Original Research Article

Analysis of gallstones disease correlating with clinical symptoms in patients with calculous cholecystitis in emergency surgical unit at Kilpauk Medical College

Ganganesamy[1*], S. Dharmarajan[2]

[1]Tutor, Department of General Surgery, Government Villupuram Medical College, Villupuram, Tamil Nadu, India
[2]Assistant Professor, Department of General Surgery, Government Royapettah Hospital Kilpauk Medical College, Chennai, Tamil Nadu, India
[*]Corresponding author email: **Ganganesamy.@gmail.com**

International Archives of Integrated Medicine, Vol. 4, Issue 8, August, 2017.

Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 20-07-2017 **Accepted on:** 28-07-2017
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: Ganganesamy, S. Dharmarajan. Analysis of gallstones disease correlating with clinical symptoms in patients with calculous cholecystitis in emergency surgical unit at Kilpauk Medical College. IAIM, 2017; 4(8): 81-86.

Abstract

Background: Gallstones, complex biomineralized deposits formed in the gallbladder, are still a major health problem all over the world. Cholelithiasis is common with the incidence ranging from 10% to 20% of the world population. Over the past two decades, a great deal has been learned about the epidemiology of and risk factors for gallstones. Ultrasonography has played a major role in this process, providing a rapid, risk-free method of screening large populations. Prior to the availability of ultrasound, most studies relied on highly selective autopsy data and limited oral cholecystography.
Aim and objectives: To determine the Biochemical analysis of Gall stones and to study the clinical spectrum of acute cholecystitis.
Materials and methods: About 50 consecutive cases were admitted, examined, investigated and diagnosed as calculus cholecystitis during the period of January 2016 to September 2016 are selected and detailed history of all the 50 cases were taken according to the proforma. Information regarding the age, nature of the symptoms, and duration of the symptoms, diet history, and history of OCP intake, Alcohol ingestion, and diabetes were obtained. All patients' undergone detailed examination underwent investigations.
Results: All cases fall between 22 and 75 years. There is an increased incidence in the 5th and 6th decade with the maximum incidence in the 5th decade. Pain abdomen was the most common

presenting symptom in our study seen in 49 (98%) of the cases followed by fever in 17 (34%) cases. Dyspepsia was seen in 12 (24%) cases, 7 cases (14%) each presented with nausea/vomiting or jaundice. Among the ultrasonographic findings of cholelithiasis most common finding was thickened gall bladder wall seen in 40 cases (80%) Ultra sonogram revealed 76% (38 cases) had multiple stones and 24% (12) has solitary stone. Mass was seen in 5 cases (10%).Of the total 50 cases with cholelithiasis 38 patients (76%) had mixed stones, followed by pigment stones in 8 cases (16%) followed by cholesterol stones in remaining 4 cases (8%). Majority of the patients were in the age group 41-50 (32%) followed by the 51-60 age group (24%).

Conclusion: Majority of patients underwent Laparoscopic cholecystectomy (86%) with reduced number of stay in the hospital, pain and disability as compared to open cholecystectomy. The commonest type of stone was mixed stone. Most of the gallstones were associated with grade 1 cholecystitis (78%), Grade 2 cholecystitis was seen in 20% of our study patients, Grade 3 was seen in 2% of our study patients.

Key words

Cholecystitis, Ultrasonography findings, Pain abdomen, Laparoscopic cholecystectomy.

