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Clinical profile of patients treated with cholecystectomy at a tertiary care hospital

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Abstract

Gallstones are composed predominantly of cholesterol, bilirubin and calcium salts with lesser amounts of other constituents. The most popular classification system uses the relative amount of cholesterol as the main criterion and designates gallstones as being either cholesterol or non-cholesterol. The latter are further classified as black or brown pigment stones. A thorough preoperative anaesthetic evaluation was done and patient fitness for general anaesthesia assessed. A dose of antibiotics (usually a cephalosporin) was given 30 minutes before surgery. A nasogastric tube was inserted routinely. The most common indication for open cholecystectomy was symptomatic cholelithiasis (68%). In the laparoscopic group also cholelithiasis (76%) was the most common cause.

Keywords: Cholecystectomy, cholelithiasis, gallstones

Introduction

The gallbladder provides storage and concentration of bile. The selective absorption of sodium chloride and water results in a concentration of bile salts, bile pigmentsand cholesterol ten times higher than in liver bile. The gallbladder mucosa has the greatest absorptive power per unit area of any structure in the body. This rapid absorption prevents a rise in pressure within the biliary system under normal circumstances. The absorption of fluid by the gallbladder is driven by an energy dependent active transport of sodium and a consequent passive transport of water[1].

Secretion of mucus, approximately at the rate of 20 ml/hr, protects the mucosa from the lytic action of bile and facilitates the passage of bile through the cystic duct. This mucus makes up the colorless, “white bile” present in hydrops of gallbladder resulting from obstruction of cystic duct. The gallbladder also secretes calcium in the presence of inflammation or obstruction of the cystic duct[2].

Gallstones are the most common biliary pathology. The incidence of biliary calculous disease varies widely throughout the world. Around 10% of population in the United States has documented cholelithiasis. The incidence of gallstone disease in Asia is considerable and constitutes a problem of enormous magnitude. The incidence of cholesterol gallstones is increasing in Asia for the reasons that may be related to environmental and dietary considerations[3].

Gallstones are composed predominantly of cholesterol, bilirubin and calcium salts with lesser amounts of other constituents. The most popular classification system uses the relative amount of cholesterol as the main criterion and designates gallstones as being either cholesterol or non-cholesterol. The latter are further classified as black or brown pigment stones. The centre of a cholesterol gallstone is frequently pigmented because the

concentration of calcium bilirubinate salts in this area higher than that in the outer portions[4].

Methodology

This was a prospective study conducted at Bangalore medical college, Bangalore from October 2013 to May 2015.

Inclusion criteria

All patients with acute cholecystitis, chronic cholecystitis, cholelithiasis, empyema, mucocele and gangrenous gallbladder.

Exclusion criteria

Patients with choledocholithiasis, carcinoma of gallbladder, perforated gallbladder were excluded from the study.

Data collection

All the patients were admitted and a detailed history and clinical examination was carried out as per written proforma.

The choice of operation in each case is decided by:

- Patient's choice by explaining both procedures.
- The preference of the surgeon in each case.

Patients opting for laparoscopic cholecystectomy were explained the possibility of conversion to open cholecystectomy.

Preoperatively patient's history was assessed with special reference to pain, fever, nausea, vomiting, dyspepsia, jaundice, mass per abdomen, weight loss and decreased appetite. A careful emphasis was made to record the physical findings particularly icterus tenderness in right hypochondrium and gallbladder mass. Laboratory testing and USG of gallbladder and CBD was done. CBD stone was ruled out by USG.

A thorough preoperative anaesthetic evaluation was done and patient fitness for general anaesthesia assessed. A dose of antibiotics (usually a cephalosporin) was given 30 minutes before surgery. A nasogastric tube was inserted routinely.

Injectable antibiotics and analgesics were given for 2-3 days postoperatively. Then they were given orally for another 3 days. Patients were started orally between 24-48 hours post-surgery in most cases. Sutures were removed usually by the 10th day.

The patient was reviewed on the 7th day and 21st day after discharge. Follow up was done for a period of 6 months whenever possible.

