALL STONE DISEASE PATIENTS

R.Rani[1], Prabhu R.[2], M.Rajesh[3]

[1]Associate Professor, Department of General Surgery, Government Medical College Hospital, Dindigul, Tamilnadu, India.
[2]Assistant Professor, Department of General Surgery, Government Medical College Hospital, Dindigul, Tamilnadu, India.
[3]Senior Resident, Department of General Surgery, Government Medical College Hospital, Dindigul, Tamilnadu, India.

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Corresponding Author:
Dr. Prabhu R.,
Email: drrprabhustanley@gmail.com

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ABSTRACT

Background: Gallstone disease often presents with dyspeptic symptoms that overlap with other gastrointestinal disorders, complicating diagnosis and causing postoperative symptoms. Upper gastrointestinal endoscopy is crucial for the detection of mucosal lesions. This study assessed significant endoscopic findings in patients with ultrasound-confirmed gallstone disease and chronic dyspepsia. **Materials and Methods:** This prospective descriptive study involved 100 symptomatic patients with gallstones, selected by convenience sampling with informed consent. All patients underwent upper gastrointestinal endoscopy with an OGD scope, and the findings were documented. Demographic profiles, symptoms, and endoscopic abnormalities were also analysed. **Results:** Most patients were aged 31-60 years (66%), followed by <30 years (22%) and >60 years (12%), with a mean age of 44.18±13.94 years. Females accounted for 66% of the patients, and males accounted for 34%. The most common symptom was abdominal pain (77%), followed by postprandial fullness (61%), heartburn and nausea (53% each), belching (33%), and vomiting (16%). Positive endoscopic findings were observed in 73% of the patients, with 27% being normal. Abdominal pain with heartburn was the most frequent symptom (12%). Gastritis was the most common abnormality (22%), followed by a hiatal hernia with gastritis (9%), a hiatal hernia with gastritis and duodenitis (7%), an isolated hiatal hernia (6%), and an oesophagitis with a hiatal hernia (5%). No endoscopy-related complications occurred. **Conclusion:** Endoscopy revealed significant mucosal abnormalities in patients with symptomatic gallstone disease and dyspepsia. Preoperative endoscopic evaluation may enhance diagnostic accuracy, optimise management, and reduce the incidence of postoperative symptoms.

INTRODUCTION

Gallstone disease (GSD) is a prevalent global hepatobiliary disorder with significant clinical and economic impacts, involving cholesterol, pigment, or mixed stones in the gallbladder or biliary tract. Its prevalence has increased due to obesity, metabolic syndrome, sedentary lifestyle, and aging.[1] Risk factors include female sex, age, diabetes, dyslipidaemia, and genetics. Many patients are asymptomatic, but some require medical or surgical intervention. Laparoscopic cholecystectomy is the standard treatment for symptomatic cholelithiasis.[2] Symptoms include upper abdominal pain and dyspepsia, often overlapping with GI disorders such as gastritis, GERD, and peptic ulcer disease, complicating the diagnosis. Symptoms like flatulent dyspepsia occur similarly in patients with or without gallstones, suggesting gallstones may not always cause symptoms.[3]

GSD can present atypically, complicating its differentiation from other GI issues. Altered gallbladder motility may contribute to symptoms, indicating complex mechanisms beyond gallstones.4 Attributing symptoms solely to gallstones may lead to persistent symptoms after cholecystectomy. Post-cholecystectomy syndrome (PCS) affects a proportion of patients and presents with symptoms such as epigastric pain, nausea, and vomiting due to biliary or non-biliary causes.[5,6] PCS highlights the need for a comprehensive preoperative evaluation. Identifying coexisting GI pathologies is crucial to avoid inappropriate surgeries and poor outcomes. Symptoms like heartburn and nausea are linked more

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to GERD or peptic ulcer disease than biliary pathology.[5] Psychological factors also predict poor postoperative relief, emphasizing dyspepsia's multifactorial nature.[7]

