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Original Research Article

Gall stones and dyspepsia: does upper gastrointestinal endoscopy have a pivotal role?

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ABSTRACT

Background: Asymptomatic gallbladder stones are often diagnosed as an incidental finding. Gallstone disease is asymptomatic in most patients diagnosed to have gall stone and cholecystectomy is considered to be the treatment of choice. However, less focus has been given to patient selection and to the symptoms of this disease in order to understand prevailing symptoms after surgery. Studies suggest that approximately 25% of patients undergoing cholecystectomy will not experience relief of symptoms, and that dyspeptic symptoms are least likely to be cured by cholecystectomy. Post-cholecystectomy syndrome (PCS) consists of a group of symptoms that persist after cholecystectomy. It is defined as early if occurring in the post-operative period and late if it manifests after months or years. The objectives of the study were to emphasize the importance of endoscopic evaluation as a routine pre-operative investigative tool in patients with dyspepsia and gall stones and evaluate the prevalence of dyspeptic symptoms in patients with gall stone disease.
Methods: 92 patients with USG proven gall stones presenting with dyspepsia attending OPD or admitted in surgery department (JSS Hospital) were studied. Upper GI endoscopy was performed to detect for significant lesions.
Results: Most common endoscopic finding was gastritis. Malignancy was found in 3 (3.3%) patients. The management plan was changed for 9 (13.6%) patients.
Conclusions: Significant endoscopic findings were observed in 72.8% of patients. Routine pre-operative upper GI endoscopy is recommended in all patients with gall-stone disease who present with dyspepsia to avoid unnecessary cholecystectomy.

Keywords: Cholecystectomy, Upper GI endoscopy, Gall stones, Dyspepsia, Post-cholecystectomy syndrome

INTRODUCTION

Gallstone disease remains to be one of the most common medical problems leading to surgical intervention. There has been a marked rise in the incidence of gallstone disease over the past decade, especially after taking into consideration the epidemic of obesity and also the advances in imaging techniques now available for diagnosing gallstones.

The symptomatology of gallbladder stone disease has been hard to define despite research spanning decades. 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. Post-cholecystectomy syndrome (PCS) consists of a group of abdominal symptoms that recur and/or persist after cholecystectomy. It is defined as early

if occurring in the post-operative period and late if it manifests after months or years.[1] Reflux Esophagitis, hiatus hernia, bilegastritis, gastric erosions, gastric and duodenal ulcers are the most common causes of post cholecystectomy syndrome.

Gallstones are the most common biliary pathology. It is estimated that gallstones affect 5–10 percent of the population in Asian countries.[2] The prevalence of gall stones in western countries range from approximately 7.9% in males and 16.6% in females.[2]

Silent gallstones are diagnosed as an incidental finding most commonly by abdominal ultrasound scan which is done for unrelated disorders. The symptoms of gallstones are non-specific and maybe acute or chronic.

Chronic symptoms are generally dyspeptic and are classically referred to as flatulent dyspepsia. In patients with these chronic symptoms the demonstration of gallstones does not exclude other disorders which may be responsible for these symptoms.

A wide range of gastrointestinal symptoms have been linked to gallstones but causal relationship has not been established yet. Although gallstone disease is asymptomatic in a vast majority of individuals, it is commonly accepted that removal of gallbladder is the best treatment for symptomatic gallstone disease. However, less focus has been given patient selection and typical or common symptoms of this disease in order to understand prevailing symptoms after surgery.

A high proportion of non-specific abdominal symptoms in patients with known gallstones may lead to unjustifiable cholecystectomies.

Study focuses on the preoperative upper gastrointestinal (GI) endoscopy as an investigation modality to diagnose other associated disorders of upper gastrointestinal tract in patients with USG proven gallstones presenting with dyspeptic symptoms. Pre-op upper gastrointestinal endoscopy is a cost effective procedure which may potentially help reduce the post-operative persistence of symptoms in such patients and also reduce the number of unjustifiable cholecystectomies.

METHODS

This is a prospective observational study.92 patients with USG proved gall stones presenting with dyspepsia attending OPD or admitted in J.S.S Hospital Surgery department were considered for the study. The sample Size was calculated based on the prevalence of gallstone disease in the Northern India. Details of cases were recorded including history and clinical examination and investigations as per the pretested proforma. Upper GI endoscopy was performed to look for significant lesions. The study was carried out for a period of two years from December 2016 to December 2018.The ethical approval was obtained from the university ethical committee.

Findings were analyzed using Descriptive statistics, Fischer's exact test.

RESULTS

Out of 92 patients, there were 28 (30.4%) male patients, 64 (69.6%) female patients, age ranging from 18 years to 84 years. The mean age of the patients in this study was found to be 47.39 years.

