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A Clinical Study of Prevalence, Etiology and Surgical Management of Cholelithiasis

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Abstract

Background: The incidence of cholelithiasis is on the rise in countries like India due to a chanae in dietary habits. Most of such cases require surgical interventions. We in the current study tried to evaluate the prevalence, etiology, and surgical management of cases of cholelithiasis at our tertiary care centre of south India. Methods: Based on the inclusion and exclusion criteria a total of n=50 consecutive cases with cholelithiasis were included in the study. A detailed history was recorded which includes socio-economic status, nature of the symptoms, duration of the symptoms, past-history of similar complaints, diet history, history of OCP, Alcohol habits. All patients underwent a detailed clinical examination. Investigations included complete hemogram, ECG, LFT, blood sugar, blood urea, serum creatinine, urine analysis, chest x-ray, ultrasound scan of the abdomen. **Results**: In this study, the total number of cases was n=50 out of which n=20(40%) were male patients and n=30(60%) were female cases. USG analysis revealed the presence of multiple stones was in 76% of cases, thickening of the gall bladder was in 80% of cases and the presence of mass was detected in 8% of cases of the study. 84% mixed type cholesterol stones in 10% and pigmented stones in 6% of cases. All the cases were operated n=29 underwent lap cholecystectomy and n=21 had undergone open cholecystectomy. **Conclusion**: The incidence of cholelithiasis is increasing and there is a predominance of females as far as the sex wise dominance of cases is concerned. Ultrasonography was the investigation of the choice in these cases. Multiple gallstones and thickening of the gallbladder were found in most cases. The conversion rate from laparoscopic cholecystectomy to open cholecystectomy was 12%. Post-operative complications were minimal, and no issues were reported in the follow-up period.

Keywords: Cholelithiasis, prevalence, gall stones, Lap cholecystectomy, open cholecystectomy

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Introduction

Cholelithiasis is one of the common presentations of patients in the Department of surgery often requiring surgical interventions. The description of cholelithiasis in ancient Indian literature between 800B.C. and 400A.D revealed the described jaundice called pitta-ashmarijanya meaning jaundice caused by a stone in bile which could be also caused by wrong diet ^[1].It is estimated that throughout the world at least 10% of adults will have gall stones. 20% of adults over the age of 40 and

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30% over the age of 70 have shown the existence of biliary calculi ^[2]. The frequency is on the recent rise in incidence due to the availability of refined foods. The prevalence of cholelithiasis in Europe is 18.5% of the autopsy studies with the lowest prevalence from Ireland5% and the highest from Sweden38%. In Australia, the prevalence rate varies from 15% to 25%. The highest prevalence in the Pima Indian tribe of Arizona with the total and female prevalence of 49% and 73% respectively ^[3, 4]. In India, the incidence is showing an upward trend. This is mainly attributed to westernization and

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availability of investigation that is an ultrasound to urban as well as rural area and because of increased affordability due to change in the socio-economic structure and the cost of investigations. Complications of gall stones acute and chronic cholecystitis, include choledocholithiasis, cholangitis, pancreatitis, gallstone ileus, empyema gallbladder, mucocele, perforation, and rarely obstruction of the biliary tree by its external compression of a large gallstone within the gallbladder (Mirizzi syndrome). Diagnosis of Cholelithiasis is done by obtaining a proper history and complete clinical examination along with appropriate blood and radiological investigation which includes mainly Ultrasonogram and Computed tomogram. The most common surgical intervention is cholecystectomy because patients will be relieved of their symptoms immediately. Since there is a paucity of data regarding the cholelithiasis prevalence of across our population we conducted this study to determine prevalence, etiology, and surgical management of cholelithiasis in patients reporting to the Department of General Surgery.

Materials and Methods

This prospective study was conducted in the Department of General Surgery, Prathima Institute of Medical Sciences, Naganoor, Karimnagar. Institutional Ethical committee permission was obtained for the study. Written consent was obtained from all the participants of the study.

