

Incidence of Various Types of Gallstones in Patients of Cholelithiasis in Belagavi

Suresh S Karlatti¹, G Ravishankar Kumar²

¹Associate Professor, Department of Surgery, Belagavi Institute of Medical Sciences, Belagavi, Karnataka, India, ²Assistant Professor, Department of Surgery, Belagavi Institute of Medical Sciences, Belagavi, Karnataka, India

Abstract

Background: Cholecystitis is a very common disease for which patients come to Surgical Department. There are various causes for cholecystitis. Out of which gallstones are very common cause. The development of gallstones depends on dietary habits and lifestyle. The various components of gallstones are cholesterol, bile pigment, and calcium salts in the form of phosphate, carbonate palmitate. Composition of gallstones is important to understand the pathophysiology of gallstone formation in the gall bladder. The object of this study was to find out as to the frequency of different types of gallstones in the population and various signs/symptoms in these patients of cholelithiasis.

Materials and Methods: The gallstones of 143 patients who underwent cholecystectomy were collected over a period of 2-year. A detailed history of all the patients was taken with reference to dietary habits, sex, and stature of patients. The gallstones were analyzed with chemical and enzymatic methods.

Results: The disease had the highest incidence in the age group of 41-50 years of age. There were 38 cases out of 143 in this age group followed by 35, 29, 20, 9 and 9 in the age group of 51-60, 31-40, 61-70, 21-30 and >70 years of age groups, respectively. One case was of more than 70 years of age and one was below 20 years of age. The common complaint was flatulence (64 cases), dyspepsia (63 cases), epigastric pain in 45, and pain in the right hypochondrium in 44 patients. Murphy's sign was positive in 38 cases; 31 patients had complaint of nausea. Mixed stones were the most common, present in over 80.7% cases followed by cholesterol and pigment stones in the form of 13.5% and 5.8%, respectively.

Conclusion: In this study, most of the patients fell in the age group of 41-50 years of age with 38 out of 143 cases, i.e., 26.57% followed by the age group of 51-60 years of age with 24.48% cases. In the age group of 31-40 years, there were 29 cases and 61-70 years 20 cases. There was female predominance with 111 out of 143 patients and 32 males with a female-male ratio of 3.47:1.0. The most common presenting symptoms were flatulence, dyspepsia, epigastric pain, and pain in the right hypochondrium. 31 patients complained of nausea. The most common gallstones were mixed stones with 81.12%, followed by cholesterol stones with 13.29% and pigment stones with 5.59%.

Key words: Cholelithiasis, Cholesterol, Gallbladder, Gallstone, Pigment

INTRODUCTION

One of the common diseases of gallbladder is cholecystitis for which people come to Surgical Department. Cholecystitis is caused by various factors. Gallstones are very common cause for the development of cholecystitis.

Dietary habits and lifestyle of the patient are going to influence the formation of gallstones. Components of gallstones are cholesterol, bile pigment, and calcium salts, in the form of phosphate, carbonate and palmitate. The composition of gallstones is important. To understand the pathophysiology of gallstone formation depends on the composition of the gall stones. Gallbladder stones are one of the major surgical problems in many hospital admissions and surgical interventions.¹ High-risk factor for the cholesterol dominant gallstones is the obese individuals with a body mass index - 30 kg/sq.m² calculus cholelithiasis is a disorder with changing prevalence, reflecting the increasing life expectancy, and changes in lifestyle in Westernized societies.³ There is increased

Access this article online



www.ijss-sn.com

Month of Submission : 08-2016
Month of Peer Review : 08-2016
Month of Acceptance : 09-2016
Month of Publishing : 10-2016

Corresponding Author: Dr. Suresh S Karlatti, Department of Surgery, Belagavi Institute of Medical Sciences, Belagavi - 590 001, Karnataka, India. Phone: +91-9448475289. E-mail: suresh_karlatti@rediffmail.com

incidence of gallstone cholecystitis particularly cholesterol stones with the change in lifestyle and food they consume.⁴ This study was aimed at studying the frequency of various types of gallstones and the epidemiology as regards the most common age group and sex prevalence including the common signs and symptoms.

