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A Prospective Study On Clinical Presentation And Management Of Cholelithiasis In A Tertiary Care Hospital.

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ABSTRACT

The incidence of bile stones in India is known to be around 4%. This incidence is 7 times higher among the north Indians when compared to the south Indians. The incidence in western countries is as high as 10-15%. Most of them are asymptomatic (>80%). Each year, about 1–2% of asymptomatic patients develop symptoms that necessitate surgery. To study the age and sex distribution, various modes of presentations, types of gall stones, various treatments available and its outcome. This prospective observational study was conducted Department Of General Surgery, Government Medical College, Tiruvannamalai Tamil Nadu, India between Apr. 2021 – Mar.2022. patients with Gall stones admitted to general surgery wards that underwent cholecystectomy. 30 cases were included in our study. USG abdomen was the primary investigation of choice and was done for all the patients included in the study. Multiple stones in GB were the most common finding in this study account for 67% of patients. 30% of cases had single stone in GB. Thickened gall bladder wall was seen in 17% cases. 1 patient (3%) presented with Cholelithiasis with choledocholithiasis. Laparoscopic cholecystectomy is considered as the treatment of choice in these patients as it has better outcomes and is associated with fewer perioperative complications and morbidity in experienced hands. One should not hesitate to convert to an OC if significant adhesions or inflammation are identified during laparoscopy.

Keywords: Laparoscopic cholecystectomy, bile stones, Cholelithiasis.

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INTRODUCTION

The incidence of bile stones in India is known to be around 4%. This incidence is 7 times higher among the north Indians when compared to the south Indians. The incidence in western countries is as high as 10-15%. Most of them are asymptomatic (>80%). Each year, about 1–2% of asymptomatic patients develop symptoms that necessitate surgery. Among several risk factors for developing calculous cholecystitis, female gender, obesity, and dietary factors play a vital role. Females exhibited a greater cholelithiasis rate than males, with a female to male ratio of 3:1 up to the age of 50, and a ratio of around 1.5: 1 beyond that. In India, the female preponderance is 4.4: 1. Increasing incidence in India is due to westernization. The incidence of gallstone disease is rising globally due to the profound changes in dietary habits; lifestyle changes associated with high junk diet consumption, and increased sedentary lifestyle. Approximately 75% of cases with symptomatic gallstone disease seek medical attention because of episodic abdominal pain. The syndrome of biliary colic is caused by intermittent obstruction of the cystic duct by gall stones. In patients without biliary symptoms, gallstones are often noticed incidentally in imaging studies. Every year, around 3% of patients are developing symptoms who were found to be asymptomatic initially. Among them, 3 to 5% of patients are developing complications. The diagnosis of cholelithiasis is based on history and physical examination and imaging studies. As the incidence of cholelithiasis is increasing in India, the present study aimed at the demographics, clinical presentation, postoperative pathological evaluation of removed gall bladders and gallstones.

MATERIAL AND METHODS

This prospective observational study was conducted Department Of General Surgery, Government Medical College, Tiruvannamalai Tamil Nadu, India between Apr. 2021 – Mar.2022. patients with Gall stones admitted to general surgery wards that underwent cholecystectomy. 30 cases were included in our study.

Inclusion Criteria

- Patients age more than 18 years
- Patients admitted with cholelithiasis
- Patients with acute pancreatitis with etiology as cholelithiasis
- Patients with CBD stone with primary gall stones
- Patients with calculous cholecystitis

Exclusion criteria

- Patients who have not given consent
- Patients with acalculous cholecystitis
- Primary CBD stones without gall stones
- Gall stones with congenital malformation of biliary tree and stricture of CBD

Demographic data like age, sex, name, occupation are noted; clinical symptoms of presentation with duration, associated complaints, past medical and surgical history, personal history like diet history, OCP usage, alcohol ingestion, and family history will be noted.

