



EPIDEMIOLOGY OF GALL STONE DISEASE IN HIMACHAL PRADESH

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ABSTRACT

Cholelithiasis is a chronic recurrent disease of the hepatobiliary system. The prevalence of cholelithiasis varies and has been reported as 2-29% in India, and increased in the recent years. In the present study demographic factors, dietary habits, clinical presentation, laboratory, ultrasound findings and surgical findings were studied in population of Himachal Pradesh. This study was conducted in department of General Surgery IGMC Shimla over duration of one year on 350 patients fulfilling the inclusion criteria selected for the study. Clinical symptoms were noted according to clinical history of the patients. The ultrasonography scanning of the abdomen was performed, open/laparoscopic cholecystectomy was done. Gallstone disease is common disease in Himachal Pradesh. Female sex, high socioeconomic status, parity and increasing age were associated with high incidence.

KEYWORDS : Epidemiology Cholelithiasis Gallstone disease Himachal**INTRODUCTION**

Gallstone disease is a chronic recurrent hepatobiliary disease, the basis for which is the impaired metabolism of cholesterol, bilirubin and bile acids, which is characterized by the formation of gallstones in the hepatic bile duct, common bile duct, or gallbladder.

Gallstone disease is a worldwide medical problem, even though there are geographical variations in gallstone prevalence.¹ The incidence of gall stone disease increases with age²; and about a quarter of women over 60 years will develop them.³ 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.⁴ Thus, the average risk of developing symptomatic disease is low, and approaches 2.0-2.6%/year.⁵

A number of factors influence gall stone disease including age, gender, parity, oral contraceptives, genetics, obesity, body fat distribution, rapid weight loss, diet, physical activity, diabetes.

Ultrasonography is highly sensitive and accurate test for diagnosis of gall bladder disease. Prevalence of cholelithiasis in India is more in females than men. The prevalence was more common in Northern Indians than Southern Indians. There are not much data available about epidemiology of gallstone disease in this region. Hence, the present study was aimed to find out epidemiology of gall stones disease in Himachal Pradesh

PATIENTS AND METHODS

Three hundred and fifty patients presented with gall stone disease in department of Surgery, IGMC Shimla over the period of one year from 1st August 2017 to 31st July 2018 were included in the study. The patients were excluded if they already underwent abdominal surgeries, seriously ill patients and patients with deranged renal function, patients of gallstone disease with pregnancy, patients not willing for surgery, and refused to provide consent for participation. The study was ethically approved from Institutional Ethics Committee (IEC), and consent form was taken before patients' participation in the study.

The patients' socio-demographic, clinical, and laboratory

details were collected on a proforma. Data were presented as frequency and percentages.

RESULTS**GENERAL CHARACTERISTICS**

Table 1 shows general characteristics of the patients. Patients' age ranged from 12 to 78 years with a mean age of 46.25 years. 16% patients were elderly. Mean BMI of patients was 24.46 Kg/m². 85% of the patients were females. 64% had sedentary life style. 1% of the patients each were consuming alcohol and smoking respectively at the time of presentation. 64% of these patients were vegetarian. 59% were in lower middle class according to Kuppuswamy scale. Only 1% patients had previous family history of gall stone disease. Among all female patients, 80% were pre-menopausal and 3% were nulliparous.

PRESENTING COMPLAINTS

Abdomen pain was the most common presenting complaint in 97% patients followed by dyspepsia in 27% patients. 9% complained of vomiting while one patient presented with jaundice. There were 214 patients who presented with more than one complaint (table 2).

LABORATORY FINDINGS

11% patients had raised TLC levels (238 patients underwent TLC examination) while renal functioning was impaired in only 0.3% patients. Only 4% patients had raised random blood glucose levels. 0.6% patients had hyperbilirubinemia and 6% patients had elevated transaminases. 36% patients had HbA1c more than 6.5 among 42 diabetic patients. 72% patients had deranged lipid profile (of 199 patients) while 21% had hypothyroidism (table 3).

ULTRASOUND FINDINGS

Table 4 shows that 91% patients had multiple stones while size of gall stones of

78% patients' was more than 5 mm. 4.6% patients had sludge while only 1.7% had abnormal thickness of gall bladder.

Only one patient had pericholecystic fluid while intrahepatic biliary radicles (IHBR) were dilated in one patient only. 1.7% had associated choledocholithiasis.

DISCUSSION

The presence of stones in the gallbladder and its associated complications such as cholecystitis, pancreatitis and cholangitis represents a major problem for health care systems worldwide.² Gallstones are reported to be a principal cause of in-patient admissions for gastrointestinal disorders. Gallstone disease is a common disorder among patients presenting with abdominal discomfort such as epigastric pain, nausea, vomiting and loss of appetite. While most of the GSD patients are asymptomatic, some (approximately 20%) become symptomatic after ten years of follow up.