All these patients presented to our hospital with symptoms of dyspepsia with USG proven Gall stone disease. Upper GI endoscopy was done in all patients.

Table 1: Frequency of various diseases on endoscopy in patients presenting with dyspepsia.

Endoscopic findings	No. of patients	Percentage (%)
No significant pathology	25	27.2
Gastritis	23	25.0
Duodenitis	12	13.0
Gastric ulcer	9	9.8
Gastritis + gastric ulcer	3	4.4
Esophagitis	3	3.3
Gastritis + duodenitis	3	3.3
Hiatus hernia	3	3.3
Esophagitis + hiatus hernia	2	2.2
Esophageal polyp	1	1.1
Gastritis + hiatus hernia	1	1.1
Gastritis + duodenal ulcer	1	1.1
Gastritis + esophagitis + duodenitis	1	1.1
Gastritis + pyloric antrum growth	1	1.1
Gastric ulcer+ gastroduodenitis	1	1.1
Esophageal growth	1	1.1
Pyloric growth	1	1.1

Normal study was observed in 25 (27.2.%) patients.

Most common abnormal endoscopic finding was gastritis 23(25%) patients, followed by duodenitis in 12 (13%) patients, gastric ulcer in 9 (9.8%) patients. Gastritis with gastric ulcer esophagitis and hiatus hernia was found in 3 (3.3%) patients each.

Malignancy was found in 3 patients two of whom had malignant lesion in the stomach and one patient had malignant growth in the esophagus.

Table 2: Incidence of dyspepsia in different age groups.

Age group (in years)	No. of cases	Percentage (%)
<30	14	15.2
31-40	23	25.0
41-50	15	16.3
51-60	19	20.7
61-70	15	16.3
>71	6	6.5
Total	92	100.0

Age distribution

Most of the patients with dyspepsia were in the age group of 31-40 years amounting to 25% of the study population. Least number of patients were in the age group of above 71 years (6 patients).

Most of the female patients were aged between 31- 40 years amounting to 17 (26.6%) patients followed by <30years age group amounting to 14 (21.9%) patients. Most of the male patients were aged between 51-60 years amounting to 8 (28.6%) patients, there was no male patient aged less than 30 years.

Table 3: The age and sex distribution of dyspepsia in the study group.

Age group (in years)	Sex					
	Female		Male		Total	
	Count	Percentage (%)	Count	Percentage (%)	Count	Percentage (%)
<30	14	21.9	0	0.0	14	15.2
31-40	17	26.6	6	21.4	23	25.0
41-50	9	14.1	6	21.4	15	16.3
51-60	11	17.2	8	28.6	19	20.7
61-70	9	14.1	6	21.4	15	16.3
>71	4	6.3	2	7.1	6	6.5
Total	64	100.0	27	100.0	92	100.0

