ORIGINAL RESEARCH PAPER

Volume-8 | Issue-8 | August - 2019 | PRINT ISSN No. 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

CLINICOPATHOLOGICAL STUDY OF CHOLELITHIASIS IN A TERTIARY HOSPITAL IN MANIPUR

Surgery

Keisham Lokendra Singh Assistant Professor, Department of Surgery, Regional Institute of Medical Sciences, Imphal.

ABSTRACT

Introduction: Cholelithiasis is one of the commonest medical conditions encountered in surgical practice. The male female ratio is around 1:4 and the documented risk factors include female sex, obesity, hemolytic diseases, hormonal imbalances and metabolic disorders. The presenting symptoms of cholelithiasis vary from asymptomatic gallstones to severe right upper abdominal pain, jaundice and fever.

Materials and Methods: This study was a cross-sectional study done in a tertiary care hospital in Imphal, Manipur. 300 cases of cholelithiasis which were diagnosed by ultrasonography were included in the study. The case history, clinical signs and symptoms and ultrasonographic findings were recorded. Open and laparoscopic cholecystectomies were performed depending on the choice of the patients and the specimens were sent for stone analysis and histopathology.

Results: The highest incidence of cholelithiasis occurred between 3rd and 6th decade of life and among non vegetarians. Dyspepsia, right upper quadrant pain, belching and abdominal tenderness were the commonest signs and symptoms. There were two cases bile duct injury, Strassburg D and E1 both seen after laparoscopic cholecystectomy. Cholesterol and multiple stones were the most common findings after cholecystectomy and histopathological examination. HPE also revealed chronic cholecystitis as the commonest pathology with a percentage of 91.66%.

Conclusion: The incidence of cholelithiasis is increasing globally and in north-eastern India. It is more common among females in the 4th and 5th decade with high BMI and among non-vegetarians. Cholesterol stones constituted the maximum number of gallstones followed by mixed variety. On HPE, majority of them showed chronic cholecystitis.

KEYWORDS

Cholelithiasis, Cholangitis, Carcinoma, Pancreatitis

INTRODUCTION:

Cholelithiasis is one of the commonest medical conditions encountered in surgical practice. The incidence is increasing globally, the commonest being in females between mid forties to mid fifties. The male female ratio is around 1:4 and the documented risk factors include female sex, obesity, hemolytic diseases, hormonal imbalances and metabolic disorders. Gallstones are formed as a result of saturation or precipitation of the chemical constituents of bile. Based on the constituents, gallstones are broadly classified into cholesterol stones, pigment stones and mixed stones.

The presenting symptoms of cholelithiasis vary from asymptomatic gallstones to severe right upper abdominal pain, jaundice and fever. Studies have shown that 10 to 20% of asymptomatic cholelithiasis will become symptomatic within 5 to 20 years of diagnosis.[1-2]

Proper detection and treatment of cholelithiasis is required as gallstones can lead to dreaded complications like cholangitis, severe pancreatitis and carcinoma of gall bladder. Keeping in mind these factors, this study was carried out to determine the prevalence, risk factors and histopathological changes associated with gallstones, the incidence of which is increasing in Manipur.

MATERIALS AND METHODS:

This study was a cross-sectional study done in a tertiary care hospital in Imphal, Manipur. 300 cases of cholelithiasis which were diagnosed by ultrasonography were included in the study. The requisite permission was taken from the Institutional Ethics Board. Very old patients and those with severe comorbid conditions like poor cardiovascular and respiratory status, severe hypertension and diabetes mellitus were excluded from the study. Patients who refused consent and operation for the study were also excluded.

The case history, clinical signs and symptoms and ultrasonographic findings were recorded. Open and laparoscopic cholecystectomies were performed depending on the choice of the patients and the specimens were sent for stone analysis and histopathology. Laparoscopic cholecystectomy was done in 269 patients and open cholecystectomy in 31 patients.

RESULTS:

Table 1: Age and Sex Distribution

Sl. No.	Age	Male	Female	Male Female Ratio
1	0-10	1	0	1:0
2	11-20	2	4	1:2
3	21-30	17	38	1:2.23
4	31-40	28	77	1:2.75
5	41-50	15	62	1:4.13
6	51-60	4	45	1:11.25
7	61-70	1	5	1:5
8	71-80	0	1	0:1

The highest incidence of cholelithiasis occurred between 3rd and 6th decade of life in our study as shown in Table 1 and among non vegetarians (Table 2).

