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## Cholelithiasis presentation and management in tertiary care hospital in South India: A clinical study

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### Abstract

**Background:** Gallstones are the major cause of morbidity and mortality throughout the world. With at least 10 % of the adults have gallstones with a recent rise in the incidence due to change in the dietary factors. This study intends to know its various modes of presentation, treatment, outcome.

**Methods:** Fifty patients with symptoms and signs of cholelithiasis admitted in surgical 'B' unit, Government Medical College - A Tertiary care hospital, Mysuru from period of January 2012 to July 2013, were included in the study, clinical profile, investigation, treatments, outcomes were analysed.

**Results:** The highest age incidence of cholelithiasis was in the 5<sup>th</sup> decade, more common in females. Pain abdomen was the most common symptom. Ultrasonography showed gallbladder stones in all patients and 52% of patients undergone open cholecystectomy, 48% of patients undergone laparoscopic cholecystectomy. The conversion rate of lap to open cholecystectomy was 4%. The operating room time and the length of post-operative stay were 65 min and 7 days in open cholecystectomy and 115 min and 3 days in lap cholecystectomy.

**Conclusions:** The result showed cholelithiasis was more common in females, 5<sup>th</sup> decade, presented most commonly with pain abdomen. Ultrasonography was the most common investigation. Laparoscopic cholecystectomy reduces the number of hospital days, pain, disability.

**Keywords:** Cholelithiasis; ultrasonography; cholecystectomy, laparoscopic cholecystectomy

### Introduction

The prevalence of gall bladder stones varies widely in different parts of the world. In India estimated to be around 4% whereas in western world it is 10% <sup>[1]</sup>.

Gallstones in patients without biliary symptoms are commonly diagnosed incidentally on ultrasonography, CT scans, abdominal radiography, or at laparotomy. Several studies have examined the likelihood of developing biliary colic or developing significant complications of gallstone disease. Approximately 3% of asymptomatic individuals become symptomatic per year (i.e., develop biliary colic). Once symptomatic, patients tend to have recurring bouts of biliary colic. Complicated gallstone disease develops in 3 to 5% of symptomatic patients per year. Over a 20-year period, about two thirds of asymptomatic patients with gallstones remain symptom free <sup>[2]</sup>.

A Ultrasound (US) is the simplest and most reliable method for diagnosis of Gallstones <sup>[3]</sup>.

In addition to identifying stones within the gallbladder or bile duct, abdominal ultrasonography provides important ancillary information regarding the anatomy of bile ducts, pancreas, and other structures in the upper abdomen <sup>[4]</sup>.

Laparoscopic cholecystectomy has become widely used since it was first performed in 1988. The evaluation and treatment of suspected stones in the common bile duct can be carried out by endoscopic retrograde cholangiopancreatography before laparoscopic cholecystectomy <sup>[5]</sup>.

Open Cholecystectomy, Throughout this century, operative cholecystectomy has been the gold standard of treatment for gallstones. The greatest drawbacks to open cholecystectomy are the resulting pain and weeks of disability <sup>[6]</sup>.

### Methods

Fifty patients with symptoms and signs of cholelithiasis admitted in surgical 'B' unit, Government Medical College - A Tertiary care hospital, Mysuru from period of January 2012 to July 2013, were included in the study, clinical profile, investigation, treatments, outcomes were

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analysed. Data collected in predesigned proforma, regarding Patient Biodata, presenting complaints, preoperative intraoperative and post-operative analysis. Inclusion criteria all patients age >18 years, Exclusion criteria was patient unfit for Anaesthesia and surgery, those patients ultrasound detected or suspected CBD stones and those patients not willing to participate in study.

All 50 patients underwent USG abdomen, baseline investigations were done in all 50 patients.

## Results

In our study there is an increased incidence of cholelithiasis in the 5th and 6th decade with the peak in the 5th decade. In our study the youngest patient was 19 years old and the oldest patient is 75 years old.

**Table 1:** Distribution of cases by age group

Age group (years)	Number of cases	Percentage (%)
11-20	1	2
21-30	3	10
31-40	5	18
41-50	17	34
51-60	11	22
>60	7	14

**Table 2:** Sex-wise distribution

Sex	Number of cases	Percentage (%)
Male	20	40
Female	30	60
Total	50	100

In our study 30 patients were female and 20 patients were male. The present study shows gallstones diseases are a common problem in female population. The female to male ratio is 3:2.