The present study was aimed to analyze the epidemiological data of the patients with gall stone disease presenting to Department of Surgery at IGMC Shimla. The mean age in our study was 46.25 years. Sachdeva et al reported that prevalence of gallstone disease in elderly patients is 28% while our study reported it to be 16%.⁶ 85% of the patients were females. A higher prevalence of cholelithiasis among females, observed in the present study, has been corroborated by several authors.⁷ Pregnancy and sex hormones are believed to place women at a higher risk.

Dietary factors have been widely believed to play a pivotal role in the pathogenesis of gallstone disease. High total fat, especially of animal origin (as in our cases) in diet, may lead to loss of bile acids in feces and decreased bile acid pool promoting supersaturation of bile and rendering it more lithogenic.⁸ 64% of patients in our study were vegetarian.

In our study, majority of the patient presented with abdominal pain as earlier reported by Sangwan et al.⁹ Our patients had insignificant number of patients had alcohol abuse or smoking. It has been reported that men and women showed statistically significant associations between alcohol consumption and the risk of gallstone disease. Only 3(0.86%) patients had family history of gallstone disease. Attiti et al observed that among those subjects with a family history of gall stones, an increased risk of gallstones or gallstone disease was observed in both sexes.¹⁰

Raised Alkaline phosphatase has emerged as the most reliable predictor of gallstones after ultrasonography which was not consistent with the findings indicated in the past.¹¹ Bilirubin also represents one of the indicators of gallstones but not as reliable as alkaline phosphatase. It was raised in 7.94% patients which was consistent with past studies.¹² However, in our study, only 1.33% patients had hyperbilirubinemia. It was found in our study that there was leukocytosis present in 11% patients, findings were consistent with a past study.

Multiple stones were present in 91.1% patients, which were in accordance with studies in the past.¹³ Aslam et al¹⁴ also observed that multiple stones were higher in gallstone disease. Size of gall stones was more than 5mm for 78.3% of the patients in our study. Sludge was present in only 4.6% of the patients. Abnormal thickness of gall bladder wall was observed only in 1.7% of the patients. Pericholecystic fluid was found only in 0.3% of the patients whereas IHBR were dilated in 0.3% of the patients, CBD stones were formed in 1.7% of the patients.

CONCLUSION

Gallstone disease is common disease in Himachal Pradesh. Female sex, high socioeconomic status, parity and increasing age were associated with high incidence.

Table 1. Patients' general characteristics (n=350)

Characteristics	n (%)
Age (Years)	
≤20	7 (2%)
21-60	287 (82%)

>60	56 (16%)
Sex	
Male	52 (14.9%)
Female	298 (85.1%)
Life style	
Sedentary	224 (64%)
Non-sedentary	126 (36%)
Diet	
Vegetarian	223 (63.7%)
Non vegetarian	127 (36.3%)
Socioeconomic status	
Upper (Class 1)	6 (1.7%)
Upper middle (Class 2)	31 (8.9%)
Lower middle (Class 3)	208 (59.4%)
Upper middle (Class 4)	86 (24.6%)
Lower (Class 5)	19 (5.4%)
Personal history	
Alcohol abuse	4 (1.14%)
Smoking	4 (1.14%)
Family history of gallstone disease	3 (0.86%)

Table 2. Presenting complaints

Presenting complaints	n (%)
Pain abdomen	339 (96.85%)
Dyspepsia	95 (27.14%)
Vomiting	31 (8.85%)
More than one complaint	214 (68.85%)

Table 3. Laboratory findings

Presenting complaints	n (%)
Raised TLC (N=238)	26 (10.92%)
Impaired Renal functioning (N=350)	1 (0.29%)
Raised Random Blood Glucose (N=350)	13 (3.71%)
Hyperbilirubinemia (N=350)	2 (0.57%)
Elevated ALP (N=350)	12 (3.43%)
Elevated SGOT/SGPT (N=350)	21 (6%)
HbA1c (N=42)	15 (35.71%)
Deranged lipid profile (N=199)	171 (71.72%)
Hypothyroidism (N=350)	73 (20.86%)

Table 4. USG findings

		n (%)
Number of Stones	1 (Single stone)	31 (8.9%)
	2 (Multiple stones)	319 (91.1%)
Size of Stones	< 5 mm	76 (21.7%)
	≥ 5 mm	274 (78.3%)
Sludge	Absent	334 (95.4%)
	Present	16 (4.6%)
Wall thickness	Normal	344 (98.3%)
	Abnormal	6 (1.7%)
Pericholecystic fluid	Absent	349 (99.7%)
	Present	1 (0.3%)
IHBR	Normal	349 (99.7%)
	Dilated	1 (0.3%)
CBD Stones	Absent	344 (98.3%)
	Present	6 (1.7%)

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