

STUDY ON UPPER GASTROINTESTINAL ENDOSCOPY FINDINGS IN SYMPTOMATIC GALLSTONE PATIENTS: A DESCRIPTIVE STUDY

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Abstract

Background: Gallstone disease is a common medical issue that requires surgical intervention, and its incidence has increased over the past decade. This study aimed to identify significant upper gastrointestinal pathology on endoscopy in a symptomatic gallstone patient. **Materials and Methods:** This prospective study was conducted at the KAPV Medical College Trichy and MGM Government Hospital between May 2018 and August 2019 in 150 patients. A detailed history and clinical examination were performed for all patients with gallstones admitted to the general surgery ward. Relevant laboratory investigations and radiological assessments were also performed. **Result:** The study population consisted of most female patient's aged 50-60 years, with significant endoscopic findings in 58.7% of patients. The most common findings were gastritis (24%), followed by gastric ulcers (7.3%), gastritis in women (25.5%), and duodenitis (6.6%). Most patients with normal endoscopic findings were females aged 30-40. Most patients with gastritis and gastric ulcers were over 40-50 years old, with males aged between 30-40 and 40-50. Patients with duodenal disease were predominantly male aged 50-60 years, with females aged between 50-60 years. Oesophagitis was predominantly male, aged 50-60 years, with females being the majority. Gastritis with hiatus hernia was found in one male patient, and oesophagitis with hiatus hernia was found in two male patients aged 30-40 years and 60-70 years. **Conclusion:** Significant findings on Upper gastrointestinal endoscopy in symptomatic gallstone patients, particularly gastritis, are more common in females and 40-60-year-olds. Endoscopy is recommended for initial evaluation, prevention of dyspepsia, treatment of other causes, and management of postoperative analgesia.

INTRODUCTION

Gallstone disease remains one of the most common medical problems that require surgical intervention. There has been a marked rise in the incidence of gallstone disease over the past decade, especially after considering the epidemic of obesity and advances in imaging techniques now available for diagnosing gallstones. The symptomatology of gallbladder stone disease is difficult to define despite research spanning decades.^[1,2] Studies examining the relief of symptoms after cholecystectomy suggest that approximately one-quarter of patients undergoing cholecystectomy will not experience relief of symptoms and that dyspeptic symptoms are least likely to be cured by cholecystectomy.^[3,4] Post-cholecystectomy syndrome (PCS) consists of a group of abdominal symptoms that recur and persist after cholecystectomy. It is defined as early if it occurs in

the postoperative period and late if it manifests after months or years. Reflux Esophagitis, hiatus hernia, bile gastritis, gastric erosions, and gastric and duodenal ulcers are the most common causes of post-cholecystectomy syndrome.^[4,5]

Gallstones are the most common type of biliary pathology. Gallstones are estimated to affect 5-10 per cent of the population in Asian countries. The prevalence of gallstones in Western countries ranges from approximately 7.9% in males to 16.6% in females.^[6,7] Silent gallstones are diagnosed as an incidental finding, most commonly by an abdominal ultrasound scan for unrelated disorders. The symptoms of gallstones are non-specific and may be acute or chronic.^[8] Chronic symptoms are generally dyspeptic and classically referred to as flatulent dyspepsia. In patients with chronic symptoms, gallstones do not exclude other disorders that may be responsible for these symptoms. A wide range of gastrointestinal symptoms has been linked to

gallstones, but a causal relationship has not yet been established. Although gallstone disease is asymptomatic in most individuals, it is commonly accepted that removal of the gallbladder is the best treatment for symptomatic gallstone disease. However, less focus has been given to patient selection and typical or common symptoms of this disease to understand prevailing symptoms after surgery.^[9-11,12]

A high proportion of non-specific abdominal symptoms in patients with known gallstones may lead to unjustifiable cholecystectomies.^[10-12] A study focusing on preoperative upper gastrointestinal (GI) endoscopy as an investigation modality to diagnose other associated disorders of the upper gastrointestinal tract in patients with USG-proven gallstones presenting with dyspeptic symptoms. Preoperative upper gastrointestinal endoscopy is a cost-effective procedure that may help reduce the postoperative persistence of symptoms in such patients and the number of unjustifiable cholecystectomies.

