

A Prospective Study of Diagnostic Value of Upper Gastrointestinal Endoscopy Prior To Cholecystectomy in A Tertiary Care Institute

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Abstract

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.

Materials and methods: The present cohort study conducted in the Department of General Surgery, Osmania Medical College and Osmania General Hospital, Koti, Hyderabad from January 2020 to December 2020 (prospective study). 50 Patients presenting with single or multiple symptomatic gallstone disease confirmed by the ultrasound findings admitted in Department of Surgery and posted for elective cholecystectomy. A total of 50 patients were included in the study who were divided into two groups based on symptomatology-Group 1: (N-28) patient presented with typical symptoms of biliary colic. Group 2: (N-22) patients presented with atypical or dyspeptic symptoms.

Results: Out of 50 patients included in the study, 7 patients (14%) were in age group 20-30 years, 15 patients (30%) were in age group 30-40 years, 12 patients (24%) were in age group 40-50 years, and 9 patients (18%) were in age group 50-60 years with the mean age 44.72 years. The maximum number of patients were presented in the third decade (30%) and fourth decade (24%).

Conclusion: Routine use of preoperative endoscopy prior to surgical management may help in identifying potentially treatable medical conditions and prevent unnecessary cholecystectomies.

Key Words: Laparoscopic cholecystectomy, endoscopy, gallstone disease

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I. Introduction

Laparoscopic cholecystectomy is gold standard surgery for symptomatic gall stone disease which is the commonest disease needs surgical management.¹ 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.²

The pain due to the obstructing stone cause's 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.³ 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.⁴

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.⁵

The term "symptomatic gallstones" is widely used to describe symptoms arising secondary to gallstones. The symptoms of gallstones are variable ranging from non-specific to acute medical emergency. Wide range of gastrointestinal symptoms that have been linked to gallstones, but causal relationship has not been established.⁶

The present study was conducted to contribute upper gastrointestinal endoscopy as routine preoperative investigation prior cholecystectomy to evaluate the association between gastrointestinal symptoms

with gallstones along with incidence of associated treatable medical conditions in gall stone patients especially in the upper gastrointestinal tract to save unnecessary cholecystectomies.

II. Materials And Methods

The present cohort study conducted in the Department of General Surgery, Osmania Medical College and Osmania General Hospital, Koti, Hyderabad from January 2020 to December 2020 (prospective study). 50 Patients presenting with single or multiple symptomatic gallstone disease confirmed by the ultrasound findings admitted in Department of Surgery and posted for elective cholecystectomy. A total of 50 patients were included in the study who were divided into two groups based on symptomatology-Group 1: (N-28) patient presented with typical symptoms of biliary colic. Group 2: (N-22) patients presented with atypical or dyspeptic symptoms.

Exclusion Criteria

- Patients less than 18 years of age,
- Patients presenting with acute cholecystitis.
- Patients unfit for surgery or Patient with poor general condition.
- Patient not willing to sign consent for endoscopy.
- Pregnant females.
- Patients presenting with complicated gall stone disease like –
 1. Gall stone pancreatitis
 2. Gallbladder carcinoma
 3. Obstructive jaundice
 4. Cholecystoenteric fistula
 5. Gastric carcinoma
 6. Previous biliary or pancreatic surgery.

Details of history, clinical examination & consent and prior ethical clearance was taken among the patients. A special emphasis was placed on recording the history which could suggest the flatulent dyspepsia. This dyspepsia may be due to gall stones, peptic ulcer, or gastrointestinal reflux or irritable bowel syndrome. Biliary colic defined as the pain due to the obstructing stone that causes sudden expansion of the gall bladder. This typical pattern of pain occurs at right upper quadrant or epigastric region hours commonly after a fatty meal and progresses in less than an hour to a steady plateau that ranges from moderate to excruciating remaining constant for more than an hour and then slowly declines over several hours. Symptoms which do not fit typical pain criteria is considered atypical and included any abdominal discomfort, dyspepsia(belching, food intolerance, heart burn, vomiting, flatulence, loss of appetite).All the patients were advised to remain fasting overnight. Fibreoptic endoscopy of upper gastrointestinal tract was carried out next morning, with endoscope (PENTAX model no EG29i10). A pharyngeal anaesthesia with local acting xylocaine used. Upper gastrointestinal endoscopy done usually 1-2 days before cholecystectomy to look for significant upper gastrointestinal lesions like:

- Gastritis.
- Gastric carcinoma.
- Oesophagitis.
- Duodenal ulcer.
- Duodenitis.
- Hiatus hernia.
- GERD (gastroesophageal reflux disease).

