

AN ANALYTICAL STUDY OF GALLSTONES AND ITS CLINICAL OUTCOMEVimal Venkatachalam¹, Uma Dhanasekaran²¹Assistant Professor, Department of General Surgery, KAPV Government Medical College, Tiruchirappalli, Tamil Nadu.²Assistant Professor, Department of General Surgery, KAPV Government Medical College, Tiruchirappalli, Tamil Nadu.**ABSTRACT****BACKGROUND**

Gallstones occur when there is an imbalance in the chemical constituents of bile that result in precipitation of one or more of the components. This disease is, however, a worldwide medical problem, even though there are geographical variations in gallstone prevalence. In most cases, they do not cause symptoms and only 10% and 20% will eventually become symptomatic within 5 years and 20 years of diagnosis. Thus, the average risk of developing symptomatic disease is low and approaches 2.0-2.6% year in all populations of the world regardless of overall gallstone prevalence. Women during their fertile years are almost twice as likely as men to experience cholelithiasis. Treatment of gallstones depends partly on whether they are causing symptoms or not. This study was conducted at government KAPV Medical College Hospital in patients who had undergone cholecystectomy to delineate their age and sex distribution, symptomatology and to find out the fraction of patients with incidental malignancy in the gallbladder.

The aim of the study is to-

1. Study the clinical presentation of gallstone diseases - symptomatology and acuteness of presentation.
2. Study the gender and age, distribution of patients presenting with gallstone diseases and compare with given standards.
3. Study the prevalence of concomitant CBD stones in patients with gallstone diseases.
4. Study the prevalence of gallbladder carcinoma in patients with gallstone diseases.
5. Study the surgical management of patients with gallstone diseases/CBD stone and outcome.

MATERIALS AND METHODS

An analysis of patients presenting with gallstone diseases at Government KAPV Medical College Hospital between 2014-2016 was made with regard to the prevalence, age distribution, clinical presentation and the surgical management and outcome.

RESULTS

In our study, the male-to-female ratio is 1:1.61. The prevalence of symptomatic gallstone diseases in our study is highest in the 40-49 years age group. Acute cholecystitis occurred in the 13.5% of patients in the study. 5.8% of patients with gallstones disease presented with concomitant CBD stones.

CONCLUSION

Gallbladder stones are more prevalent in India with female preponderance. Patients with acute and chronic cholecystitis were managed by cholecystectomy and the specimen was sent for histopathological examination to look for malignant changes.

KEYWORDS

Gallbladder, Cholecystitis, Mucocele, Cholecystectomy.

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BACKGROUND

Gallstones occur when there is an imbalance in the chemical constituents of bile that result in precipitation of one or more of the components. This disease is, however, a worldwide medical problem, even though there are geographical variations in gallstone prevalence.^{1,2,3,4,5,6,7} Gallstones are

becoming increasingly common. They are seen in all age groups, but the incidence increases with age.⁸ In most cases, they do not cause symptoms and only 10% and 20% will eventually become symptomatic within 5 years and 20 years of diagnosis.^{9,10} Thus, the average risk of developing symptomatic disease is low and approaches 2.0-2.6% per year.¹⁰ Gallstones are composed mainly of cholesterol, bilirubin and calcium salts with smaller amounts of protein and other materials.^{11,12,13,14} There are three types of gallstones.¹⁵ Gallstones are more common in North America, Europe and Australia and are less prevalent in Africa, India, China, Japan, Kashmir and Egypt.^{16,3,17,18,19,20,15,21} Gallstones are 4-10 times more frequent in older than younger subjects. In all populations of the world, regardless of overall gallstone prevalence, women during their fertile years are almost twice as likely as men to experience cholelithiasis.

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Treatment of gallstones depend partly on whether they are causing symptoms or not. Recurrent episodes of upper abdominal pain related to gallstones are the most common indication for the treatment of gallstones.²² Patients in the general population with longstanding stone or stones greater than 3 cm in diameter²³ and patients with a calcified gallbladder wall or "porcelain" gallbladder²⁴ are planned for surgery due to risk for malignancy. The evaluation and treatment of suspected stones in the common bile duct can be carried out by endoscopic retrograde cholangiopancreatography before laparoscopic cholecystectomy.²⁵ If common bile duct stones are unexpectedly found by cholangiography during laparoscopic cholecystectomy, an open exploration of the common bile duct maybe needed. This study was conducted at Government KAPV Medical College Hospital in patients who had undergone cholecystectomy to delineate their age and sex distribution, symptomatology and to find out the fraction of patients with incidental malignancy in the gallbladder.

