



A clinical study on presentation and management of choledocholithiasis in a tertiary care centre

¹Dr. Mahesh Kinikar, ²Dr. Nitin Nangare, ³Dr. Nishit Patel

^{1,3}Resident, ²Professor, Department of General Surgery, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India

Corresponding author: Dr. Mahesh Kinikar, Resident, Department of General Surgery, Krishna Vishwa Vidyapeeth, Karad, Maharashtra, India

Email: maheshkinikar91@gmail.com

ABSTRACT

Aim: The purpose of this study is to investigate the management of choledocholithiasis in tertiary care facilities.

Materials and Methods: This is both a retrospective and prospective research, and it includes a total of sixty patients who were given the diagnosis of choledocholithiasis while they were hospitalized in the department of general surgery. An in-depth inquiry of these instances, including historical context, clinical presentation, and investigative findings, was carried out.

Results: The investigation revealed a total of 205 instances of gallbladder stones, of which 60 individuals had choledocholithiasis, bringing the overall frequency up to 29.27%. Individuals with a body mass index (BMI) of above 25 were shown to have a 90% increased risk of developing CBD stones. On the other hand, there was not a significant association between the body mass index and the problems that are related with CBD stones. Abdominal discomfort was always present in every patient, since it was one of the symptoms that was shared by all patients. Jaundice was found in 40 individuals, which is a 66.67% prevalence rate. In all, 21 individuals (or 35%) had some degree of vomiting. Fever was detected in 18 (or 30%) of the patients. ERCP was the main method of therapy that was used. Just one patient had laparoscopic CBD exploration and stone retrieval done in addition to ERCP; the other 49 patients all received ERCP with stone removal and stenting. Ten percent of the patients experienced problems related to ERCP. As the ultimate form of treatment, cholecystectomy was performed on each and every patient.

Conclusion: There was a 29.27% occurrence of CBD stone. As compared to men, incidence was more prevalent in females. The age range of 35–45 years old showed the highest frequency. Diabetes and dyslipidemia were shown to be related with increased risk for the development of complications. The most typical manifestation of choledocholithiasis was a kind of jaundice known as obstruction jaundice. After cholecystectomy, endoscopic retrograde cholangiopancreatography (ERCP) was the most prevalent treatment technique for CBD stones.

Keywords: Treatment, Choledocholithiasis, CBD stone, ERCP

Introduction

The number of people diagnosed with choledocholithiasis in underdeveloped countries is consistently going up [1, 2]. Alterations in people's food choices, an increased awareness of health among the general public, and advancements in imaging technologies are all possible explanations for the growing occurrence. There is a great need for a study that can provide the information regarding the prevalence of the disease, various clinical presentation and management, and outcomes of the cholelithiasis combining it with appropriate investigation as it varies from surgeon to surgeon [3]. This is because of the increased incidence of gall stones and their variable presentations in India as well as in the west. Patients diagnosed with gallstone disease have a 10-15% chance of also having stones in their common bile ducts [4]. The management of common bile duct stones (CBDS) was relatively straightforward during the era of open cholecystectomy; however, following the introduction of laparoscopic cholecystectomy (LC) in the 1980s, the treatment of CBDS, regardless of whether it is recognized preoperatively or intraoperatively, continues to be a contentious topic [5]. One step of laparoscopic CBD stone removal is also a possibility. Other treatment options include selective preoperative endoscopic retrograde cholangiopancreatography (ERCP), conversion to open choledochotomy, postoperative ERCP with endoscopic sphincterotomy (ES), and open choledochotomy. Although though CBD stones don't have any outward signs or symptoms, the complications that may arise from them are quite dangerous. Obstructive jaundice, ascending cholangitis, and acute pancreatitis are all related with significant mortality and morbidity that requires rapid medical intervention.

Materials and Methods

This is both a retrospective and prospective research, and it includes a total of sixty patients who were given the diagnosis of choledocholithiasis while they were hospitalized in the department of general surgery. An in-depth inquiry of these instances, including historical context, clinical presentation, and investigative findings, was carried out. The medical records section and the department of gastroenterology were searched for information on past cases of the condition.

Inclusion criteria

- Every instance of choledocholithiasis in which the patient's age was more than 20 years.
- A pre-operative USG reveals the presence of one or more CBD stones in the gallbladder.
- cholangitis, severe pancreatitis, and obstructive jaundice are complications that may arise from CBD stones.

