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The role of upper gastrointestinal endoscopy in correlation with cholelithiasis

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ABSTRACT

Background

Cholelithiasis is one of the most common problems encountered in surgery. Evaluation of gallstone disease is an immense challenge and overlap as to ascertain whether gallstones are responsible for symptoms or incidental findings. This study aimed to analyze the use of upper gastrointestinal endoscopy (UGE) as a pre-operative investigative tool in gallstone disease.

Methodology

This prospective observational study was conducted in the R.D. Gardi Medical College in the Department of Surgery, Ujjain, M.P from December 2017 to February 2019 with a sample size of 58 diagnosed cases satisfying the inclusion-exclusion criteria. The analysis was done with the use of Statistical Package for Social Sciences (SPSS) software, IBM manufacturer, Chicago, USA, version 20.0.

Results

A total of 58 patients, the majority were female (60.3%) with the age group from 22 years to 80 years with a mean age of 49.16 years. The most common symptom was abdominal pain among 67.2 % of patients, followed by heartburn seen in 13.8 % of patients. Most commonly, the ultrasonographic finding was observed to be in the single gallstone around in 65.5 % of patients and abnormal OGD finding was seen in 32.8 of% patients.

Conclusion

Looking to the above symptoms and their co-relation with cholelithiasis, upper gastrointestinal endoscopy is a must before planned cholecystectomy which will reduce the post-operative upper gastrointestinal symptoms and post cholecystectomy syndrome. Coexistence of other upper gastrointestinal pathology with cholelithiasis should be ruled out to decrease false cholecystectomy. Ultimately it will reduce the discouraging for surgeons after doing cholecystectomy in patients with cholelithiasis having other upper gastrointestinal pathology.

Keywords: Abdomen pain, Cholelithiasis, Upper gastrointestinal endoscopy, Cholecystectomy

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INTRODUCTION

Cholelithiasis is one of the most common problems encountered in surgery. It is an immense challenge to discriminate between upper gastrointestinal (UGI) symptoms due to gallstonesor any other causes. These gastrointestinal symptoms have been related to gallstones but a causal relationship has not been established yet. The persistence of abdominal symptoms even after cholecystectomy is highly discouraging for surgeons. The coexistence of concurrent upper gastrointestinal problems in gallstone disease patients may have been attributed to the post-cholecystectomysyndrome. [1-3] Although gallstone disease is asymptomatic in the vast majority of individuals, it is frequently accepted that removal of the gallbladder is the best treatment for symptomatic gallstone disease. Evaluation of gallstonedisease is an immense challenge and overlap as to ascertain whether gallstones are responsible for symptoms or incidental findings. Differentiating between these two situations is important because the prevalence of both conditions is common in the general population. With the ultrasound detection of gallstones, the 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. [4-5] Therefore, evaluation of symptoms and treatment is mandatory before surgery. Thus, this study focuses on the yield of upper gastrointestinal endoscopy as an investigative modality to find out other associated disorders of the upper gastrointestinal tract in patients with ultra-sonogram-provengallstones presenting with dyspeptic symptoms to analyze the use of upper gastrointestinal endoscopy (UGE) as a pre-operative investigative tool in gallstone disease.

Methodology

A Prospective observational study was conducted in the R.D. Gardi Medical Collegein the Department of Surgery, Ujjain. From the duration of December 2017 to February 2019 the study participants of number 58 were taken through purposive sampling after taking the Ethical consideration from the institutional Ethical Committee. Collected data kept with full confidentiality and will be used only for research purposes and anonymity will be maintained during publication.

Inclusion criteria

- Patient of Gallstones identified by ultrasonography or X-ray and with symptoms (typical or atypical).
- Typical symptoms include biliary colic.
- Atypical symptoms include abdominal discomfort, dyspepsia, nausea, belching, heartburn, food intolerance, flatulence, vomiting and loss of appetite.

Exclusion criteria

- Patients come with acute abdomen, whose general conditions were not stable.
- Patients with complicated gallstones such as choledocholithiasis, obstructive jaundice, cholangitis, gallstonepancreatitis, cholecystoenteric fistula, gall bladder neoplasm, previous biliary/ pancreatic surgery, pancreatitis with biliary sludge.