Aim of the Study

An analysis of gallstone diseases was carried out at Government KAPV Medical College Hospital, Tiruchirappalli, between the period of 2014-2016 with the following aims-

1. To study the clinical presentation of gallstone diseases- symptomatology and acuteness of presentation.
2. To study the gender and age, distribution of patients presenting with gallstone diseases and compare with given standards.
3. To study the prevalence of concomitant CBD stones in patients with gallstone diseases.
4. To study the prevalence of gallbladder carcinoma in patients with gallstone diseases.
5. To study the surgical management of patients with gallstone diseases/CBD stone and outcome.

MATERIALS AND METHODS

An analysis of patients presenting with gallstone diseases at Government KAPV Medical College Hospital between 2014-2016 was made with regard to the prevalence, age distribution, clinical presentation and the surgical management and outcome.

The records of 110 patients who had undergone cholecystectomy were analysed. The patients who had acute acalculous cholecystitis-3, chronic acalculous cholecystitis-4 and gallbladder polyp-1 was excluded from the study.

The patients are investigated with x-ray abdomen, ultrasound abdomen and if required ERCP. Liver function test was done to see for rise in serum bilirubin and alkaline phosphatase. According to symptoms, patients were treated

and then they underwent cholecystectomy, and in those with CBD stones, the diseases were treated accordingly. The gallbladder was sent for pathology. Based on the pathology report, they were reported as acute/chronic cholecystitis. The presence of incidental gallbladder cancer was looked out for.

OBSERVATION AND RESULTS

Total number of patients = 102.

Male = 39.

Female = 63.

Number of patients diagnosed as Ca gallbladder = 1.

Age	Male	Female	Total
<20	1	1	2
20-29	1	12	13
30-39	4	15	19
40-49	9	21	30
50-59	11	7	18
60-69	9	6	15
70-79	3	1	4
≥80	1	0	1
Total	39	63	102

Table 1. Age and Gender Distribution of Patients with Gallbladder Disease

In this table, we see that there is highest distribution of 30 cases in the 40-49 years age group followed by 19 cases in the 30-39 years age group, 18 cases in the 50-59 years age group. The male-to-female ratio is 1:1.61.

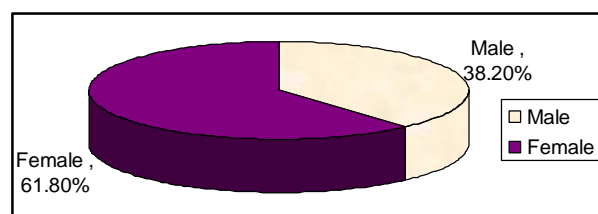


Figure 1. Sex Distribution of Gallbladder Disease

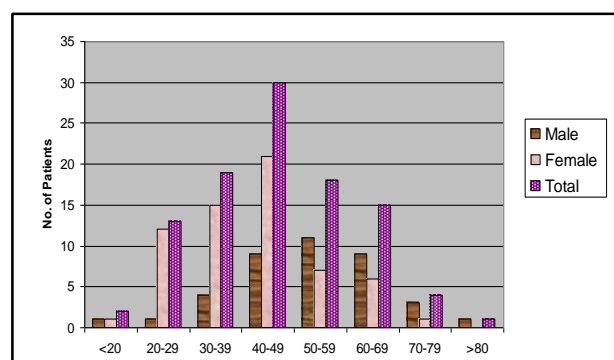


Figure 2. Age and Gender Distribution of Patients with Gallbladder Disease

Age	Sex	Clinical Presentation				Treatment	HPE Report	Morbidity
		ABD Pain	Fever	Jaundice	Guarding			
79	F	2 day right hypochondrium	+	-	+	Cholecystectomy on 1 st day after treatment and monitoring	Emphysematous cholecystitis	-
45	M	1 day right hypochondrium	+	-	+	Cholecystectomy on 2 nd day after treatment and monitoring	Acute cholecystitis	-

