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A Study on Clinical Presentation and Management of Gall Stone Diseases in Vindhya Region of Madhya Pradesh

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Abstract

Gallstone disease (GSD or cholelithiasis) is a significant health problem both in both developing and developed nations. It affects 10 to 15% of the adult population in western countries. They are asymptomatic in the majority of cases (>80 percent). Approximately, 1- 2 per cent of asymptomatic patients will develop symptoms requiring surgery per year, making cholecystectomy one of the most common operations performed by general surgeons.1The prevalence of gallbladder stones varies widely in different communities in India, the North Indians having 2-4 fold higher prevalence as compared with those among South Indians. Furthermore, there is a predominance of cholesterol gallstones among the North Indians. In contrast, South Indians have a predominance of pigment gallstones both in the gallbladder and the CBD.2There are many researches on aetiology, clinical presentation, management specifically evaluating the modalities of treatment but chemical analysis and bile culture though age old investigations were not given much importance in spite that they could give an insight into pathogenesis and presentation. Incidence in India partially attributed to widespread use of ultrasonography (USG) in the last two decades but changing socio-economic structure and changes in various other epidemiological factors including diet may also be responsible. In the present study apart from studying the epidemiology, i.e., demographic factors, dietary habits, clinical presentation, diagnostic tools, the techniques of laparoscopic and open cholecystectomy are compared and complications after surgery are studied in a population in Vindhya region. Where the cases of calculous GB disease are on the rise and pose a significant economic burden on the society.

Introduction

Gallstone disease (GSD or cholelithiasis) is a significant health problem both in both developing and developed nations. It affects 10 to 15% of the adult population in western countries. They are asymptomatic in the majority of cases (>80 percent). Approximately, 1- 2 per cent of asymptomatic patients will develop symptoms requiring surgery per year, making cholecystectomy one of the most common operations performed by general surgeons.[1]The prevalence of gallbladder stones varies widely in different communities in India, the North Indians having 2-4 fold higher prevalence as compared with those among South Indians. Furthermore, there is a predominance of cholesterol gallstones among the North Indians. In contrast, South Indians have a predominance of pigment gallstones both in the gallbladder and the CBD.[2]There are many researches on aetiology, clinical presentation, management specifically evaluating the modalities of treatment but chemical analysis and bile culture though age old investigations were not given much importance in spite that they could give an insight into pathogenesis and presentation. Incidence in India partially attributed to widespread use of ultrasonography (USG) in the last two decades but changing socio-economic structure and changes in various other epidemiological factors including diet may also be responsible. In the present study apart from studying the epidemiology, i.e., demographic factors, dietary habits, clinical presentation, diagnostic tools, the techniques of laparoscopic and open cholecystectomy are compared and complications after surgery are studied in a population in Vindhya region. Where the cases of calculous GB disease are on the rise and pose a significant economic burden on the society.

Medical management of gallstone disease with ursodeoxycholic acid has been generally unsuccessful as with non-operative methods like extra corporeal shock wave lithotripsy (ESWL). Open cholecystectomy was initially the treatment of choice but the advent of laparoscopic cholecystectomy has gained popularity as it is associated with less morbidity, pain, less hospital stay, better cosmesis and early return to work but it is associated with a long learning curve, expensive instruments and increase chances of bile duct injuries especially in the setting of acute inflammation, abnormal bile duct anomaly, inexperience on the part of the surgeon.

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Material And Methodology

This is a prospective observational study conducted in the hospitals of Vindhya region, after obtaining consent from hospital management authorities for duration of one year. Patients with symptomatic "cholelithiasis" like abdominal pain, nausea, dyspepsia, jaundice, pancreatitis with USG detected gallstones alone or gallstones with common bile duct (CBD) stones were included in the study. The patients who did not give consent to join the study, acalculous cholecystitis or with primary CBD stones. i.e., no calculus in gall bladder, malignant conditions of the GB were excluded from the study.

Two hundred patients of clearly documented cases of Gallstone diseases of the Gall bladder and biliary tract admitted in the surgical units of hospitals of Satna district between October 2022 to October 2023 (1 year) constitute the material of this study. The survey interviews were conducted in confidential settings using a pretested questionnaire. The questionnaire was prepared which included socio demographic details such as age, sex, address, occupation, dietary habits and personal history etc.

Relevant preoperative investigations of blood, Urine, Plain X-ray abdomen and USG, LFT, CT scan were done in all possible cases. The operative findings and postoperative complications were recorded and carefully analysed. The Gall bladder specimens of all the cholecystectomy cases were routinely sent for Histopathological examination. A detailed clinical history and physical examination was carried out and recorded in a standard proforma which included demographic factors (age and gender), dietary status, clinical presentation factors, (dyspepsia, acute upper abdomen pain chronic upper abdomen pain, jaundice, nausea/vomiting) and a standardized clinical examination was done which included general physical examination and systemic examination specially looking for tenderness in right hypochondrium, palpable lump in the right hypochondrium and hepatomegaly. The investigations included complete blood count, random blood sugar, liver function test, routine urine examination and USG abdomen. The patients were categorised into laparoscopic group, open group and those who had common bile duct stones.

