

Is it useful to Perform Preoperative  
Upper GI Endoscopy in Symptomatic  
Gall Stones?Chandio A<sup>1\*</sup>, Naqvi SA<sup>1</sup>, Sabri S<sup>1</sup>, Abbasi M<sup>2</sup>, Shaikh Z<sup>2</sup>, Chandio K<sup>3</sup> and  
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## Abstract

**Background:** Symptomatic gallstones and inflammatory disorder of the gastro duodenum are common causes of upper abdominal pain. It's a great challenge to differentiate between gastrointestinal symptoms due to gall stones or any other causes. These gastrointestinal symptoms may be related to gallstones but underlying correlation has not been established yet, which is extremely disappointing for the operating surgeon.

**Aim:** To find out role of preoperative endoscopy in symptomatic gall stones.

**Methods:** Prospective observational multicentre study of 382 patients undergoing Laparoscopic cholecystectomy from July 2014 to December 2015. All patients diagnosed with gallstones based on ultrasound abdomen, irrespective of age and sex. All patients were subjected to Upper Gastrointestinal Endoscopy 24 to 48 hours before cholecystectomy biopsy were obtained for histopathology if required. Those patients not keen for surgery, pregnant ladies due to risk of foetal loss, CBD stone, obstructive jaundice, carcinoma of gall bladder, was excluded.

**Results:** During this period, 382 patients. The female to male ratio 4.78:1 (316 versus 66), and the mean patient age was 46.10 ± 6.31 years (22 to 65 years). 146 (38.21%) Patients were present with typical pain and 236 (61.78%) atypical pain. Ultrasound revealed single stone in 83 (21.72%), multiple stones in 299 (78.27%), impacted stone at the neck of gallbladder was found in 68 (17.80%) patients, Thick wall gallbladder was seen in 221 (57.85%) patients and contracted gallbladder 44 (11.51%) patients. Pre-operative upper gastrointestinal endoscopy findings revealed Esophagitis in 22 (5.75%) cases, GERD in 26 (6.80%) cases, gastritis in 88 (23.03%), gastric ulcer 49 (12.82%), duodenal ulcer in 39 (10.20%), polyps 21(5.49%) and carcinoma of stomach 9 (2.35%). In all patients with typical pain complete relief of symptoms were observed within 15days post- operatively. Out of 236(61.78%) cases with atypical pain had persistence of symptoms in 141 (59.74%) cases up to four months.

**Conclusion:** Upper Gastrointestinal Endoscopy should be performed preoperatively for gallstone disease to evaluate atypical symptoms and a patient is fully informed in addition treated for associated conditions.

## Introduction

Symptomatic gallstones and inflammatory disorder of the gastro duodenum are common causes of upper abdominal pain. It's a great challenge to differentiate between gastrointestinal symptoms due to gall stones or any other causes. Distinguishing between these two situations is crucial, because both gallstones and upper GI symptoms are common in the general population, these are not always related and therapeutic strategies may be different regarding to each of them. These gastrointestinal symptoms may be related to gallstones but underlying correlation has not been established yet, which is extremely disappointing for the operating surgeon. While cholecystectomy can be curative in those whose symptoms are related to gallstones, it exposes the rest to unnecessary risk, delays definitive treatment for the actual cause of symptoms, and incurs unnecessary expense. There is a marked geographic variation in gallstone prevalence (Figure 1). About 20 million people in the USA (15% of the population) have gallstones [1]. The Third National Health and Nutrition Examination Survey (NHANES III) indicated a higher prevalence in Mexican-Americans than in non-Hispanic whites, and a lower prevalence in non-Hispanic blacks [2]. In Europe, ultrasound studies revealed a prevalence of 9-21% and an incidence of 0.63/100 persons/year [3]. A trend for increasing gallstone prevalence has been identified in Europe and North America by necroptic [4] and ultrasound studies [5,6]. Symptomatic and complicated stones represent only 20% of all gallstones, they lead to clinically relevant morbidity and complications as well as high costs of medical care. Complication rates are higher in older people and in some ethnic groups, and are also influenced by socio-economic factors [7-9]. Nevertheless, given the high proportion of non-specific abdominal symptoms in the people with known cholelithiasis may lead to unjustifiable cholecystectomies [10,11]. Most of the patients presenting to general practitioners with chronic or colicky upper abdominal pain undergo

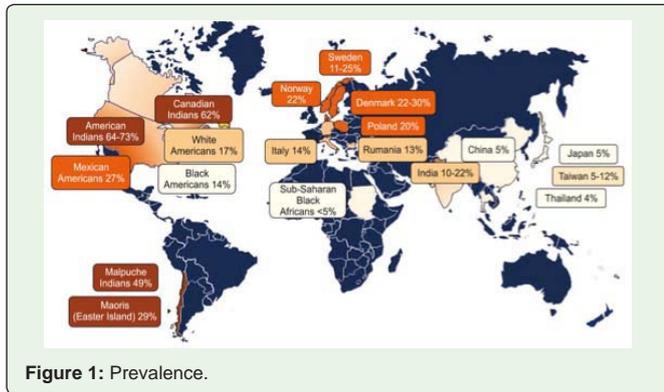


Figure 1: Prevalence.

