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ORIGINAL RESEARCH

Role of upper gastrointestinal endoscopy prior to surgery for cholelithiasis

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ABSTRACT

Aim: To study the role of upper gastrointestinal endoscopy in the patients of cholelithiasis before undergoing the surgery. **Materials and methods:** This prospective interventional study was conducted between 2019 and 2021 in the Department of Surgery at Rajindra Hospital and Government Medical College, Patiala. It involved 50 adult patients presenting with typical or atypical symptoms of cholelithiasis, confirmed via abdominal ultrasonography. All participants underwent upper gastrointestinal endoscopy (UGE) prior to planned laparoscopic cholecystectomy to identify any coexisting upper gastrointestinal pathologies. All the results were recorded in Microsoft excel sheet and were analyzed using SPSS software. Chi-square test was done for assessment of level of significance. p-value of less than 0.05 was taken as significant**. Results:** Maximum number of patients (34 percent) belonged to the age group of 41 to 50 years. 24 percent of the patients belonged to the age group of 31 to 40 years. Minimum number of patients (4 percent) was seen in the age-group of more than 60. Mean age of the patients was 43.8 years. It has been seen that majority of cholelithiasis patients present during middle age.Out of 50 patients, the larger number of patients were females which is 76 percent of the total patients. Cholelithiasis has been known to be more common in females than males. **Conclusion:** The routine use of preoperative upper gastrointestinal endoscopy in patients with proven gallstones can significantly enhance the management plan by identifying coexisting pathologies such as gastritis, duodenitis, or other upper gastrointestinal disorders. Detecting these conditions prior to cholecystectomy allows for appropriate and timely treatment, potentially reducing the persistence of postoperative symptoms often attributed to post-cholecystectomy syndrome. Preoperative endoscopy thus plays a crucial role in differentiating the actual cause of abdominal symptoms, enabling a more targeted and effective treatment approach. Therefore, incorporating elective upper gastrointestinal endoscopy into the preoperative assessment of cholelithiasis patients is strongly recommended for improved clinical outcomes.

Keywords: gastritis, abdominal, endoscopy

INTRODUCTION

The gallbladder plays a crucial role in the digestive system as it stores and concentrates bile produced by the liver. During digestion, especially after eating, the gallbladder contracts to release bile into the small intestine, where bile acids aid in the digestion and absorption of dietary fats. This function also contributes to the enterohepatic circulation of bile acids, impacting their reabsorption and recycling. The gallbladder also has secretory and absorptive roles, influencing the composition of bile. However, it is vulnerable to various pathological changes, especially gallstone disease, which is among the most common surgical conditions.[1,2]

Gallstone disease, or cholelithiasis, involves the formation of solid deposits within the gallbladder due to imbalances in the bile's chemical composition. These stones vary widely in size and are often asymptomatic. They are more common with increasing age, particularly in women over 60. Although many individuals with gallstones do not experience symptoms ("silent stones"), about 10–20% may become symptomatic over time, with pain, nausea, vomiting, and dyspepsia being common complaints. Accurately identifying whether symptoms are due to gallstones or unrelated gastrointestinal issues is essential for effective treatment.[3,4,5]

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When gallstones become symptomatic or lead to complications like cholecystitis or biliary obstruction, laparoscopic cholecystectomy is the standard treatment. Symptoms like right upper abdominal pain after fatty meals, nausea, vomiting, and positive Murphy's sign typically prompt surgical intervention. Serious complications such as jaundice, ascending cholangitis (Charcot's triad), and even systemic involvement (Reynold's pentad) require immediate attention and intervention.[6]

Ultrasonography is the preferred diagnostic tool for detecting gallstones and related conditions due to its high sensitivity, non-invasiveness, and safety. It helps assess gallbladder wall thickness, presence of stones, and can also be used in evaluating jaundiced patients. Despite these diagnostic advancements, some patients continue to experience symptoms post-surgery, known as post-cholecystectomy syndrome, which may be attributed to unrecognized gastrointestinal issues rather than the gallbladder itself.[7]