Examination findings for the presence of chronic calculous cholecystitis, investigations like total and differential counts, ultrasound findings of chronic calculous Cholecystitis, CT scan findings in cases of suspicious diagnosis are noted. All patients were taken up for workup to get fitness for Surgery. All the complications were explained to patients. The types of surgical options and their benefits, complications were explained to the patients. The patients were given the option to choose the operative procedure of their choice. Intraoperative findings, difficulties encountered, the procedure performed, postoperative complications, if any, and consent was taken. The necessary preoperative preparations were done, and preoperative antibiotics are given to all patients. After opening the abdomen, the anatomical variations and pathological features were noted and documented. After cholecystectomy, the specimen was sent for histological examination and gallstones for chemical analysis. All the patients were given antibiotics and routine postoperative care. The patients were monitored in the postoperative period to know if they developed any complications. The patients were routinely discharged on the 2- 6th postoperative day in case of laparoscopic and 4-8th postoperative day in an open system unless they needed to stay for long

due to the development of any complications. The time duration of the patient's stay in the hospital post-operatively, as well as morbidity of the operative procedure, were documented. Patients were given postoperative advice regarding rest, diet, and when to visit surgical OPD for follow-up. All the patients were followed up for 1 month.

Statistical Analysis

The data was entered in Microsoft excel in tabulated form. Data on continuous scale was represented as mean and standard deviation. Categorical data were represented as numbers and percentages. Results were represented as graphs and tables. P value, degree of freedom was calculated and analysed. Pearson's chi square test was applied to show association between factors where $p < 0.05$ was considered statistically significant.

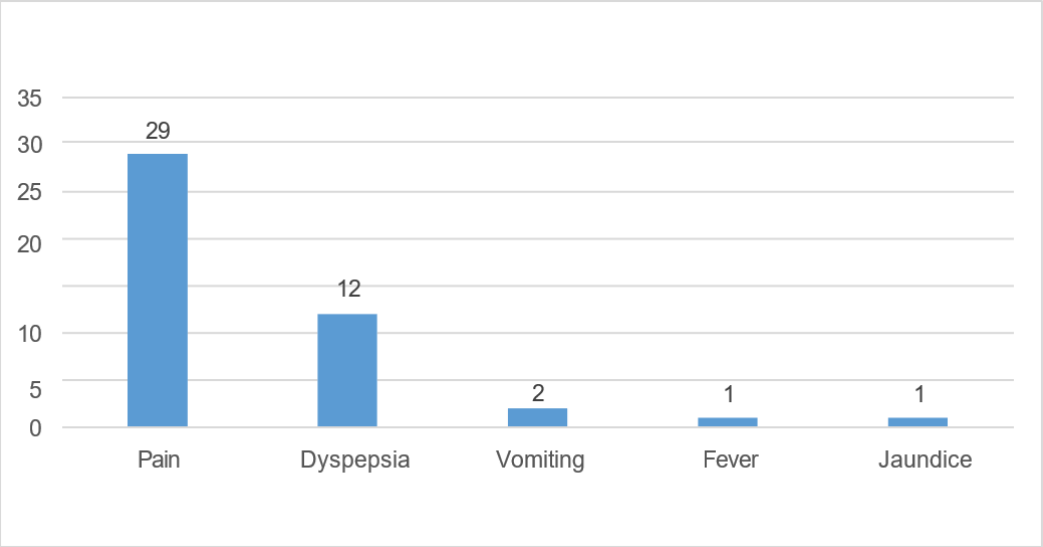
OBSERVATIONS AND RESULTS

Table 1: distribution of the cases based on age and Gender in the study population.

Age group	Female	Male	Total
21-30yrs	1	0	1
31-40yrs	4	1	5
41-50yrs	11	4	15
51-60yrs	4	4	8
>60yrs	1	0	1
Total	21	9	30

In the present study, the youngest patient presented with cholelithiasis was 29 year and the eldest patient was 68 years. Highest incidence was noticed in the current study patients aged between 41-50 and the incidence was 50%. In the present study out of 30 patients, 9 patients which accounts for 30% were male and 21 patients accounting for 70% were female. This presentation indicates that gall stone are more common in female than in male and the ratio of female to male is 2.33:1.