MATERIALS AND METHODS

The gallstones of 143 different patients were taken after they underwent cholecystectomy for cholelithiasis. History of these patients was taken including age, sex, residence, and signs and symptoms. The gallstones were dried and crushed to make powder, 500 mg of powder of each sample was taken which was dissolved in 5 ml of distilled water. This was then filtered and filtrate was analyzed for bilirubin, cholesterol, calcium and phosphate.

RESULTS

The most interesting finding of this study was that the females were far more prone to gallstone disease than the males in a ratio of female:male as 3.47:1.0. The disease had the highest incidence in the age group of 41-50 years of age. There were 38 cases out of 143 in this age group followed by 35, 29, 20, 9 and 9 in the age group of 51-60, 31-40, 61-70, 21-30 and >70 years of age groups, respectively. One case was of more than 70 years of age and one was below 20 years of age (Table 1). The common complaint was flatulence (64 cases), dyspepsia (63 cases), epigastric pain in 45, and pain in the right hypochondrium in 44 patients. Murphy's sign was positive in 38 cases; 31 patients had a complaint of nausea (Table 2). Mixed stones (Figure 1) were the most common, present in over 80.7% cases followed by cholesterol and pigment stones in the form of 13.5% and 5.8%, respectively (Table 3).

DISCUSSION

Cholecystitis⁵ is an inflammatory condition of the gall bladder characterized by the inflammation of the gallbladder wall, which may be due to retention of bile in gallbladder or secondary to infection by microorganisms, predominantly *Escherichia coli*, *Klebsiella*, *Enterobacter*, and *Bacteroides* species.⁶ In Westernized societies,³ there is change in the lifestyle of the people, increase in the life expectancy which has led to increase in the incidence of cholesterol predominant gallstone disease. In particular, the increase of lifestyle-related risk factors was assumed to result primarily in an increase of cholesterol gallstones.⁴ One of the common diseases of gallbladder is cholecystitis for which people come to Surgical Department with

Table 1: Relationship between age and incidence of gallstone

Age group	Number of patients		Percentage
	Male	Female	
<20 years	01	02	2.09
21-30 years	01	08	6.29
31-40 years	06	23	20.27
41-50 years	07	31	26.57
51-60 years	06	29	24.48
61-70 years	08	12	13.99
>70 years	03	06	6.29
Total	32	111	100

Table 2: Presenting sign/symptoms

Sign/symptom	Frequency (%)
Epigastric pain	45 (43.3)
Pain right hypochondrium	44 (42.3)
Flatulence	64 (60.5)
Dyspepsia	63 (60.5)
Nausea	31 (29.8)

Table 3: Types of gallstones according to composition

Type of stone	Stone frequency (%)
Mixed stone	84 (80.7)
Cholesterol stone	14 (13.5)
Pigment stone	6 (5.8)
Total	104 (100)



Figure 1: Showing specimen with solitary gall stone

complaints of flatulence, dyspepsia, and upper abdominal pain. There are various causes for cholecystitis. Out of which gallstones is very common cause. Dietary habits and lifestyle of the people are going to influence the formation of gallstones. The various components of gallstones are cholesterol, bile pigment, and calcium salts. In the form of phosphate, carbonate palmitate. However, the studies