Introduction

Gallstones, complex bio mineralized deposits formed in the gallbladder, are still a major health problem all over the world. Cholelithiasis is common with the incidence ranging from 10% to 20% of the world population. On the basis of their composition, gallstones can be divided into the three types: Cholesterol stones(CS) that vary in colour from light-yellow to dark-green or brown and are oval, and they must have at least 80% cholesterol by weight (or 70%, according to the Japanese classification system); Pigment stones (PS) which are small, dark stones made of bilirubin and calcium salts that are found in bile, and they contain less than 20% of cholesterol (or 30%, according to the Japanese classification system); and Mixed stones (MS) which typically contain 20% - 80% cholesterol (or 30% - 70%, according to the Japanese classification system).Over the past two decades, a great deal has been learned about the epidemiology of and risk factors for gallstones [1]. Ultrasonography has played a major role in this process, providing a rapid, risk-free method of screening large populations. Prior to the availability of ultrasound, most studies relied on highly selective autopsy data and limited oral cholecystography. In our study by defining the pattern and type of the gallstone, and establishing correlation with severity of acute cholecystitis we will open new windows for further investigations in the future helping in implementing the non-surgical interventions measures. Gallstone disease is one of the most common and costly of all digestive diseases [2]. The third National Health and Nutrition Examination Survey estimated that 6.3 million men and 14.2 million women aged 20 to 74 in the United States had gallbladder disease. It was Belzius in 1809 that recognized the bile acid fraction in bile. Later in 1863, Hoppe-Seyler postulated a continuous circulation of the bile acids in human system. Leberg in 1873 coined the term bile acid. In 1903 Buxom demonstrated the stones radiologically. The field had further developed by the performance of cholecystogram by Graham and Cole in 1924.In 1882, Karl Langenbuck, a noted German surgeon, performed the first successful cholecystectomy. Innovations and new endeavors have resulted in the evolution of new surgical approach, called minimally invasive surgery [3]. Mouret, recently, in 1987, pioneered the technique of laparoscopic cholecystectomy in Lyon, France, which has grown ever since. In 1966 – Maki proposed that bacterial infection plays a key role in the pathogenesis of pigment gallstones. In 1982 – National Institute of Health International Workshop classified most pigment gallstones as either black or brown. In 1991 PA grace – Lap

cholecystectomy. In 2002 Nakeeb and co-workers established that genetic factors were responsible for at least 30% symptomatic gallstone disease. In 2002 Schiffman and associates studied that there is decrease in gallstone formation in obese persons who is on low calorie diet for long periods. They also stated that previous gastric bypass surgery increases the incidence of gallstone formation [4].

Materials and methods

About 50 consecutive cases were admitted, examined, investigated and diagnosed as calculous cholecystitis during the period of January 2016 to September 2016 are selected and detailed history of all the 50 cases were taken according to the proforma. Information regarding the age, nature of the symptoms, duration of the symptoms, diet history, history of OCP intake, Alcohol ingestion, diabetes were obtained. All patients undergone detailed examination, underwent investigations had haemogram, ECG, LFT, blood sugar, blood urea, serum creatinine, urine analysis, blood group, chest X-ray, ultrasound scan of the abdomen. Specialty consultations were taken for patients with associated medical illness and their control was achieved.Risk and complications of the condition as well as surgery has been explained to the patients, concerned was taken. After cholecystectomy gallstones were analysed biochemically and correlation to severity of disease was assessed. The Duration Of Study 9 months (Jan 2016 to Sep 2016) in The department of General Surgery in Government Royapettah Hospital and Kilpauk Medical College hospital. Inclusion Criteria: All patients with calculous cholelcystitis undergoing cholecystectomy in Government Royapettah Hospital.

Results

In this study, 50 patients with cholelithiasis admitted in GRH, Chennai attached to Kilpauk Medical College, between January 2016 and September 2016 were included. Well known available literature on Cholelithiasis is reviewed. The results of our study are compared with those of well- known authors. After a detailed history, clinical investigations and treatment, following observations were noted.

Pain abdomen was the most common presenting symptom in our study seen in 49 (98%) of the cases followed by fever in 17 (34%) cases. Dyspepsia was seen in 12 (24%) cases, 7 cases (14%) each presented with nausea/vomiting or jaundice (**Table – 1**).

Among the presenting signs seen in our study, tenderness was the most common sign seen in 45 cases (90%) followed by guarding in 10 cases (20%) and mass palpable in 5 cases (10%) as per **Table - 2**.

Among the ultrasonographic findings of cholelithiasis most common finding was thickened gall bladder wall seen in 40 cases (80%) Ultrasonogram revealed 76% (38 cases) had multiple stones and 24% (12) has solitary stone. Mass was seen in 5 cases (10%) as per **Table – 3**.

Out of the total 50 cases that underwent cholecystectomy, 43 (86%) underwent laparoscopic cholecystectomy and rest 7 cases (14%) underwent open cholecystectomy (**Table – 4**).

Of the total 50 cases with cholelithiasis, 38 patients (76%) had mixed stones, followed by pigment stones in 8 cases (16%) followed by cholesterol stones in remaining 4 cases (8%). Majority of the patients were in the age group 41-50 (32%) followed by the 51-60 age group (24%) as per **Table - 5**.

