Section: General Surgery

Original Research Article

CLINICAL PRESENTATION AND MANAGEMENT OF CHOLELITHIASIS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Gallstone disease remains one of the major causes of morbidity and mortality throughout the world. Gallstone Disease is a frequent health problem in developing countries. It is a chronic recurrent hepatobiliary disease as an effect of impaired metabolism of cholesterol and Bile acids resulting in bile stone formation.

Materials and Methods: The present study was a single-center, observational Study conducted on all the patients admitted, diagnosed and managed with Cholelithiasis above age of 12 years in the department of General Surgery for a period 2 years. Prior to initiation of the study, ethical and research Committee approval has been obtained. During the present study a total of 61 Patients were reviewed in surgical out patient department among which 50 patients were enrolled for the study according to the inclusion criteria and 11 patients were excluded to the exclusion criteria.

Results: There is an increased incidence of cholelithiasis in the 3rd and 4th decade with the peak in the 2nd decade of life. Among 50 cases group, 32% were male and 68% were female. The female to male ratio is 2.1:1. In present study pain was the commonest symptom presenting in 40% patients, 32% patients had dyspepsia and 14 patients had other symptoms. Ultrasonography of the abdomen showed 40% patients had solitary stone and 60% patients had multiple stones. The percentage of patients who underwent laparoscopic cholecystectomy was 94% and open cholecystectomy 6%. Overall prevalence of Prolonged Ileus postoperatively was 22%. Of the 3 open surgeries, one patient had Prolonged Ileus and with Laparoscopic surgeries 10 had Prolonged Ileus. Of 3 open surgeries 1 (33%) patient had wound infection and with Laparoscopic surgeries 1 (2%) had wound infection postoperatively. Overall incidence of wound infection was 4%.

Conclusion: In my study the youngest patient was 12 years and the oldest patient was 66 years old. The present study shows cholelithiasis as a more common problem in female population. Pain was the predominant symptom. Ultrasonography of the abdomen was done in all the patients, where 40% had solitary stone and 60% had multiple stones.

Keywords: cholelithiasis, gallbladder, Laparoscopic surgery, Magnetic Resonance Cholangiopancreatography, Magnetic Resonance Cholangiopancreatography.

INTRODUCTION

Gallstone disease remains one of the major causes of morbidity and mortality throughout the world.Gallstone Disease is a frequent health problem in developing countries. It is a chronic recurrent hepatobiliary disease as an effect of impaired metabolism of cholesterol and Bile acids resulting in bile stone formation. Gallstone disease is prevalent throughout world and have a significant economic impact.[1,2]

More than 20 million Americans suffer from gallstone disease and 80,000 are hospitalized every

year. Prevalence rate in Asians is 5-20%; Black Americans 13.9% in Men and 13.9% in women, it's <5% in Black Africans, it's virtually nonexistent in Masi & Bantu tribes. Prevalence in India is seen more in Females(n-38) than in Males(n-15) and is more common in north Indians compared to south Indians followed by Maharashtra, especially coastal region.

The Incidence and prevalence of Gall stones varies widely in the world, in different countries, even within the countries based on geographical condition, religious and cultural practices and food habits. In India we can see wide range of variations as we move from North to South India and from eastern to western parts.[3,4]

During last 100 years there was a steep rise in the incidence of gall stones in the western parts of the Globe. The retrospective study based on postmortem, reported gall stone prevalence was 10 % in Males and 22 % in Females aged above 40 years. About 21 million in the USA have Gallstones with the incidence of one million per year. Highest incidence of 49% was reported in Pima Indian Tribe of Arizona with 73% preponderance in females. In developed countries incidence was 7% in males and 15% in females between 18-65years, with an overall prevalence of 11%. Gallbladder stones are diagnosed based on history, physical examination, investigations based on clinical findings and conclusions.

Ultrasonography is the investigation of choice (>92% sensitivity and 99% specificity). CT, MRCP and EUS are the other diagnostic modalities. The approach to a case, Investigations and management varies widely based on the Surgeons experience, availability of infrastructure and feasibility.

Diagnosis of gall stone is by proper history and physical examination and combining it with appropriate investigation which varies from surgeon to surgeon and hospital to hospital and country to country. The study in this particular area was chosen to understand the changing incidence in India which is mainly attributed to westernization and availability of investigation that is ultrasound in urban as well as rural areas and also because of increase affordability due to change in the socioeconomic structure and the cost of investigations.

MATERIALS AND METHODS

The present study was a single-center, observational Study conducted on all the patients admitted, diagnosed and managed with Cholelithiasis above age of 12years in the department of General Surgery in Kamineni Institute of Medical Sciences, Sreepuram, Narketpally, Nalgonda District, Telangana from October 2018 to September 2020. After getting approval from the institutional ethics committee and prior informed consent from the patients the study was conducted. During the present study total 61 Patients were reviewed in the outpatient department, among which 50 patients were enrolled into the study according to the inclusion criteria and 11 patients were excluded according to exclusion criteria.