Figure 1: Distribution Of Presenting Symptoms In The Study Population.



In the present study 29 patients (97%) presented with pain as their chief complaint. The nature of the pain was intermittent colicky type in most of the patients and few patients reported pricking type of pain and was aggravated with food intake. Among them 12 patients also (40%) had dyspepsia which was the second most common presentation in this study. 3 patients had nausea and vomiting and 1 patient presented with jaundice and one patient with fever.

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Table 2: Ultrasound results in the study population.

S.NO	Findings	No. Of Cases	%
1	Stones in gallbladder	30	100%
2	Solitary stone	9	30%
3	Multiple stone	20	67%
4	Multiples gall stones with CBD stone	1	3%
5	Thickened GB wall	5	17%
6	Mass	0	0%

USG abdomen was the primary investigation of choice and was done for all the patients included in the study. Multiple stones in GB were the most common finding in this study account for 67% of patients. 30% of cases had single stone in GB. Thickened gall bladder wall was seen in 17% cases. 1 patient (3%) presented with Cholelithiasis with choledocholithiasis.

Table 3: Complications observed in the study population.

S No	Complications	No. of cases	%
1	Chr Cholecystitis	24	80%
2	Ac cholecystitis	4	13%
3	Empyema GB	1	3%
4	Perforation of GB	1	3%
5	CBD stone	1	3%
6	Malignancy	0	0%

Most common complication encountered in this study is chronic cholecystitis 24 (80%). Out of 6 (20%) cases of acute cholecystitis, 1 (3%) patient had empyema gall bladder and 1 (3%) patient had had perforated gall bladder. 1 patient (3%) had both Gb stones and CBD stone.

Table 4: Type of surgery performed in the study population.

Type Of Operation	No. Of Cases	Percentage
Laparoscopic Cholecystectomy	15	50
Open Cholecystectomy	15	50

All of the cases were treated using one of the surgical procedures listed above. Out of 30 patients 8 had comorbidities. Four of the eight patients had diabetes, two had hypertension, one had both diabetes and hypertension, and one had coronary artery disease. 15 (50%) patients were operated with open cholecystectomy procedure while 15 (50%) patients underwent the other procedure i.e. laparoscopic cholecystectomy. Among 15 cases of open cholecystectomies, Kocher's right subcostal incision was used in 14 cases and midline laparotomy was done for 1 case of acute cholecystitis who perforated gall bladder with peritonitis features. No cases posted for laparoscopic cholecystectomy were converted to open cholecystectomy. CBD stones were managed with ERCP and laparoscopic cholecystectomy was performed after 6 weeks.

Table 5: duration of recovery in the study population.

Postop Recovery	Open	Lap
Length of hospital stay (in days)	8	4
Time taken to return to normal work (in days)	11	7

Table 6: Type of stones in the study population.

Types Of Stones	No. Of Cases	Percentage
Cholesterol stones	9	30
Mixed stones	20	67
Pigmented stones	1	3
TOTAL	30	100

In the present study gall stone analysis was done in all patients. Out of 30 patients 20 patients had mixed stones and 9 patients had cholesterol stones. Only one patient had pigmented gall stones.

Table 7: Histopathology results in the study population.

Histopathology Report	No. of Cases	Percentage
Acute cholecystitis	4	13%
Acute on chronic cholecystitis	3	10%
Chronic cholecystitis	21	70%
Gangrenous Gall bladder	1	3%
Empyema Gall bladder	1	3%

In this study 21 (70%) patients had chronic cholecystitis. Acute cholecystitis incidence was noticed in 6 patients (20%) out of which 1 patient had empyema gall bladder and 1 patient had perforated gall bladder. 3 (10%) patients HPE report came as acute on chronic cholecystitis. No carcinoma cases were encountered in the study.