Of the total 50 cases with cholelithiasis 38 patients (76%) had mixed stones, followed by pigment stones in 8 cases (16%) followed by cholesterol stones in remaining 4 cases (8%). Majority of the patients were in the age group 41-50 (32%) followed by the 51-60 age group (24%) as per **Table - 6**.

Table – 1: Presenting symptoms of cholelithiasis.

	Pain abdomen	Fever	Nausea/ Vomiting	Dyspepsia	Jaundice
Number of cases	49	17	7	12	7
%	98	34	14	24	14

Table – 2: Presenting signs of cholelithiasis.

Signs	No. of cases	%
Tenderness	45	90
Guarding	10	20
Mass	5	10

Table – 3: Ultrasonogram findings of cholelithiasis.

Findings on ultrasonogram	No. of cases	%
Stones in gall bladder	50	100
Solitary Stone	12	24
Multiple stones	38	76
Thickening of Gallbladder	40	80
Mass	5	10

Table – 4: Type of cholecystectomy.

Type of operation	No. of cases	%
Laparoscopic Cholecystectomy	43	86
Open Cholecystectomy	7	14

Discussion

In this study, 50 patients with cholelithiasis admitted in GRH, Chennai attached to Kilpauk Medical College, between January 2016 and September 2016 were included. The available literature on Cholelithiasis is reviewed and the results of our study are compared with those of well- known authors. After a detailed history, clinical investigations and treatment, following observations were noted. Patients fall between 22 and 75 years. There is an increased incidence in the fifth and sixth decade with the maximum incidence in the 5th decade. Similar incidence is seen in the studies of Herman et al (fifth decade) [5]. Hanif series showed peak incidence in fifth decade. In western studies the peak incidence is in the fifth and sixth decades. Similar findings are noted in the studies of Ganey, et al. and Moreaux, et al. In the present study 35 out of 50 cases were female while the rest were male. Battacharya series showed 71.4% were female, 28.6% were male. Similar sex preponderance in the favour of females were noted by Tamhankar AP, Ganey, et al. and Major Alok Sharma et al series showed that 70% were male and 30% were female. Pain was the predominant symptom in the present study with 98% incidence. The commonest site of pain was in the right hypochondrium, and the next commonest site was epigastrium. Similar presentations were noted in the series of Alok Sharma, Ganey series, Goswitz, et al. series.14% (7 patients) of cases in the present series had nausea/vomiting. Patients with vomiting in this study was similar to Ganey, et al. series. In the present study 7 patients had jaundice. 24% (12 patients) of patients had dyspepsia [6]. The endoscopic examination in these patients did not reveal any pathology. On ultrasound examination, these patients had gall stones.The dyspepsia was relieved in these patients after cholecystectomy. The incidence of dyspepsia in present series was similar to Ganey series, Alok Sharma series. Fever was present in 17 cases in the present study. Tenderness in the Right Hypochondriam was present in 45 patients guarding was present in 10 patients. A positive Murphy's sign was present in 7 patients. A mass was felt in five patients.All the patients had undergone hematological and biochemical investigations [7]. The hemoglobin of patients ranged from 8 to 15 gm% Ultrasound scanning was done in all patients. Out of the 50 patients 12 had solitary stones, 38 were multiple, thickening of gall bladder was seen in 40 patients, mass detected in 5 patients [9]. Many of the features in my study were similar to studies of Major Alok Sharma et al.In the present study 7 patients had undergone open cholecystectomy and 43 patients had undergone Laparoscopic cholecystectomy [10]. The most common incision used in

open.cholecystectomy was right subcostal incision, which was used in 5 patients, 2 patients were operated through midline incision [11]. In the present study 76% had mixed stones and 8% had cholesterol stones, 16% had pigment stones, which is similar to the studies of Mathur SN, et al. Most of the gallstones patients were associated with grade 1 cholecystitis (78%), Grade 2 cholecystitis was seen in 20% of our study patients, Grade 3 was seen in 2% of our study patients.In grade 1 cholecystitis 74.35 % patients were found to have mixed stones,17.9% patients found to have pigment stones, 7.69 % patients found to have cholesterol stones. In grade 2 cholecystitis 80% patients were found to have mixed stones,10% patients found to have pigment stones, 10 % patients found to have cholesterol stones. In grade 3 cholecystitis 100 % patients were found to have mixed stones [12].

