Original Research Article

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Diagnostic value of upper gastrointestinal endoscopy prior to elective laparoscopic cholecystectomy for symptomatic cholelithiasis

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ABSTRACT

Background: Laparoscopic cholecystectomy is gold standard surgery for symptomatic gall stone disease which is the commonest disease needs surgical management. Present study was conducted to contribute UGI endoscopy as routine preoperative investigation and the importance of UGI endoscopy to evaluate the association between gastrointestinal symptoms with gallstones and reduce the prevalence of post cholecystectomy pain.

Methods: Patients with Ultrasonography suggestive of single or multiple gall stones were included and investigated as per proforma. Upper GI Scopy was done 1 to 2 days prior to laparoscopic cholecystectomy as per inclusion and exclusion criteria. All patients above 18years, with ultrasonographically proven diagnosis of cholelithiasis and with symptoms (typical and atypical) were included.

Results: In present study, author have evaluated the different OGD pathologies the most common site of pathology was stomach (72.5%) that was gastritis. Followed by oesophagitis (55%), and Hiatus hernia (16.5) The most common duodenal pathology was duodenitis (6.25%). In present study, 71 patients had pain in epigastrium at presentation which gradually subsided with no complains of pain in 3 months. Statistically significant reduction in pain was appraised at the end of first week itself (p-value <0.0001).

Conclusions: Certain symptoms associated with gallstones are not alleviated by cholecystectomy itself and requires further exploration, therefore, patients presenting with symptomatic gall stone disease should undergo routine OGD prior to cholecystectomy as many gastrointestinal lesions may coexist which prevents the complete relief of the symptoms after cholecystectomy.

Keywords: Cholelithiasis, Laparoscopic cholecystectomy, Upper gastrointestinal endoscopy

INTRODUCTION

Laparoscopic cholecystectomy is gold standard surgery for symptomatic gall stone disease which is the commonest disease needs surgical management. Cholecystectomy can be curative only whose symptoms are due to gallstones, and not due to other upper GI pathologies. It causes unnecessary burden of cost and surgical risk to patient, it also delays definitive treatment for the actual cause.¹

The pain due to the obstructing stone causes sudden expansion of the gall bladder called "Biliary Colic". This typical pattern of pain occurs at right upper quadrant or epigastric region and lasts for 15 minutes to several hours after a fatty meal. When pain gradually disappears, it usually leaves behind a dull ache with nausea and vomiting. As the supply is splanchnic nerve, pain radiates to right scapula or shoulder tip and occasionally to back. 80% of patients with cholelithiasis are asymptomatic. Most studies show that patients appear to be symptomatic at 2% to 3% yearly. Among them 2% have an overall risk

of biliary complications such as acute pancreatitis and acute choledocholithiasis and 0.02% have the risk of incidence of gallbladder cancer. Among symptomatic patients, 50% develop biliary colic within a year. Though biliary colic is specific for gallstones, most patients are present with other abdominal symptoms.⁶

The term "symptomatic gallstones" is widely used to describe symptoms arising secondary to gallstones. The symptoms of gallstones are variable ranging from nonspecific to acute medical emergency. Wide range of gastrointestinal symptoms that have been linked to gallstones, but causal relationship has not been established. ⁷

Symptoms that does not fit typical pain criteria is considered as atypical and include any abdominal discomfort, dyspepsia, nausea, belching, heart burn, food intolerance, flatulence, vomiting, loss of appetite.⁸ Sometimes, patients have mixture of atypical upper GI symptoms and discovered to have gallstones on imaging studies. The latter group are likely to be associated with poor symptomatic outcome. ⁹

It is commonly accepted that removal of the gallbladder is the best treatment for symptomatic gallstone disease. ¹⁰ Cholecystectomy is a commonly performed abdominal surgical procedure for cholelithiasis, biliary dyskinesia, acute cholecystitis, calcified gall bladder, gallstone pancreatitis, choledocholithiasis etc.

Some patients do not get symptomatic relief or get only partial relief after laparoscopic cholecystectomy as symptoms are not entirely due to cholelithiasis. Symptomatology of upper GI diseases can be overlapping so upper gastrointestinal endoscopy is important to identify the diseases of upper gastrointestinal tract as it evaluates the esophagus, stomach and duodenum along with direct visualization of the ampulla of Vater. It is considered a minimally invasive procedure and does not require any significant recovery after the procedure as it is performed under local anesthesia in our institution.

Gallstones found incidentally in the investigation of gastrointestinal symptoms may become falsely attributed to explain pathology that arises outside the biliary tree. The majority of patients presenting with upper abdominal pain undergo ultrasound examination and on detection of gallstones, the main focus of the attending clinician stays around treating the gallstones and further investigations to rule out other pathologies that may produce similar symptoms are not considered and surgery is often performed inappropriately.