Inclusion Criteria

- All the cases admitted, diagnosed and managed with Cholelithiasis above age of 12years.
- All those cases who are undergoing surgical management for cholelithiasis

Exclusion criteria

- Patients who are diagnosed with acalculous cholecystitis and acute calculous cholecystitis.
- Patients who are diagnosed with malignancy.

After getting the approval from the institution ethics committee and prior informed consent from the patients the study was conducted. A detailed history was elicited. Emphasis regarding history of onset, duration, progression of chief complaints and associated complaints such as pain, flatulent dyspepsia, nausea and vomiting, jaundice, bowel habits, fever, abdominal distension and any family history were taken. A thorough general physical examination of patient was done. A thorough local examination was done giving importance to tenderness, Murphy's sign, Bao's sign and percussion, auscultation and genital examination. Cases were subjected to investigations such as:

Routine investigations as Complete blood picture, ESR, Blood sugar levels, blood urea, serum creatinine, blood grouping and typing, urine analysis. Special Investigations done based on necessity.

Operative details: Once diagnosis confirmed, the patient was given treatment options and if willing, treatment was instituted in our hospital for the condition.

- Medical
- Surgical
  - Laparoscopic cholecystectomy
  - Open cholecystectomy

In case of malignancies and bile duct calculous, patient was referred to the respective center for further management.

Method of Collection of Data: Data collected from the patients diagnosed with cholelithiasis, will be analyzed clinically and radiologically after taking consent. All the patients selected for the study will be examined according to the institutional protocol with clinical and laboratory investigations.

All the patients who fulfilled selection criteria were explained about the details of the disease process, options of treatment, ultimate outcome, possible effects, complications and a written informed consent was obtained before enrollment. They were informed of their right to withdraw from the study at any stage.

Statistical Analysis: The collected data was entered into Microsoft Excel Worksheet-2010 and data was taken into IBM SPSS Statistic for windows, version 24(IBM Corp., Armonk, N.Y., USA) software for calculation of frequency, percentage and mean values.

RESULTS

During present study total 61 Patients were reviewed in surgical outpatient department, among which 50 patients were enrolled into the study according to the inclusion criteria and 11 patients were excluded according to the exclusion criteria.

Table 1: Distribution according to Age

Age Group	No. of Patients	Percentage
12-20	1	2 %
21-30	14	28 %
31-40	13	26 %
41-50	12	24 %
51-60	8	16 %
> 60	2	4 %
Total	50	100
Gender distribution		
Male	16	32 %
Female	34	68 %

There is an increased incidence of cholelithiasis in the 3rd and 4th decade with the peak in the 2nd decade. In my study the youngest patient was 12 years old and the oldest patient was 66 years old. In the present study of 50 case, 16 (32%) were male and 34 (68%) were female. The present study shows cholelithiasis as a common problem in female population. The female to male ratio is 2:1.

Table 2: Distribution according to Clinical Presentation

Clinical Presentation	No. of Patients	Percentage
Pain (Right Hypochondrium / Epigastrium)	33	66 %
Dyspepsia	26	52 %
Nausea/Vomiting	8	16 %
Total	50	100

In the present study pain was the commonest clinical presentation in 33 (66%) patients, 26 (52%) patients had dyspepsia and 8 (16%) patients had nausea/Vomiting symptoms.

Table 3: Distribution according to USG Findings

USG Findings	No. of Patients	Percentage
Solitary Stone	20	40 %
Multiple Stones	30	60 %
Thickening of Gall bladder (With Solitary/Multiple	14	28 %
Total	50	100

Ultrasound scanning of the abdomen was done in all patients. 20(40%) patients had solitary stone; 30 (60%) patients had multiple stones in the gallbladder.

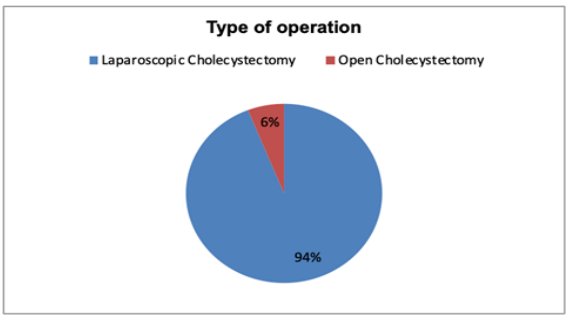

Figure 1: Distribution according to Type of operation

In the present study 47(94%) patients had undergone laparoscopic cholecystectomy and 3 (6%) patients had undergone open cholecystectomy.

