## **Original Research Article**

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# Upper gastro-intestinal endoscopy prior to cholecystectomy, a necessity? an observational study in a tertiary care hospital in South India

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#### **ABSTRACT**

**Background:** Cholelithiasis is the most common disease state involving the gallbladder and the biliary tree. Once the USG is reported as cholelithiasis, the patient is usually taken up for cholecystectomy. The patients with cholelithiasis usually present with upper gastro intestinal (UGI) symptoms which may also be attributed to other UGI pathologies. This study focuses on evaluating upper GI endoscopy as an investigative modality to diagnose other associated upper GI pathologies in patients with USG proven gallstones presenting with dyspeptic symptoms.

**Methods:** An observational study was undertaken over a span of 2 years, from June 2016 to May 2018. All the patients who presented with complaints of upper GI symptoms were subjected to undergo USG abdomen. The patients with positive USG findings for cholelithiasis were included and further evaluated by upper GI endoscopy.

**Results:** Out of 100 subjects evaluated during the study period, 58 were females and 42 males. The most common presenting symptom was heartburn (69%), followed by dyspepsia (58%), belching (56%) and nausea/vomiting (53%). Out of 100 patients 44 patients presented with biliary colic and nausea/vomiting (14%). 44 of the subjects were found to have normal mucosal study. Remaining 66% of the subjects had positive endoscopic findings. The most common endoscopic finding was gastro-esophageal-reflux-disease (GERD) (31%).

**Conclusions:** In this study it was found that 66% of the subjects had co-existing UGI pathologies. It is advisable to get UGI endoscopy routinely for patients being planned for cholecystectomy pre-operatively.

Keywords: Cholelithiasis, Cholecystectomy, GERD, Upper gastro-intestinal endoscopy

#### **INTRODUCTION**

Cholelithiasis is the most common disease state involving the gallbladder and the biliary tree. The process of gallstone formation is complex. Obesity, high-caloric diets and certain medications like oral contraceptives can increase secretion of cholesterol and supersaturate the bile, thus increasing the lithogenicity of bile. Similarly, resection of ileum, abnormal emptying of the gall bladder may aid the formation of gall stones. Hence, removing gall stones without removing gall bladder inevitably leads to gall stone recurrence.<sup>1</sup>

Patients with gallstones may remain asymptomatic, being detected incidentally as imaging is performed for other symptoms. Symptomatic cholelithiasis patients usually present with right upper quadrant or epigastric pain which maybe colicky. Other symptoms include dyspepsia, flatulence, food intolerance, particularly to fats and some alteration in bowel frequency. Attacks frequently occur postprandially or awaken the patient from sleep. Often times the postprandial pain maybe associated with meals that are high in fat content. Once a patient begins to experience symptoms, there is a greater than 80% chance that he or she will continue to have symptoms in the

future or develop a complication. These complications may result from obstruction of the gallbladder outlet, causing acute cholecystitis, or migration of a stone into the common bile duct, causing cholangitis or pancreatitis.<sup>2</sup>

One of the most common surgeries performed in any General Surgery unit is that of laparoscopic or open cholecystectomies. In a patient with typical biliary colic, the only diagnostic imaging study necessary prior to laparoscopic cholecystectomy is an abdominal ultrasound revealing gallstones. Ultrasound demonstrates the size and number of stones, the thickness of the gallbladder wall, the presence or absence of pericholecystic fluid, the diameter of the common bile duct (CBD), and other components of the biliary ductal system. Other nonbiliary disorders such as hepatic lesions or steatosis, masses in the pancreas, or renal tumours may also be diagnosed. When ultrasound is negative despite typical biliary symptoms, CCK-stimulated HIDA scan demonstrating a low gallbladder EF with or without pain reproduction suggests gallbladder dyskinesia. If a patient with gallstones has atypical symptoms, however, a more extensive work-up including upper gastrointestinal contrast radiography or endoscopy, computerized tomography, or cardiac and pulmonary evaluation may be appropriate to rule out significant nonbiliary disease processes.2

The upper gastro-intestinal (GI) symptoms may also be attributed due to other upper GI pathology and it is an immense challenge to differentiate whether the symptoms are due to gallstones or any other pathology. Cholecystectomy can be curative in those whose symptoms are related to gallstones, but it exposes the rest to unnecessary risk, delays definitive treatment for the actual cause of symptoms, and incurs unnecessary expense.