Table 2: Religion and dietary habits

Religion	Vegetarian	Non Vegetarian
Hindu (247)	4	243
Christians (34)	0	34
Muslims (19)	0	19

Table 3: Relation of BMI to Cholelithiasis

Sl. No	BMI	Males(%)	Females(%)
1	Low BMI	4(5.88)	46(19.8)
2	Normal BMI	18(26.5)	68(29.3)
3	High BMI	46(67.6)	118(50.86)

Table 4: Presenting signs and symptoms

Sl. No.	Signs & Symptoms	No. of Cases	Percentage
1	Rt. Upper Quadrant Pain	126	42
2	Dyspepsia	158	52.66
3	Nausea	76	25.33
4	Vomiting	12	4
5	Belching	146	48.66
6	Asymptomatic	4	1.33
7	Abdominal Tenderness	150	50
8	Jaundice	36	12
9	Rt. Hypochondrium lump	22	7.3
10	Rise in temperature	45	15
11	Asymptomatic	4	1.33

The highest incidence of cholelithiasis was found in patients with high BMI(Table 3). Dyspepsia, right upper quadrant pain, belching and abdominal tenderness were the commonest signs and symptoms, we had found in our study.(Table 4)

Table 5: Bile Duct Injuries

Sl. No.	Types of Bile Duct Injury	No.(%)	Percentage
1	Strassburg D	1(0.33)	0.74
2	Bismuth (E1)	1(0.33)	

There were two cases bile duct injury, Strassburg D and E1. Both the bile duct injuries were seen after laparoscopic cholecystectomy (Table 5) and on further investigations.

Table 6: Types and number of stones

Sl. No.	Types and No. of Stones	No. of Cases	Percentage
1	Cholesterol Stones	183	61
2	Pigment Stones	45	15
3	Mixed Stones	72	24
4	Solitary	53	17.66
5	Multiple	247	82.33

Cholesterol and multiple stones were the most common findings after cholecystectomy and histopathological examination (HPE). HPE also revealed chronic cholecystitis as the commonest pathology with a percentage of 91.66% (Tables 6&7). Two cases of adenocarcinoma, both stage I, were also seen in this study.

Table 7: Histopathological findings

Sl. No.	Histological Findings	No. of Cases	Percentage
1	Acute Cholecystitis	23	7.66
2	Chronic Cholecystitis	275	91.66
3	Adenocarcinoma	2	0.66

DISCUSSION:

In our study, 77.33% of the subjects were females and majority of the cases were seen in the 3rd to 6th decade. These findings were similar to many accepted Western studies and also to a study done in eastern India. In Hanif series, the peak incidence of cholelithiasis was seen in the 5th decade. The rise in the incidence can be attributed to intake of more fatty foods and change in dietary habits. Female sex and those with fatty liver have more tendencies to have gallstones. This may be due to altered fatty acid and cholesterol metabolism.[3] In the present study, 98.66% of cholelithiasis was seen among the non-vegetarians.

Cholelithiasis has definite correlation with BMI as documented in many studies. In our study, the higher the BMI, the higher is the incidence of cholelithiasis. This finding was in correlation to that of the study done by Kodama H et al.[4] However, a study by Kharga B et al concluded that patients with normal BMI were not immune to developing symptomatic cholelithiasis.

Dyspepsia and right upper quadrant pain were the most common presenting symptoms in many studies done worldwide. The commonest clinical manifestation in this study was dyspepsia. Right upper quadrant pain, belching and abdominal tenderness were also the major signs and symptoms in many cases including our study. The finding of dyspepsia being the commonest symptom was similar to observations made by Sharma et al[5] who reported dyspepsia as the most common presenting symptom. But, a study by Singh et al[6] showed pain to be the most common presenting symptom, followed by nausea, vomiting and flatulence. The pain and tenderness in cholecystitis result from the inflammation of the gallbladder wall and irritation of the parietal peritoneum.

In our study, there were 2 cases of bile duct injuries (Strassburg D and E1), both occurred during laparoscopic cholecystectomy. The patient with Strassburg D injury was successfully managed by pigtail catheter drainage of intra-abdominal collection and conservative management. Roux-en-Y hepaticojejunostomy was performed for the other patient having Strassburg E1 injury. Both the patients were doing fine during follow up after 6 months. In conventional open cholecystectomy, several studies have shown the incidence of bile duct injury to be ranging from 0.1 to 0.2%. However, since the era of laparoscopic cholecystectomy, there is a reported increase in bile duct injuries which varies from 0.3 to 2.7%.[7] In this study, the incidence of bile duct injury was 0.6% which was similar to the finding of a study conducted by Sicklick JK et al.[8]