Research highlights that a significant proportion of patients with nonspecific upper abdominal symptoms may have underlying gastrointestinal diseases like esophagitis, gastritis, peptic ulcers, or hiatus hernia. These may go undiagnosed if evaluation is focused solely on the gallbladder. Routine upper gastrointestinal endoscopy prior to cholecystectomy is increasingly being recommended to detect such conditions early and reduce post-operative symptom persistence.[8]

While gallstones are a major surgical concern, proper preoperative evaluation is vital. Differentiating whether symptoms stem from gallstones or other gastrointestinal issues is crucial to prevent unnecessary surgeries and improve outcomes. Incorporating routine upper GI endoscopy in symptomatic patients with gallstones may enhance diagnostic accuracy and reduce the incidence of post-cholecystectomy syndrome.[9]

Thus, this study was conducted to see the role of upper gastrointestinal endoscopy as routine preoperative investigation and the importance of upper gastrointestinal endoscopy to rule out gastrointestinal symptoms from symptoms due to gallstones and reduce the prevalence of post cholecystectomy pain and to evaluate what upper gastrointestinal pathologies are common in these patients presenting symptomatically and to manage these along with opting for surgical intervention for cholelithiasis

MATERIALS AND METHODS

This prospective interventional study was conducted between 2019 and 2021 in the Department of Surgery at Rajindra Hospital and Government Medical College, Patiala. It involved 50 adult patients presenting with typical or atypical symptoms of cholelithiasis, confirmed via abdominal ultrasonography. All participants underwent upper gastrointestinal endoscopy (UGE) prior to planned laparoscopic cholecystectomy to identify any coexisting upper gastrointestinal pathologies.

The inclusion criteria were patients above 18 years of age with ultrasonography-confirmed gallstones and relevant symptoms. Exclusion criteria included patients below 18, those unfit for UGE or surgery, individuals with complications such as choledocholithiasis, cholangitis, gallstone pancreatitis, prior biliary surgery, neoplasms, or pregnancy. All patients gave informed consent after a thorough explanation of the procedures.

Eligible patients underwent history-taking, physical examination, and UGE. If abnormalities such as ulcers, polyps, or inflammatory changes were found during endoscopy, treatment plans were adjusted accordingly. Biopsies were taken for histopathology when needed, and gallbladder surgery was postponed or managed alongside the identified gastrointestinal conditions.

Post-operatively, patients were monitored for four weeks to assess symptom persistence, especially abdominal pain, using a pain analog scale. Management was tailored based on findings from the endoscopic evaluation, ensuring both gallstone-related and upper GI pathologies were appropriately addressed.

All the results were recorded in Microsoft excel sheet and were analyzed using SPSS software. Chi-square test was done for assessment of level of significance. p-value of less than 0.05 was taken as significant

RESULTS

TABLE 1: AGE-WISE DISTRIBUTION OF PATIENTS

Age group (years)	Number of patients	Percentage
≤30	8	16
31-40	12	24
41-60	17	34
51-60	11	22
More than 60	2	4
Total	50	100
Mean ± SD	43.8 ± 6.8	

It shows that maximum number of patients (34 percent) belonged to the age group of 41 to 50 years. 24 percent of the patients belonged to the age group of 31 to 40 years. Minimum number of patients (4 percent) was seen in the age-group of more than 60. Mean age of the patients was 43.8 years. It has been seen that majority of cholelithiasis patients present during middle age.

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TABLE 2: GENDER-WISE DISTRIBUTION OF PATIENTS

Gender	Number of patients	Percentage
Males	12	24
Females	38	76
Total	50	100

It is observed that out of 50 patients, the larger number of patients were females which is 76 percent of the total patients. Cholelithiasis has been known to be more common in females than males.

