

Original Research Article

LAPAROSCOPIC CHOLECYSTECTOMY IN NORTH KERALA: A COMPREHENSIVE ANALYSIS OF 68 PATIENTS

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Received : 12/11/2023
Received in revised form : 24/01/2024
Accepted : 10/02/2024

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DOI: 10.5530/ijmedph.2024.1.61

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

Int J Med Pub Health
2024; 14 (1); 332-335

ABSTRACT

Background: Laparoscopic cholecystectomy has become the gold standard for the surgical management of gallbladder diseases. This study focuses on the epidemiological profile of 68 patients in North Kerala who underwent laparoscopic cholecystectomy in a tertiary care centre.

Material and Methods: A prospective study was conducted among 68 patients who underwent laparoscopic cholecystectomy, from January 1, 2022, to June 30, 2022, at Malabar Medical College Hospital and Research Centre, Kozhikode.

Results: The mean age of the patients was 46 years, with a notable female predominance. The mean duration of symptoms, operating time, ICU stay, and hospital stay were 203.1 days (SD-60), 49.67 minutes (SD-1.63), 54.98 hours (SD-9.43), and 2.61 days (SD-1.01), respectively. Histopathological examination revealed that 52.9% exhibited features indicative of acute cholecystitis, 16.2% had xanthogranulomatous cholecystitis, and 30.9% had chronic cholecystitis. In the postoperative period, 5.9% experienced respiratory complications, 1.5% had bile duct injury, and 2.9% developed deep vein thrombosis.

Conclusion: This study examines the epidemiological profile and safety of laparoscopic cholecystectomy, offering valuable insights into this domain, contributing essential regional data to the field in alignment with international standards.

Keywords: Cholecystitis, Laparoscopic cholecystectomy, Complications, Kerala.

INTRODUCTION

Gallbladder diseases, such as cholelithiasis and cholecystitis, continue to be prevalent worldwide.^[1] The pathogenesis of gallstones is a multifaceted process influenced by factors that impact both bile content and flow. Based on their composition, gallstones are classified into three categories—cholesterol, black pigment, and brown pigment stones. Each category exhibits distinctive epidemiological features, characteristic risk factors, and a unique formation mechanism.^[2] Laparoscopic cholecystectomy has gained widespread acceptance due to its numerous advantages, including reduced postoperative pain, shorter hospital stays, and faster recovery times compared to open

cholecystectomy.^[1,3] This study focuses on the epidemiological profile of 68 patients in North Kerala who underwent laparoscopic cholecystectomy in a tertiary care center.

MATERIAL AND METHODS

A prospective study was conducted among 68 patients who underwent laparoscopic cholecystectomy, from January 1, 2022, to June 30 2022, at Malabar Medical College Hospital and Research Centre, Kozhikode. All patients who provided informed consent and had undergone laparoscopic cholecystectomy were included. The study encompasses data on patient-related parameters, comorbidities, imaging findings,

diagnoses, intraoperative findings, and histopathological examinations. Statistical analysis was conducted using Epi Info.

RESULTS

A total of 68 patients had undergone cholecystectomy during the study period. The mean age of the patients was 46 years. There was a strong female predominance (58.8%) among the patients. The patient profile is shown in Table 1. The mean duration of symptoms, operating time, ICU stay, and hospital stay were 203.1 days (SD-60), 49.67 minutes (SD-1.63), 54.98 hours (SD-9.43), and 2.61 days (SD-1.01), respectively.

Of the 68 participants, 38.2% (26 cases) were in the 30-50 age group. Additionally, 23.5% (16 out of 68) had a BMI greater than 25. Moreover, 20.6% (14 out of 68) had diabetes mellitus, and 19.1% (13 out

of 68) had hypertension. One patient had a history of previous COVID-19 positivity. Furthermore, 58.8% (40 out of 68) of the patients reported a history of recurrent biliary colic episodes.

Preoperative endoscopic retrograde cholangiopancreatography (ERCP) was performed in 8.8% (6/68) cases, and one patient had a history of previous cholecystostomy. Emergency cholecystectomy was carried out in 2.9% (2/68) cases. Intraoperatively, mucocele was noted in 17.6% (12/68) patients, and one patient had bile duct injury. On histopathological examination, 52.9% (36/68) had features suggestive of acute cholecystitis, 16.2% (11/68) had xanthogranulomatous cholecystitis, and 30.9% (21/68) had chronic cholecystitis. During the postoperative period, 5.9% (4/68) experienced respiratory complications, and 2.9% (2/68) developed deep vein thrombosis.