42	F	2 day epigastric area	+	-	+	Cholecystectomy on 1 st day after treatment and monitoring	Acute cholecystitis	-
28	F	1 day epigastric area	-	-	-	Cholecystectomy on 3 rd day after treatment and monitoring	Acute cholecystitis	-
60	M	2 day right hypochondrium	+	-	+	Cholecystectomy on 1 st day after treatment and monitoring	Emphysematous cholecystitis	-
75	M	2 day right hypochondrium	+	-	+	Cholecystectomy on 1 st day after treatment and monitoring	Emphysematous cholecystitis	Wound gaping

Table 2. Patients With Acute Calculous Cholecystitis

Monitoring consist of monitoring patients’ blood pressure, pulse rate and temperature. Treatment consist of nasogastric aspiration, analgesics and antibiotics.

Age	Sex	Clinical Presentation				Treatment	HPE Report	Morbidity
		Pain Abdomen	Jaundice	Fever	Guarding			
45	F	+	-	-	-	Cholecystectomy after treatment and monitoring	Mucocele	-
25	F	+	-	-	-	Cholecystectomy after treatment and monitoring	Mucocele	-

Table 3. Patients with Mucocele of the Gallbladder

In acute cholecystitis, all patients presented with pain abdomen ranging from 1-3 days with 4 patients with pain in the right hypochondrium, 2 patients with pain in epigastric area, 5 patients presenting with fever ranging from 99-101°F. None of the patient was jaundiced. All the patients underwent cholecystectomy. Three patients were taken on the same day of admission, 2 patients on the 2nd day and 1 patient on the 3rd of admission underwent surgery. Only one patient had wound infection, which was treated with antibiotics.

Two patients present with mucocele of the gallbladder. They have abdominal pain and vomiting. One patient had palpable abdominal mass. Both underwent cholecystectomy.

Among 8 patients, 5 females and 3 males present in acute state with pain abdomen, 5 patients having fever and 2 patients having abdominal guarding. All are treated with nasogastric aspiration, vitals monitoring and IV antibiotics. 2 patients’ undergone cholecystectomy due to non-response to conservative management. Other 6 patients respond to conservative management and they underwent elective cholecystectomy after 2 months.

Age	Male	Female	Total
<20	1	1	2
20-29	1	10	11
30-39	4	13	17
40-49	7	17	24
50-59	9	6	15
60-69	8	6	14
70-79	2	0	2
≥80	1	0	1
Total	33	53	86

Table 4. Patient with Chronic Calculus Cholecystitis

86 patients had chronic cholecystitis. In this group, we see that there is higher distribution of patients in the 40-49 age group followed by 30-39 age group and 50-59 age group. Six patients presented with concomitant CBD stones. 2 patients had undergone open cholecystectomy and CBD

exploration in whom “T” tube was kept. “T” tube cholangiogram was done on the 10th day and showed normal study in both case. “T” removed on 13th day after increasing periods of clamping. For 2 patients, preoperative ERCP and CBD stenting was done followed by laparoscopic cholecystectomy was done. One patient had impacted stone in the distal CBD for which cholecystectomy with choledochoduodenostomy was done. Another patient had distal CBD benign stricture that patient undergone cholecystectomy with choledochojejunostomy.

Age	Sex	Associated Condition	Management
65	F	Incisional hernia	Mesh repair
30	F	Ventral hernia	Mesh repair
42	M	Paraumbilical hernia	Anatomical repair
55	M	BPH	TURP
20	F	Recurrent appendicitis	Laparoscopic appendicectomy

Tale 5. Other Associated Condition

Five patients present with other associated condition. 3 patients present with incisional hernia for which mesh repair was done. She had abdominal hysterectomy 15 years back. One patient had BPH for which TURP was done followed by cholecystectomy after 1 week. One patient had recurrent appendicitis had laparoscopic appendicectomy.