## Presenting symptoms

**Table 3:** Presenting symptoms

Symptoms	Number of cases	Percentage (%)
Pain	49	98
Nausea/vomiting	28	56
Jaundice	7	14
Dyspepsia	12	24
Fever	4	8

## Ultrasound findings

**Table 4:** Ultrasound findings

Ultrasound findings	Number of cases	Percentage (%)
Stones in gallbladder	50	100
Solitary stone	12	24
Multiple stones	38	76
Thickening of gallbladder	40	80
Mass	4	8

Ultrasound scanning of the abdomen was done in all patients. 43 patients had stone in gallbladder, 40 patients had thickening of Gall bladder.

## Preoperative evaluation

A haemoglobin level of 10 gm/dl was accepted for the surgery. Blood transfusion was given to selected patients to improve the

haemoglobin level. 2 cases diagnosed as acute Cholecystitis were managed conservatively with IV fluids, nasogastric aspiration, antibiotics, and analgesics. These patients were treated conservatively and were then offered surgery after 6 weeks. Associated medical illness was treated accordingly before taking the patient to surgery.

## Type of operation

**Table 5:** Type of operation

Type of operation	Number of cases	Percentage (%)
Laparoscopic cholecystectomy	25	50
Open cholecystectomy	25	50

In our study 25 patients underwent laparoscopic cholecystectomy and 25 patients undergone open cholecystectomy.

## Incision for open cholecystectomy

**Table 6:** Type of incision for open cholecystectomy

Type of incision	Number of cases
Right subcostal	20
Right paramedian	3
Right transverse	2
Upper midline	0

## Operation

**Table 7:** Operating room time

Type of operation	Operating room time
Laparoscopic cholecystectomy	55 min
Open cholecystectomy	110 min

The operating room time for open cholecystectomy was 55 min and lap cholecystectomy was 110 min

## Complications

### Intraoperative complications

**Table 8:** Intra operative complications

Intra operative complication	Laparoscopic cholecystectomy	Open cholecystectomy
Bile duct injury	1	1

In the present study 3 patients had wound infection. 1 patient had post-operative bile leak which was managed conservatively and patient recovered. Two patients had bile duct injury which was repaired on the T-tube.

**Table 9:** Postoperative complications

Postoperative complications	Laparoscopic cholecystectomy	Open cholecystectomy	Total
Wound infection	1	2	3
Haemorrhage	0	0	0
Retained stones	0	0	0
Bile leak	0	1	1
Prolong ileus	0	0	0

## Duration of hospital stay

**Table 10:** Duration of hospital stay

Operation	Length of stay (days)
Open cholecystectomy	7
Lap cholecystectomy	3

Postoperative length of stay was 7 days for open cholecystectomy and 3 days for lap cholecystectomy.

### Types of stones

**Table 11:** Type of stones

Type of stone	Number of cases	Percentage
Cholesterol stone	4	8
Mixed stones	45	90
Pigment stones	1	2

### Discussion

In our study 50 cases of Cholelithiasis that were admitted in surgical 'B' unit, Government Medical College - A Tertiary care hospital, Mysuru from period of January 2012 to July 2013, Well known available literature on Cholelithiasis is reviewed.

The results of our study are compared with those of well-known authors.

After a detailed history, clinical investigations and available treatment following observations were noted.

### Age incidence

**Table 12:** Comparison of age incidence with other studies

Age group (years)	Present study		Herman's series		Rushad's series	
	No.	%	No.	%	No.	%
11-20	1	2	25	1.6	0	0
21-30	5	10	92	5.9	4	3.33
31-40	9	18	226	14.6	36	36.30
41-50	17	34	325	21.0	30	25.0
51-60	11	22	473	30.6	29	24.16
>60	7	14	352	23.5	21	17.5

### Age incidence

In this study, cases fall between 19 and 75 years.

There is an increased incidence in the 5<sup>th</sup> and 6<sup>th</sup> decade with the maximum incidence in the 5<sup>th</sup> decade. Similar incidence is seen in the studies of Herman *et al.* (5<sup>th</sup> decade) [7].