Inclusion criteria

- 1. Patients with signs and symptoms of gall stones
- 2. Cholelithiasis confirmed by Investigations
- 3. Those willing to participate in the study voluntarily
- 4. Not amenable for medical therapy

Exclusion criteria

- 1. Those with significant co-morbid conditions for fitness for surgery
- 2. Those managed by non-surgical methods
- 3. History of the previous cholelithiasis with relapse

Based on the inclusion and exclusion criteria a total of n=50 consecutive cases with cholelithiasis were included in the study. A detailed history was recorded which includes socio-economic status, nature of the symptoms,

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duration of the symptoms, history of similar complaints, diet history, history of OCP, Alcohol habits. All patients underwent a detailed clinical examination. Investigations included complete haemogram, ECG, LFT, blood sugar, blood urea, serum creatinine, urine analysis, chest x-ray, ultrasound scan of the abdomen. All the cases were operated n=29 underwent lap cholecystectomy and n=21 had undergone open cholecystectomy. The choice of operation was based on the criteria such as the history of previous operations, obesity, age, medical condition, and affordability. А subhepatic tube drain was

used in patients who undergone open cholecystectomy and connected to a urosac bag. The patients were kept in surgical wards postoperatively for 3 days to 8 days depending on the type of procedure performed. Post-operative follow was done regularly, and necessary interventions were done for complications if any were reported. Chemical analysis of the gallstones was also done. Regular follow up of the patients was done even after discharge.

Results

In this study, the total number of cases was n=50 out of which n=20(40%) were male patients and n=30(60%) were female cases. The male to female ratio was 2:3. The mean age of males in the study was 43 years and the youngest patient was male 22 years and the oldest was male 65 years. In the female group, the youngest was 18 years female and the oldest was 62 years female the mean age group of females had ages ranging from 18 to 65 years with a mean age of 45 years. Most of the cases were from the 41 – 50 years age group n=17(34%) followed by n=11(22%) cases of the 51 – 60 years age group given in table 1.

Table 1: Showing the age-wise distribution of cases in the study

Age in years	Frequency	Percentage
11 - 20	1	2
21 - 30	5	10
31 - 40	9	18
41 - 50	17	34
51 - 60	11	22
61 - 70	7	14
Total	50	100

The most common sign recorded in the cases was a pain in right hypochondrium. Out of n=50 cases, 98% were present with pain 2% was without pain. Clinical jaundice was found in 14% of cases and tenderness was found on examination in 96% of cases other details are shown in table 2.

 Table 2: signs and symptoms recorded in the cases of the study

Symptoms/signs	Frequency	Percentage
Pain in right	49	98
hypochondrium		
Nausea/ vomiting	28	56
Jaundice	7	14
Dyspepsia	12	24
Fever	4	8
Tenderness	48	96
Guarding	15	30
Mass	4	8

Apart from the other investigations, the USG abdomen was done for all the patients. The diagnosis confirmed by USG was 100% for the cholelithiasis. Apart from other findings presence of multiple stones was in 76% of cases, thickening of the gall bladder was in 80% cases and presence of mass was detected in 8% cases of the study shown in table 3.

Table 3: Showing the Ultrasonographic findingsof cases of the study

USG Findings	Frequency	Percentage
Stones in the gall	50	100
bladder		
Solitary stone	12	24
Multiple stones	38	76
Bile duct stones	7	14
Thickening of gall	40	80
bladder		
Dilated bile duct	6	12
Mass	4	8

Out of the total n=50 patients, n=35 was for laparoscopic cholecystectomy in which n=6 cases were converted to open cholecystectomy based on the intraoperative findings hence n=29 were finally done with laparoscopic cholecystectomy males were n=11 females n=18 and n=21 with open cholecystectomy males n=9 and females n=12 shown in table 4. The examination of gall stones revealed 84% mixed type cholesterol stones in 10% and pigmented stones in 6% of cases. The histopathology reports revealed n=48 patients were reported has had chronic cholecystitis, n=2 patients had acute cholecystitis and no case of malignancy was noted.

