



A Study on Role of Preoperative upper Gastrointestinal Endoscopy in Symptomatic Cholelithiasis Patients Undergoing Elective Cholecystectomy

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Abstract

Background: Symptomatic cholelithiasis and upper gastrointestinal inflammatory pathologies are common causes of upper abdominal pain. It is often difficult to differentiate gastrointestinal symptoms due to gall stones from those due to pathologies in the upper GI tract.

Aim: The objective of the study was to analyze the role of upper gastrointestinal endoscopy in cholelithiasis patients with typical biliary colic or atypical upper abdominal symptoms undergoing elective cholecystectomy.

Methods: This prospective observational study was conducted on 163 patients in Tagore Medical College and Hospital from January 2017 to December 2018. We analyzed personal information, presenting symptoms & investigations including USG, pre operative UGI endoscopy, biopsy reports if present, medications, surgery details, & post operative complications (if any) for all the patients included in the study.

Results: A total of 163 patients were included in the study. Mean age of presentation was 41.33 years. The ratio of female to male is 2.4:1. Upper GI endoscopy revealed different abnormal pathologies in (n=80) 49% of the patients in both symptom groups of the patients. Gastritis (14.7%) was the most common abnormal UGI endoscopy finding in this study. Performing a preoperative UGI endoscopy has an important role in identifying other causes of upper abdominal pain that coexist with cholelithiasis.

Conclusions: Upper Gastrointestinal endoscopy should be performed preoperatively for all cholelithiasis patients who present with either classical biliary colic or atypical upper abdominal pain when planning for elective laparoscopic cholecystectomy to evaluate for associated upper gastro intestinal diseases, thereby helping in a better therapeutic outcome.

Keywords: Cholelithiasis, Endoscopy, Cholecystectomy, Post Cholecystectomy syndrome.

Introduction

The prevalence of gallstones in the adult population is reported to be at about 10 to 15 %.⁽¹⁾

Majority of people with gallstones do not have any symptoms due to their presence.⁽²⁾ There is a progression to development of symptomatic

gallstone disease in this population, about 2 to 3 % per year and 10% by 5 years.^(1,3,4) An even smaller proportion of 1 to 2% develop complicated gall bladder disease such as cholecystitis, empyema gall bladder, biliary peritonitis, choledocholithiasis, pancreatitis, gall bladder malignancy.

Pain in gallstone diseases is due to impaction of the gallstone at the cystic duct, causing distension of the gall bladder. This pain referred to as biliary colic, occurs typically in the right upper abdomen as sudden, intense pain lasting for 15 minutes to several hours particularly after consumption of a fatty meal.⁽⁵⁾ Pain may be referred to the right shoulder and scapula and occasionally to the back. Atypical symptoms of gall stone disease are those which don't fit the typical pain criteria and include any abdominal discomfort, dyspepsia, nausea, belching, heart burn, food intolerance, flatulence, vomiting and loss of appetite.

Gallstones and upper gastrointestinal inflammatory disorders are both common causes of upper abdominal pain. It is often difficult to differentiate gastrointestinal symptoms due to gall stones from those due to pathologies in the upper GI tract. Differentiating these conditions is important in the sense that though both, cholelithiasis and upper GI symptoms due to upper gastrointestinal inflammatory disorders, are quite common in the general population, their symptoms are not always related and treatment modalities also differ for each of them. Underlying correlation between cholelithiasis and upper gastrointestinal symptoms has not been established yet.⁽⁶⁾

Symptomatic cholelithiasis and complicated cholelithiasis represents 20%⁽⁷⁻⁹⁾ of all cholelithiasis. They are a source of significant morbidity, complications and high cost of medical care. However patient selection based on symptomatology alone often has fallout that a subgroup of patient continues to have symptoms in the post operative period. This subgroup of patients, who presented with cholelithiasis and non specific upper abdominal symptoms, have

their post operative symptoms attributed to post cholecystectomy syndrome.

Post cholecystectomy syndrome (PCS)⁽¹⁰⁻¹²⁾ consists of group of symptoms that either persist or recur or develop after cholecystectomy and includes a number of disorders, both biliary and non-biliary in origin, which includes esophagitis, gastritis, peptic ulcer disease, hiatus hernia and maybe unrelated to cholecystectomy.

It is prudent that in the evaluation of patients having upper gastrointestinal symptoms with cholelithiasis, to identify whether cholelithiasis is the source of the symptoms or an incidental finding. The persistence of abdominal symptoms after laparoscopic cholecystectomy due to inadequate preoperative evaluation of other conditions causes the same symptoms to persist after surgery.