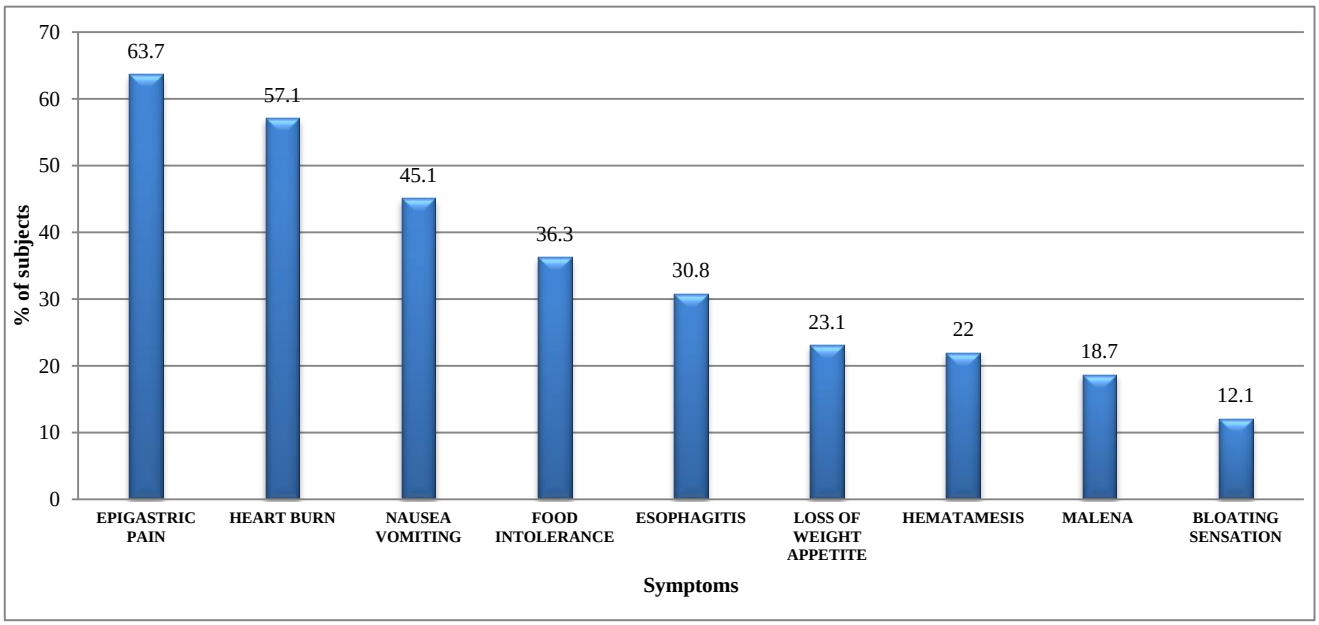

Figure 1: Frequency of various symptoms of dyspepsia in study population.

All patients were subdivided into different age groups. Most common clinically significant endoscopic findings were seen in age group between 38-47 years.

Gastritis and Duodenitis were commonly seen in the age group between 28-37 years. Gastric ulcer was common in the age group of 58-67 years.

Malignant lesions were seen frequently in patients aged more than 38 years.

Out of 92 patients, the most common component of dyspepsia was epigastric pain and discomfort, seen in 58 (63%) patients, followed by heart burn in 52 (56.5%) patients, nausea/vomiting in 41 (44.6%) patients, early satiety in 29 (31.5%) patients.

Table 4: Frequency of various diseases on endoscopy in different age groups.

Age groups (in years)	Ds	EG	Ep	Es	Es+ HH	Gs	Gs+ Ds	Gs+ Gu	Gs+ HH	Gs+Ds	Gs+Du	Gs+Es+Ds	Gs+Gu	Gs+PAg	Gu	Gu+GDs	Gu+Gs	HH	NSP	PYg	Grand total
18-27	1					4	1	1							1						8
28-37	5			1		7			1			1			1			1	4		21
38-47	1			1		5				1	1		1	1	1				11		23
48-57	1	1				3									2			1	7		15
58-67	2		1	1	2	2									3	1	1		2	1	16
68-77	2					1		1							1			1			6
78-87						1				1									1		3
Grand total	12	1	1	3	2	23	1	2	1	2	1	1	1	1	9	1	1	3	25	1	92

Gu – gastric ulcer; Gs – gastritis; NSP – no significant pathology; PAG – pyloric antrum growth; PYG – pyloric canal growth; HH – hiatus hernia; Du – duodenal ulcer; HPE – histopathological examination; HP – helicobacter pylori; CI – chronic inflammation; CaS – carcinoma stomach; CaE – carcinoma esophagus; EG – esophageal growth; Ep – esophageal diverticula.

Table 5: Frequency of various signs of dyspepsia in study population.

Signs	Count	Column%
Pallor	21	23.9
Epigastric/right hypochondrial tenderness	49	53.3

Epigastric tenderness was the most common sign seen in 49 (53.3%) subjects.

Table 6: Features of histopathological examination.

		Count	Column (%)
HPE	None	73	79.3
	Carcinoma esophagus	1	1.1
	Carcinoma stomach	3	3.3
	Chronic inflamation	6	6.5
	Helicobacter pylori	8	8.7
	Intestinal metaplasia	1	1.1

Table 7: The change in management plan of patients after endoscopy.

OGD findings	Management plan not changed	Management plan changed
	N (%)	N (%)
Normal (n=26)	26 (100)	0 (0)
Abnormal (n=66)	57 (86.4)	9 (13.6)
Total (n=92)	83 (90.2)	9 (9.78)

P=0.047; Fisher exact test.

Histopathological examination was done for 19 patients. The most common finding was *Helicobacter Pylori* infestation in the biopsies obtained from gastric ulcers in 8 (8.7%) patients, followed by features of chronic inflammation in 6 (6.5%) patients. Carcinoma stomach was found in 3 (3.3%) patients and carcinoma esophagus was found in 1 (1.1%) patients.

The management plan was changed for 9 patients following endoscopy, 3 of the patients had malignant growth and the rest of them had significant lesions in the upper gastrointestinal tract which resolved after starting medications.

DISCUSSION

Biliary colic is the pain due to obstructing stone that causes sudden expansion of the gall bladder, typically at the right upper quadrant or epigastric region lasting for 15 minutes to several hours. A dull ache with nausea and vomiting follows the cessation of pain. The pain may radiate to the shoulder or back. This is typical of "symptomatic gallstones" and may range from nonspecific to acute medical emergency.