This study focuses on evaluating upper GI endoscopy as an investigative modality to diagnose other associated upper GI pathologies in patients with USG proven gallstones presenting with dyspeptic symptoms.

#### **METHODS**

An observational study was undertaken over a span of 2 years, from June 2016 to May 2018. All the patients who presented to the Department of General Surgery, KR Hospital, Mysore Medical College and Research Institute (MMCRI), Mysuru on in-patient / out-patient basis with complaints of upper GI symptoms like abdominal discomfort, dyspepsia, nausea, belching, heart burn, food intolerance, flatulence, vomiting and loss of appetite were subjected to undergo USG abdomen.

A total of 100 patients with positive USG findings for cholelithiasis were included and further evaluated by upper GI endoscopy. Patients with complicated gallstone disease, choledocholithiasis, obstructive jaundice cholangitis, gallstone pancreatitis, cholecystoenteric fistula, gall bladder neoplasm, previous biliary/pancreatic surgery and previous gastric surgery were excluded out of the study.

The personal information and detailed description of the symptoms at the time of presentation to the department of Surgery, MMCRI were documented. The clinical examination findings, the ultrasonographic findings and the endoscopic findings were tabulated and analysed.

Statistical analysis was done using Epi Info<sup>TM</sup> 7.1.4 program (developed by Centers for Disease Control and Prevention, Atlanta, Georgia USA). Bar diagrams were constructed to represent the data.

#### **RESULTS**

Out of 100 subjects evaluated during the study period, 58 were females and 42 males. The most common age group affected was between 31-50 years (65%), followed by less than 30 years of age being 18% and more than 50 years being 17%. In all the age groups, females were affected more than males except in the age group of 50 where males were more affected than females.

Below is the bar diagram depicting the age and sex distribution of the current study. It clearly shows a female preponderance (58%) among the patients admitted for cholelithiasis. It should also be noted the higher rate of incidence (65%) in the age group of 31-50 years.

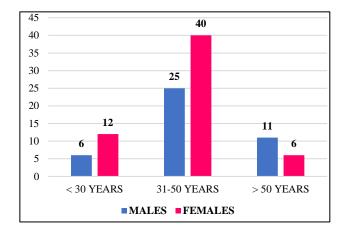


Figure 1: Age and sex distribution of the study population.

In this study the various symptoms that the patients presented with were noted. Hereby the bar diagram depicts the various presenting symptoms. The most common presenting symptom was found to be heartburn (69%), followed by dyspepsia (58%), belching (56%) and nausea/vomiting (53%). Out of 100 patients 44 patients presented with biliary colic which was the least common symptom even though it is expected in patients with gallstone disease suggesting that the upper Gastrointestinal symptoms of the patients were due to

other pathologies and not due to gallstone disease which could probably be just an incidental sonographic finding.

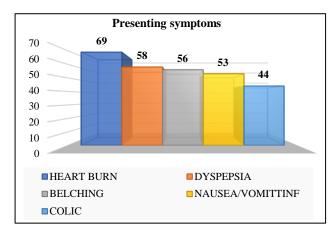


Figure 2: The presenting symptoms and its frequencies among the patients diagnosed with cholelithiasis in the study population.

To learn the pattern of presenting symptoms and its complexes in the patients with cholelithiasis and probable associated other upper gastro-intestinal pathologies, the symptom complexes were plotted on a bar diagram and its frequencies studied. In this study, the most common combination of symptoms was heartburn, belching, dyspepsia and nausea/vomiting (n=14). It is to be duly noted that biliary colic and dyspepsia which is the usual symptom complex in gallstone disease was found only in 7% of cases in this study.

All of the 100 subjects who had sonographic evidence of gallstones underwent UGI endoscopy after due consent. Out of the 100 subjects who underwent UGI endoscopy, 44% of the cases were found to have normal mucosal study. Remaining 56% of the subjects had positive endoscopic findings.