Thus, this study was conducted to ascertain the role of UGI endoscopy as routine preoperative investigation in all patients with symptomatic cholelithiasis who undergo elective cholecystectomy. It also aims to highlight the importance of UGI endoscopy to evaluate the association between gastrointestinal symptoms with cholelithiasis and other causes of upper abdominal pain, thereby helping to reduce the incidence of post cholecystectomy syndrome.

Method

This prospective observational study was conducted on 163 patients in Tagore Medical College and Hospital from January 2017 to December 2018. Institutional approval was taken for the study. Informed consent was taken from each participant. The data collected from the patients included personal information, presenting symptoms, clinical examination findings, investigations including, USG, pre operative UGI endoscopy, biopsy reports (if present), medications, surgery details, & post operative complications (if any). Patients with ultrasonography suggestive of single or multiple gall stones were included and investigated as per

proforma. Upper GI endoscopy was done on or 1 day prior to elective cholecystectomy.

A total of 163 patients (Figure: 1) were included in the study who were divided into two groups based on symptomatology, first group (n=107) in which patient presented with typical symptoms of biliary colic and second group (n=56) in which

patients presented with atypical symptoms including abdominal discomfort, nausea, belching, heart burn, fatty food intolerance, flatulence, vomiting, loss of appetite. The patients were followed up postoperatively on the 10th, 28th day, and 3rd month to evaluate for the presence of any upper gastrointestinal symptoms.

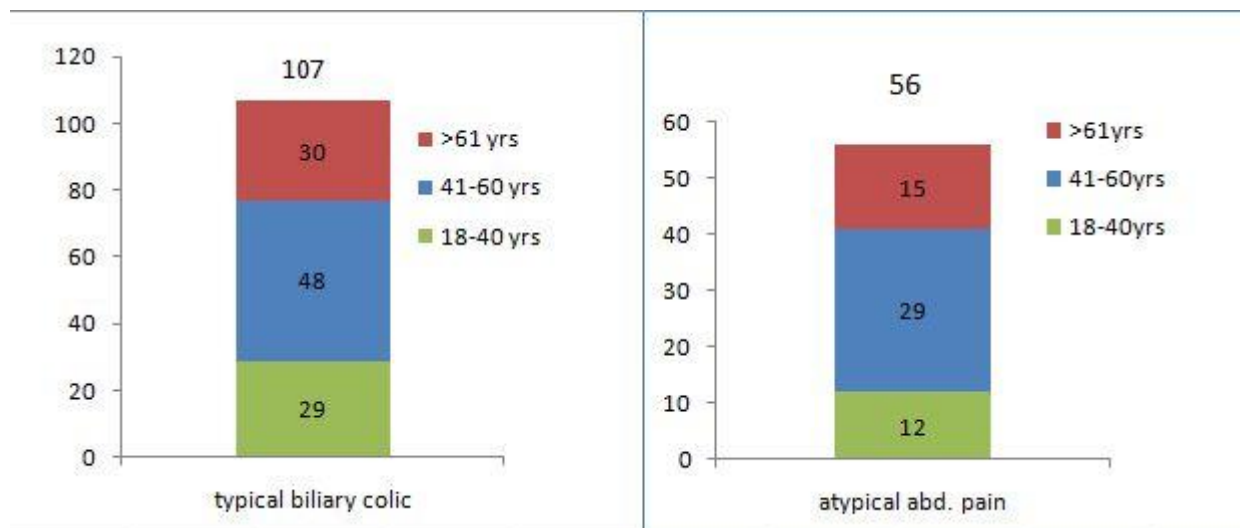


Figure 1: Age wise distribution of Typical biliary colic and Atypical abdominal pain

Inclusion Criteria

- Patients with cholelithiasis as demonstrated by USG, who are willing to participate in the study, and willing to undergo upper gastrointestinal endoscopy and cholecystectomy.
- All patients who fulfilled the above criteria with any one of the following symptoms that includes right upper quadrant pain or discomfort in upper abdomen, retro sternal burning sensation, nausea or vomiting, early satiety, bloating or fullness of abdomen.

Exclusion Criteria

- Patients with acute cholecystitis, choledocholithiasis, cholangitis, gall stone pancreatitis, cholecystoenteric fistula, carcinoma gall bladder, with history of previous biliary/pancreatic surgery & unstable general condition.
- Patients unwilling to participate in study, not willing to undergo UGI endoscopy and

cholecystectomy and patients who are lost to follow-up.