Exclusion criteria

- The patient is younger than 20 years old

- The patient's refusal to take part in the research project

Date analysis

Regarding the age and gender of the patient, as well as their clinical presentation and any co morbidities, every piece of information was entered into Excel spreadsheets. Complications, types of examinations, and treatments available. The statistical procedure known as the chi-square test was used in order to do the analysis on all of the data.

Results

The investigation revealed a total of 205 instances of gallbladder stones, of which 60 individuals had choledocholithiasis, bringing the overall frequency up to 29.27%. There were a total of 60 patients, 38 of whom were female and 22 of whom were male. The prevalence of CBD stones increased with age, with the highest rates being reported in individuals less than 45 years old. The age range of 35-45 years was the one that made up the largest percentage of patients (36.67%), while patients older than 65 made up the smallest percentage. As people become older, the risk of developing cancer is almost same for boys and girls.

Table 1 Basic parameter of the patients

Gender	Number	%
Male	22	36.67
Female	38	63.33
Age		
below 25	5	8.33
25-35	12	20
35-45	22	36.67
45-55	10	16.67
55-65	8	13.33
Above 65	3	5
BMI		
>25	54	90
<25	6	10

Individuals with a body mass index (BMI) of above 25 were shown to have a 90% increased risk of developing CBD stones. On the other hand, there was not a significant association between the body mass index and the problems that are related with CBD stones. Abdominal discomfort was always present in every patient, since it was one of the symptoms that was

shared by all patients. Jaundice was found in 40 individuals, which is a 66.67% prevalence rate. In all, 21 individuals (or 35%) had some degree of vomiting. Fever was detected in 18 (or 30%) of the patients.

Table 2. Symptom of the patients

Symptom	Number	%
Abdominal pain	60	100
Jaundice	40	66.67
Vomiting	21	35
Fever	18	30

It seems that obstructive jaundice is present in the majority of the patients since their alkaline phosphatase and gamma glutamyltranspeptidase levels are increased. 75% of the patients suffered from linked co-morbidities such as high blood pressure, diabetes, and abnormal cholesterol levels. We computed the frequency of complications such as obstructive jaundice, pancreatitis, cholangitis, and sepsis, and we examined the incidence of these complications in conjunction with comorbid diseases. The occurrence of problems that are associated with diabetes mellitus and dyslipidemia has been shown to have a substantial link with one another.

Table 3: Association of Diabetes mellitus and Co-Morbidities - DLP with complications

complications		Co-Morbidities - DM		Total	Co-Morbidities - DLP		Total	p-value
		Absent	Present		Absent	Present		
Obstructive Jaundice	Absent	6	14	20	6	14	20	0.04
	Present	24	16	40	22	18	40	
	Total	30	30	60	28	32	60	
Cholangitis	Absent	28	25	53	28	25	53	0.36
	Present	2	5	7	0	7	7	
	Total	30	30	60	28	32	60	
Pancreatitis	Absent	27	20	47	23	24	47	0.04
	Present	3	10	13	5	8	13	
	Total	30	30	60	28	32	60	
SEPSIS	Absent	30	24	54	28	26	54	0.04
	Present	0	6	6	0	6	6	
	Total	30	30	60	28	32	60	

USG abdomen was performed on all sixty patients, 25 of them had aberrant results such as dilated CBD and CBD stone, while the other patients had negative findings. Patients who had negative findings on ultrasonography were sent for further tests, such as MRCP, CECT, and EUS, with the choice of which test to take depending on the practitioner. ERCP was the main method of therapy that was used. Just one patient had laparoscopic CBD exploration and stone retrieval done in addition to ERCP; the other 49 patients all received ERCP with stone removal and stenting. Ten percent of the patients experienced problems related to ERCP. As the ultimate form of treatment, cholecystectomy was performed on each and every patient.

Table 4. ERCP

ERCP	Yes	No
	50	10

Discussion

The endoscopic retrograde cholangiopancreatography (ERCP) procedure has a success rate of about 73% and has gained acceptance as a first-line treatment option for choledocholithiasis across the world. According to this research, the percentage of success was 80%. This ran counter to the findings of a number of international studies that found that stone fragmentation and stenting performed during a first ERCP made it easier to clear the CBD in subsequent efforts.[6]