Data collection method

- Patient came to the Surgery OPD with the complaint of abdomen and was advised for USG abdomen and reviewed by well qualified and experienced radiologist, if ultrasonography is suggestive of cholelithiasis, a particular patient is included after meeting the inclusion criteria.
- Later, a routine blood investigation was sent to look after the other disease, in which HIV and HBsAg, anti- HCVis mandatory before the OGD study. A clinical examination of the patient is done to look for tenderness in the right hypochondrium region or not.
- Detailed history was taken including age, sex, symptoms, risk factors, past history of surgery, and jaundice.
- Before post the patient for cholecystectomy, they underwent OGD to look out for any other GI pathology associated with cholelithiasis which could be responsible for the symptomatology of the patient for coming to the hospital and to prevent unindicated cholecystectomy and post-cholecystectomy syndrome.
- The patient was put on nil per oral overnight beforethe OGD study to empty the stomach, which will help us to visualize the clear picture of the upper gastrointestinal tract.The risks and complications of OGD were explained.

Procedure

After putting the endoscopein CIDEX, keep it in a tub of clear water without too much folding of the scope. Removing the endoscope from the tubclean it with the gauge piece and put lignocaine jelly on it.After explaining the procedure to the patient, local anesthesia (lignocaine) spray in the oropharynxof the patient and asked them to swallow it. After waiting for 2 minutes, we gave left lateral position to the patient and then put mouth a mouth in the mouth . Then insert the endoscope in the mouth and ask the patient to swallow it. As it goes beyond the pharynx, esophagus is visualized, we blow the air for better visualization and keep the endoscope in the center of the lumen . We slowly go beyond and see the GE junction. Then the stomach is inspected and enters into the Antrum and goes in Duodenum 1st to 3rd part, here ampulla of vater seen and sometimes go into the jejunum . Slowly we come out in the stomach the 'J' maneuver is done to look for the fundus of the stomach. Then we slowly came out with suctioning the air. Lastly, we looked for vocal cords and any pathology if seen during the procedure was noted and reported.

Statistical Analysis

Collected data was analyzed using IBM software SPSS version 20. Descriptive analysis was used for the Categorical variables. Continuous variables were used to find Statistical association at the confidence interval of 95% and p-value<0.05, which is significant.

Results

The mean age of the study participants was 49.16 years, The median age was 48 years, The mode was 45 years, The minimum age of patients under our study was 22 years and The maximum age of patients in the study is 75 years. Patients in age group <41 years are 32.8% which means that a maximum number of patients in the study comes under <41 years of age, between 41-50 years of age 27.6% patients comes which is 2nd largest population in the study, Age group between 51-60 years have 19% of patients and Age group of >60 years have 20.7% of patients which is not significant. (Table 1).

Table 1: Distribution of the study participants according to the age-group (n=58)

Age Group	N	%
<41	19	32.8
41-50	16	27.6
51-60	11	19
> 60	12	20.7
Total	58	100

Table 2 stated majority of the female patients (60%) in the present study comparatively to males (38%).

Table 2: Distribution of the study participants according to the sex (n=58)

Sex	N	%
Male	23	39.7
Female	35	60.3
Total	58	100

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Figure 1 concluded that 65.5 % of patients in our study have a single gallstone out of which 43.1 % have a single gallstone of size <1cm and 22.4 % have a single gallstone of size >1cm. 34.5 % of patients have multiple gallstones out of which 32.8 % has multiple gallstones of size <1cm and 1.7 % have multiple gallstones >1cm. 75.9 % of patients have USG findings of gallstone of size <1cm. 24.1 % of patients have shown gallstones of size >1cm in ultrasonography.