Symptoms which do not fit the typical pain criteria is considered atypical and include any abdominal discomfort, dyspepsia, belching, food intolerance, heart burn, vomiting and loss of appetite. Atypical pain in patients with gallstones may be suggestive of coexisting upper gastrointestinal pathologies.

Cholecystectomy is considered as the best treatment for symptomatic gallstone disease and can be curative only in whom the symptoms are due to gallstones and not due to other upper GI pathologies. Symptomatology of upper gastrointestinal diseases can overlap, so upper GI endoscopy is important to identify the disease of the oesophagus, stomach and duodenum along with direct visualization of the ampulla of Vater.

Incidental gallstones found in the investigation of GI symptoms may be falsely implicated to explain the pathology arising outside the biliary tree. The main focus of the surgeon revolves around treating the gallstones and further investigations to rule out other pathologies which produce similar symptoms are not considered and surgery is often performed inappropriately.

Persistent post cholecystectomy pain, also termed as "post cholecystectomy syndrome" comprises of a group of abdominal symptoms that recur or persist after cholecystectomy and may include biliary and extra-biliary causes, unrelated to cholecystectomy.

In the present study, the most common age group presenting with cholelithiasis and dyspepsia was between 30 to 60 years, accounting for 57(61.9%) patients, followed by 61 to 70 years age group with 16.3%. Similar findings were found in a study by Sasoda et al with 30 to 60 years age group accounting for 60%, age group of more than 60 years accounting for 32%and age group of less than 30 years accounting for 8%.[3]

In a study conducted by Gaharwar et al, the age group between 30-60 years accounted for 81.81%, age more than 60 years for 3.03% and age less than 30 years accounted to 15.16%.[4] Since both gallstones and dyspepsia are common in middle-ages, this finding is consistent with the general population.

In the present study, cholelithiasis with dyspepsia was more common in females, constituting 64% of the study group.

Similar findings were noted in a study by Mozafar et al, in which, females accounted for 74.15% of the study group, followed by Ure et al with 75% and Gaharwar et al with 91.66%.[4-6]

In our study as the male population was more exposed to smoking, alcohol consumption and spicy food consumption, there was not much difference in the prevalence between the males and females as compared to the study conducted by Mozafar et al.[5]

Out of 92 patients, the most common component of dyspepsia was epigastric pain and discomfort, seen in 58 (63%) patients, followed by heart burn in 52 (56.5%) patients. In a study by Berger et al, pain abdomen was the most common symptom accounting for 89% in congruence with the present study. But, belching (77.77%) and nausea (74.28%) constituted the next most common symptoms.[7]

In a study by Ure et al and Rashid et al, pain abdomen was the most common symptom accounting for 82.9% and 75% respectively.[6,8]

On subjecting the patients of GSD with symptoms to EGD, abnormal upper GI findings were found in 72.8% of patients in the present study, in 30.20% of patients in the study by Schwenk et.al, in 31% of patients in a study by Diettrich et al.[9,10]

In the present series, 27.2% of the study group had normal study. In patients having clinically significant EGD findings, gastritis 23 (25%) accounted for the most common finding.

In Bartosz series, 29.7% of the study group had normal EGD study. Gastritis/gastric ulcer was the most common significant finding, accounting for 43.6%, followed by duodenitis (17.3%), hiatal hernia (16.10%), duodenal ulcer (8.30%).[11] The percentage of normal EGD was lower in the present study compared to Ibrahim et al, this could be due to high incidence of smoking, tobacco/gutkha chewing and spicy food intake in our study group.[12] In a study by Ibrahim et al, in the surgical group, symptoms disappeared completely in 72 (85%) after three months. In the patients treated conservatively, the symptoms disappeared completely in 22 (85%) at three months.[13,14]

The limitation of our study was the small sample size, thereby affecting the power of the study and the fact that variations in observations made by different endoscopists may have interfered with the yield of the findings at endoscopy.

CONCLUSION

This study supported the fact that GSD was not the sole cause of abdominal symptoms in these patients.

Performing upper GI endoscopy as a routine investigation prior to cholecystectomy will help detecting gastroduodenal pathologies at an early stage and help in deciding whether gall bladder stones are the source of the symptoms or an incidental finding. Differentiating between the two causes is of prime importance, as both conditions are common and would go a long way in reducing the prevalence of post cholecystectomy pain. The immense challenge for surgeon to reach the appropriate diagnosis could be simplified during the

initial evaluation with the inclusion of this simple minimally invasive procedure.

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