Aims and Objectives

This study aimed to identify significant upper gastrointestinal pathology on endoscopy in a symptomatic gallstone patient.

MATERIALS AND METHODS

This prospective study was conducted at the Department of General Surgery, KAPV Medical College Trichy and MGM Government Hospital, Trichy, from May 2018 to August 2019 on 150 patients. Informed consent was obtained from all participants before their inclusion in the study.

Inclusion Criteria

Patients aged > 20 years with ultrasound or computed tomography evidence of single or multiple stones in the gallbladder with any one or more of the following dyspeptic symptoms: nausea or vomiting, pain or discomfort in the upper abdomen, early satiety, and bloating or fullness of the abdomen.

Exclusion criteria

Patients less than 20 years of age without a stable general condition, acute abdomen/severe biliary colic pain, and asymptomatic gallstones were excluded.

Methods: A detailed history and clinical examination were performed for all patients with gallstones admitted to the general surgery ward. Relevant laboratory investigations and radiological assessments were also performed. The patient lay on a table facing an endoscopist, with their head in a neutral position. The staff nurse assists by holding the scope at a 20 cm level and aligning the tip with the tongue for easy sliding. The patient's pharynx was examined, and the tongue, uvula, and epiglottis were observed. The scope was then inserted at a 15 cm level, focusing on the vocal cords, piriform fossa, and posterior pharyngeal wall. Any resistance

is noted; if the patient resists it, it means coughs. The oesophagus is usually not filled with food particles or fluid; however, if there are any disorders, the squamocolumnar junction is examined. The patient's esophagogastric junction, fundus, and antrum were also examined. The pylorospasm was then entered, and oesophageal sphincter (LES) disorders were identified.

The patient's oesophagus was examined for ulcers, with the bulbar part being the common site. Granular mucosa with prominent circular folds was visualised, and the incisura was a common site for ulcers. The patient was straightened and withdrawn, and the endoscopy was repeated for oesophageal lesions. The patient's cricopharynx piriform fossa, postcricoid regions, vallecula, and vocal cords were examined. The endoscopic procedure must be stopped if the patient is uncooperative or restless, signs of cardiopulmonary distress, or if there are major complications such as aspiration, perforation, or false passage. Endoscopy diagnoses and treats various conditions, including gastritis, oesophagitis, gastropathy, gastric ulcers, duodenitis, and carcinoma scars. Oesophagitis is commonly noted in the lower oesophagus due to reflux and can be graded using the Savary Miller classification, Los Angeles classification, or Barret's epithelium. Gastritis can be oedematous, erythematous, erosive, or haemorrhagic. Congestive gastropathy occurs when the stomach mucosa appears oedematous owing to portal hypertension. Gastric ulcers are superficial lesions mainly in the pre-pyloric region, while diffuse or patchy areas of redness characterise duodenitis with multiple pinhead erosions graded as mild/moderate/severe. Duodenal ulcers are usually benign and often present in the anterior wall of the bulbar. Canceroinoma scars were protuberant, flat, and excavated. Borrmann's classification includes polypoidal, raised, fungatin, ulcerated, and poorly demarcated lesions. Duodenal ulcers are often found in the anterior wall of the bulbar, and a biopsy is warranted. Endoscope cleaning and disinfection involve wiping the endoscope with soap and water, detaching it from a video processor, immersing it in water with detergent, filling all channels with cleaning solution, and bruising the distal end with a soft brush. The disinfectants included 2.4% glutaraldehyde, 3.4% glutaraldehyde, peracetic acid, hydrogen peroxide, and Cidex 2%. Complications during endoscopy can range from minor to life-threatening, and the degree of disturbance can help stratify patients. Mild complications required hospital stays for 1-3 days, moderate complications for 4-9 days, severe complications for over 10 days, and fatal complications attributable to the procedure.