Figure 4 was constructed to study the frequencies of the different pathologies detected in endoscopy among the subjects. The most common endoscopic finding was found to be Gastro-esophageal-reflux-disease (GERD) (n=31), followed by Gastroduodenal ulcer (n=19) and Gastro/Duodenitis (n=11). Other endoscopic findings were Hiatus Hernia (n=5), Gastric polyposis (n=3) and Oesophagitis (n=2). One subject had worm infestation on endoscopy.

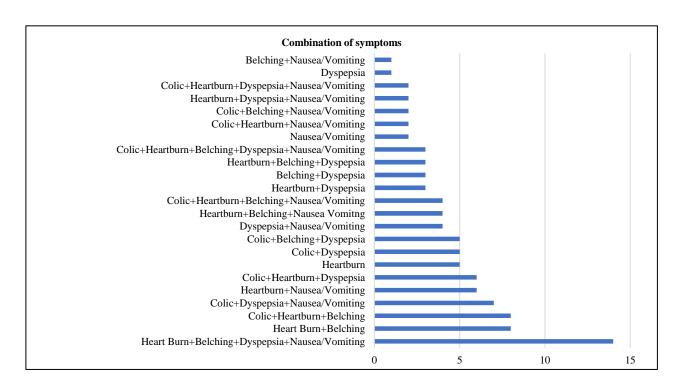


Figure 3: The symptom complexes that the patients in the study population presented with.

### DISCUSSION

In the present study the age of patients ranged from 17 to 72 years, with majority of the subjects falling in the age group of 30–50 years. The mean age of the patients was

found to be 41.1 years. This agrees with the studies conducted by Khedkar et al and Kolla et al.<sup>3,4</sup> In their study, the mean age affected was 39.6 years and 38.6 years respectively.

Out of 100 subjects studied, 58 were females and 42 males. This verifies the fact that gall bladder disease is more prevalent in females. However, the percentage of females being affected was slightly lower when compared to the studies conducted by Gadahire et al (females, 66.6%) and Sabitha et al (females, 67.5%).<sup>5,6</sup>

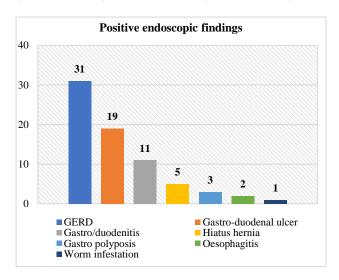


Figure 4: The different endoscopic findings in the study population.

Out of 100 patients, 44 presented with typical biliary colic pain. In the study undertaken by Mozafar et al 50.6% of the subjects experienced typical pattern of gallstone pain.<sup>7</sup> The most common presenting symptom in this study was heartburn (69%), followed by dyspepsia (58%), belching (56%) and nausea/vomiting (53%). Whereas in the study done by Karmacharya et al nausea was the most common symptom followed by biliary colic and heart burn.<sup>8</sup> Khedkar et al observed pain abdomen in all the subjects followed by nausea in 71.25% of the patients.<sup>3</sup>

The patients usually presented with multiple symptoms rather than a single complaint. In this study, 14 of the patients presented with a combination of Heart Burn+Belching+Dyspepsia+Nausea/Vomiting. In a similar study conducted by Sabitha et al the most common symptom was found to be post prandial fullness and symptom complex being pain abdomen with post prandial fullness.<sup>6</sup>

Out of 100 subjects who underwent upper GI endoscopy, 44 had normal mucosal findings. Remaining 56 patients had some positive endoscopic findings.

In this study, the most common endoscopic finding was Gastro-esophageal-reflux-disease (GERD) (31%), followed by Gastroduodenal ulcer (19%) and Gastro/Duodenitis (11%). Other endoscopic findings were Hiatus Hernia (5%), Gastric polyposis (3%) and Oesophagitis (2%). One subject had worm infestation on endoscopy. Few of the patients also had 2 or more endoscopic findings at the same time. In similar studies,

Kolla et al, Karmacharya et al, Ibrahim et al, Rajkumar et al and Kalpande S et al., found gastritis to be the common associated pathology in their studies.<sup>4,8-11</sup> Whereas Gadahire et al and Rams et al, found GERD to be the most common upper GI pathology.<sup>5,12</sup> Sabitha et al, found gastric ulcer to be more commonly present.<sup>6</sup>