Endoscopic findings divided the problem into four main groups, normal, inflammation, ulcer, and others (polyps, varices etc.) whilst the pathological findings were defined as benign and malignant. Laparoscopic cholecystectomy was preferred and done using standard American technique. Laparoscopic cholecystectomy was converted to open cholecystectomy if there was no progress in dissection of Calot's triangle within 30 minutes or uncontrolled bleeding. Standard Open Cholecystectomy is done through sub-hepatic incision. Intra operative findings noted especially if adhesions, multiple or single stone, impacted stone, gall bladder distention.

Statistical Analysis: All the data of study fed in MS excel and analyzed using SPSS 16. Simple statistical test such as average or percentage and chi square test used to analyze various findings of the study.

III. Results

Out of 50 patients included in the study, 7 patients(14%) were in age group 20-30 years, 15 patients(30%) were in age group 30-40 years, 12 patients(24%) were in age group 40-50 years, and 9 patients(18%) were in age group 50-60 years with the mean age 44.72 years. The maximum number of patients were presented in the third decade (30%) and fourth decade (24%).

44 Female patients (88%) predominated over 6 male patients (12%) making the female to male ratio 22:3. 21 patients (42%) from the rural area while 29 patients (58%) came from the urban areas. Among these Fifty patients, only fifteen(20%) were vegetarian while remaining thirty-five(70%) were non-vegetarian. 25 patients(50%) were from middle class, 14 patients(28%) were from upper class and remaining 11 patients(22%) were from lower class. The pain was typical colicky in 28(56%) patients and continuous in 22(44%) patients. Since 22 patients presented with atypical or dyspeptic symptoms, nausea was the most common feature, which was seen in 21 patients (42%), followed by epigastric burning in 19 patients(38%), heart burn in 18 patients(36%), belching in 15 patients(30%), post prandial fullness in 14 patients(28%) and vomiting in 7 patients(14%). There was no history suggestive of any chronic disease like diabetes mellitus, hypertension. Ultrasonography of abdomen was done in every case. In five patients (10%) the gall bladder was found distended. Multiple stones were found in 44 cases (88%), in six (12%) cases there was a single stone.

All of these patients were subjected to upper gastrointestinal endoscopy 1-2 day before cholecystectomy to inspect the gut from oesophagus up to second part of the duodenum. No lesion was found on endoscopy in 32(64%) patients while the remaining 18(36%) patients were with some kind of endoscopy findings. It was noted that out of 22 patients who presented with atypical symptoms (group 2), 18 had positive finding on upper gastrointestinal endoscopy while 4 patients had normal findings on endoscopy which is statistically significant ($p < 0.001$). While none of the patients had any associated lesion in upper gastrointestinal tract who were presented with typical biliary colic pain (group 1).

| Presenting Symptom | No of Patients | Patients with positive endoscopic findings | Percentage |
|---------------------------------|----------------|--|-----------------------|
| Typical, biliary colic(Group 1) | 28 | 0 | 0% |
| Atypical, dyspeptic(Group 2) | 22 | 18 | 81.8% ($p < 0.001$) |
| Total | 50 | 18 | 36% |

Table 1. Distribution of Patients Having Abnormal Findings on Upper GI Endoscopy According to Presenting Complaints

Among these 18 patients who had positive finding on endoscopy, 15 patients (30%) were having disease in stomach in form of mild to moderate gastritis or ulcer. Gastric ulcers were found only in two (4%) patients while in the remaining 13(26%) patients there were signs of inflammation. In one doubtful case endoscopy biopsy of ulcer was taken which was proved on histopathology as benign. In five (10%) patients, duodenum was affected, and all these patients were having inflammation of the duodenum. In four patients (8%) there was oesophagitis.

