



## A Study on Clinical Presentation Management and Outcome of Cholelithiasis

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### ABSTRACT

A prospective observational study of 30 cases of gall stones admitted in the Department of General Surgery was conducted. The incidence was more in 5th decade of life in the present study followed by 6th and 4rd decades. The incidence is more in females when compared to males. Out of 30 cases, 21 (70%) are females and 9 (30%) are males. The sex ratio of female to male is 2.33:1. Most of the patients in our study presented with pain as the most common symptom which accounts for 97%. The other symptoms with which patients presented to the hospital are dyspepsia (40%), vomiting (10%). 3% of cases presented with fever and 3% of cases presented with jaundice. In these cases, right hypochondrium and epigastric tenderness was the most common clinical sign elicited in 97% of the cases. Guarding was elicited in 20% of the cases. Icterus and mass were noted in 3% of the cases. USG is used as the investigation of choice in the current study. The imaging results show 100% of cases with gall stones. Among them, 70% has multiple stones and in this group, 3% had both gall stones and CBD stones. Solitary stones were noted in 30% of the cases. Various complications that are associated with cholelithiasis in the current study are chronic cholecystitis in 80% of the cases and acute cholecystitis in 13% of the cases. 3% had acute pancreatitis secondary to choledocholithiasis and 3% are presented with perforated gall bladder and empyema gall bladder. As a part of management, 50% of the cases underwent laparoscopic cholecystectomy and 50% of the cases underwent open cholecystectomy. No cases in this study who underwent laparoscopic cholecystectomy were converted to open cholecystectomy. The complications noted with laparoscopic cholecystectomy are intraoperative stone spillage in one case (6.6%). In case of open cholecystectomy, intraoperative and postoperative bile leak was noted in 6.6% of cases and wound infection was noted in one case (6.6%). Postoperative bile leak was managed conservatively and wound infection was managed with drainage of pus and appropriate antibiotic administration. Chronic cholecystitis is the most common histopathological report of gall bladder followed by acute cholecystitis. Most common type of stones were mixed stones (67%) followed by cholesterol stones (30%) and pigmented stones (3%). There was no significant difference in the duration of operative procedure in both open and laparoscopic cholecystectomy groups. The average duration for laparoscopic cholecystectomy was 90min and for open cholecystectomy, it is 90min. In laparoscopic cholecystectomy group, the mean duration of hospital stay is 4 days in most of the cases and time taken for them to return the normal work is 7 days. In case of open cholecystectomy group, the mean duration of hospital stay is 8 days and time taken for the cases to return to their normal activity is 11 days. Both the results in open cholecystectomy group were considerably higher when compared to laparoscopic cholecystectomy group.

### OPEN ACCESS

#### Key Words

Cholecystitis, gall bladder, antibiotics, histopathological study

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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<sup>[1,2]</sup>. Among several risk factors for developing calculous cholecystitis, female gender, obesity and dietary factors play a vital role<sup>[3-5]</sup>. 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<sup>[5-7]</sup>. 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<sup>[8,9]</sup>. 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, 3-5% of patients are developing complications. The diagnosis of cholelithiasis is based on history and physical examination and imaging studies<sup>[9,10]</sup>. As the incidence of cholelithiasis is increasing in India, a study is required to know various presentations of cholelithiasis and modes of management available. The present study aims at the demographics, clinical presentation, postoperative pathological evaluation of removed gall bladders and gallstones.

## MATERIALS AND METHODS

**Study Design:** This is a hospital-based prospective observational study.

**Setting:** Department of general surgery wards.

**Study Period:** 2 years.

**Sample Size and Source:** 30 patients with Gall stones admitted to general surgery wards who underwent cholecystectomy are taken up for study.

### Inclusion Criteria:

- Patients age >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. 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.