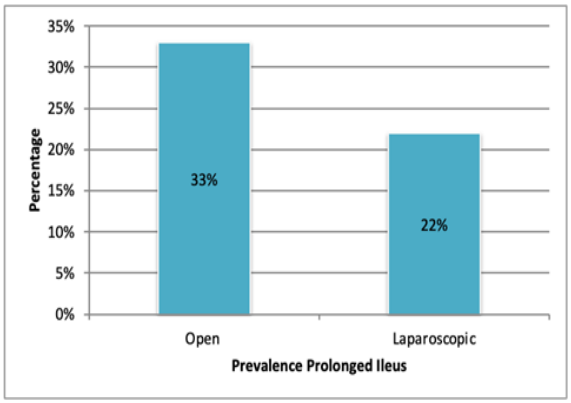

Figure 2: Distribution according to prevalence of Prolonged Ileus

In the present study of the 3 open surgery patients, 1 (33%) had Prolonged Ileus and of 47 Laparoscopic surgery patients 10 (22%) had Prolonged Ileus,

Table 4: Distribution according to Prevalence of Wound Infection

Cholecystectomy	Wound Infection No. of Patients	Total cases	Percentage
Open	1	3	33 %
Laparoscopic	1	47	2 %
Total	2	50	35%

In the present study, of 3 open surgeries, 1 (33%) had wound infection and of 47 Laparoscopic surgeries, 1 (2%) had wound infection.

DISCUSSION

Worldwide prevalence of cholelithiasis is very high in developed countries, but developing countries such as India are currently facing the rapidly increasing burden of gallstone disease as well. Gallstones were first time described by Lange bunch in late 19th century. Gallstones are a significant cause of morbidity that would result in a costly pathological conditions. Cholelithiasis is most commonly prevalent in northern states as compared to southern states. It is 7 times higher in northern states. there are very few studies for prevalence in central India. This study aims at knowing the changing incidence in India due to westernization and availability of investigation that is ultrasound to urban as well as rural areas at affordable cost.

Age: There is an increased incidence of cholelithiasis in the 3rd and 4th decade with the peak in the 2nd decade. In my study the youngest patient was 12 years old and the oldest patient was 66 years old. But in other studies, like Abdul Majeed et al,[5] demonstrates the peak incidence of the gall stone diseases among 5th and 6th decade of life. Similar inferences were drawn by Thamil et al,[6] (6th decade), Pradhan SB et al,[7] Abdalla M et al,[8] R.Selvaraju et al,[9] Gupta V et al,[10] and Singh A et al.[11] The frequency of gallstones increases with age, escalating markedly after age 40 to become 4 to 10 times more likely in older individuals. Further symptoms and complications increase with age, leading to more frequent cholecystectomies. According to study in epidemiology of gall bladder disease by Laura et al.[12]

Gender: Among the 50 cases group, 32% were male and 68% were female. The present study shows gallbladder diseases are a common problem in female population. The female to male ratio is 2.1:1. Similar reports were given by Abdul Majeed et al,[5] Pradhan SB et al,[7] Abdalla M et al,[8] R.Selvaraju et al,[9] Singh A et al.[10] A dictum saying fertile female of forties is at greater risk of having gall stones does not reflect in the present study. In Pimpale R et al,[11] study observed the female preponderance with 68.88%. A study by Cirillo et al,[14] suggested a causal association between estrogen and gallstone disease indicating the cause of preponderance. This finding is consistent with the literature like Alghaythi et al,[15] with male: female ratio of 1:1.5 respectively. The female gender has a most compelling association with gallstone disease, especially during the fertile years. Women are almost twice as likely as men to form stones; the gap narrows following menopause after which men begin to catch up. The underlying mechanism is female sex hormones; parity, oral contraceptive use and estrogen replacement therapy are established risk factors for cholesterol gallstone formation.

Female sex hormones adversely influence hepatic bile secretion and gallbladder function. Estrogens increase cholesterol secretion and diminish bile salt secretion, while progestin act by reducing bile salt secretion and impairing gallbladder emptying leading to stasis. A new 4th generation progestin, drospirenone, used in some oral contraceptives may further heighten the risk of gallstone disease.

Symptoms: In present study pain was the commonest symptom presenting in 40% patients, 32% patients had dyspepsia and 14 patients had other symptoms.

Pain was the predominant symptoms in the present study with 40%. The commonest site of pain was in the Right Hypochondrium, and the next commonest site was Epigastrium. 3 patients complained of pain radiating to the back. Pain in abdomen is the most common presentation of cholelithiasis. In the Pimpale R et al,[13] study all patients (100%) had pain. This finding is well documented in the literature.