TABLE 3: DISTRIBUTION OF PATIENTS ACCORDING TO CO-MORBIDITIES

Co-morbidities	Number of patients	Percentage
Diabetes	4	8
Hypertension	2	4
Dyslipidemia	5	10
Obesity	4	8

It was observed that 8 percent of the patients were diabetics while 4 percent of the patients were hypertensive. Dyslipidemia was seen in 10 percent of the patients. Obesity was seen in 8 percent of the patients. The knowledge comorbidities of a patient are integral part of pre-operative workup for a patient with gall stones.

TABLE 4: CORRELATION OF PREOPERATIVE UPPER GASTROINTESTINAL ENDOSCOPY FINDINGS AND PREOPERATIVE SYMPTOMS

Preoperative Symptoms	Preoperative upper gastrointestinal endoscopy findings				P value
	Positive		Normal		
	Number of patients	Percentage	Number of patients	Percentage	
Heart Burn	8	42.10	6	19.35	0.001*
Nausea and vomiting	4	21.05	5	16.13	0.062
Dyspepsia	9	47.36	7	22.58	0.013*
Anorexia	1	5.26	2	6.45	0.358
Right Hypochondrium	6	31.58	21	67.74	0.049*
Epigastric Pain	17	89.47	4	12.9	0.008*

Heart burn was seen in 42.1 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 19.35 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Nausea and vomiting was seen in 21.05 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 16.13 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Dyspepsia was seen in 47.36 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 22.58 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Anorexia was seen in 5.26 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 6.45 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Right hypochondrium pain was seen in 31.58 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 67.71 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Epigastric pain was seen in 89.47 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings while it was seen in 12.9 percent of the patients with negative preoperative upper gastrointestinal endoscopy findings. Significantly higher incidence of symptoms was seen among patients with positive preoperative upper gastrointestinal endoscopy findings. Since most of the patients present with combination of symptoms so it is not possible to directly relate a particular symptoms with endoscopy findings.

TABLE 5: POSITIVE PREOPERATIVE UPPER GASTROINTESTINAL ENDOSCOPY FINDINGS

Positive preoperative upper gastrointestinal endoscopy finding	Number of patients	Percentage
Esophagitis	6	12
Hiatal hernia	2	4
Gastric Ulcer	1	2
Duodenal Ulcer	1	2

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Gastritis	4	8
Duodenitis	4	8
Gastric polyp	1	2

Out of 19 patients with positive preoperative upper gastrointestinal endoscopy findings, maximum number of patients which is 6 patients (12 percent) were of esophagitis. 4 patients (8 percent) each were of gastritis and duodenitis. 2 patients (4 percent) were of hiatal hernia Minimum number of patients which is 1 patient (2 percent) each had gastric ulcer, duodenal ulcer and gastric polyp. It is important to note that elective preoperative upper gastro-intestinal endoscopy disclosed seven new pathologies which were there in the patients of cholelithiasis. The appropriate management was started for the pathologies found in the endoscopy. Medical therapy was initiated for esophagitis, gastric ulcer, duodenal ulcer, gastritis and duodenitis. Biopsies were taken for gastric ulcer, duodenal ulcer and gastric polyp. Further radiological and surgical management was initiated for hiatus hernia and gastric polyp

TABLE 6: COMPARISON OF POSTOPERATIVE PAIN AT 1 WEEK POSTOPERATIVE

Pain	Preoperative upper gastrointestinal endoscopy findings			
	Positive		Normal	
	Number of patients	Percentage	Number of patients	Percentage
Absent	3	15.79	23	74.2
Present	16	84.21	8	25.8
Total	19	100	31	100
P-value	0.0032 (Significant)			

At 1 week postoperatively, among the patients with positive preoperative upper gastrointestinal endoscopy findings, pain was seen in 84.21 percent of the patients while among the patients with normal preoperative upper gastrointestinal endoscopy findings, pain was seen in 74.2 percent of the patients. Significant results were obtained while comparing the postoperative pain scores at 1 week postoperative among patients with positive and normal preoperative upper gastrointestinal endoscopy findings. 52.6 percent of patients still experienced pain after getting the surgery for gall stone disease, so for these patients, surgery did not exactly solve the purpose of relief from symptoms. This pain could be due to the post cholecystectomy syndrome which could be the result of pre-existing upper gastrointestinal pathologies found in the upper gastrointestinal endoscopy done prior to the surgery.