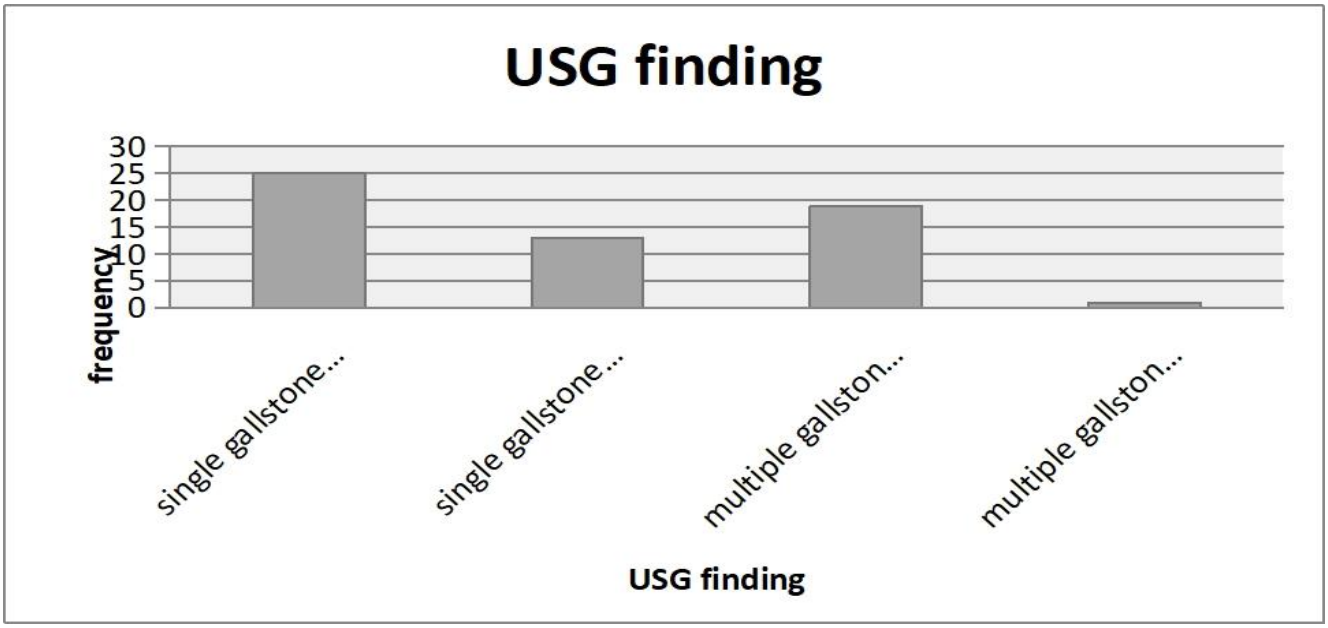

Figure 1:Distribution of the study participants according to USG finding

From Table 3, The majority of the patients present with Abdominal pain, followed by pain in the abdomen with indigestion, postprandialabdominal fullness, and heartburn. While the least were presented by heartburn with postprandial abdominal fullness and with indigestion. However, only 5% of patients had more than two symptoms.

Table 3: Distribution of the study participants according to the Symptoms presented

Symptoms	N	%
pain in abdomen	21	36.2
pain in abdomen with post prandial abdominal fullness	5	8.6
pain in abdomen with indigestion	8	13.8
pain in abdomen with gaseous abdominal distention	2	3.4
heart burn with postprandial abdominal fullness	1	1.7
heart burn with indigestion	1	1.7
heart burn	2	3.4
postprandial abdominal distention with indigestion	2	3.4
postprandial abdominal distention with gaseous abdominal distention	1	1.7
indigestion with gaseous abdominal distension	2	3.4
>2 symptoms	3	5.2
post prandial abdominal fullness	2	3.4
Indigestion	2	3.4
gaseous abdominal distension	2	3.4
pain in abdomen with heart burn	4	6.9

Total	58	100

Table 4 represents 67.2 % of the patients have normal upper gastrointestinal endoscopy while 32.8 % patients show abnormality in upper gastrointestinal endoscopy, out of the total patients, 20.6 % have an abnormality in Stomach, out of which 10.3 % have Antral gastritis which is a maximum abnormality in OGD and 12.0 % patient has an abnormality in esophagus in which maximum 6.9% shows reflux esophagitis. Duodenum abnormality is seen in 8.5 % patients out of which 3.4 % have a duodenal ulcer and 3.4 % have duodenitis.

Table 4: Distribution of the study participants according to the OGD finding

OGD finding	N	%
Normal	39	67.2
duodenum-ulcer	2	3.4
reflux esophagitis with pangastritis with duodenitis	2	3.4
antral gastritis with duodenitis	1	1.7
oesophagus-reflux esophagitis	4	6.9
oesophagus-ulcer	1	1.7
stomach-antral gastritis	6	10.3
stomach-pangastritis	3	5.2
Total	58	100

Table 5 concluded that abnormal OGD findings were seen in 23.1 % of patients with abdominal pain, however, despite not having abdominal pain, a maximum (53%) of the patients presented with abnormal endoscopy findings. Nevertheless, statistical association was found to be significant between abdominal pain and abnormal endoscopy findings (p-value<0.05).