Statistical analysis: Data analysis was performed using SSP software. Age, sex, and endoscopic findings of patients with ultrasound-proven gallstones were recorded on the master sheet. Data are expressed as numbers and percentages.

RESULTS

The age group between 50-60 comprises most of the study population (24.7%). Female patients constituted the majority of the study population (68%). The age group between 50 and 60 comprised most of the male study population. The age group between 30 and 40 comprised most of the female study population [Table 1].

Significant endoscopic findings were noted in 58.7% of the patients. Among the male study population, 64.6% were significant, and the female study population comprised 55.9% [Table 2].

The most common finding in the study population was gastritis (24%), followed by gastric ulcer (7.3%), where males showed gastritis (20.8%), gastric ulcer (12.5%), gastritis in women (25.5%), and duodenitis (6.6%) [Table 3].

Table 1: Various age group distributions in the study population

		Number of patients	Percentage
Age groups	20-30	21	14
	30-40	29	19.3
	40-50	36	24
	50-60	37	24.7
	60-70	19	12.7
	>70	8	5.3
Sex	Male	48	32
	Female	102	68
Male	20-30	2	4.2
	30-40	5	10.4
	40-50	13	27.1
	50-60	16	33.4
	60-70	8	16.7
	>70	4	8.3
Female	20-30	19	18.7
	30-40	24	23.5
	40-50	23	22.5
	50-60	21	20.6
	60-70	11	10.8
	>70	4	3.9

Table 2: Normal and significant findings in the study population

Endoscopic findings	Normal findings	Significant findings
Study Populations	62 (41.3)	88 (58.7)
Male	17 (35.4)	31 (64.6)
Female	45 (44.1)	57 (55.9)

Table 3: Endoscopic findings of male and female

Endoscopic findings	Male	Female	Total
Gastritis	10 (20.8)	26 (25.5)	36 (24)
Duodenitis	2 (4.2)	7 (6.9)	9 (6)
Esophagitis	3 (6.3)	2 (2)	5 (3.3)
Gastric ulcer	6 (12.5)	5 (4.9)	11 (7.3)
Duodenal ulcer	0	2 (2)	2 (1.3)
Hiatus hernia	3 (6.3)	5 (4.9)	8 (5.3)
Esophageal growth	2 (4.2)	0	1 (0.7)
Stomach growth	1 (2.1)	0	2 (1.3)
Gastritis with gastric ulcer	1 (2.1)	5 (4.9)	6 (4)
Gastritis with duodenitis	1 (2.1)	5 (4.9)	5 (3.3)
Gastritis with hiatus hernia	1 (2.1)	0	1 (0.7)
Esophagitis with hiatus hernia	1 (2.1)	0	2 (1.3)
Nil significant lesion	17 (35.4)	45 (44.1)	Nil

Table 4: Age distribution with normal endoscopic findings and significant endoscopic findings of males and females

		Normal endoscopic findings	Significant endoscopic findings
Age Groups	20-30	9 (18.7)	13 (14.8)
	30-40	14 (23.5)	14 (15.9)
	40-50	16 (22.5)	20 (22.7)
	50-60	17 (20.6)	20 (22.7)
	60-70	3 (10.8)	16 (18.2)
	>70	3 (3.9)	5 (5.7)
Male	20-30	3 (4.8)	0
	30-40	1 (1.6)	3 (3.4)
	40-50	4 (6.5)	9 (10.2)
	50-60	7 (11.3)	9 (10.2)
	60-70	1 (1.6)	7 (7.9)
	>70	1 (1.6)	3 (3.4)

Female	20-30	6 (9.7)	13 (14.8)
	30-40	13 (20.9)	11 (12.5)
	40-50	12 (19.4)	11 (12.5)
	50-60	10 (16.1)	11 (12.5)
	60-70	2 (3.2)	9 (10.2)
	>70	2 (3.2)	2 (2.3)