TABLE 7: COMPARISON OF POSTOPERATIVE PAIN AT 4TH WEEK POSTOPERATIVE

Pain	Preoperative upper gastrointestinal endoscopy findings			
	Positive		Normal	
	Number of patients	Percentage	Number of patients	Percentage
Absent	16	84.21	26	83.87
Present	3	15.79	5	16.13
Total	19	100	31	100
P-value	0.1280(Non-significant)			

At 4th week postoperatively, pain was seen in 15.79 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings, while it was seen in 16.13 percent of the patients with normal preoperative upper gastrointestinal endoscopy findings. Non-significant results were obtained while comparing the postoperative pain scores at 4th week postoperative among patients with positive and normal preoperative upper gastrointestinal endoscopy findings. These non significant results could have been obtained due to the fact that the treatment for the upper gastrointestinal pathologies was started eventually to relieve the patients from post cholecystectomy syndrome.

TABLE 8: COMPARISON OF DISTRIBUTION OF PATIENTS ACCORDING TO PAIN SCORE PREOPERATIVELY

Pain Score	Preoperative upper gastrointestinal endoscopy findings			
	Positive		Normal	
	Number of patients	Percentage	Number of patients	Percentage
0	0	0	2	6.45

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1	1	5.26	4	12.9
2	9	47.37	14	45.16
3	7	36.84	10	32.25
4	2	10.52	1	3.22
Total	19	100	31	100
P-value	0.0002(significant)			

When assessed preoperatively, among the patients with positive preoperative upper gastrointestinal endoscopy findings, pain score 1, score 2, score 3 and score 4 was seen in 5.26 percent, 47.37 percent, 36.84 percent and 10.52 percent of the patients respectively. Among the patients with normal preoperative upper gastrointestinal endoscopy findings, pain score 0, score 1, score 2, score 3 and score 4 was seen in 6.45 percent, 12.9 percent, 45.16 percent, 32.25 percent and 3.22 percent of the patients respectively. Significant results were obtained while comparing the distribution of patients according to pain score preoperatively.

TABLE 9: COMPARISON OF DISTRIBUTION OF PATIENTS ACCORDING TO PAIN SCORE AT 1 WEEK POSTOPERATIVE

Pain Score	Preoperative upper gastrointestinal endoscopy findings			
	Positive		Normal	
	Number of patients	Percentage	Number of patients	Percentage
0	3	15.79	23	74.19
1	7	36.84	8	25.81
2	5	26.32	0	0
3	3	15.79	0	0
4	1	5.26	0	0
Total	19	100	31	100
P-value	0.0010(significant)			

At 1 week postoperatively, among the patients with positive preoperative upper gastrointestinal endoscopy findings, pain score 0, score 1, score 2, score 3 and score 4 was seen in 15.79 percent, 36.84 percent, 26.32 percent, 15.49 percent and 5.26 percent of the patients respectively. Among the patients with normal preoperative upper gastrointestinal endoscopy findings, pain score 0 and score 1 was seen in 74.19 percent and 25.81 percent of the patients respectively. Significant results were obtained while comparing the distribution of patients according to pain score at 1 week postoperative.

TABLE 10: COMPARISON OF DISTRIBUTION OF PATIENTS ACCORDING TO PAIN SCORE AT 4 WEEK POSTOPERATIVE

Pain Score	Preoperative upper gastrointestinal endoscopy findings			
	Positive		Normal	
	Number of patients	Percentage	Number of patients	Percentage
0	16	84.21	26	83.88
1	3	15.79	5	16.12
2	0	0	0	0
3	0	0	0	0
4	1	0	0	0
Total	19	100	31	100
P-value	0.1225			

At 4 week postoperatively, among the patients with positive preoperative upper gastrointestinal endoscopy findings, pain score 0 and score 1 was seen in 84.21 percent, 15.79 percent of the patients respectively. Among the patients with normal preoperative upper gastrointestinal endoscopy findings, pain score 0 and score 1 was seen in 83.88 percent and 16.12 percent of the patients respectively. Non-significant results were obtained while comparing the distribution of patients according to pain score at 4 week postoperative.