DISCUSSION

The majority of the patients in this study were in their fifth decade of life. There was no age range that was immune to the sickness. This was found to be consistent with Herman's and Rushad's (4th – 5th decade) studies. The patients included in this study are ranged between 29 – 68 Yrs. There is incidence is higher in 5th decade followed by 6th decade of life. The results obtained in this study is correlating with studies of Herman et al [1]. According to western studies, the greatest incidence occurs in the fifth and sixth decades of life. A change in the dietary factor is known to be a major contributing factor in the peak age of incidence. Ganey et al [2]. and Moreaux et al [3]. found similar results in their research. In this study 30% of cases were male while the rest 70% of cases were female. Battacharya [4]. Studies show that in his study 28.6% were male, 71.4% were female. A.P. Tamhankar [5], Ganey et al [2]. Major Alok Sharma et al [6], all found a similar sex preponderance in favour of females, with 70 percent females and 30 percent males. The rate of incidence in females is more due to the presence of estrogen and the risk gets doubled when there is a usage of oral contraceptive pills and hormonal replacement therapy. Pregnancy is also a contributing factor for gall stones as there is an increased surge of estrogen in the early pregnancy in the first trimester.

In Our study almost all the patients i.e. 29 out of 30 (97%) patients were presented with right upper quadrant pain. The second most common complaint in this study is dyspepsia (40%). 10% of the patients had Vomiting. One (3%) patient had fever and one (3%) patient had jaundice. The results obtained in the studies conducted by Ganey [2] and Alok Sharma [6] are varied compared to the present study. In studies conducted by Ganey [2] and Alok Sharma [6] the second most common presentation was vomiting, whereas in the present study, the second most common presentation was dyspepsia. In the present study pain is the most common complaint in 97% of the patients with the commonest site being was right hypochondrium followed by epigastrium. Most of the patients complained of intermittent colicky type of pain and a few patients complained pricking type of pain. In 3 (10%) patients there was history radiating pain toward the back. In patients with chronic cholecystitis there is a history of chronic recurrent pain and 6 (20%) patients had acute onset of pain. Most of the patients complained that the pain increasing in intensity after food intake. Similar presentations were noted in the series of Alok Sharma [6], Ganey [2], Goswitz et al [7]. 44% (22 patients) of cases in the present series had nausea/ vomiting. The second most common complaint in this study is dyspepsia which accounts for 40% of cases. These results are significantly higher when compared to Alok Sharma (8%) and Garney (21%) studies. Vomiting in the present study is significantly less when compared to Ganey et al series. Vomiting's were