DISCUSSION

This dissertation was a study carried out at Government KAPV Medical College Hospital between 2014-2016 patients with gallstone diseases. 102 patients were examined out of which 39 were males and 63 were females. Male comprised 38.2% of the study while females comprised 61.8% of the study. The male-to-female ratio is 1:1.6. Out of the 102 patients with gall diseases, 6 patients presented in an acute state with acute calculus cholecystitis. 8 patients who presented in acute condition were later histologically found to have acute on chronic cholecystitis. So, 14 of the 102 patient presented in an acute state, which amount to 13.5%.

In our hospital, all acute patients were managed initially with nasogastric aspiration, analgesics and antibiotics, their pulse, temperature and blood pressure were monitored and were controlled. These patients were subsequently taken up for surgery 1 to 2 days later and showed no significant morbidity postoperatively. It can thus be inferred that patients in the acute state can be managed initially with nasogastric aspiration and antibiotic and could then be taken up for surgery within 72 hours. Among the symptoms, 55 patient presented with pain in the epigastric region, 44 patients with pain in the right hypochondriac and 2 patients presented with pain in the periumbilical and 1 patient presented in the pain in the lower abdomen. 35 patients presented with excessive belching, 28 patients presented with postprandial abdominal bloating, fullness and discomfort, 8 patients presented with epigastric burning.

Chronic Cholecystitis

86 patients presented with abdominal pain and dyspepsia, which on investigation were found to have gallbladder disease, cholecystectomy was done and reported as chronic cholecystitis. So, chronic cholecystitis is the most common form of gallbladder disease with stones present in them. Two patients had gallbladder stone <20 years. Then, they are investigated for cause for the gallstone like haemolytic anaemia. In our study of the 102 patients with gallbladder disease, the highest distribution was in the 40-49 years age group with 30 patients followed by 30-39 years age group with 19 patients, 50-59 years age group with 18 patients and 60-69 years age group with 15 patients, 20-29 years age group with 13 patients, the rest had insignificant numbers. We find that the prevalence of gallbladder disease increase with age in both male and female population. These figures included both symptomatic and asymptomatic patients. The female-to-male ratio came to around 2:1 in our study of symptomatic patients. The highest prevalence occurs in the 40-49 years age group with 4 patients in the 70-79 years age group and 1 patient in the 80-89 years age group. From this, we can say that symptomatic disease occurs more commonly in the middle age group from 30-60 and less symptoms are reported above the age 80 years and below the age of 20 years.

Gallbladder Carcinoma- In our study, out of the 102 patients, 1 patient was found to have gallbladder cancer, which was reported incidentally from the histopathological report after cholecystectomy. In our study, the incidental finding was found to be 1.92%, 2.8%. So, from these, we conclude that from our study, the incidental finding of gallbladder carcinoma lies within the Caucasians, so it is prudent to send the gallbladder specimen to histopathology report do detect any incidental carcinoma.

Morbidity- In the 102 patients operated, 5 patients developed wound infection. This gives a percentage of about 4.9. All 5 patients recovered with antibiotics and wound care. No intraabdominal abscess was reported.

Follow Up- 80 of the 102 patients were followed up from 2 months. The rest of the patients were lost to follow up. Out of the 80 patients, 72 reported improvement in symptoms. The rest of the 8 patients 4 patients reported improvement after antacids, 4 four patients did not report improvement and reasons could not be delineated. One patient with carcinoma gallbladder, followed up for 14 months without complication.

CONCLUSION

From this study, we came to the following conclusions-

1. In our study, the male-to-female ratio is 1:1.61. The prevalence of symptomatic gallstone diseases in our study is highest in the 40-49 years age group. In our study, 5 patients were reported above 70 years of age.
2. Chronic calculus cholecystitis is the most common form of symptomatic gallstone disease in this study as well as in the western population.
3. Acute cholecystitis occurred in the 13.5% of patients in the study.
4. In acute cholecystitis, the patients could be managed initially with nasogastric aspiration, analgesics and antibiotics. The patients could then be taken up for surgery within 2 to 3 days with minimal morbidity.
5. In this study, 5.8% of patients with gallstone disease presented with concomitant CBD stones.
6. Gallbladder cancer was the incidental finding in 0.98% patients who underwent cholecystectomy.

Hence, all gallbladder specimens after cholecystectomy should be sent for histopathological examinations to look out for incidental malignancy.

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