Table 5: Association of endoscopy findings with Abdominal pain

Pain in abdomen	Endoscopy		Total
	Normal	Abnormal	
Yes	30	9	39
	76.9%	23.1%	100%
No	9	10	19
	47.4%	52.6%	100%
Total	39	19	58
	67.2%	32.8%	100%
Chi-square=5.06, p=0.024			

Figure 2 presented that, 100 % patients of the multiple gallstones of size >1 cm show normal OGD findings, 28 % of patients show abnormal OGD with single gallstone of size <1cm, 30.8 % of patients show abnormal OGD with single gallstone of size >1cm, and 42 % of patients show abnormal OGD with multiple gallstones of size <1cm. However, there is no statistically significant found between the OGD

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findings and the size of the gallstones, which states that both are independent of each other (Chi-Square= 1.52, p-value: 0.677)

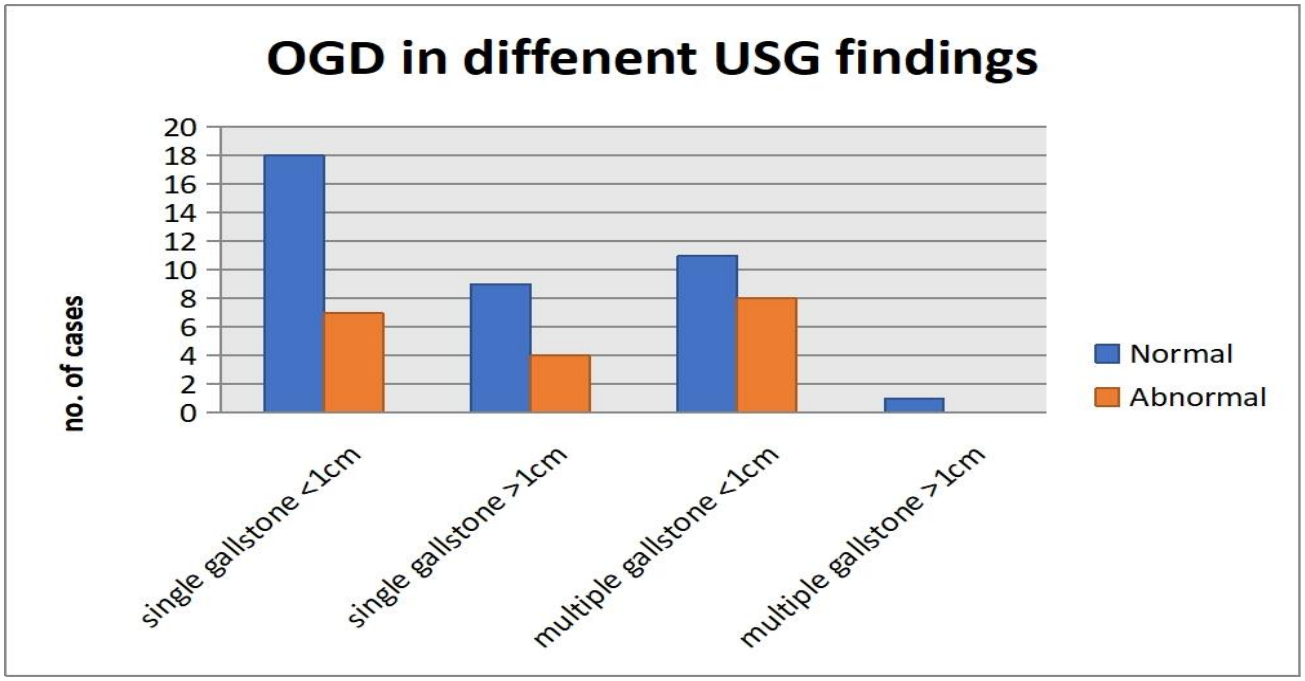

Figure 2: Association between OGD findings with the size of the gallstones

DISCUSSION

Our study is a prospective study of the "role of upper gastrointestinal endoscopy in Correlating cholelithiasis and APD before cholecystectomy", including 58 patients coming to surgery with OPD with various abdominal complaints. These patients have undergone USG abdomen which is suggestive of cholelithiasis. Before posting the patient for cholecystectomy upper gastrointestinal endoscopy is done to rule out the other pathology of the upper gastrointestinal tract to avoid false cholecystectomy and prevent post- cholecystectomy syndrome after surgery. If pathology is found in the upper gastrointestinal tract, then treat it before surgery.The current study has been designed to find out the different other causes of pain in the abdomen apart from cholelithiasis by doing upper gastrointestinal endoscopy. Attempt has been made to prevent false cholecystectomy without evaluating the patient'scholelithiasis. The incidence of cholelithiasis is highest in the age group <41 years. The mean age of the patient is 49.16 years. Male patients are 39.7 % and female patients are 60.3 %. The maximum age of the patient is 75 years and the minimum age of the patient is 22 years but the study carried out by Khedkar I et al showed a mean age of 39.6 years and male patient was 13.75 % and a female patient was 86.25 %. [6]. The most common symptom is abdominal pain which was seen in 67.2 % of patients, followed by heartburn seen in 13.8 % of patients. Most commonly, The ultrasonographic finding was observed to be in the single gallstone around in 65.5 % of patients. Abnormal OGD findings were seen in 32.8 % of patients but a study done by Kolla V et al. showed abnormal OGD in 52.3 % of patients, which is much higher than our study. [7]The most common site of pathology is the Stomach which is seen in 20.6 % of patients, out of which 10.3 % of patients shows Antral gastritis but in study done by Gupta P et al shows gastritis in 27 % of patients. [8-9] Additionally, esophagus pathology commonly includes reflux esophagitis and duodenum pathology includes ulcer and duodenitis. Hence, due to the higher incidence of concurrent upper gastrointestinal problems in patients with symptomatic gall stones, OGD before elective cholecystectomy can highly influence the treatment management. 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 establishes the corelation between upper gastrointestinal tract pathology along with Cholelithiasis.We have analyzed the use of upper gastrointestinal endoscopy (UGE) as a pre-operative investigative tool in