Table – 5: Type of gallstones in cholelithiasis.

Age (Years)	Cases	Cholesterol Stones	Pigment Stones	Mixed Stones
21-30	8	1	2	5
31-40	7	0	2	5
41-50	16	1	2	13
51-60	12	1	1	10
>60	7	1	1	5
Total	50	4	8	38

Table - 6: Correlation between type of gallstone and severity of cholecystitis.

	Grade 1	Grade 2	Grade 3
Cholesterol Stones	3	1	0
Mixed stones	29	8	1
Pigment stones	7	1	0

Conclusion

Majority of patients underwent Laparoscopic cholecystectomy (86%) with reduced number of stay in the hospital, pain and disability as compared to open cholecystectomy. The commonest type of stone was mixed stone. Most of the gallstones were associated with grade 1 cholecystitis (78%), Grade 2 cholecystitis was seen in 20% of our study patients, Grade 3 was seen in 2% of our study patients [13]. In grade 1 cholecystitis 74.35 % patients were found to have mixed stones,17.9% patients found to have pigment stones, 7.69 %patients found to have cholesterol stones [14]. In grade 2 cholecystitis.80% patients were found to have mixed stones,10% patients found to have pigment stones, 10 % patients found to have cholesterol stones. In grade 3 cholecystitis 100 % patients were found to have mixed stones [15].

References

1. Everhart JE, Khare M, Hill M, Maurer KR. Prevalence and ethnic differences in gallbladder disease in the United States. Gastroenterology, 1999; 117: 632.
2. Torvik A, Hoivik B. Gallstones in an autopsy series. Incidence, complications, and correlations with carcinoma of the gallbladder. Acta Chir Scand., 1960; 120: 168.
3. Zahor A, Sternby NH, Kagan A, et al. Frequency of cholelithiasis in Prague and Malmö. An autopsy study. Scand J Gastroenterol., 1974; 9: 3.
4. Brett M, Barker DJ. The world distribution of gallstones. Int J Epidemiol., 1976; 5: 335.
5. Lindström CG. Frequency of gallstone disease in a well-defined Swedish population. A prospective necropsy

study in Malmö. Scand J Gastroenterol., 1977; 12: 341.

6. Heaton KW, Braddon FE, Mountford RA, et al. Symptomatic and silent gall stones in the community. Gut, 1991; 32: 316.
7. Maurer KR, Everhart JE, Ezzati TM, et al. Prevalence of gallstone disease in Hispanic populations in the United States. Gastroenterology, 1989; 96: 487.
8. Sampliner RE, Bennett PH, Comess LJ, et al. Gallbladder disease in pima indians. Demonstration of high prevalence and early onset by cholecystography. N Engl J Med., 1970; 283: 1358.
9. Thistle JL, Eckhart KL Jr, Nensel RE, et al. Prevalence of gallbladder disease among Chippewa Indians. Mayo Clin Proc., 1971; 46: 603.
10. Williams CN, Johnston JL, Weldon KL. Prevalence of gallstones and gallbladder disease in Canadian Micmac Indian women. Can Med Assoc J., 1977; 117: 758.
11. Wilbur RS, Bolt RJ. Incidence of gall bladder disease in normal men. Gastroenterology, 1959; 36: 251.
12. Williams CN, Johnston JL. Prevalence of gallstones and risk factors in Caucasian women in a rural Canadian community. Can Med Assoc J., 1980; 122: 664.
13. Attili AF, Carulli N, Roda E, et al. Epidemiology of gallstone disease in Italy: prevalence data of the Multicenter Italian Study on Cholelithiasis (M.I.COL.). Am J Epidemiol., 1995; 141: 158.
14. Barbara L, Sama C, Morselli-Labate AM, et al. A ten year incidence of gallstone disease: The Sirmione study. J Hepatol., 1993; 18(Suppl 1): S43.
15. Cunningham JA, Hardenbergh FE. Comparative incidence of choletithiasis in the Negro and white races; a study of 6185 autopsies. AMA Arch Intern Med., 1956; 97: 68.