Accurate differentiation between biliary and nonbiliary dyspepsia is essential for optimal surgery selection and postoperative satisfaction. Upper gastrointestinal endoscopy (UGIE) is crucial for examining the oesophageal, gastric, and duodenal mucosa to detect gastritis, erosive lesions, peptic ulcers, reflux oesophagitis, and malignancies mimicking GSD. UGIE affects the management of symptomatic cholelithiasis and dyspepsia. Studies have shown high abnormalities in patients with gallstones undergoing cholecystectomy, with gastritis being the most common, followed by reflux oesophagitis and peptic ulcers.[8,9] Patients with abnormal findings often have persistent symptoms, suggesting that gallstone symptoms may stem from upper GI disorders. Early treatment may reduce PCS and improve outcomes.[9]

UGIE detects rare conditions, such as upper GI malignancies, which can affect surgical planning. The routine preoperative UGIE for GSD is controversial. Some advocate routine evaluation due to the high prevalence of associated lesions.8 Others suggest a selective approach for atypical symptoms or suspected GI pathology, showing concerns about costs, resources, and the lack of guidelines. Studies have highlighted significant upper GI pathology in patients with gallstones. Gastritis, duodenitis, reflux oesophagitis, and peptic ulcers vary across populations.[8,10] Demographic variations in lesion distribution remain poorly characterised. The literature shows inconsistency between gallstone characteristics and mucosal abnormalities, emphasising the need for region-specific studies. In resource-limited settings, careful evaluation is crucial to avoid unnecessary surgery. Identifying coexisting pathologies in symptomatic cholelithiasis and dyspepsia may improve symptom resolution and facilitate evidence-based decisions. Evaluating UGIE findings in GSD is clinically relevant for developing effective preoperative strategies. Therefore, the aim of the study was to determine the frequency of significant upper gastrointestinal endoscopic findings in patients with ultrasound-proven GSD and chronic dyspeptic symptoms.

MATERIALS AND METHODS

This prospective descriptive study included 100 patients with symptomatic GSD who attended the Department of General Surgery at Government Theni Medical College and Hospital, Theni, from September 2023 to August 2024. Informed written consent was obtained from all participants before the initiation of the study.

Inclusion and Exclusion criteria

This study included patients aged > 16 years with ultrasound-proven gallbladder stones and symptomatic cholelithiasis. Patients with symptoms such as epigastric or right upper quadrant pain, postprandial pain, constant pain with nausea, vomiting, belching, bloating, and indigestion were included. Patients under 16 years of age, with acute abdomen or colicky pain, unstable conditions, or unwilling to participate or provide consent were excluded.

Materials

The study materials included an OGD scope, standard endoscopy equipment, ultrasonogram reports confirming GSD, and a patient proforma for clinical evaluation and endoscopic findings.

Methods

Patients from the General Surgery outpatient department and other departments with symptomatic cholelithiasis who met the inclusion criteria were included by convenience sampling. A detailed clinical history and examination were recorded according to the proforma. All patients underwent UGIE with an OGD scope, and the findings were noted and tabulated. Data were presented as frequency and percentage.

Data Analysis

Categorical variables were expressed as frequencies and percentages, while continuous variables were presented as mean ± standard deviation. Descriptive analysis was used to assess the distribution of upper gastrointestinal endoscopic findings among patients with symptomatic GSD and chronic dyspepsia.

RESULTS

Most patients were aged 31-60 years (66%), followed by those aged < 30 (22%) and > 60 (12%) years. The mean age of the patients was 44.18 ± 13.94 years. Females accounted for 66% of the patients, and males accounted for 34%. Among the symptoms, abdominal pain was the most common (77%), followed by postprandial fullness (61%). Heartburn and nausea each occurred in 53%, belching in 33%, and vomiting was least common at 16%. Upper gastrointestinal endoscopy showed positive findings in 73% of patients, while 27% had no abnormalities. [Table 1]

Table 1: Baseline characteristics and upper gastrointestinal endoscopic findings among patients