Overall from abnormal endoscopic findings most common finding was gastritis (72.2% of the patients with abnormal endoscopy), followed by duodenitis in 27.8%, oesophagitis in 22.2% and peptic ulcer in 11.1% of the patients with positive endoscopic finding. None of the patient had any finding suggestive of hiatus hernia, any polyp or abnormal growth. Out of 18 patients, 12 patients had single pathology on endoscopy while 6 patients had more than one abnormal upper gastrointestinal findings.

| Organ | Type of lesion | Number of patients | Percentage |
|------------|----------------|--------------------|------------|
| Oesophagus | Inflammation | 4 | 22.2% |
| | Hiatus hernia | 0 | 0% |
| | Polyp | 0 | 0% |
| Stomach | Inflammation | 13 | 72.2% |
| | Peptic Ulcer | 2 | 11.1% |
| Duodenum | Duodenitis | 5 | 27.8% |
| | Duodenal ulcer | 0 | 0% |

Table 2. Distribution of Patients According to Findings of Upper GI Endoscopy

Intraoperatively Four cases were converted to open cholecystectomy from laparoscopic cholecystectomy owing to adhesions. In 33 (66%) patients, adhesions of all gall bladder with surrounding structures were identified. Multiple stones were found in 44 (88%) patients and a single stone in 6 (12%) cases. Postoperatively two of these operated patients (4%) suffered from port-site wound infection. These patients

were treated with regular antiseptic dressing and debridement. Both of these responded very well to the treatment and were discharged in a satisfactory condition.

IV. Discussion

Cholelithiasis is one of the commonest problems encountered in general surgery. In Asia, the prevalence of gallstones is 5-10% of population especially among female and older individuals. In Western countries, the prevalence of gallstones ranges from approximately 16.6% in women and 7.9% in men. 80% of patients with gall stones are asymptomatic. Most studies shows, patients appear to be symptomatic at the rate of two and three percent per year.⁷

In present study, 28(56%) patients presented with typical biliary colic (group 1) and 22(44%) with atypical symptoms (group 2). These finding was consistent with study done by Karmacharya, 2013, in which out of 196 patients Fifty-three patients (55.2%) presented with typical pain and 43 patients (44.8%) with atypical pain. Almost similar pattern of presentation noted by Mozafar, 2010, in which out of 360 patients, 182 patients (50.6%) presented with typical colic while 178 patients (49.4%) presented with atypical symptoms.⁸

In present study we aimed to determine the association between the nature of pain (typical/ or atypical) with the preoperative endoscopic findings. Out of 22 patients who presented with atypical symptoms (group 2), 18 patients (81.8%) had abnormal endoscopic finding and 4 patients (18.2%) had normal endoscopy while all patients with typical presentation (group 1) had normal endoscopic finding. Normal findings in these patients with typical pain reinforces the fact that patients with typical abdominal pain has less likelihood of presenting with coexisting upper gastrointestinal lesion as evidenced in other studies.⁹

In 18 patients who had positive upper GI endoscopy, gastritis was the most common finding present in 12 out of 18 patients accounting 72.2%. Second most common finding was duodenitis present in 27.8% followed by oesophagitis 22.2% and peptic ulcer 11.1%. These findings were consistent with study by Karmacharya, 2013, in which most common finding was gastritis present in 69.8% of the patient had positive endoscopy finding, followed by duodenitis in 16.3% and oesophagitis 9.3%. Similarly, in a study done by Singh S. et al gastritis was present in 58.97% of patient with positive endoscopy followed by duodenitis in 20.5%.¹⁰

V. Conclusion

Routine use of preoperative endoscopy prior to surgical management may help in identifying potentially treatable medical conditions and prevent unnecessary cholecystectomies.

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