Persistent post cholecystectomy pain has been reported in a proportion of patients called as "post cholecystectomy syndrome". 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. 12 Although this term is used widely, it is not completely accurate, as it includes a large number of disorders, both biliary and extra-biliary in origin that may be unrelated to cholecystectomy.

Approach of performing OGD as a routine investigation prior to cholecystectomy, will decrease persistence of symptoms and will help in detecting gastroduodenal pathologies at an early stage.

Many patients of upper gastrointestinal problems with gallstones have esophagitis, gastritis, peptic ulcer disease and hiatus hernia may attribute to the post cholecystectomy syndrome. 13,14

The challenge in the evaluation of patients with upper gastrointestinal symptoms, who also have gallstones, is to decide whether gallbladder stones are the source of the symptoms or an incidental finding and differentiating is important, as both conditions are common.

The persistence of abdominal symptoms after laparoscopic cholecystectomy patients is due to inadequate preoperative evaluation of other conditions that causes the same symptomatology. Thus, this study was conducted to contribute UGI endoscopy as routine preoperative investigation and the importance of UGI endoscopy to evaluate the association between gastrointestinal symptoms with gallstones and reduce the prevalence of post cholecystectomy pain.

METHODS

This prospective study is carried out in the department of general surgery in our institute. 80 patients attended to in surgical wards, outpatient and emergency department were included. Patients presenting with complaints of right hypochondriac region, epigastric pain and with upper GI symptoms were assessed. All patients with history suggestive of gall bladder diseases were evaluated and investigated. Abdominal ultrasonography was performed at the time of admission and reviewed 24 hours before the surgery after a 12 hour fast by well qualified, experienced radiologists. Patients with ultrasonography suggestive of single or multiple gall stones were included and investigated as per proforma. upper GI scopy was done 1 to 2 days prior to laparoscopic cholecystectomy as per inclusion and exclusion criteria.

All patients above 18 years, with ultrasonographically proven diagnosis of cholelithiasis and with symptoms (typical and atypical) were included. Patients not willing to provide written, informed content, patients below 18 years, patients with acute abdomen, whose general conditions were not stable, patients with choledocholithiasis, cholangitis, gall stone pancreatitis, cholecystoenteric fistula, gall bladder neoplasm, with past history of previous biliary/pancreatic surgery, refusing

for surgery and/or upper gastrointestinal endoscopy were excluded.

Pre-operative data was reassessed. Liver function tests and coagulation profile were repeated one day prior to surgery. Informed written consent was taken with explanation of risk of conversion to open. Preoperatively nasogastric tube was placed. All patients received injection ceftriaxone 1gm intravenous during preoperative period. All patients were operated under general anesthesia.

Surgical technique

Laparoscopic cholecystectomy is done using standard American technique. Laparoscopic cholecystectomy (LC) converted to open cholecystectomy (OC) is done if there is no progress in dissection of Calot's triangle within 30 minutes. Standard open cholecystectomy is done through sub-hepatic incision.

Post-operative evaluation and assessment

Appropriate Postoperative analgesics and antibiotics were given to all patients. Patients were kept nil by mouth till the return of bowel sounds. All patients were ambulated at earliest. Drains when kept were removed if output was less than 5-10cc with no bile leak. Stitches were removed on 8th post-operative day.

RESULTS

This study was carried out between February 2016 to November 2016. In this study, 80 patients of symptomatic cholelithiasis who had undergone diagnostic esophagogastroduodenoscopy prior to elective laparoscopic cholecystectomy were studied. The youngest patient was 20 years and oldest was 80 years. The mean age was 39.6 years. It is seen that cholelithiasis is more common in females. The male: female ratio is 1:6.3.

In present study, pain in abdomen was present in 100% of patients. Nausea/vomiting was second most common symptom and seen in 71.25%. It is also seen that abnormal OGD findings are seen in 61 patients (i.e.76.25%), with single pathology in 4 patients (5%) and multiple pathologies in 57 patients (71.25%). Out of 80 normal OGD was seen only in 19 patients.

In present study, author have evaluated the different OGD pathologies the most common site of pathology was stomach (72.5%) that was gastritis. Followed by oesophagitis (55%), and Hiatus hernia (16.5) The most common duodenal pathology was duodenitis (6.25%). For inflammatory cause medical management was given. In two patients laparoscopic floppy Nissen's fundoplication was done. Mass lesions were encountered in 3 patients biopsy was taken and investigated further however no abnormality was detected.

Table 1: Relationship between OGD findings and complete post-operative symptomatic relief in one week.

OGD normal		OGD abnormal			
Pre- operation	Relief in one week	Pre- operation	Relief in one week		
81	81	135	55		
53	53	43	0		
60	56	40	22		
19	19	61	2		

Above table showed patients with normal pre-operative OGD findings showed complete symptomatic relief within one week which is comparable to all other studies and only 2 patients with abnormal OGD findings showed complete relief. Significant association seen between OGD findings and complete post-operative relief in one week.