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TABLE 11: SYMPTOMS OF ALL SYMPTOMATIC CHOLELITHIASIS PATIENTS AT DIFFERENT FOLLOW-UP

Symptoms	Preoperative		1st week preoperative		4th week preoperative	
	Number of patients	percentage	Number of patients	Percentage	Number of patients	Percentage
Heart Burn	14	28	6	12	2	4
Nausea and vomiting	9	18	6	12	1	2
Dyspepsia	16	32	8	16	2	4
Anorexia	3	6	2	4	0	0
Right hypochondrium Pain	27	54	2	4	1	2
Epigastric Pain	21	42	10	20	3	6

A significant progressive reduction in the symptoms was seen among all the patients at post-operatively 4 weeks. It is due to the management started for the pathologies found in upper gastrointestinal endoscopy.

DISCUSSION

Cholelithiasis is a common surgical condition, but it often presents with upper gastrointestinal (UGI) symptoms that may not be directly caused by gallstones, making diagnosis and treatment challenging. One major concern is the persistence of symptoms even after gallbladder removal, known as post-cholecystectomy syndrome (PCS). Studies report that 20–30% of patients may experience ongoing abdominal symptoms after cholecystectomy.[10,11]

PCS refers to a range of symptoms, including abdominal pain that can occur shortly after surgery or even months to years later. These symptoms may result from biliary or non-biliary causes and sometimes have no clear link to the gallbladder or its removal. In nearly half of these cases, the cause is an identifiable organic gastrointestinal or pancreaticobiliary disorder, while the rest may be due to psychosomatic or extraintestinal conditions. Notably, in about 5% of patients, the exact cause of chronic pain remains undetermined.[12,13]

Common gastrointestinal conditions contributing to PCS include peptic ulcer disease, gastritis, duodenal disorders, esophageal issues, hiatal hernia, and gastric cancer. Surgical complications from cholecystectomy itself can also play a role. These findings emphasize the importance of thorough preoperative evaluation to identify coexisting UGI conditions and help reduce the risk of persistent symptoms after surgery.[14,15]

To identify the cause of abdominal pain and other symptoms, esophagogastroduodenoscopy (EGD) is important to identify the diseases of upper gastrointestinal tract. As it evaluates the mucosa for signs of disease from the oesophagus to the duodenum & allows direct visualization of the ampulla of Vater. Persistence of original complaints of post cholecystectomy patients is due to deficient preoperative evaluation of other pathologies that causes the same symptomatology. Many upper G.I. pathologies associated with cholecystitis such as gastritis, peptic ulcers & others are the causes of persistence of upper abdominal discomfort, dyspepsia & heart-burn in post-cholecystectomy patients. [16,17]

Hence, under light of above mentioned data, the present study was undertaken for assessing the role of upper gastrointestinal endoscopy in the patients of cholelithiasis before undergoing the surgery. In the present study, a total of 50 patients were enrolled.

In the present study, 34 percent of the patients belonged to the age group of 41 to 50 years. 24 percent of the patients belonged to the age group of 31 to 40 years. Mean age of the patients was 43.8 years. Our results were in concordance with the results obtained by previous authors who also reported similar findings. Chandio A et al, in their study, reported mean age of the patients to be 46.1 years. In Kim et al.‘s study, the mean age of presentation was 47.3 years. In another study conducted by Inpharasun SA et al, mean age of the patients was 41.33 years. [18,14,15]