Results

Table 1: Age distribution of study groups

Age in years	Group LAP		Group OPEN		Combined	
	No	%	No	%	No	%
21-30	4	16.0	5	20.0	9	18.0
31-40	10	40.0	9	36.0	19	38.0
41-50	8	32.0	8	32.0	16	32.0
51-60	1	4.0	2	8.0	3	6.0
61-70	2	8.0	1	4.0	3	6.0
Total	25	100.0	25	100.0	50	100.0
Mean ± SD	39.68±10.74		39.72±9.96		39.7±10.25	

Table 2: Sex distribution

Gender	Group LAP		Group OPEN	
	No	%	No	%
Male	5	20.0	9	36.0
Female	20	80.0	16	64.0
Total	25	100.0	25	100.0

Table 3: Age distribution of patients studied with respect to gender distribution

Age in years	Group LAP			Group OPEN		
	Male	Female	Total	Male	Female	Total
21-30	1	3	4	0	5	5
31-40	2	8	10	4	5	9
41-50	2	6	8	4	4	8
51-60	0	1	1	1	1	2
61-70	0	2	2	0	1	1
Total	5	20	25	9	16	25
Mean ± SD	39.68±10.74			39.72±9.96		

There was a preponderance of cases in the 3rd, 4th and 5th decades of life in both groups accounting for nearly 88% of the cases. The mean age of patients in both groups was around 40 years.

There was a female preponderance in both groups with 80% of patients being female in Group LAP and 64% patients being female in group OPEN.

Both males and females were more in 4th and 5th decades.

Table 4: Indication for Cholecystectomy

Diagnosis	Group LAP (n=25)		Group OPEN (n=25)	
	No	%	No	%
Cholelithiasis	19	76.0	17	68.0
Acute cholecystitis	4	16.0	6	24.0
Chronic calculouscholecystitis	2	8.0	2	8.0
Mirizzi syndrome	0	0.0	0	0.0
Total	25	100	25	100
Inference: indication for cholecystectomy is similarly distributed among both open and lap groups				

The most common indication for open cholecystectomy was symptomatic cholelithiasis (68%). In the laparoscopic group also cholelithiasis (76%) was the most common cause.

Table 5: Duration of surgery

Comparison of duration of surgery in two groups of patients studied.

Duration of surgery (mins)	Group LAP		Group open	
	No	%	No	%
<60	6	24.0	0	0.0
60-89	15	60.0	6	24.0
90-119	3	12.0	16	64.0
>120	1	4.0	3	12.0
Total	25	100.0	25	100.0
Mean ± SD	65.8±19.24		91±21.02	

Mean duration of surgery is significantly less in Group

LAP when compared to Group OPEN with P = <0.001**

The duration of procedure in laparoscopic group is counted from insertion of Veress needle to the port site suturing and in open cholecystectomy group from skin incision to skin suturing. The duration of procedure ranged from 60-89 min in lap group and 90-119 min in open group with statistical significance.

Discussion

The main sufferers of gallbladder disease in our study were females as compared to males. Out of total 50 cases, 14 cases were males, which are very much similar to those observed by Fraze and others[5] and U. Berggren and others[6]. The reason for the high incidence among females could be that pregnancy and child birth have a definitive influence on biliary tract disease, acting by causal stasis as well as weight gain and consequent hypercholesterolemia.
No age is said to be immune to gallbladder disease, however they were more common in the third, fourth and fifth decades of life as 88% of the cases belonged to these decades. Workers like Thomas B Hugh *et al*. [7], R Schmitz *et al*. [8] have reported a similar peak incidence in the 4th and 5th decade.
The duration of surgery was lesser in the lap group at 60-89 mins in laparoscopic group compared with 90-119 minutes in open group.Other studies quoted Sooper *et al*.[9] 95 minutes for laparoscopic and 122 min for open.
The duration of surgery is lesser in the LAP group when compared to the OPEN group for the following reasons:

1. Ease of access-laparoscopic cholecystectomy requires the creation of few small port sites in the abdomen for insertion of the instruments hence, the time taken to open the abdomen by dissecting the muscles and fascia is minimized when compared to the open procedure and conversely closure of the port sites is faster when compared to closing a large abdominal incision.
2. Better visualization of the anatomy using the laparoscope which magnifies the view thereby facilitating easy dissection.
3. Laparoscopic cholecystectomy is performed under general anaesthesia, hence the anaesthetic time is also minimized, thereby minimizing total procedure time [10].

Conclusion

- The age and sex distribution of the whole series corresponds fairly well with the usual age and sex affection of gallbladder disease. There was a female preponderance and the peak age group affected was 3rd, 4th and 5th decades.
- The most common indication for cholecystectomy was cholelithiasis followed by acute calculous cholecystitis.
- The mean operative time in laparoscopic group was 65.8 min compared to 91 min in open cholecystectomy group.

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