ultrasound examination after ultrasound 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 seldom considered [12]. Almost all the patients with proven gallstones are referred to surgeons with a view to performing laparoscopic cholecystectomy [13]. 80% of the referred patients with gallstones presented with other abdominal symptoms [11]. Sometimes, patients have mixture of atypical upper GI symptoms and discovered to have gallstones on imaging studies [14]. The latter group where inappropriate cholecystectomies thus performed are likely to be associated with poor symptomatic outcome [13].

**Methods**

Prospective observational multicentre study of 382 patients undergoing Laparoscopic cholecystectomy from July 2014 to December 2015. All patients diagnosed with gallstones based on ultrasound abdomen and typical or atypical abdominal pain, irrespective of age and sex. All patients were subjected to Upper Gastrointestinal Endoscopy 24 to 48 hours before cholecystectomy biopsy were obtained for histopathology if required. The OGD examinations were performed by Gastroenterologists and GI surgeons. Where polyps were found, they were removed and assessed histopathologically. Scheduled cholecystectomy was postponed when there were gastric or duodenal ulcers, gastric polyps, or inflammatory changes of gastric mucous membrane until histopathologic results were obtained and ulcers healed. The decision for cholecystectomy was made by the surgeons. The following preoperative parameters were recorded: age, sex, obesity, previous abdominal surgery, presentation with acute cholecystitis, pancreatitis or obstructive jaundice, ultrasonography detection of gallbladder wall thickening or gallbladder stones, and the presence of Common Bile Duct (CBD)

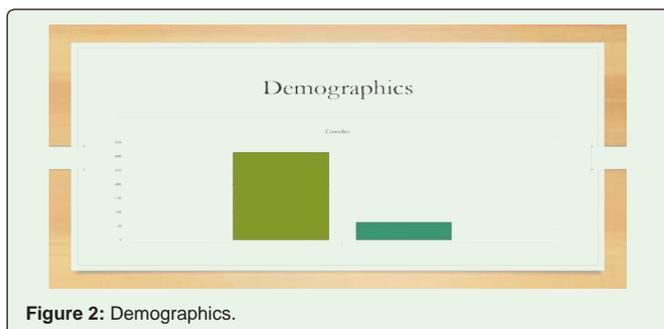


Figure 2: Demographics.

Table 1: Cohort.

Cohort	382
Female	316
Male	66
Ratio	4.78:1
Mean age	46.1 Years
Range	22 - 65 Years

stones. Clinical patterns of patient’s pain, endoscopic and pathologic findings as well as related comorbidities were obtained from the patient’s case notes. 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. Those patients not keen for surgeries, pregnant ladies due to risk of foetal loss, CBD stone, obstructive jaundice, carcinoma of gall bladder, were excluded.

**Statistical analysis**

Data were analysed using the Statistical Package for Social Sciences (SPSS, version 17). Mean values were compared using the Student *t* test. Univariate analysis of categorical variables was performed by the chi-square test.

**Results**

During this period 382 patients, the female to male ratio 4.78:1 (316 versus 66), and the mean patient age was 46.10 ± 6.31 years (22 to 65 years) (Figure 2 & Table 1). 146 (38.21%) Patients were present with typical pain and 236 (61.78%) atypical pain (Figure 3). Ultrasound revealed single stone in 83 (21.72%), multiple stones in 299 (78.27%), impacted stone at the neck of gallbladder was found in 68 (17.80%) patients, Thick wall gallbladder was seen in 221 (57.85%) patients and contracted gallbladder 44 (11.51%) patients (Figure 4). Pre-operative upper gastrointestinal endoscopy findings revealed Esophagitis in 22 (5.75%) cases, GERD in 26 (6.80%) cases, gastritis in 88 (23.03%), gastric ulcer 49 (12.82%), duodenal ulcer in 39 (10.20%), polyps 21(5.49%) and carcinoma of stomach 9 (2.35%) (Figure 5). In all patients with typical pain complete relief of symptoms were observed within 15 days’ post operatively. Out of 236(61.78%) cases with atypical pain had persistence of symptoms in 141 (59.74%) cases up to four months (Tables 2 & 3) (Figure 6).