In the present study, out of 50 patients, 76 percent were females while the remaining were males. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a study conducted by Reddy NPK et al, among 92 patients, 73.9 percent were females and 26.1 percent were males. The age and gender distribution of present as well as previous studies indicate that the incidence of cholelithiasis is higher in adults and in females. This may be due female sex hormones and decrease in activity of cholesterol reductase and increase in activity of HMG CoA reductase with age, resulting in increased cholesterol secretion and saturation of bile. Female‘s sex hormones and sedentary habits expose them to factors that possibly promote the formation of gall stones. Ure BM et al, in another study, reported that 75 percent of the patients in their study were females. In another study conducted by Chandio A et al, 82.7 percent of the patients were females. In another study conducted by Rana I et al, 76.4 percent of the patients were females.[18,15,20,21,22]

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In the present study, 8 percent of the patients were diabetics while 4 percent of the patients were hypertensive. Dyslipidemia was seen in 10 percent of the patients. Obesity was seen in 8 percent of the patients. In a study conducted by Khan AJ et al, Out of 60 patients, 13 (21.67 percent) were diabetics and 14 had history of dislipidemia (23.33 percent). Mozafar et al conducted retrospective study of 360 patients out of which 45 were smokers, 135 had dyslipidemia, 44 were chronic alcoholic and 32 ones had diabetes mellitus. [23,24]

Right hypochondrium pain and Epigastric pain were seen in 54 percent and 42 percent of the patients respectively. Heart burn and dyspepsia was seen in 28 percent and 32 percent of the patients respectively. Nausea and vomiting was seen in 18 percent of the patients. Anorexia was seen in 6 percent of the patients. In a study conducted by Kunnuru SKR et al, common symptoms encountered were heart burn, nausea/vomiting, chest pain, anorexia and dyspepsia and they were seen in 25.5 percent, 8.5 percent, 0.7 percent, 2.7 percent and 23 percent of the patients respectively. Ure B et al, in another study, reported presence of nausea and vomiting in 35.8 percent and 59.5 percent of the patients respectively. In a study conducted by Karmacharya A, the commonest symptoms were heart burn (10%), abdominal discomfort (9%) and dyspepsia (7%).[25,21,26]

According to preoperative upper gastrointestinal endoscopy, positive findings were seen in 38 percent of the patients while normal findings were seen in the remaining 62 percent of the patients. Our results were in concordance with the results obtained by previous authors who also reported similar findings. Diettrich et al. found that 31/100 patients had abnormal OGD which changed their subsequent plan of treatment. In 18% of patients, the cholecystectomy was differed for 4 to 8 Weeks, after additional medical treatment and 7 patients were discharged on only conservative medical treatment. Therefore, he recommended that preoperative endoscopy of the upper gastrointestinal tract should be used in patients undergoing cholecystectomy to rule out other gastrointestinal disorders. Karmacharya A et al, in his study, out of 96 patients, (55.2%) had normal findings and 43(44.8%) had various lesions. Rashid et al evaluated the routine use of OGD prior to laparoscopic cholecystectomy. In his retrospective analysis, the routine use of OGD resulted in detection of other coexisting pathologies in about one third (33%) of patients. All of these OGD findings lead to a change in the management plan for these patients. Also they noticed that, the recurrence or persistence of symptoms was significantly higher in patients who were not scoped prior surgery (33 %) in comparison to patients who were scoped where only (3.3%) had recurrent or persistent symptoms. Another study by Schwenk et al, 1143 patients underwent preoperative upper gastrointestinal endoscopy prior cholecystectomy. The incidence of pathological findings was 30.2%. [27,24,16,28]

At 1 week postoperatively, among the patients with positive preoperative upper gastrointestinal endoscopy findings, pain was seen in 84.21 percent of the patients while among the patients with normal preoperative upper gastrointestinal endoscopy findings, pain was seen in 25.8 percent of the patients. Significant results were obtained while comparing the postoperative pain scores at 1 week postoperative among patients with positive and normal preoperative upper gastrointestinal endoscopy findings. 48 percent of patients still experienced pain after getting the surgery for gall stone disease, so for these patients, surgery did not exactly solve the purpose of relief from symptoms. This pain could be due to the post cholecystectomy syndrome which could be the result of pre-existing upper gastrointestinal pathologies found in the upper gastrointestinal endoscopy done prior to the surgery.