from the 1960's and 1970's have shown the prevalence of pigment stones of 23-30%.^{7,8} The chemical composition of gallstones is essential for etiopathogenesis of gallstone disease.⁹ This study was aimed to know the prevalence of various types of gallstones and pattern of complaints including the age and sex variations. In our study, there was female predominance with 111 patients being females out of a total of 143. The most common age group was 41-50 years followed by 51-60 years with 26.57 and 24.48% patients, respectively, and male to female ratio is 3.47:1.0, whereas Shrestha and Bajracharya.¹⁰ found the higher incidence of cholelithiasis among younger age group of 20-30 years with male-to-female ratio 1:4. In a study of Maskey *et al.*,¹¹ various signs/symptoms were presented as epigastric pain, pain in right hypochondrium, flatulence, dyspepsia, positive Murphy's sign and nausea in 45, 64, 63, 44, 38, and 31 patients, respectively. Two patients had complained of occasional vomiting, and two had previous jaundice the cause of which could not be ascertained. Four patients had given a history of some periodicity of symptoms. The most common gallstones were of mixed variety constituting 80.7%, while cholesterol and pigment stones were 13.5 and 5.8%, respectively. The gallstones in Tamil Nadu and Pondicherry, South India, are probably due to the infection rather than supersaturation as evidenced by the predominance of pigment stones, whereas in Sikkim and North Bengal cholesterol stones were found.¹²

CONCLUSION

The disease of the gallstone has been found to be the most common cause of cholelithiasis in the age group of

31-60 years of age with more than 70% of the patients falling in this age range. The female-male ratio was 3.47:1.0. Mixed types of gallstones were in the majority of patients, i.e. in 80.7% while cholesterol and pigment stones constituted 13.5 and 5.8%.

REFERENCES

1. Jaraari AM, Jagannadharao P, Patil TN, Hai A, Awamy HA, El Saecy SO, *et al.* Quantitative analysis of gallstones in Libyan patients. *Libyan J Med* 2010;5:4627-33.
2. Schafmayer C, Hartleb J, Tepel J, Albers S, Freitag S, Vo lzke H, *et al.* Predictors of gallstone composition in 1025 symptomatic gallstones from Northern Germany. *BMC Gastroenterol* 2006;6:36.
3. Lammert F, Sauerbruch T. Mechanisms of disease: The genetic epidemiology of gallbladder stones. *Nat Clin Pract Gastroenterol Hepatol* 2005;2:423-33.
4. Paigen B, Carey MC. Gallstones. In: King RA, editor. *The Genetics Basis of Common Diseases*. London: Oxford University Press; 2002. p. 298-335.
5. Howard RJ. Acute acalculous cholecystitis. *The American Journal of Surgery*. 1981;141:194-8.
6. Burdiles P, Maluenda F, Diaz JC, Csendes P, Mitru N, Csendes A. Simultaneous bacteriologic assessment of bile from gallbladder and common bile duct in control subjects and patients with gallstones and common bile duct stones. *Arch Surg* 1996;131:389.
7. Trotman BW, Ostrow JD, Soloway RD. Pigment vs cholesterol cholelithiasis: Comparison of stone and bile composition. *Am J Dig Dis* 1974;19:585-90.
8. Friedman GD, Kannel WB, Dawber TR. The epidemiology of gallbladder disease: Observations in the Framingham study. *J Chronic Dis* 1966;19:273-92.
9. Chandran P, Kuchhal NK, Garg P, Pundir CS. An extended chemical analysis of gallstone. *Indian J Clin Biochem* 2007;22:145-50.
10. Shrestha HG, Bajracharya M. Incidence of cholelithiasis and its correlation with cancer of gallbladder at TU teaching hospital. *JAMA* 1991;29:264-7.
11. Maskey CP, Shrestha ML, Sato Y. Gallstone in TUTH. *JIOM* 1990;12:45-54.
12. Kotwal MR, Rinchen CZ. Gallstone disease in the Himalayas (Sikkim and north Bengal): Causation and stone analysis. *Indian J Gastroenterol* 1998;17:87-9.

How to cite this article: Karlatti SS, Kumar GR. Incidence of Various Types of Gallstones in Patients of Cholelithiasis in Belgavi. *Int J Sci Stud* 2016;4(7):21-23.

Source of Support: Nil, **Conflict of Interest:** None declared.