Operative Procedure and Post-Operative Follow up

After adequate preoperative evaluation, laparoscopic cholecystectomy was attempted in all patients. All patients received prophylactic antibiotics. In cases where there was no progress in dissection of Calot's triangle within 30 minutes, laparoscopic cholecystectomy was converted to open cholecystectomy. Open cholecystectomy was performed through right sub-costal incision. Post operatively oral liquids were started 6 hrs after surgery. Preoperative and postoperative pain was assessed using Wong Baker's FACES pain rating scale. Sutures were removed on 10th post operative day during the first visit of the patient after discharge from the hospital. Patients were assessed for pain and other upper GI symptoms on 10th day, 28th day and 3rd month after surgery.

Results

This study was carried out from January 2017 to December 2018. 163 patients who were enrolled in this study with symptomatic cholelithiasis had undergone upper gastrointestinal endoscopy prior to elective laparoscopic cholecystectomy. The mean age of patient enrolled in this study was 41.33 years. The ratio of female to male is 2.4:1.(Figure 2)

PATIENT SEX DISTRIBUTION

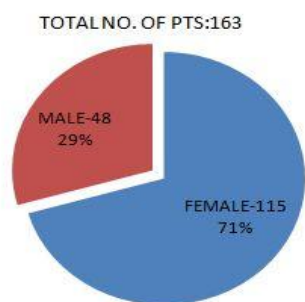


Figure 2: Incidence rates between Male & Female in our study

In this study UGI endoscopy finding was normal in 72.89% of patients with typical biliary colic and normal only in 8.9% of atypical upper abdominal pain patients. In typical biliary colic patients 7.4 % had antral gastritis, 2.8 % had hiatus hernia alone, 4.67 % had reflux oesophagitis alone, 2.8% had both reflux oesophagitis and hiatus hernia, 3.7% had duodenitis alone and 2.8% had other endoscopic findings. In atypical abdominal pain patients 1.7 % had hiatus hernia alone, 5.3% had reflux esophagitis alone, 14.2% had both hiatus hernia and reflux oesophagitis, 28.5 % had antral gastritis alone, 16.07 % had duodenitis alone, 5.3% had active gastric ulcer and active duodenal ulcer each, 10.7% had both gastritis and duodenitis, 3.5% had other findings. (Table 1) The other findings in the UGI endoscopy included gastric polyps, oesophageal candidiasis, gastropathy changes.

Table 1: Distribution of various endoscopic findings in both subgroups

	PTS' WITH ATYPICAL ABD. PAIN (n=56)	TYPICAL BILIARY COLIC (n=107)	TOTAL (n=163)
UGI SCOPY FINDINGS	% OF PTS	% OF PTS	TOTAL %
NORMAL	n=5 8.9%	n=78 72.89%	n=83 50.9%
REFLUX OESOPHAGITIS	n=3 5.3%	n=5 4.67 %	n=8 4.9%
HIATUS HERNIA	n=1 1.7 %	n= 3 2.80%	n=4 2.4%
REFLUX OESOPHAGITIS WITH HIATUS HERNIA	n=8 14.2%	n= 3 2.80%	n=11 6.7%
GASTRITIS	n=16 28.5 %	n=8 7.4 %	n=24 14.7%
DUODENITIS	n=9 16.07%	n=4 3.7%	n=13 7.9%
GASTRITIS WITH DUODENITIS	n=6 10.7%	n=0 0	n=6 3.6%
GASTRIC ULCER	n= 3 5.3%	n= 0 0	n=3 1.8%
DUODENAL ULCER	n=3 5.3%	n= 0 0	n=3 1.8%
OTHERS	n=2 3.5%	n=3 2.80%	n=5 3.06%

In this study UGI endoscopy findings were evaluated and more than half of them were found to be normal (51%). (Table 2) Abnormal endoscopy findings were present in 49% of the overall patients, more common in atypical abdominal pain patient cohort. The most common pathology was acid peptic disease (30.06%) including gastritis, duodenitis, active gastric ulcer and active duodenal ulcer. Reflux oesophagitis

and hiatus hernia related findings were seen in 16% of patients.

All the patients with acid peptic disease or reflux oesophagitis findings on UGI endoscopy were started on appropriate medical management during the post operative period itself. Patients’ pain was assessed by Wong Baker’s FACES pain rating scale. Other relevant clinical symptoms of upper gastrointestinal tract pathology were also assessed during the patients’ follow up.

Table 2: Normal and Abnormal UGI endoscopy findings in the study

PRESENTATION OF PTS'	UGI SCOPY FINDINGS POSITIVE	UGI SCOPY FINDINGS NORMAL
TYPICAL BILIARY COLIC	29	78
ATYPICAL UPPER ABDOMINAL PAIN	51	5

On 10th post operative day, which was the first follow up visit, about 94.87% (n=74) of normal endoscopy and 72.41 % (n=21) of positive endoscopy finding patients with typical biliary colic were relieved of symptoms. At 28th post operative day follow up, about 5.12% (n=4) of normal endoscopy patients completing the subgroup and 24.13 % (n=7) of positive endoscopy finding patients with typical biliary colic were relieved of symptoms.