spontaneous, occurred mostly during the attack of pain. The type of vomiting was nonbilious and non-projectile. The pain did not get subsided after vomiting. All the patients who had vomiting are diagnosed with acute cholecystitis based on the clinical examination and ultrasound and biochemical reports. In our study 1 (3%) patient had obstructive jaundice. The incidence was lower when compared to Alok Sharma and Garney's studies. The jaundice was found to be due to slippage of gallbladder stone into the common bile duct. Patient was initially managed conservatively as there was a significant elevation in serum amylase and lipase and the patient was diagnosed with acute biliary pancreatitis. After stabilizing the patient ERCP was done and the stone in the common bile duct was removed successfully. This patient underwent laparoscopic cholecystectomy after 6 weeks. The stones identified in this patient were pigmented stone. The case of perforated gall bladder secondary to acute cholecystitis was presented with fever. The patient is having peritonitis at the time of presentation. All the patients included in our study were subjected to ultrasonographic imaging and are found to have gall stones. The most common finding on USG was multiple gall stones accounting for 67% of the cases. The second common finding of USG abdomen in our study was a solitary (single) stone in gall bladder in 30 percent. In one (3%) patient there were stones in the gall bladder as well as in CBD. In this case the diameter of CBD is dilated more than 1 cm. Thickened GB wall was noticed in 17% of cases in the present study. Most of the ultrasonographic finding in our study were correlating with Alok Sharma et al [6]. Studies with the invention of laparoscopic cholecystectomy, the incidence of perioperative morbidity is reduced greatly when compared to the traditional open cholecystectomy. Because of these advantages laparoscopic cholecystectomy has become the first line management in gall bladder pathologies. The present study results are also showing the favorable outcome in laparoscopic cholecystectomy when compared to open cholecystectomy. The surgery related complication were comparatively lower in laparoscopic cholecystectomy. In the present study the duration of procedure was around 96 minutes for open cholecystectomy and 90 min for laparoscopic cholecystectomy. So, in the present study, there is no significant difference in the duration of surgery among both procedures. In laparoscopic cholecystectomy, the complications observed in the present study is intraoperative stone spillage while retrieving the specimen. In case of open cholecystectomy the intraoperative complication encountered is bile. This was encountered in a patient with empyema of gall bladder. As the patient didn't respond well to the initial management, the patient had to undergo open cholecystectomy. There were severe adhesion of the gall bladder to the surrounding structures. Releasing of adhesions resulted in the leakage of bile due to rupture of gall bladder. Postoperative period went uneventful. Postoperative complications encountered in open cholecystectomy group are wound infection in 1 patient (6.6%) and postoperative bile leak (6.6%).The cause of surgical site infection was known to be due to poor glycemic control of patient. The patient complained pain at operated site and there was erythema and induration at suture site on examination. Sutures were removed and appropriate antibiotics were administered to the patient based on culture and sensitivity report. The postoperative bile leak was due to decreased inflammation or might be due to inadequate occlusion of cystic duct or due to injury to the CBD. The diagnosis was made based on the content in the drain which was bile on 2nd Postoperative day. The patient was managed conservatively as the bile was <100ml/ day through drain. The mean duration of hospital stay in the present study is 4 days for laparoscopic cholecystectomy with an average of 2-6 days and 8 days in open cholecystectomy with a range of 6-12 days. In laparoscopic group, the meantime taken for the subjects to return to their normal activity was 7 days with range varying from 5-9 days whereas in open cholecystectomy group the mean time is 11 days with range varying from 9-13 days. The limitations of laparoscopic cholecystectomy are a high learning curve, technically more demanding, intraoperative bleeding control is difficult, no tactile sensation and demands high skills of hand and eye coordination. No such difficulties were encountered in our studies. No mortality and severe morbidity was encountered in our study. Chronic cholecystitis was the highest histological diagnosis in the present study. 70% of patients in the study group were found to have chronic cholecystitis on HPE examination. These results were slightly less when compared to the study of Blackpool Victoria Hospital. 13% of cases in the present study have histopathological evidence of acute cholecystitis which is the second most common complication identified. These results are correlating to the results of Blackpool Victoria Hospital study. In the present study, 10% of cases are diagnosed to have acute on chronic cholecystitis based on the histopathology report. But no such cases are reported in Blackpool Victoria Hospital study series. There is an incidence of gangrenous changes in gall bladder leading to perforation in 3% of the cases in the present study. This result is matching with the incidence in Blackpool Victoria Hospital series. In the present study, there was an incidence of empyema of gall bladder whereas in the comparative study there were no such case records. In the present study, the mean duration of hospital stay was 8 days in open cholecystectomy group which was higher when compared to Barkenet al [8]. and Trondsen et al [9] study. The incidence of mixed stones in the current study is 67% which was lower when

compared to the incidence noted in Mathor SN et al. in which the incidence was 84%. In our study 30% of cases are having cholesterol stone but in Mathor SN et al [10]. The incidence of cholesterol stones is 12%. Pigment stone incidence in our study has similar results with Mathor SN et al series [11-16].

CONCLUSION

Laparoscopic cholecystectomy is considered as the treatment of choice in these patients as it has better outcomes and is associated with fewer perioperative complications and morbidity in experienced hands. One should not hesitate to convert to an OC if significant adhesions or inflammation are identified during laparoscopy. With the advent of laparoscopic cholecystectomy, the duration of hospital stay has come down and the patients are returning to work earlier when compared to the open cholecystectomy patients. Laparoscopic cholecystectomy is also cosmetically better.

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