Gallstones are broadly classified into cholesterol stones, pigment stones and mixed type. Cholesterol stone formation is attributed to supersaturation and precipitation of cholesterol and hypomotility of the gallbladder whereas pigment stones are commonly seen in hemolytic disorders where bilirubin is conjugated to bilirubin monoglucuronide and bilirubin diglucuronide. Mixed stones are the commonest gallstones found in studies worldwide. Mohan et al[9], in their series found cholesterol stones, pigment stones and mixed type to be 17.3%, 3.2% and 62.3% respectively. However, in our study, the incidence was 61%, 15% and 24% respectively. This may be due to variation in the dietary habits and other factors. It may be emphasized that majority of the population in this part of the country prefer non-vegetarian diet. In the developed countries, 85% of the gallstones are cholesterol stones. A study by the Japan Gallstone Study Group[10] had documented an increase in the incidence of cholesterol stones. Multiple calculi were found in 82.33% and single calculi in 17.66% in this study.

In our study, chronic cholecystitis was the most common histological finding at 91.66%, followed by acute cholecystitis (7.66%) and gallbladder carcinoma (0.66%). Gallbladder cancer is the most common malignancy of the biliary tract and is associated with late diagnosis and poor prognosis. The possible etiological factors are cholelithiasis, clonorchis sinensis and salmonella infection, obesity, exposure to industrial carcinogens and polyps. The incidence of gallbladder carcinoma varies worldwide with the highest incidence of gallbladder carcinoma having been reported from Asia, Chile and Peru. In India, the highest incidence of gallbladder carcinoma has been reported from north India and north-eastern part of India.[11] In this study, the incidence of gallbladder carcinoma is 0.66%. Salmonella and clonorchis sinensis infections are rare in this part of the country. The most probable etiology of gallbladder carcinoma in this study could be obesity and cholelithiasis. Both the cases of gallbladder carcinoma were in Stage 1 on HPE and simple cholecystectomy sufficed in both.

CONCLUSION:

The incidence of cholelithiasis is increasing globally and in north-eastern India. It is more common among females in the 4th and 5th decade with high BMI and among non-vegetarians. Cholesterol stones constituted the maximum number of gallstones followed by mixed variety. On HPE, majority of them showed chronic cholecystitis. Two cases of adenocarcinoma were also identified which can be attributed to chronic cholecystitis and obesity. The limitation of this study was that of small sample size.

Conflict of Interest:

None declared

REFERENCES:

1. Thistle JL, Clearly PA, Lachin JM, Tyor MP, Hersh T. The natural history of cholelithiasis: The National Cooperative Gallstone Study. Ann Intern Med. 1984;101:171-5
2. Friedman GD, Raviola CA, Fireman B. Prognosis of gallstones with mild or no symptoms: 25 years of follow-up in a health maintenance organization. J Clin Epidemiol. 1989;42:127-36.
3. Saunders KD, Cates JA, Roslyn JJ. Pathogenesis of gallstones. Surg Clin North Am 1990;70:1197-216.
4. Kodama H, Kono S, Todoroki I, Honjo S, Sakurai Y, Wakabayashi K, Nishiwaki M, Hamada H, Nishikawa H, Koga H, Ogawa S,Nakagawa K. Int J Obes Relat Metab Disord. 1999 Feb;23(2):211-6.
5. Sharma MP, Duphare HV, Nijhawan S, Dasarathy S. Gallstone disease in north India: Clinical and ultrasound profile in a referral hospital. J Clin Gastroenterol. 1990;12(5): 547-9.
6. Singh V, Trikha B, Nain C, Singh K, Bose S. Epidemiology of gallstone disease in Chandigarh: A community-based study. J Gastroenterol Hepatol. 2001;16(5):560-3.
7. Ahmad F, Saunders RN, Lloyd GM, Robertson GSM. An algorithm for management of bile leak following laparoscopic cholecystectomy. Ann R Coll Surg Engl 2007;89:51-6.
8. Sicklick JK, Camp MS, Lillimore RD, Melton GB, Yeo CJ, Campbell KA et al. Surgical management of bile duct injuries sustained during laparoscopic cholecystectomy. Ann Surg. 2005;241:786-95.
9. Mohan H, Punia RPS, Dhawan SB, Ahal S, Sekhon MS. Morphological spectrum of gallstone disease in 1100 cholecystectomies in North India. Indian J Surg. 2005;67:140-2.
10. Tazuma S. Epidemiology, pathogenesis and classification of biliary stones (common bile duct and intrahepatic). Best Prac Res Clin Gastroenterol 2006;20:1075-83.
11. Nandakumar A,Gupta PC, Gangadharan P, Visweswara RN, Parkin DM. Geographic pathology revisited: Development of an atlas of cancer in India. Int J Cancer 2005;116:740-54.