There were 205 individuals who presented with gallbladder stones, and 60 of them patients had CBD stones. This results in a prevalence of 29.27%. Because we are a tertiary center, we see a high volume of referral cases, which gives us more experience working with difficult patients, which may explain why the incidence of CBD stones was higher in our study. Additionally, the presence of a department of gastroenterology that was fully staffed and equipped may also be to blame. The age range of 30-80 years was shown to have the highest frequency of CBD stones. The incidence was highest in age groups less than 45 years old, particularly those in the 35-45 year age range (36.67%). According to the findings of our research, the likelihood of females developing choledocholithiasis was much greater than that of men. (1.73:1). Bagdai According to the results of a series, 71.4% were female and 28.6% were male.[7] Tamnankar also found that there was a gender bias in favor of females, with the advantage going to the females.[8]

The formation of GB stones, which may then raise the risk of CBD stones, is made more likely by obesity, which is a risk factor. My research investigated whether or whether there is a correlation between obesity and the occurrence of complications caused by CBD stones. These problems include obstructive jaundice, cholangitis, pancreatitis, and sepsis. Patients who had co morbidities that had either been identified in the past or were being treated for them at the time of admittance were documented. Diabetes, hypertension, and dyslipidemia were all included as co morbidities in the research that I conducted. In fifty percent of the instances, patients had diabetes mellitus, whereas thirty-five percent of patients had hypertension, and fifty-three point three percent of patients had dyslipidemia. Of of these,

diabetes mellitus revealed a significant increase in the incidence of pancreatitis, obstructive jaundice, and sepsis with P values of 0.04, 0.04, and 0.04 correspondingly for each of these conditions. The research also demonstrated a significant link between dyslipidemia and the development of cholangitis and sepsis, with corresponding P values of 0.04 and 0.04.

According to research carried out by Bagdai A et al., sixty percent of patients had nausea and/or vomiting. Individuals spontaneously threw up, and it happened most often during the acute phase of their suffering. In all, ten of the patients in that research presented with fever.[7] The majority of patients were treated using endoscopic retrograde cholangiopancreatography (ERCP). 50 of the patients who were diagnosed with ERCP went on to have the procedure done. When the study revealed evidence of passing out calculus, ten patients did not undertake the procedure. In one patient's instance, the presence of big and many CBD stones rendered ERCP ineffective; as a result, the patient needed to undergo laparoscopic CBD exploration and stone removal in conjunction with laparoscopic cholecystectomy at the same sitting. In every patient, an effort was made to do the cholecystectomy laparoscopically. Individuals who had laparoscopic cholecystectomy but were unsuccessful in having their gallbladder removed received either a conversion to open cholecystectomy or a subtotal cholecystectomy.

Conclusion

There was a 29.27% occurrence of CBD stone. As compared to men, incidence was more prevalent in females. The age range of 35–45 years old showed the highest frequency. Diabetes and dyslipidemia were shown to be related with increased risk for the development of complications. The most typical manifestation of choledocholithiasis was a kind of jaundice known as obstruction jaundice. After cholecystectomy, endoscopic retrograde cholangiopancreatography (ERCP) was the most prevalent treatment technique for CBD stones.

References

1. Cushieri A. Disorder of the biliary tract. In: Cushieri A, Steele RJC, Moosa AR, eds. *Essential surgical practice*, 4th ed. London: Butterworth Heinemann, 2002, 375-454.
2. Cranley B, Logan H. Exploration of the common bile duct- the relevance of the clinical picture and importance of preoperative cholangiography. *Br J Surg*. 1980;67:869-72.
3. Courtney M, Townsend Jr, Daniel Beauchamp R, Mark Evers B, *et al.*, editors. *Sabiston textbook of Surgery: The Biological Basis of Modern Surgical Practice*. 19th ed. New York: Elsevier health sciences 2012.
4. Michael Zinner J. Stanley W Ashley, editors. *Maingot's Abdominal Operations* 12th ed. New York: McGraw Hill, 2013.
5. Aroori S, Bell JC. Laparoscopic management of common bile duct stones: our initial experience. *Ulster Med J*.

6. Yang J, Peng J, Chen W: Endoscopic biliary stenting for irretrievable common bile duct stones: Indications, advantages, disadvantages, and follow-up results. *Surgeon*. 2012, 10:211–17.
7. Bagdai A, Sutaria A. A Clinical Study Of Cholelithiasis Presentation And Management In Tertiary Care Hospital. *Natl J Integr Res Med* 2020; Vol.11(2): 17-20.
8. Tamankar AP. The fate of gallstones: Traditional practice questioned. *Ann Coll Surg Engl*. 2003; 85:102-4