Dyspepsia was seen in 32% patients in the present study which were similar to the findings of Lokesh et al.[16] The incidence of dyspepsia in present series was similar to Ganey and Alok Sharma studies.[14]

Ultrasound findings: Ultrasound scanning of the abdomen was done in all patients. 40% patients had solitary stone, 60% patients had multiple stones in gallbladder. In Amjad et al,[17] study ultrasound findings among patients were single stone 15%, multiple stone 32% and is similar to the study by Xiao T, et al.[18] Jalali SA et al,[19] reporting the incidence of multiple stones was higher than the single stones.

Type of operation: Depending upon the clinical conditions and factors like history of previous surgery, obese patients and adhesions etc. type of procedure was decided. The percentage of patients undergoing laparoscopic cholecystectomy was 94%, open cholecystectomy was 6%. Similar was observed in Bhamre SD and Dikle AM.[20] A Laparoscopic cholecystectomy was performed in 33 (63.46%) patients, Open cholecystectomy was carried out in 15 (28.85%). Laparoscopic cholecystectomy had to be converted into Open cholecystectomy in 4 (7.69%) cases because of multiple adhesions, possibility of bile duct injury, distorted anatomy. But in Sathish Kumar B et al,[21] study 50 patients had laparoscopic cholecystectomy and 43 patients underwent open Laparoscopic cholecystitis enable it the conversion rate may be as high as 32% according to study in Maharashtra by Bansal et al.[7]

Table 5: Comparing the type of operation with other studies.

Studies	Laparoscopic operation %	Open operation %
Bhamre SD & Dikle AM,[20]	63.46	28.85
Sathish Kumar B et al,[21]	48	52
Present study	94	6

According to Abdul Majeed et al,[5] cholecystectomy is the treatment of choice for the cases which are symptomatic. Depending on the extent of the disease either laparoscopic or open type was preferred. About 32 of 41 cases studied underwent open cholecystectomy. Since majority of them were open type, some of the complications like bile leak, peritonitis, wound infection and pyrexia were common in this study. Similar complications were reported in the studies conducted by Radunovic M et al.[22] Laparoscopic cholecystectomy is preferred since it has less complications.

Complications:

Prolonged Ileus: Among 3 open surgeries, 1 patient had Prolonged Ileus and Laparoscopic surgery patients 10 had Prolonged Ileus. Overall prevalence is 22%.Sudhir D et al,[20] study it was seen in only 1(1.92%) case. In the study by Catena F et al,[23] it was seen in 5(3.47%) cases.

Table 6: Comparison of prolonged ileus with other studies.

Studies	prolonged ileus prevalence %
Sudhir D et al,[20]	1.92
Catena F et al,[23]	3.47
Present study	22

Wound infection: Among 3 open surgery patients 1 (33%) had wound infection and Laparoscopic surgery patients 1 (2%) had wound infection. Overall wound infection is 4%.

In Sathish Kumar B et al,[21] study wound infection was the most common complication, which was 6%. The wound infection rate in the study of Saxena et al,[24] was 6.3%. In Sudhir D et al,[20] study wound infection was seen in 5(9.61%) cases, 4 cases in open cholecystectomy and 1 case of port site wound infection. The numbers of cases are high in studies under Catena, et al,[23] and Sharda, et al.[24] However, when we consider relative percentage, it was higher compared to other studies.

Table 7: Comparison of wound infection with other studies

Studies	Wound infection prevalence %
Sudhir D et al,[20]	9.61
Saxena et al,[24]	6.3
Sathish Kumar B et al,[21]	6
Present study	4

CONCLUSION

There is an increased incidence of cholelithiasis in the 3rd and 4th decade with the peak in the 2nd decade. In my study the youngest patient was 12 years old and the oldest patient is 66 years old. Among the 50 cases group, 32% were male and 68% were female. The present study shows cholelithiasis as a common problem in female population. The female to male ratio is 2.1:1. In present study pain was the commonest symptom presenting in 40% patients, 32% patients had dyspepsia and 14 patients had other symptoms. Pain was the predominant symptoms in the present study with 40% and dyspepsia was seen in 32% patients. Ultrasonography of the abdomen was done in all patients. 40% patients had solitary stone; 60% patients had multiple stones. Depending upon the clinical conditions and factors like history of previous surgery, obesity and adhesions etc. type of procedure was decided. The percentage of patients undergoing laparoscopic cholecystectomy was 94%, open cholecystectomy was 6%. Overall prevalence of Prolonged Ileus is 22%. Among 3 open surgeries, one patient had Prolonged Ileus and Laparoscopic surgery patients 10 had Prolonged Ileus. Among 3 open surgery patients 1 (33%) had wound infection and Laparoscopic surgery patients 1 (2%) had wound infection. Overall wound infection is 4%.

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