Table 4: Type of surgery performed in the cases of the study

Type of surgery	Frequency	Percentage
Open	21	42
cholecystectomy		
Laparoscopic	29	58
cholecystectomy		
Total	50	100

In almost all the cases the postoperative period was uneventful. 4% of cases were reported with vomiting which was managed with antiemetic agents. 8% had severe pain which was managed adequately with analgesics. The follow-up period was 3 months in which no complications were reported.

Discussion

In the current study, we found the highest incidence in the 5^{th} decade which is in agreement with other studies done in the field [5-^{8]}. In this study, we found a female preponderance in cases of cholelithiasis. Battacharya R^[9] series showed 71.4% were female, 28.6% were male. Similar sex preponderance in the favor of females was noted by ^[7, 10, 11]. AP Tamhankar ^[10], Ganey ^[7], Alok Sharma ^[11], series showed that70% were males and 30% were females. The commonest site of pain was in the Right Hypochondrium, and the next commonest site was Epigastria. 10% of patients complained of pain radiating to the back96% of patients had chronic Recurring pain, 4% of patients had acute onset of pain, the pain was colicky in nature. 26% of patients had Dull aching pain. Similar presentations were noted in the series of Alok Sharma ^[11], Ganey ^[7], Goswitz ^[12] A positive Murphy's sign present in 14% of patients. A mass was felt in 10% of patients. The mass could be due to distention of gallbladder the are adherent omentum overlaying the inflamed gallbladder. 56% of cases in the present series had nausea/ vomiting and vomiting was spontaneous, which occurred mostly during the attack of pain. In the present study, 14% of patients had jaundice. The cause of the jaundice was stone the common bile duct. The common bile duct was explored in these

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patients and stones were removed. 24 %of patients had dyspepsia. The Endoscopic examination in these patients did not reveal any pathology. On ultrasound examination, these patients had Gall stones. The dyspepsia was after these patients relieved undergone Cholecystectomy. The incidence of dyspepsia in the present series was similar to Ganey [7] and Alok Sharma^[11], series. Fever was present in 8% in the present study. Fever was secondary to cholangitis due to biliary obstruction. Pasthistory revealed nothing significant in any of the cases taken for the study 68% of patients had a mixed diet 20% of patients were alcoholic,14% of patients were obese. The most common incision used in open cholecystectomy was Rt. Subcostal Incision, which was used in 71.4% of patients, 23.8% of patients were operated through Rt. Paramedian incision and 4.8% patient by Rt transverse incision. The common bile duct was explored in 7 patients and stones were retrieved. In 2 patients CBD was closed with T—tube drainage. The operative room time cholecystectomy was for open ranged from55min to 100min, with the approximate average time being 65 min, and lap cholecystectomy was Ranged from 100min to 130min, with the approximate average time being 115 min. For open cholecystectomy, 100 min for lap cholecystectomy. In the present study, 48 patients were reported as having chronic Cholecystitis and 2 patients were reported as having acute Cholecystitis. This is similar to the series by Battacharya R^[9] Raza MH et al; ^[13] There were only minor postoperative complications that were adequately managed and there was no problem in the follow-up period in any patient.

Conclusion

Within the limitations of the present study, it can be concluded that the incidence of cholelithiasis is increasing and there is a predominance of females as far as the sex wise dominance of cases is concerned. Pain in the right hypochondrium is a common presentation. Ultrasonography was the investigation of the choice in these cases. Multiple gallstones and thickening of the gallbladder were found in most cases. The conversion rate from laparoscopic cholecystectomy to open cholecystectomy was 12%. Post-operative complications were minimal, and no issues were reported in the follow-up period.

Conflict of Interest: None declared Source of Support: Nil Ethical Permission: Obtained

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