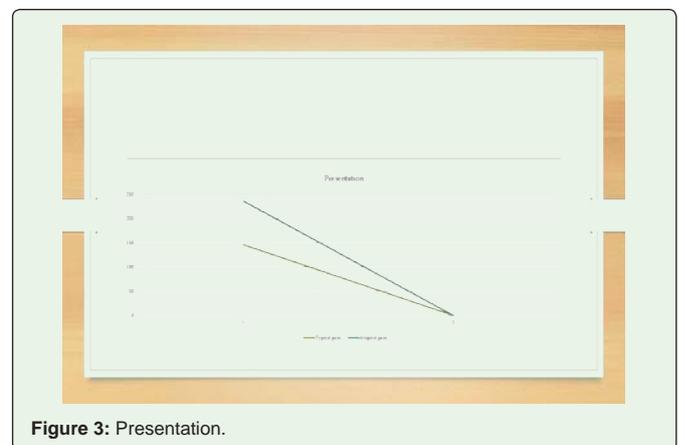


Figure 3: Presentation.

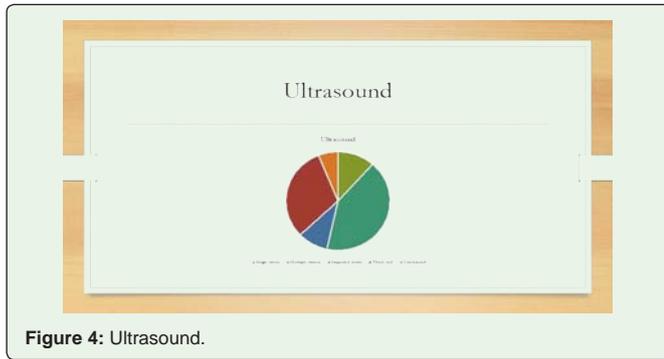


Figure 4: Ultrasound.

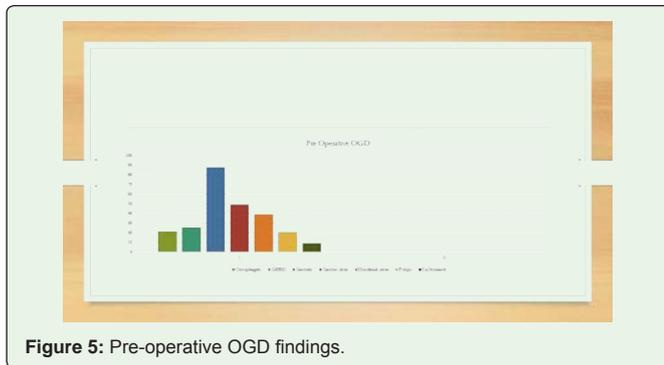


Figure 5: Pre-operative OGD findings.

Table 2: Presentation.

Presentation	Cases	Percentage	Days
Typical pain	146	38.21%	15
Atypical pain	236	61.78%	120

Table 3: OGD Findings.

Condition	Number	Percentage
Esophagitis	22	5.75
GERD	26	6.8
Gastritis	88	23.03
Gastric ulcer	49	12.82
Duodenal ulcer	39	10.2
Polyps	21	5.49
Ca. Stomach	9	2.35



Figure 6: Outcome.

## Discussion

Gallstone disease is one of the most common and costly of all digestive diseases leading to surgical intervention. It occurs in up to 20% of men and 35% of women in Western societies [15,16]. The most common presentations are biliary colic (56%) and acute cholecystitis (36%) [17]. Other presentations and complications can occur. UK Hospital Episode Statistics' data for the years 2003-2005 showed that 25,743 patients were admitted as an emergency with acute gallbladder disease during that period [18]. Based on data from Hospital Episode Statistics there were 69,333 cholecystectomies performed in the UK in 2013/14, of these, 64,347 were laparoscopic cholecystectomies. More than 1 in 10 patients (10% - 18%) undergoing cholecystectomy for gallstones have concomitant common bile duct stones, [19] and up to 3.8% have symptoms related to common bile duct stones during the first year after cholecystectomy [20]. 70-85% per cent of people with cholelithiasis are asymptomatic [21] or have nonspecific symptoms such as pain in their abdomen, stomach, back or shoulder, which may be misattributed to other conditions such as dyspepsia or general back ache. In most cases, asymptomatic gallstone is detected incidentally through imaging such as ultrasound or MRI as part of investigations for other conditions. For about 20% of people with cholelithiasis, the condition is symptomatic and can cause the complications (cholecystitis, cholangitis, obstructive jaundice, pancreatitis) that can be extremely painful and, in some cases, life threatening and needing emergency treatment. There is variation within the NHS in how asymptomatic gallbladder stones are managed once they have been diagnosed. Some adults are offered treatment to prevent symptoms and complications developing. Others are offered a watch-and-wait approach, and only have active treatment once the stones begin to cause symptoms. The symptoms of gallstone disease range from mild, nonspecific that can be difficult to diagnose, to severe pain and/or complications which are often easily recognised as gallstone disease by health professionals, mild, nonspecific symptoms of gallstone disease may attribute their symptoms to other conditions, or may be misdiagnosed and undergo unnecessary investigations and treatment as happened in our study in which we found 61.78% patients with atypical symptoms. This has a detrimental effect on quality of life and has an impact on the use of NHS resources. Thus, there is a need to identify whether there are any specific signs, symptoms or risk factors for gallstone disease and to identify the best method for diagnosing the condition so that patients can be managed appropriately. Some people with gallstone disease present with symptoms that can be vague and easily misattributed to other conditions (such as indigestion or general abdominal discomfort), and patients may be investigated or treated for a condition that they do not have. This ultimately affects patient quality of life, and the use of NHS resources as patients will continue to have unresolved symptoms that may get worse, resulting in inappropriate treatments and investigations being offered to the patient. Gallstones found incidentally in the investigation of gastrointestinal symptoms may become falsely incriminated to explain pathology that arises outside the biliary tree [22]. There are wide range of gastrointestinal symptoms have been linked to gallstones but causal relationship has not been established yet [10,14]. Although, gallstone disease is asymptomatic in the clear majority of individuals, it is commonly accepted that removal of the gallbladder is the best treatment for symptomatic gallstone disease [13]. However, less focus has been on patient selection and typical or common symptoms of this disease to understand prevailing symptoms after