Results

The 200 patients of gall stone disease who were studied ranged from 20 to 80 years with a maximum incidence in the age groups 40-50 years. In our study 71% patients were taking mixed diet while 29% were taking vegetarian diet. Of the 200 patients studied, Pain over right hypochondrium which was dull aching in nature was seen in 162 patients. 178 patients presented with fever who had acute cholecystitis or perforation, vomiting was seen in 117 cases. 5 Cases which were taken up for laparoscopic cholecystectomy had to be converted to open cholecystectomy due to presence of adhesions and inflammation. All 200 cases were taken up for surgery. 53% cases underwent open cholecystectomy out of which 10% were taken up for emergency operation and thereby underwent open cholecystectomy. 47% cases underwent lap cholecystectomy.

Conversion to open rate was 2.5%. 3 patients who had undergone laparoscopic cholecystectomy developed port site infection and patient kept on antibiotic coverage with dressing. 5 patients of open cholecystectomy developed wound infection, managed with dressing, antibiotics.

The average duration of surgery in laparoscopic cholecystectomy was (40-55 mins) 40.4 (mean) mins while the average duration of surgery in open cholecystectomy was 72.3 mins. Operative time I 10 cases was less tha 40 while I 4 cases was 71 to 80 min

Discussion

In this study, 71% Patients consumed a mixed diet (predominantly nonvegetarian diet) and the rest 29% patients consumed a vegetarian. The findings were similar with the findings in a study done by Maskey et al. in 1990 AD in Nepal where incidence of cholelithiasis was found more frequently among the people who consumed more fat and protein.[6] Several studies that have evaluated the role of diet as a potential risk factor for gallstone formation, including energy intake, cholesterol, fatty acids, fibre, carbohydrates, vitamins and minerals, and alcohol intake. The association between cholesterol intake and gallstone disease has been variable in different studies. Recent discoveries of the role of orphan nuclear receptors in the regulation of fatty acid and hepatic cholesterol metabolism and excretion open new perspectives for a better understanding of the role of dietary constituents on cholesterol gallstone formation. We observed that 162 (81%) patients had pain abdomen as presenting complain similar result were found by Ganey et al and Sharma.[7,8]

In our study 94 patients had laparoscopic cholecystectomy and 106 patients underwent open cholecystectomy. Post op wound infection with laparoscopic cholecystectomy was 4 %, whereas for open was at 2.5%. Karim T et

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al reported wound infections in open to be 3 times that of lap cholecystectomy.[9] Operative time was less than 40 min in 5 % cases, 41 to 50 min in 26.5%, 51 to 60 min in 25%, 61 to 70 min in 21%, an 71 to 80 min in 22.5%. Similar findings were reported by Singh et al for open vs lap cholecystectomy.[10]

The average duration of stay for laparoscopic cholecystectomy was 5.5 days and for open was 9.3 days. Jenna P, Kodi S in a similar study found the average duration of stay as 4 days for laparoscopic and 9 days for open cholecystectomy.[5] Laparoscopic cholecystectomy is a viable and safe procedure even in most cases of acute cholecystitis but the conversion rate may be high. The risk of bile duct injuries is higher and the operation time longer than in elective laparoscopic cholecystectomy. Factors associated with the need to convert and injuries may be abnormal biliary tract anatomy, duration of right upper abdominal pain and severity of the inflammatory process, inadequate surgeon experience. Several studies demonstrated that the risk of conversion depends mainly on the degree of inflammation, pathology of gallbladder disease (e.g. thickness of gallbladder wall), and age and CBD diameter. The number of cases converted from laparoscopic to open technique was 5. In a similar study by Meena A et al found the conversion rate to be 9%.[12]

Conclusions

Gallstones are more prevalent in patients consuming a non-vegetarian diet. Pain, and nausea /vomiting are the major clinical presentation of the gall stone. Wound infection was more predominant in open cholecystectomy group than the other procedure. Laparoscopic cholecystectomy was the preferred technique and was found to be associated with lesser operative time, lower hospital stays, less post-operative pain and better cosmesis.

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TABLES

Table 1- Age distribution

Age (Years)	Number (N)	Percent (%)
21 to 30	32	16
31 to 40	43	21.5
41 to 50	57	28.5
51 to 60	36	18

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61 to 70	27	13.5
71 to 80	5	2.5
Total	200	100

Table 2- Distribution according to diet

Diet	Number (N)	Percent (%)
Vegetarian	58	29
Mixed	142	71
Total	200	100

Table 3- Distribution according to presenting complaints

Presenting complaints	Number (N)	Percent (%)
Pain	162/200	81
Fever	178/200	89
Nausea	109/200	54.5
Vomiting	117/200	58.5
Others	90/200	45

Table 4- Distribution according to management

Management	Number (N)	Percent (%)
Open cholecystectomy	106	53
Lap Cholecystectomy	94	47

Table 5- Distribution according to complications

Complications	Number (N)	Percent (%)
Laproscopic	8	4
Open	5	2.5

Table 6- Distribution according to operative time

Operative time (min)	Number (N)	Percent (%)
Less than 40	10	5
41 to 50	53	26.5
51 to 60	50	25
61 to 70	42	21
71 to 80	45	22.5

Table 7- Association of operative time with cholecystectomy type

Operative time (min)	Open cholecystectomy (106)	Lap Cholecystectomy (94)
Less than 40	0	10
41 to 50	0	53
51 to 60	23	27
61 to 70	38	4
71 to 80	45	0

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