gallstone disease patients presenting with different abdominal complaints and we conclude that certain symptoms associated with gallstones are not alleviated by cholecystectomy itself and requirefurther exploration, therefore, patients presenting with symptomatic gall stone disease should undergo routine OGD beforecholecystectomy as many gastrointestinal lesions may coexist which prevents the complete relief of the symptoms after cholecystectomy. Besides its cost- effectiveness, it may potentially help in reducing the incidence of postoperative persistence of symptoms. Thus, upper gastrointestinal endoscopy has a vital role in the initial evaluation and investigation of patients with symptomatic gallstones patients and should be done in all relevant cases.

Gallstones found incidentally in the investigation of gastrointestinal symptoms may become falsely incriminated to explain pathology that arises outside the biliary tree. There are a wide range of gastrointestinal symptoms have been linked to gallstones but a causal relationship has not been established yet. 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. 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 the treatment of symptomatic gall stones and prevention of complications. Nevertheless, the high proportion of non-specific abdominal symptoms in people with known gallstones may lead to unjustifiable cholecystectomies.

CONCLUSION

The following study presents the highest incidence of cholelithiasis common in the age group <41 years and in females, even though no age group or gender is exempted from it. Approximately 1/3rd of patients with cholelithiasis are suffering from other upper gastrointestinal pathology, which would be treated first before the surgical intervention to prevent post-operative upper gastrointestinal symptoms and post-cholecystectomy syndrome. However, more than 1/3rd of female patients show abnormality in upper gastrointestinal endoscopy while this incidence is less in male patients which includes 26.1 % in males given37.1 % in females. So, our study concluded that looking to the above symptoms and its co-relation with cholelithiasis, upper gastrointestinal endoscopy is a must before planned cholecystectomy which will reduce the post- operative upper gastrointestinal symptoms and post cholecystectomy syndrome. Coexistence of other upper gastrointestinal pathology with cholelithiasis should be ruled out to decrease false cholecystectomy. Ultimately it will reduce the discouraging for surgeons after doing cholecystectomy in patients with cholelithiasis having other upper gastrointestinal pathology.

RECOMMENDATION

Evaluation of the patients with cholelithiasis should be done properly before surgery to see if the symptoms are due to cholelithiasis or other upper gastrointestinal diseases by doing an uppergastrointestinal endoscopy beforethe surgery. This approach will not only decrease the persistence of the symptoms after surgery but can also be helpful in the early detection of other gastroduodenalpathologies and post-operative symptoms free period. Moreover, it also helps to reduce the unnecessary burden of cost and surgical risk to patients and prevent delays in definitive treatment for the actual cause of symptoms.

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