Table 5: Age distribution with gastritis and gastric ulcers of males and females

		Gastritis	Gastric ulcer
Age Groups	20-30	7 (19.4)	2 (18.2)
	30-40	6 (16.7)	3 (27.3)
	40-50	9 (25)	2 (18.2)
	50-60	6 (16.7)	1 (9.1)
	60-70	4 (11.1)	3 (27.3)
	>70	4 (11.1)	0
Male	20-30	0	0
	30-40	0	2 (18.2)
	40-50	3 (8.3)	2 (18.2)
	50-60	4 (11.1)	1 (9.1)
	60-70	1 (2.8)	1 (9.1)
	>70	2 (5.6)	0
Female	20-30	7 (19.4)	2 (18.2)
	30-40	6 (16.7)	1 (9.1)
	40-50	6 (16.7)	0
	50-60	2 (5.6)	0
	60-70	3 (8.3)	2 (18.2)
	>70	2 (5.6)	0

Table 6: Age distribution with duodenitis and duodenal ulcers of males and females

		Duodenitis	Duodenal ulcer
Age Groups	20-30	1 (11.1)	0
	30-40	1 (11.1)	1 (50)
	40-50	0	0
	50-60	4 (44.4)	1 (50)
	60-70	3 (33.3)	0
	>70	0	0
Male	20-30	0	0
	30-40	0	0
	40-50	0	0
	50-60	1 (11.1)	0
	60-70	1 (11.1)	0
	>70	0	0
Female	20-30	1 (11.1)	0
	30-40	1 (11.1)	1 (50)
	40-50	0	0
	50-60	3 (33.3)	1 (50)
	60-70	2 (22.2)	0
	>70	0	0

Table 7: Age distribution with esophagitis and hiatus hernia of male and female

		Esophagitis	Hiatus hernia
Age Groups	20-30	0	1 (12.5)
	30-40	0	0
	40-50	1 (20)	3 (37.5)
	50-60	2 (40)	3 (37.5)
	60-70	1 (20)	1 (12.5)
	>70	1 (20)	0
Male	20-30	0	0
	30-40	0	0
	40-50	1 (20)	2 (25)
	50-60	1 (20)	1
	60-70	0	0
	>70	1 (20)	0
Female	20-30	0	1 (12.5)
	30-40	0	0
	40-50	0	1 (12.5)
	50-60	1 (20)	2 (25)
	60-70	1 (20)	1 (12.5)
	>70	0	0

Table 8: Age distribution with gastric ulcer, gastritis with duodenitis and esophagitis with hiatus hernia

		Gastritis with gastric ulcer	Gastritis with duodenitis	Esophagitis with hiatus hernia
Age Groups	20-30	1 (16.7)	1 (16.7)	0
	30-40	0	2 (33.3)	1 (50)
	40-50	3 (50)	1 (16.7)	0
	50-60	1 (16.7)	2 (33.3)	0
	60-70	1 (16.7)	0	1 (50)
	>70	0	0	0
Male	20-30	0	0	0
	30-40	0	0	1
	40-50	0	1 (16.7)	0
	50-60	0	0	0
	60-70	1 (16.7)	0	1 (50)
	>70	0	0	0
Female	20-30	1 (16.7)	1 (16.7)	0
	30-40	0	2 (33.3)	0
	40-50	3	0	0
	50-60	1	2 (33.3)	0
	60-70	0	0	0
	>70	0	0	0

Most patients with normal endoscopic findings included those between 50-60 years, and in sex distribution, most were female between the age group 30-40. Among the significant endoscopic findings, the majority included the age group between 40-60 years of the study population, and the majority was females between the age group of 20-30 years [Table 4].