		N (%)
Age (In years)	<30	22 (22%)
	31-60	66 (66%)
	>60	12 (12%)
Gender	Male	34 (34%)
	Female	66 (66%)
Dyspeptic symptoms	Pain abdomen	77 (77%)

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	Postprandial fullness	61 (61%)
	Heartburn	53 (53%)
	Nausea	53 (53%)
	Belching	33 (33%)
	Vomiting	16 (16%)
Upper GI endoscopic findings	OGD findings	73 (73%)
	No OGD findings	27 (27%)

Abdominal pain with heartburn was the most common symptom in 12% of patients, followed by abdominal pain with postprandial fullness and nausea, each at 9%. Abdominal pain with nausea and abdominal pain with heartburn, postprandial fullness, and nausea were noted in 6% of the patients. Abdominal pain with belching and postprandial fullness occurred in 5% of the patients. Symptom complexes such as abdominal pain with heartburn and belching, abdominal pain with heartburn and vomiting, heartburn with postprandial fullness, and abdominal pain with postprandial fullness, nausea, and vomiting were observed in 4% of patients. Other combinations, such as heartburn with belching and nausea, postprandial fullness with nausea, abdominal pain with heartburn and nausea, belching with postprandial fullness, and heartburn with nausea, appeared in 3% of the patients.

Less frequent complexes, at 2% each, included heartburn with belching and postprandial fullness, heartburn with belching, postprandial fullness, nausea and vomiting, abdominal pain with belching, abdominal pain with belching and nausea, abdominal pain with belching, postprandial fullness and nausea, abdominal pain with heartburn and belching with nausea, and abdominal pain with heartburn, nausea, and vomiting. The least common combinations, at 1% each, were belching with postprandial fullness and nausea, heartburn with belching, postprandial fullness and nausea, heartburn with postprandial fullness and nausea, abdominal pain with belching, postprandial fullness, nausea, and vomiting, and abdominal pain with heartburn, belching, postprandial fullness, and nausea. [Table 2]

Table 2: Distribution of symptom complexes among patients

		N (%)
Symptom complex	Abdominal pain + heartburn	12 (12%)
	Abdominal pain + postprandial fullness	9 (9%)
	Abdominal pain + postprandial fullness + nausea	9 (9%)
	Abdominal pain + nausea	6 (6%)
	Abdominal pain + heartburn + postprandial fullness + nausea	6 (6%)
	Abdominal pain + heartburn + belching + postprandial fullness	4 (4%)
	Abdominal pain + belching + postprandial fullness	5 (5%)
	Abdominal pain + heartburn + belching + postprandial fullness + nausea + vomiting	3 (3%)
	Heartburn + belching + nausea	3 (3%)
	Postprandial fullness + nausea	3 (3%)
	Abdominal pain + heartburn + nausea	3 (3%)
	Abdominal pain + heartburn + vomiting	4 (4%)
	Belching + postprandial fullness	3 (3%)
	Belching + postprandial fullness + nausea	1 (1%)
	Heartburn + belching + postprandial fullness	2 (2%)
	Heartburn + belching + postprandial fullness + nausea	1 (1%)
	Heartburn + belching + postprandial fullness + nausea + vomiting	2 (2%)
	Heartburn + nausea	3 (3%)
	Heartburn + postprandial fullness	4 (4%)
	Heartburn + postprandial fullness + nausea	1 (1%)
	Abdominal pain + belching	2 (2%)
	Abdominal pain + belching + nausea	2 (2%)
	Abdominal pain + belching + postprandial fullness + nausea	2 (2%)
	Abdominal pain + belching + postprandial fullness + nausea + vomiting	1 (1%)
	Abdominal pain + heartburn + belching + nausea	2 (2%)
	Abdominal pain + heartburn + belching + postprandial fullness + nausea	1 (1%)
	Abdominal pain + heartburn + nausea + vomiting	2 (2%)
	Abdominal pain + postprandial fullness + nausea + vomiting	4 (4%)

Among the participants, 27% had normal upper gastrointestinal endoscopic findings. Gastritis and gastric ulcer-related lesions were the most common (54%), followed by hiatal hernia (30%) and duodenitis/duodenal ulcer lesions (12%). No complications related to endoscopy were observed. Normal upper gastrointestinal endoscopic findings were observed in 27% of the patients. Gastritis was the most common abnormality (22%). Hiatal hernia with gastritis was found in 9% of patients, followed by hiatal hernia with gastritis and duodenitis in 7%, isolated hiatal hernia in 6%, and oesophagitis with hiatal hernia in 5%. Endoscopic findings such as oesophagitis with hiatal hernia and gastritis, gastritis with duodenitis, and isolated oesophagitis occurred in 3% of patients.

