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A PROSPECTIVE STUDY ON CLINICAL PRESENTATION AND MANAGEMENT OF CHOLELITHIASIS

General Surgery

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ABSTRACT

Background: 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. 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. The aim of the study wasto study age and sex distribution ,the incidence, clinical presentations, and management of cholelithiasis in tertiary care Hospital at Nellore, Andhrapradesh, India.**Methods:** This study was a prospective study; total 30 patients were enrolled in this study. The study was conducted at Department of Genral surgery Narayana medical college and hospital, Nellore., from 2020 to 2021. The data were analyzed and evaluated for clinical profile, management options of cholelithiasis.**Results:** The present study shows gallstones diseases are a common problem in female population. The female to male ratio is 3:2. Age, gender and incidence statistically there was no significant in this study. **Conclusions:** Gallstones analysis showed mixed stone in 90% of the cases and cholesterol stones in 8% of the cases as the most common variety. The period of post-operative stay in our study was 7 days for open cholecystectomy and 3 days for laparoscopic cholecystectomy in majority of the cases.

KEYWORDS

Cholelithiasis, Gall bladder stone, Outcomes, Ultrasound

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 2 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, 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.

METHODS

This is a hospital-based prospective observational study.

Setting:
department of general surgery wards in Narayana medical college and hospital, Nellore.

Study Period:
1 years (2020 to 2021).

Sample Size And Source:
30 patients with Gall stones admitted to general surgery wards of Narayana medical college and hospital who underwent cholecystectomy are taken up for 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 23 Primary CBD stones without gall stones Gall stones with congenital malformation of biliary tree and stricture of CBD.

Patients satisfying inclusion criteria are selected into the study after obtaining informed and written consent. 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 24 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:
All data was enter ed in the Micro soft excel sheet and SPSS software version were analyzedusing in this study.

RESULTS

During the studyperiod, total 30 gall stone cases that were analyz edprospectively duration of 1years.An informed consent form was obtained from all the cases. The diagnosis is confirmed based on the imaging techniques and admitted to the Department of General Surgery In the present study, There is an increased incidence of cholelithiasis in the 5th and6th decade with the peak in the 5th decade and the incidence was 50%

Table1 showsage, gender and incidence

Age Group	Number of cases	%of cases
21-30yrs	1	3%
31-40yrs	5	17%
41-50yrs	15	50%
51-60yrs	8	27%
>60yrs	1	3%
total	30	100%
Gender	Number of cases	%of cases
male	9	30%
females	21	70%
total	30	100%

the youngest patient presented was 29 year and the eldest patient was 68 years. In the present study out of 30 patients, 9 patients which accounts for 30% were male and 21 patients accounting for 70%. 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.

Table 2 shows complaints of cases

Complaints	Number of patients	Percent
Pain	29	97%
Dyspepsia	12	40%
Vomiting	3	10%
Jaundice	1	3%
Fever	1	3%

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

Table 3 shows: Different clinical signs elicited in the study.

Clinical signs	Number of patients	Percent
Tender right hypochondrium andepigastrium	29	97
Guarding	6	20%
Mass	1	3%
Icterus	1	3%

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 rescpectively.

Table 4 shows: Results of Ultrasonography

Findings	No Of Cases	%
Stones in gallbladder	30	100%
Solitary stone	9	30%
Multiple stone	20	67%
Multiples gall stones with CBD stone	1	3%
Thickened GB wall	5	17%
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 was 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 5 Types of Surgeries

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

15 (50%) patients were operated with open cholecystectomy procedure while 15 (50%) patients underwent the laparoscopic cholecystectomy.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

Table 6 intra and perioperative Complications

Findings	Laparoscopic Cholecystectomy	Open Cholecystectomy
Operating Time in Min Range	90 (60-130)	96 (60-150)
Intra op complications		
Bile leak	0	1
Stone spillage	1	0
CBD injury	0	0
Conversion	0	-
Post operative complications		
Hemorrhage	0	0
Wound infection	0	1
Retained stone	0	0
Bile leak	0	1

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.

Table 7: Type Of Stones

TYPES OF STONES	NO OF CASES	%
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 14: Histopathology Report

Histopathology Report	No of Cases	%
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:

Cholelithiasis is most commonly prevalent in northern states as compared to southern states. It is 7 times higher in northern states. This study aims to study the causative factors, clinical manifestation and management of gallstones in India.

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. Ganey et al. and Moreaux et al. found similar results in their research.

In this study 30% of cases were male while the rest 70% of cases were female. Battacharya. studies show that in his study 28.6% were male,71.4% were female. A.P.Tamhankar. Ganey et al., Major Alok Sharma et al, all found a similar sex preponderance in favor 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 and AlokSharma are varied compared to the present study. In studies conducted by Ganey and AlokSharma the second most common presentation was vomiting, whereas in the present study, the second most common presentation was dyspepsia. Similar presentations were noted in the series of Alok Sharma, Ganey, Goswitz et al. 44% (22 patients) of cases in the present series had nausea/ vomiting.

In the present study out of 30 patients 14 patients BMI was more than 25kg/m2 . The remaining 16 patients' BMI varied in between 18.5 to 23.5kgs/m2 . 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 stenting. 97% of the patients in the present study had right hypochondrium tenderness. These results obtained in the present study are 51 correlating to Kapoor et al & Karl et al studies. A positive Moynihan's sign present in 6 (20%) patients.One (3%) patient present with CBD stone had icterus. These results were similar to the results of K.L Kapoor's Study 6% of cases presented with guarding in the present study.

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 are correlating with Alok Sharma et al. studies.

All the patients admitted in Narayana Medical College and Hospital were treated with either laparoscopic or open cholecystectomy. 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. In the remaining 4 patients of acute cholecystitis 3 patients were treated with laparoscopic cholecystectomy after 3 days of initial management. The remaining one patient with acute cholecystitis was managed conservative as above. The patient was treated with surgical procedure- interval laparoscopic cholecystectomy after 6 weeks after correcting the physiological status. 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

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. 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 complications encountered in open cholecystectomy group are wound infection in 1 patient (6.6%) and postoperative bile leak 1 (6.6%). 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.

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.

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 62 cases are having cholesterol stone but in Mathor SN et al. the incidence of cholesterol stones is 12%. Pigment stone incidence in our study has similar results with Mathor SN et al serieshese results are correlating to the results of Blackpool Victoria Hospital study.

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. Laparoscopic cholecystectomy is better than open cholecystectomy.

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