The Age Distribution of Patients with Gastritis is as follows: the majority falls over 40-50 years of age (25%), and the female age group is between 20-30 years (19.4%). In the gastric ulcer group, age distribution fall-over age group between 30-40 years and 60-70 years (27.3%). Males aged 30-40 and 40-50 years (18.2%) [Table 5].

The age distribution of patients with duodenal disease was as follows: the majority fell over the age group between 50-60 years (44.4%), and the female age group between 50-60 years (33.3%). Duodenal ulcers were found in two patients, age group 30-40 years and 50-60 years. Sex distribution was found in two patients, both of whom were female [Table 6].

Regarding the age distribution of patients with oesophagitis, the majority fall over the age group between 50-60 years (40%), and in sex distribution, the majority fall over males. In hiatus hernia, the majority of subjects fell over the age group of 40-50 years and 50-60 years (18.2%), and females (62.5%) were in the majority level [Table 7].

The Age Distribution of Patients with gastritis and gastric ulcer is as follows: male's age group-40-50 years (50%) over females (16.7%) age group-40-50 years (50%). In gastritis with duodenitis, most subjects fall over the age group of 30-40 years and 50-60 years (33.3%) in sex distribution; females (83.3%) were in the majority level. Gastritis with hiatus hernia was found in only one male patient, and esophagitis with hiatus hernia found in two patients with age groups of 30-40 years and 60-70 years were in sexual distribution 30-40 years and 60-70 years, both were males [Table 8].

DISCUSSION

Among the 150 patients with symptomatic gallstones, a normal study of the upper gastrointestinal tract was conducted in 62 patients, forming 41.3% of the total patients. The result does not go by the study of Ure et al., which concluded that 84% of patients with symptomatic gallstone disease had no significant focal or structural lesion in the upper gastrointestinal tract at endoscopy.^[13] Narayan et al, concluded that there were significant findings in 72.8% of the study population in 58% of symptomatic gallstone patients.^[14]

The prevalence of positive findings was higher in women than in men). Of the 150 patients, 102 (68%) subjects of the 102 females, 57 (55.9%) had significant findings on endoscopy. This result goes by Karmacharya et al., where 87.5% of study subjects were females. The prevalence of positive findings in patients with symptomatic gallstones increases with age. The presence of atypical pain in patients with gallstones suggests a likelihood of additional upper gastrointestinal pathologies. Therefore, performing an upper gastrointestinal endoscopy before elective cholecystectomy in gallstone patients is clinically beneficial.^[15]

Among the 150 patients in our study, 88 (58.7%) showed significant lesions on endoscopy. Among the 88 patients, the prevalence of positive findings was 14.8, 15.9, 22.7, 22.7, 18.1 and 5.7% in the age frequencies of <20-30, 30-40, 40-50, 50-60, 60-70 and >70 years, respectively. Thus, the prevalence of positive findings was highest in the 40-60 age groups. Among the various endoscopically significant findings, gastritis forms in 24% of patients with symptomatic gallstones. This result follows Narayan et al., stating that gastritis is found in 25% of the total study population.^[14]

CONCLUSION

The number of significant findings on upper gastrointestinal endoscopy in patients with symptomatic gallstones was higher than normal. Among the significant findings, the most common was gastritis; significant findings were higher in females. Significant findings were higher in the age group of 40–60 years. Hence, significant findings are more common than normal in patients with symptomatic gallstones, and the recommendation of upper gastrointestinal endoscopy plays a significant role in the initial evaluation and investigation of patients with symptomatic gallstones. Hence, endoscopy before elective cholecystectomy prevents the patient from suffering from dyspepsia due to other causes, which is very helpful in treating other causes before surgery. If a patient is treated, it may cure dyspeptic symptoms; in this population, we will have serial follow-up cases. Hence, endoscopy helps prevent post-cholecystectomy syndrome and unjustifiable cholecystectomy. Another important use of endoscopy is to identify lesions before cholecystectomy, which may be helpful in the management of postoperative analgesia. Analgesics may be used carefully in cases of gastric pathologies to prevent life-threatening complications, such as perforation.

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