Duodenitis, oesophagitis with gastritis, duodenitis and duodenal ulcer, oesophagitis with hiatal hernia,

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gastritis, duodenitis and duodenal ulcer, oesophagitis with hiatal hernia, gastritis and duodenal ulcer, and gastric ulcer with duodenitis and duodenal ulcer each accounted for 2%. The rarest findings (1% each) included duodenitis with duodenal ulcer, oesophagitis with gastritis, gastritis with oesophageal varices, oesophagitis with hiatal hernia, gastritis and duodenitis, and hiatal hernia with gastritis, duodenitis, and duodenal ulcer. Gastritis and gastric ulcer-related lesions were the most common, followed by hiatal hernia and duodenitis/duodenal ulcer-related lesions. No complications related to endoscopy were observed. [Table 3]

Table 3: Distribution of upper gastrointestinal endoscopic findings among patients

		N (%)
Endoscopic findings	Normal	27 (27%)
	Gastritis	22 (22%)
	Hiatal hernia + gastritis	9 (9%)
	Hiatal hernia	6 (6%)
	Hiatal hernia + gastritis + duodenitis	7 (7%)
	Esophagitis + hiatal hernia	5 (5%)
	Esophagitis + hiatal hernia + gastritis	3 (3%)
	Gastritis + duodenitis	3 (3%)
	Duodenitis	2 (2%)
	Duodenitis + duodenal ulcer	1 (1%)
	Esophagitis	3 (3%)
	Esophagitis + gastritis	1 (1%)
	Esophagitis + gastritis + duodenitis + duodenal ulcer	2 (2%)
	Esophagitis + hiatal hernia + gastritis + duodenitis	1 (1%)
	Esophagitis + hiatal hernia + gastritis + duodenitis + duodenal ulcer	2 (2%)
	Esophagitis + hiatal hernia + gastritis + duodenal ulcer	2 (2%)
	Gastritis + oesophageal varices	1 (1%)
	Gastric ulcer + duodenitis + duodenal ulcer	2 (2%)
	Hiatal hernia + gastritis + duodenitis + duodenal ulcer	1 (1%)

DISCUSSION

Our study evaluated upper gastrointestinal endoscopic findings in patients with symptomatic GSD and chronic dyspeptic symptoms. Most patients were aged 31-60 years (66%), with a mean age of 44.18±13.94 years, and 66% were female. Kumar et al. found 52.7% in the 21-40 years group and 72.7% female, while Malik et al. showed 68% female predominance, mostly aged 41-50 years.[11,12] Gupta et al. noted 54% aged 31-60 years, with 86% female.[13] These findings are consistent with those of cholelithiasis in middle-aged women.

Abdominal pain was the most common symptom (77%), followed by postprandial fullness (61%), heartburn and nausea (53% each), belching (33%), and vomiting (16). Aravind et al. reported similar symptoms with abdominal pain (77.77%), postprandial fullness (63.49%), nausea (53.96%), heartburn (50.79%), belching (33.33%), and vomiting (14.28%).[14] Gupta et al. also found epigastric pain (77%), postprandial fullness (72%), nausea (69%), belching (31%), vomiting (27%), and epigastric burning (21%).[13] Malik et al. identified abdominal pain in 99% of patients.[12] This symptom distribution highlights the nonspecific and overlapping presentation of GSD and upper gastrointestinal disorders.