surgery. Cholecystectomy is a commonly performed abdominal surgical procedure performed for treatment of symptomatic gall stones and prevention of complications. Nevertheless, given the high proportion of non-specific abdominal symptoms in the people with known gallstones may lead to unjustifiable cholecystectomies [10,23]. There are a range of endoscopic, surgical and medical treatments available to treat gallstone disease. Surgery to remove the gallbladder (cholecystectomy) is the most common way to treat biliary pain or cholecystitis caused by gallstones and is one of the most commonly performed surgical procedures in the NHS. An upper GI endoscopy has been recommended in patients with nonspecific upper abdominal pain, history of peptic ulcer disease and persisting pain after laparoscopic cholecystectomy [12]. In our study Pre-operative upper gastrointestinal endoscopy findings revealed normal gastroscopy in 34.03% (130 out of 382 patients) this is in contrast with other studies. Rassek et al, in his study 589 out of 960 patients underwent gastroscopy for elective cholecystectomy, however 56% had normal gastroscopy, 11.3% (113 patients) underwent a change in plan of therapy because of the OGD findings [24], and recommended that investigation of the upper gastrointestinal tract must precede an elective cholecystectomy. Schenk et al, in his study, 1064/ 1143 (93.1%) patients underwent OGD and 345 patients (30.2%) had pathological findings. Of these, 68.3% were inflammatory in nature 28 patients (2.5%) underwent additional GI surgical procedures along with cholecystectomy and bile duct exploration 19.8% (227 patients) underwent pharmacological treatment of the gastrointestinal disease after their biliary surgery [25], and suggested that owing to the high incidence of concurrent disease in the upper GI tract, preoperative gastroscopy should be performed prior to elective surgical therapy of symptomatic gallstones. Study of Thybusch et al., discuss the value and therapeutic implications of routine OGD before cholecystectomy, in his study 47.3% (160/338) patients undergoing cholecystectomy also had Upper GI endoscopy, amongst those he observed gastritis (25.7%), peptic ulcer disease (6.8%), hiatus hernia (4.7%) polyps (3.2%), oesophagitis (3%), gastric erosions (1.8%) and gastric cancer (.6%). Findings on gastroscopy did not necessarily correlate with clinical symptoms. OGD findings influenced management in 8.3% of patients and the surgery was postponed awaiting medical treatment. Further, two patients with gastric cancer underwent gastrectomy [26]. In studies by Faisal et al., [27] and Mozafar et al., [28] found 77.2% and 83% of patients with atypical pain had abnormal OGD findings. This establishes the importance of UGE prior to elective cholecystectomy especially with atypical pain. In the present study, therapeutic approach was changed in 9 (2.35%) who were diagnosed with malignancy in pathological reports. Prospective design of the present study, it was possible to evaluate the symptoms of the participating patients. A potential weakness of study cost effectiveness of routine OGD for every patient, variation in practice in country (Asia and Europe). In author's opinion, it would have been necessary to exclude patients with the clear diagnosis of a cholecystitis by ultrasound abdominal. An acute cholecystitis would almost always require surgical treatment, as it explains the symptoms. Higher incidence of concurrent upper gastrointestinal problems in patients with gall stones and atypical abdominal pain OGD before elective cholecystectomy can highly influence the management which in this group can be clinically helpful regarding postoperative outcomes. It would also have been necessary to follow up the patients subsequently.

## Conclusion

Upper Gastrointestinal Endoscopy should be performed preoperatively for gallstone disease to evaluate atypical symptoms and patients are fully informed in addition treated for associated conditions.

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