## RESULTS AND DISCUSSIONS

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 was 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. Females' presentation ages ranged from 29-68 years old. Similarly males' presentation ages 32-56 years. Overall the mean age of presentation was 45.22. 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. In this study, in 97% of patients, tenderness was elicited in the right hypochondrium and epigastrium. 20% of cases had guarding. 3% patient had right hypochondriac mass and icterus respectively. 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 perforated gall bladder. 1 patient (3%) had both Gb stones and CBD stone. 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. Out of 9 male patients, 5 cases (55%) underwent open and 4 cases (45%) were operated using laparoscopic procedure. Out of 21 females, 10 patients (48%) were treated with open cholecystectomy and 11 patients (52%) with laparoscopic cholecystectomy. The average time for an open cholecystectomy was 96 minutes (60-150 minutes) and for a laparoscopic cholecystectomy was 90 minutes (60-130 minutes). In LC, the most common problem was stone spillage in one patient (6.6%), while in Open cholecystectomy, the most common complication was bile leak in one patient (6.6%) and wound infection in one patient (6.6 %). There were no cases of CBD injury in either group. In the Open Cholecystectomy group, the bile leak was caused by dense adhesion and was treated conservatively. 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. 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. 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.
- In this study 30% of cases were male while the rest 70% of cases were female.

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.

- 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.
- 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.

Total 8 patients had comorbidities. Among those, 4 patients were diabetic, 2 patients were hypertensive, 2 patients were both diabetic and hypertensive and one patient was a known case of CAD underwent setting. All the patients in the present study were subjected to blood investigations like CBP, S. Creatinine, LFT. The patients Hemoglobin ranges from 10-15 gm %. Alkaline phosphatase was elevated in 4 patients. Direct bilirubin was raised in 1 patient over 2.5 and total bilirubin levels 3.5 mg%. In patient with perforated gall bladder the Total Leucocyte count was significantly high at a value of 24000. In patient with obstructive jaundice there an elevation in the levels of transaminases (SGOT and SGPT). There is an elevation in serum lipase of >3 folds the normal value. The diagnosis of acute biliary pancreatitis was confirmed in this patient.

- 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 >1 cm.
- Thickened GB wall was noticed in 17% of cases in the present study.
- Chronic cholecystitis underwent elective cholecystectomy after obtaining fitness for surgery.
- We managed the acute cholecystitis patients initially by Nil per oral, NG tube for aspiration, broad spectrum antibiotics to decrease the rate of infection and analgesics to decrease the pain and antiemetic to control or to prevent the vomiting.
- Among 6 patients presented with acute cholecystitis one patient had perforated gall bladder with peritonitis and was taken for emergency cholecystectomy through midline laparotomy and one patient had empyema gall bladder who didn't respond to the initial conservative management and underwent open cholecystectomy.
- A patient who had gall stone with CBD stones underwent laparoscopic elective cholecystectomy after stone retrieval through ERCP. This patient was diagnosed to have mild acute biliary pancreatitis. So, laparoscopic cholecystectomy was performed 6 weeks after the episode of pancreatitis to reduce the chance of bile leak due to adhesion of gall bladder.
- 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

- 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.
- 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 our study, the most common complication associated with cholelithiasis is chronic cholecystitis. It is accounting for 80% (24) of the cases. Among this group out of 24 patients one patient presented with acute on chronic cholecystitis and one patient presented with acute biliary pancreatitis with obstructive jaundice secondary to slippage of gall stone into CBD. The second most common complication is acute cholecystitis in due to which 20% (6) of patients in the study group visited hospital. Out of 6 patients, 1 patient presented with perforated gall bladder secondary to gangrenous changes in gall bladder and another patient presented with empyema of gall bladder.

All the patients in the present study group were subjected to ultrasonography imaging preoperatively and the diagnosis was confirmed based on the histopathological examination of a specimen of gall bladder postoperatively. In the present study, there was an incidence of empyema of gall bladder whereas in the comparative study there were no such case records.

- Most of the patients got discharged on postoperative 4 followed by day 3 after laparoscopic cholecystectomy. This implies that the meticulous surgical skill of laparoscopy reduces the perioperative complications and patients can get back to their normal activities in significantly less duration when compared to the open cholecystectomy group.

## CONCLUSION

- The peak age of incidence is 5th decade. Females have a higher incidence of cholelithiasis and its associated complication when compared to males. Most of the patients present with pain in the right upper quadrant as the chief complaint. Tenderness in right hypogastrium and epigastrium is the most frequent clinical sign elicited in these patients.

- The first line investigation and investigation of choice imaging modality is ultrasound in patients with gall stones.
  - Chronic cholecystitis followed by acute cholecystitis is the most common complication that is associated with cholelithiasis.
  - The most common type of gall stones is mixed stones followed by cholesterol stones.
  - 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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