Our study found positive endoscopic findings in 73% of the patients, while 27% had normal results. Kumar et al. reported 73.2% abnormal findings, Manju et al. found 64% with abnormalities, and Malik et al. noted 66%.[11,12,15] Maheshwari et al. showed a higher abnormal yield of 88.6%, whereas Gupta et al. reported only 40% abnormalities.[13,16] These variations may be due to differences in the population, symptom severity, sample size, and criteria for significant lesions.

Gastritis was the most common upper gastrointestinal endoscopic abnormality, identified alone or with other lesions, and accounted for 22% of the cases. Similar findings were reported by Kumar et al. (gastritis 48.2%, duodenitis 25.9%, reflux esophagitis 11.6%, Hiatal hernia 9.8%) and Manju et al. (gastritis 36%, duodenitis 20%, reflux esophagitis 16%, hiatal hernia 10%, duodenal ulcer 2%).[11,15] Malik et al. found gastritis in 26%, Maheshwari et al. in 50.7%, esophagitis 17%, and gastroesophageal reflux disease 15.7%.[12,16] Gupta et al. reported gastritis in 38%, oesophagitis 7%, gastric ulcer 6%, with no duodenitis or hiatal hernia.[13] These findings indicate that gastritis and reflux-related lesions are frequent in symptomatic GSD.

Hiatal hernia alone or in combination with other lesions accounted for 30% of abnormalities, which is higher than that reported in previous studies. Kumar et al. reported hiatal hernia in 9.8%, Manju et al. in 10%. Jadhav et al. found hiatal hernia and cholelithiasis coexistence in 24%, but the association was insignificant (p=0.58).[11,15,17] The higher prevalence may be due to combined lesions involving gastritis and oesophagitis.

Our study showed no complications from upper gastrointestinal endoscopy, confirming its safety and utility. Dyspeptic symptoms in GSD are often linked to coexisting gastrointestinal issues, with persistent postoperative symptoms possibly due to undetected lesions. Aravind et al. recommended routine preoperative endoscopy in GSD with dyspepsia to

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avoid unnecessary cholecystectomy, whereas Kumar et al. and Maheshwari et al. noted its value in improving patient selection.[11,14,16] Gupta et al. reported routine endoscopy might be unnecessary as 99% of patients were symptom-free after 3 months.[13] Despite differing views, our findings support the use of preoperative endoscopy, especially for chronic dyspeptic symptoms and atypical presentations.

CONCLUSION

Upper gastrointestinal endoscopy showed significant mucosal abnormalities in patients with symptomatic GSD and chronic dyspepsia, mostly middle-aged females with abdominal pain. Many patients had positive findings, mainly gastritis and related lesions, followed by hiatal hernia and duodenal lesions. Dyspeptic symptoms often coincide with other gastrointestinal diseases. This study explains the overlapping symptoms between GSD and other disorders, which can potentially cause persistent postoperative symptoms if not identified preoperatively. Thus, upper gastrointestinal endoscopy is vital for evaluating symptomatic cholelithiasis in patients with dyspepsia. Early identification and management of associated lesions improve diagnostic accuracy, optimise surgical decisions, and reduce persistent post-cholecystectomy symptoms. Therefore, preoperative endoscopic evaluation is recommended for patients with significant dyspeptic symptoms to exclude malignancy.