At 4th week postoperatively, pain was seen in 15.79 percent of the patients with positive preoperative upper gastrointestinal endoscopy findings, while it was seen in 16.13 percent of the patients with normal preoperative upper gastrointestinal endoscopy findings. Non-significant results were obtained while comparing the postoperative pain scores at 4th week postoperative among patients with positive and normal preoperative upper gastrointestinal endoscopy findings. These nonsignificant results might have been obtained due to the fact that the treatment for the upper gastrointestinal pathologies was started eventually to relieve the patients from post cholecystectomy syndrome.

Our results were in concordance with the results obtained by Kunnuru SKR et al who also reported similar findings. In their study, in the 1st week, the pain score was significantly high in patients with positive preoperative upper gastrointestinal endoscopy findings. In patients with positive upper gastrointestinal endoscopy findings, pain score 3 was seen in 20.5% of patients and pain score 4 was seen in 1.5% of patients, but in normal upper gastrointestinal endoscopy findings, it was 0%. In the 4th week and 6th week, there was no difference in pain score in between patients with positive and normal findings. It means because of medical management in the 4th week and 6th week, pain reduction occured. It means patients with positive preoperative upper gastrointestinal endoscopy findings were treated according to their findings for 4 to 6 weeks helping in maximum pain reduction.[29]

In the present study, significant progressive reduction in the symptoms was seen among all the patients at postoperative 1 week and postoperatively 4 weeks. Our results were in concordance with the results obtained by Karmacharya A et al who also reported similar findings. In their study, in all patients with typical pain complete relief of symptoms were observed within one week post- operatively. However, patients with atypical pain had persistence of symptoms. The persistence of symptoms overtime

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were heart burn (42.5%), nausea (85.7%), dyspepsia (50%) and abdominal discomfort (50%) on 7th post-operative day. The subsequent follow up of the patients with symptoms showed significant reduction on the 14th and 30th days with presence of heart burn (10%), dyspepsia (6.25%) and abdominal discomfort (9.4%). [25]

In a similar study conducted by Khedkar I et al, authors showed there was a 100% relief rate at the end of 3 months in regards with nausea/vomiting, followed by indigestion with a relief rate of 96.15%. The lowest relief rate of 93.75% was found for post-prandial fullness. Pain and nausea/vomiting were relieved completely by the end of 3 months.[29]

Laparoscopic cholecystectomy is the gold standard care for the treatment of symptomatic gall bladder disease. Cholelithiasis can present with a complex combination of clinical symptoms which may resemble the presentation of other gastrointestinal diseases. It‘s an immense challenge to discriminate between gastrointestinal symptoms due to gall stones or any other causes and post cholecystectomy syndrome is discouraging for the operating surgeon. Preoperative upper gastrointestinal endoscopy will help to diagnose the co-existing upper gastrointestinal pathologies alongside gall stone disease which can be managed by various modalities, therefore helping in reducing the incidence of postcholecystectomy pain. Thus, we can infer that it has a vital role in the initial evaluation and investigation of patients with symptomatic gallstone patients.

CONCLUSION

The routine use of preoperative upper gastrointestinal endoscopy in patients with proven gallstones can significantly enhance the management plan by identifying coexisting pathologies such as gastritis, duodenitis, or other upper gastrointestinal disorders. Detecting these conditions prior to cholecystectomy allows for appropriate and timely treatment, potentially reducing the persistence of postoperative symptoms often attributed to post-cholecystectomy syndrome. Preoperative endoscopy thus plays a crucial role in differentiating the actual cause of abdominal symptoms, enabling a more targeted and effective treatment approach. Therefore, incorporating elective upper gastrointestinal endoscopy into the preoperative assessment of cholelithiasis patients is strongly recommended for improved clinical outcomes.

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