In this study, out of 44 patients who presented with biliary colic, 37 had normal mucosal study, 6 had GERD and one patient had features of gastritis on endoscopy. We can observe that, most of the patients who presented with typical biliary colic had only cholelithiasis and no other upper GI pathologies. Whereas most of the patients who had other symptoms apart from colic had other associated upper GI pathologies (OR, 37). Similar findings were noted by Mozafar et al, where patients with typical abdominal pain had a very low likelihood to cover other upper GI problems (OR= 0.006) and that atypical abdominal pain were much more likely to have some other GI problems beside their cholelithiasis that may be the source of patient's problems (OR, 4.9/0.005, or 886).

#### **CONCLUSION**

One has to be vigilant when a patient who has been diagnosed to have cholelithiasis presents with symptoms apart from biliary colic. There could be an underlying upper GI pathology associated with cholelithiasis which also needs attention. Hence it is advisable to get UGI endoscopy routinely for patients being planned for cholecystectomy pre-operatively so that the underlying cause for the suffering is cured.

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Institutional Ethics Committee

#### REFERENCES

- Conlon KCP. The gallbladder and bile ducts. In: Williams NS, O'connel PR, McCaskie AW, ed(s). Bailey & Love's short practice of surgery. 27th ed. Boca Raton, FL: CRC press; 2018.
- Auyang ED, Soper NJ. Cholelithiasis. In: Zinner MJ, Ashley SW, ed(s). Maingot's Abdominal Operations. 12th ed. NewYork, NY: McGraw-Hill Medical; 2013.
- 3. Khedkar I, Prasad D, Datta A. Diagnostic value of upper gastrointestinal endoscopy prior to elective laparoscopic cholecystectomy for symptomatic cholelithiasis. Int Surg J. 2018;5(1):105-09.
- Kolla V, Charles N, Datey S, Mahor D, Gupta A, Malhotra S. Upper gastrointestinal endoscopy prior to laparoscopic cholecystectomy: a clinical study at a tertiary care centre in central India. Int Surg J. 2016;3(2):637-42.
- 5. Gadahire M, Pai A, Joshi M. Gastroscopic evaluation of patients with dyspeptic symptoms with

- incidental finding of cholelithiasis. Int Surg J. 2017;4(2):677-79.
- Sabitha P, Ghouse M, Nagamuneiah S. Esophago gastro duodenoscopy helpful to avoid unnecessary cholecystectomy. J Dent Med Sci. 2016;15(9):10-22.
- 7. Mozafar M, Sobhiyeh MR, Heibatollahi M. Is esophagogastroduodenoscopy essential prior to the elective surgical therapy of symptomatic cholelithaisis? Gastroenterology and Hepatology From Bed to Bench. 2010;3(2):77-82.
- 8. Karmacharya A, Malla BR, Joshi HN, Gurung RB, Rajbhandari M. The Predictive Value of Pre-Operative Symptoms Including Upper Gastrointestinal Endoscopy Before Laparoscopic Cholecystectomy for Elective Symptomatic Cholecystolithiasis. Kathmandu Univ Med J. 2013;44(4):300-4.
- 9. Ibrahim MTMM, Khair RZAM, Mohamed EHY, Massaad AMM. Upper gastrointestinal endoscopic findings in patients with gallstone disease. Khartoum Med J. 2012;5(2):749-52.

- Rajkumar KCM, Ramesh R, Ravichandran K. Upper GI Endoscopic Findings with Cholelithiasis. J Med Sci Clin Res. 2016;4(11):13817-9.
- 11. Kalpande S, Mondal A, Pandya J. Oesophagogastroduodenoscopy in patients with incidental cholelithiasis, its significance and therapeutic value: an observational study. Int Surg J. 2017;4(1):334-38.
- 12. Keerthi Rams MDRK, Baskaran R, Raja K, Prema M, Karthikeyan D. Upper GI endoscopic findings in patients with gallstone disease. Int. J. Modn. Res. Revs. 2015;3(10):997-8.

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