REFERENCES

1. Thamer SJ. Pathogenesis, diagnosis and treatment of gallstone disease A brief review. Biomed Chem Sci 2022; 1:70–7. https://doi.org/10.48112/bcs.v1i2.99.
2. Portincasa P, Di Ciaula A, de Bari O, Garruti G, Palmieri VO, Wang DQ-H. Management of gallstones and its related complications. Expert Rev Gastroenterol Hepatol 2016; 10:93–112. https://doi.org/10.1586/17474124.2016.1109445.
3. Narayan H, Ravishankar N, Shivabasappa S, Kotekar N. Gall stones and dyspepsia: does upper gastrointestinal endoscopy have a pivotal role? Int Surg J 2019; 6:1938. https://doi.org/10.18203/2349-2902.isj20192222.
4. Di Ciaula A, Wang DQ-H, Portincasa P. An update on the pathogenesis of cholesterol gallstone disease. Curr Opin Gastroenterol 2018; 34:71–80. https://doi.org/10.1097/MOG.0000000000000423.
5. Shakir DBM, Dahel DAN, Abdulkareem DLS. Fate of dyspeptic symptoms following Lap. cholecystectomy. Int J Surg Sci 2019; 3:336–43. https://doi.org/10.33545/surgery.2019.v3.i3f.191.
6. Muhammad MI, Alhassan AH, Alkhars AY, Alzahrani RA, Mansour MHA, Alghamdi FH, et al. Clinical patterns and causes of post-cholecystectomy syndrome. Int J Community Med Public Health 2021; 8:4139. https://doi.org/10.18203/2394-6040.ijcmph20212826.
7. Di Ciaula A, Molina-Molina E, Bonfrate L, Wang DQ-H, Dumitrascu DL, Portincasa P. Gastrointestinal defects in gallstone and cholecystectomized patients. Eur J Clin Invest 2019;49: e13066. https://doi.org/10.1111/eci.13066.
8. Khan AJ, Gupta S, Kohli M, Bhargava GS. The usage of prior upper gastrointestinal endoscopy among symptomatic patients undergoing cholecystectomy. Int Surg J 2020; 7:1404. https://doi.org/10.18203/2349-2902.isj20201536.
9. Musande B V, Chaitanya Kiran P, C Sekar S. Prospective study of upper GI scopic evaluation of cases of gallstones with dyspepsia prior to laparoscopic cholecystectomy. Int J Sci Res (Raipur) 2021; 10:5–8. https://doi.org/10.21275/sr21526132757.
10. Bhattacharjee PK, Nanda D. Prospective observational study on cholelithiasis in patients with carcinoma gall bladder in a tertiary referral hospital of Eastern India. J Cancer Res Ther 2019; 15:153–6. https://doi.org/10.4103/jcrt.JCRT_939_17.
11. Kumar SM C, Kumar N P, M Patil A, Krishna B R V. A study on upper gastrointestinal endoscopy findings in symptomatic gallstone disease. Ijsr 2025:19–21. https://doi.org/10.36106/ijsr/8006342.
12. Malik M, Bhimani Z, Eswar PS, Shah N, Singh S. Analytical study of upper gastrointestinal endoscopy in patients of gallstones with dyspepsia. Int Surg J 2024; 12:67–71. https://doi.org/10.18203/2349-2902.isj20243987.
13. Gupta P, Gupta V, Singh S, Singh S, Mishra S, Singh P, et al. Role of routine upper gastro intestinal endoscopy in patients of cholelithiasis presenting with dyspepsia in rural set-up. Int Surg J 2016:509–15. https://doi.org/10.18203/2349-2902.isj20160951.
14. Aravind K, Kalghatgi S, Nayak S, Kulkarni M, Vinayak B. Analysis of upper gastro-intestinal endoscopic findings in patients with gallstone disease who present with dyspepsia. Int J Contemp Med Surg Radiol 2018; 3:8–11. http://www.ijcmsr.com/uploads/1/0/2/7/102704056/ijcmsr_31__3_1__v1_2.pdf.
15. Manju M, Balakrishna MA, Abhishek M, Mandeep. A descriptive study of upper gastrointestinal endoscopy findings in symptomatic gallstone disease patients. Int J Environ Sci 2025:2478–83. https://doi.org/10.64252/7ppj3s78.
16. Maheshwari N, Gond P. Study of upper GI endoscopy findings and plan of treatment in patients with cholelithiasis. Int J Sci Res 2025; 14:997–1001. https://dx.doi.org/10.21275/SR25215193944
17. Jadhav SS, Shingade PN, Nirhale DS, Abhijeet, Rawat A, Ghalsasi AA, et al. Association between cholelithiasis and hiatus hernia in patients with dyspepsia: a prospective study. Int Surg J 2019; 6:1131. https://doi.org/10.18203/2349-2902.isj20191058.

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