Table 1: Basic characteristics of the study population

Parameters	N	%
Age group		
21-30	14	20.6
31-40	9	13.2
41-50	17	25
51-60	15	22.1
61-70	10	14.7
71-80	3	4.4
Gender		
Male	28	41.2
Female	40	58.8
Body Mass Index		
18.5-22.9	17	25
23-24.9	35	51.5
>25	16	23.5
Diabetes Mellitus		
Yes	14	20.6
No	54	79.4
Hypertension		
Yes	13	19.1
No	55	80.9
COPD		
Yes	3	4.4
No	65	95.6
Past h/o Covid		
Yes	1	1.5
No	67	98.5
Chronic Liver Disease		
Yes	1	1.5
No	67	98.5
Other Comorbidities		
Yes	13	19.1
No	55	80.9
Previous Abdominal Surgery		
Yes	6	8.8
No	62	91.2
Biliary colic episode		
First	21	30.9
Recurrent	40	58.8
None	7	10.3
Diagnosis		
Gall stone/Biliary colic	20	29.4
Acute Cholecystitis	26	38.2
Biliary Pancreatitis	2	2.9
GB Polyp	2	2.9
Others	18	26.5
Ultrasound Findings		

Thick GB Wall		
Yes	21	30.9
No	47	69.1
Pericholecystic fluid		
Yes	4	5.9
No	64	94.1
Impacted stone		
Yes	41	60.3
No	27	39.2
Preoperative ERCP		
Yes	6	8.8
No	62	91.2
Other scan		
CECT	14	20.6
MRCP	20	29.4
None	34	50
Previous Cholecystostomy		
Yes	1	1.5
No	67	98.5
Nature of Surgery		
Emergency(2 Days-14 Days)	2	2.9
Elective(>14 Days)	66	97.1
Procedure		
Laparoscopic Cholecystectomy	66	97.1
Laparoscopic subtotal cholecystectomy	1	1.5
LC+ CBD exploration	1	1.5
Intraop Findings		
Normal		
Yes	61	89.7
No	7	10.3
Mucocele GB		
Yes	12	17.6
No	56	82.4
Shrunken GB		
Yes	2	2.9
No	56	97.1
Perforation		
Yes	1	1.5
No	67	98.5
Dense adhesions		
Yes	32	47.1
No	36	52.9
Frozen Calot		
Yes	17	25
No	51	75
Empyema		
Yes	8	11.8
No	60	88.2
Histopathology finding		
Acute cholecystitis	36	52.9
Xanthogranulomatous cholecystitis	11	16.2
Chronic cholecystitis	21	30.9
Post operative complications		
LRTI		
Yes	4	5.9
No	64	94.1
DVT		
Yes	2	2.9
No	66	97.1
Bile duct injury		
Yes	1	1.5
No	67	98.5

DISCUSSION

Laparoscopic cholecystectomy has emerged as the preferred standard for treating gallbladder stone disease.^[1] The estimated prevalence of gallstone disease in India ranges from 2% to 29%. Specifically, this condition is seven times more prevalent in India in the north than in the south. The

underlying cause of this divergence in prevalence rates is suspected to be due to the dietary variations between the two regions.^[4-7]

The average age of Indian patients is a decade younger than those in the West.^[7,8] The majority in the study was aged between 30-50, and research suggests an age-related increase in gallstone prevalence due to changes in cholesterol-related

enzyme activity. Most of the study participants are females; other studies confirm a higher incidence of gallstone disease in females.^[8,9] In India, female sex hormones and sedentary habits may contribute cumulatively to gallstone formation.

Of the 68 study subjects, 23.5% (16/68) had a BMI exceeding 25. While obesity is a well-established risk factor for gallstone development, it is crucial to note that gallstones can also occur in non-obese individuals. The formation of gallstones is influenced by modifiable factors like physical inactivity, diet, medications, and high BMI, along with non-modifiable factors such as age, ethnicity, genetics, sex, and parity.^[10,11]

Gallbladder specimens are routinely submitted for histopathological examination to exclude incidental gallbladder cancer. The occurrence of unsuspected gallbladder carcinoma in routine cholecystectomy specimens typically varies from 0.2% to 2.9%.^[12,13] However, in the current series, no such cases were identified. Malignant diseases of the gallbladder exhibit a highly aggressive nature and are more frequently observed in females.^[14] A recent literature review indicates that the incidence of injuries to the common bile duct ranges from 0.1% to 0.6%.^[15-17] In this study, one case of common bile duct injury was observed.

CONCLUSION

This study, conducted among 68 patients in North Kerala, explores the efficacy and safety of laparoscopic cholecystectomy, offering valuable insights. The results align with international standards, contributing essential regional data to the field. This research encourages further investigations into the factors influencing gallbladder disease and its management in North Kerala.

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