By 3 rd month 3.44 % (n=1) of the positive endoscopy finding patients was relieved of symptoms. Subgroup analysis found out that the patient with hiatus hernia and reflux oesophagitis took longer time interval to become symptom free after cholecystectomy.

In the atypical abdominal pain patient subgroup, on the 10th post operative day about 88.23 % (n=45) of positive endoscopy finding patients and 40% (n=2) of the normal endoscopy patients were symptom free after cholecystectomy. On 28th post operative day, 5.88% (n=3) of positive endoscopy finding patients and 60% (n=3) of normal endoscopy patients were symptom free.^(13,14) By 3rd month 3.9% (n=2) of the positive endoscopy patients became symptom free. 1.78 % (n=1) of positive endoscopy with atypical pain patients was still symptomatic after 3 months following cholecystectomy and this patient was also found to have reflux oesophagitis with hiatus hernia. (Table 3&4)

Table 3: Relief of symptoms after surgery in Atypical abdominal pain group

RELIEF OF SYMPTOMS POST CHOLECYSTECTOMY IN ATYPICAL ABDOMINAL PAIN PTS'	POSITIVE UGI FIND	POSITIVE UGI FIND	NORMAL UGI FIND	NORMAL UGI FIND
TIME INTERVAL	NO. OF PTS	% OF PTS	NO. OF PTS	% OF PTS
10 TH POD	45	88.23%	2	40%
28 TH POD	3	5.88%	3	60%
3 RD MONTH	2	3.9%	-	-
TOTAL	50	98.01%	5	100%

The results were showing that positive response rate was significantly higher in endoscopy normal (94.87%) as compared to endoscopy positive group in typical biliary colic patients as seen on first follow up visit on 10th post operative day. Even in atypical abdominal pain patients, endoscopy positive patients who were started on

appropriate medical therapy according to their endoscopy findings, had significant improvement of symptoms (88.23%) after laparoscopic cholecystectomy. At 28 days, positive response was obtained in 100% of both typical biliary colic and atypical abdominal pain patients with normal endoscopy finding.

Table 4: Relief of symptoms after surgery in typical biliary colic group

RELIEF OF SYMPTOMS POST CHOLECYSTECTOMY IN TYPICAL BILIARY COLIC PTS'	NORMAL UGI FIND	NORMAL UGI FIND	POSITIVE UGI FIND	POSITIVE UGI FIND
TIME INTERVAL	NO. OF PTS	% OF PTS	NO. OF PTS	% OF PTS
10 TH POD	74	94.87%	21	72.41%
28 TH POD	4	5.12%	7	24.13%
3 RD MONTH	0	0	1	3.44%
TOTAL	78	100%	29	100%

Discussion

Laparoscopic cholecystectomy is the gold standard management for symptomatic cholelithiasis.⁽¹⁵⁾ Post-cholecystectomy syndrome (PCS)^(16,17) which includes upper gastrointestinal symptoms of both biliary and extra-biliary in origin is often unrelated to cholecystectomy. It is defined as early PCS if occurring in the immediate post-operative period and late PCS if it manifests after months or years. The frequency of post cholecystectomy syndrome varies between 6% and 47%. In patients with symptomatic cholelithiasis, UGI endoscopy plays an important role in evaluating the foregut as significant percentage of patients with cholelithiasis (49%) have co existing upper gastro intestinal pathology. Patients with positive UGI endoscopy findings remained asymptomatic when appropriate medical treatment is initialized for the corresponding co existing pathologies.

Many studies have emphasized on the importance of upper gastrointestinal tract endoscopy in patients presenting with upper GI symptoms and USG proven cholelithiasis. Most studies have shown that symptomatic cholelithiasis most commonly affects middle aged females. In this study too, most patients (71%) were female. Gastritis (14.7%) is the most common abnormal UGI endoscopy⁽¹⁰⁾ finding in this study which is similar to other study results. In this study performing upper GI endoscopy in symptomatic cholelithiasis patients had revealed upper GI pathologies in 49% of patients, who when started on appropriate treatment modalities during the post operative period had significant relief of symptoms⁽¹⁸⁾.

Conclusion

Upper gastrointestinal endoscopy should be performed preoperatively for all cholelithiasis patients who present with either classical biliary colic or atypical upper abdominal pain when planning for elective laparoscopic cholecystectomy to evaluate for associated upper gastro intestinal diseases, thereby helping in therapeutic outcome.

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