Table 2: Comparison of pre- and post-operative pain in RHC.

Doin aga ta		Post-operative			
Pain acc. to vas scale		At 1 week	At 3 weeks	At 3 months	
0	0	31	73	80	
1	0	34	6	0	
2	16	12	1	0	
3	27	3	0	0	
4	18	0	0	0	
5	18	0	0	0	
6	1	0	0	0	
7	0	0	0	0	
8	0	0	0	0	
9	0	0	0	0	
10	0	0	0	0	

Above table showed all the 80 patients had pain in right hypochondrium at presentation which gradually subsided with no complains of pain at 3 months. Statistically significant reduction in pain was appraised at the end of first week itself (p-value <0.0001).

Table 3: Mean value of VAS scale.

Group	Mean	SD
Pre- operation	3.51	1.09
Post-operation at 1 week	0.84	0.82
Post- operation at 3 weeks	0.1	0.34
Post- operation at 3 months	0	0

Above table showed 71 patients had pain in epigastrium at presentation which gradually subsided with no complains of pain in 3 months. Statistically significant reduction in pain was appraised at the end of first week itself (p-value <0.0001).

Table 4: Comparison of other pre- and post-operative symptoms.

		Post- operative relief		Relief rate (%) at 3 months		
Symptoms	Pre- operative	at 1 week	at 3 weeks	at 3 months	Present study	Karmacharya A et al
Heartburn	49	21	7	3	93.88	90
Nausea/ vomiting	57	19	4	0	100	100
Indigestion	41	17	7	2	95.12	-
Belching	26	10	3	1	96.15	92.8
Post-prandial fullness	32	13	5	2	93.75	90.6
Regurgitatio n /reflux	38	15	3	2	94.74	92.8

Above table 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. Among all, pain and nausea/vomiting were relieved completely by the end of 3 months in present study.

DISCUSSION

This study has been carried out at our institute between February 2016 to November 2016, in all 80 cases were studied. The incidence of cholelithiasis was highest in the age group of 30-60 years, showing incidence of 70%. The mean age incidence in the present study was 39.6 years. In present study, 11 (13.75%) patients were males and 69 (86.25%) patients were females.

The male:females ratio in this study is 1:6.3. In present study, pain in right hypochondrium was the most common symptom and was present in 100% of patients. Abnormal OGD findings were present in 61 (76.25%) patients, out of which, 57 (71.25%) patients had multiple pathologies. No statistically significant association was found in the incidence of abnormal OGD findings and gender in present study.

According to present study, the most common site of pathology was stomach (72.5%) The most common oesophageal pathology was oesophagitis (55%) in present study. The most common gastric pathology was gastritis (72.5%). The most common duodenal pathology was duodenitis (6.25%). Therefore, it can be affirmed that the most common pathology is of inflammatory type at all sites, and, overall, the most common pathology is gastritis which is comparable to a vast majority of other studies. 15,16 All the patients with normal pre-operative OGD findings showed complete relief within one week.

Among all the symptoms assessed, pain abdomen and nausea/vomiting were the only two symptoms that subsided completely by the end of 3 months. In present study, a total of 21 patients had complete relief in 1 week, 52 patients in 3 weeks and 76 patients had complete relief at the end of 3 months. Thus, the overall response rate was 95% at the end of 3 months.^{17,18}

Hence, due to higher incidence of concurrent upper gastrointestinal problems in patients with symptomatic gall stones, OGD before elective cholecystectomy can highly influence the treatment management. ^{19,20} Our data suggests that routine use of OGD will help to reduce post-operative persistence of symptoms and is beneficial for treatment. It helps in identifying other potentially treatable medical conditions, and in detecting malignancy at an early stage. ²¹⁻²³

Laparoscopic cholecystectomy is the gold standard care for the treatment of symptomatic gall bladder disease. 24,25 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. 26,27

Author has analysed the use of upper gastrointestinal endoscopy (UGE) as a pre-operative investigative tool in gallstone disease patients presenting with dyspepsia and we conclude that certain symptoms associated with gallstones are not alleviated by cholecystectomy itself and requires further exploration, therefore, patients presenting with symptomatic gall stone disease should undergo routine OGD prior to cholecystectomy as many gastrointestinal lesions may coexist which prevents the complete relief of the symptoms after cholecystectomy.^{28,29}

Additionally, this will also help to treat the co-existing upper gastrointestinal pathologies alongside gall stone disease, therefore helping in reducing the incidence of post-cholecystectomy pain. Thus, we can infer that OGD has a vital role in the initial evaluation and investigation of patients with symptomatic gallstone patients.

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Institutional Ethics Committee

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