### Sex distribution

**Table 13:** Comparison of sex distribution with other studies

Sex	Present study		Battacharya's series		Alok Sharma series	
	No.	%	No.	%	No.	%
Male	20	40	26	28.6	41	70
Female	30	60	65	71.4	17	30
Total	50	100	91	100	58	100

### Sex distribution

In the present study 30 out of 50 cases were female while the rest 20 were male. Battacharya [8] series showed 71.4% were female, 28.6% were male.

Similar sex preponderance in the favour of females were noted by Tamhankar AP [9], and Major Alok Sharma *et al.* [10], series showed that 70% were male and 30% were female.

### Comparison of presenting symptoms with other studies

Pain was the predominant symptoms in the present study with 98%. The commonest site of pain was in the Rt. Hypochondrium, and the next commonest site was Epigastria. 5 patients complained of pain radiating to the back. 48 patients had chronic Recurring pain, 2 patients had acute onset of pain, pain was colicky in nature. 13 patients had dull aching pain, 33 patients had Colicky pain. Similar presentations were noted in the series of Alok Sharma, Ganey *et al.* series [11], Goswitz *et al.* series [12].

56% (28 patients) of cases in the present series had nausea/vomiting. Patients vomiting was spontaneous, occurred mostly during the attack of pain.

The incidence of dyspepsia in present series was similar to Ganey series, Alok Sharma series [10]. Fever was present in 4 cases in the present study. Fever was secondary to cholangitis due to biliary obstruction.

The incidence of dyspepsia in present series was similar to Ganey series, Alok Sharma series. Fever was present in 4 cases in the present study. Fever was secondary to cholangitis due to biliary obstruction.

**Table 14:** Comparison of presenting symptoms with other studies

Symptoms	Present study		Alok Sharma series		Ganey's series	
	No.	%	No.	%	No.	%
Pain	49	98	58	100	987	95
Nausea/vomiting	28	56	48	82.8	576	55.6
Jaundice	7	14	3	5.17	101	10
Dyspepsia	12	24	5	8.62	222	21
Fever	4	8	Na	Na	92	9

### Ultrasound findings

Ultrasound scanning was done in all patients, all the cases revealed stone in the gall bladder. Gall bladder stones were seen in 50 patients.

Out of which 12 were solitary stones, 38 were multiple, thickening of gall bladder was seen in 40 patients, mass detected in 4 patients.

**Table 15:** Comparison of ultrasound findings with other study

Ultrasound findings	Present study		Alok Sharma series	
	No.	%	No.	%
Stones in gallbladder	50	100	57	98.3
Solitary stone	12	24	15	26.3
Multiple stones	38	76	42	73.7
Thickening of gallbladder	40	80	10	17.2
Mass	4	8	1	1.7

Ultrasound scanning was done in all patients, all the cases revealed stone in the gall bladder. Gall bladder stones were seen in 50 patients. Out of which 12 were solitary stones, 38 were multiple, and thickening of gall bladder was seen in 40 patients, mass detected in 4 patients. Many of the features in my study were similar to studies of Major Alok Sharma *et al* [10].

### Preoperative evaluation

A haemoglobin level of 10 Gms was accepted for the surgery. Blood transfusion was given to selected patients to improve the haemoglobin level. 2 cases diagnosed as acute Cholecystitis were managed conservatively with IV fluids, nasogastric aspiration, antibiotics, and analgesics. These patients were treated conservatively and were then offered surgery after 6 weeks. Associated medical illness was treated accordingly

before taking the patient to surgery.

### Type of operation

In the present study 25 patients undergo open cholecystectomy and 25 patients undergone Lap cholecystectomy. The conversion rate from lap to open cholecystectomy was 4%. Which was similar to studies of Kama NA *et al.* [13] and Rosen M *et al* [14].

### Incision for open cholecystectomy

The most common incision used in open cholecystectomy was Rt. Sub costal Incision, which was used in 20 patients, 3 patients were operated through Rt. Paramedian incision and 2 patient by Rt transverse incision. In 45 cases, duct first method was done and in 5 patients, fundus first method was done. The reason for fundus first method was dense adhesion. The duct first method was the method of choice. Intra operatively in 5 cases gallbladder were distended. Among them in two case omentum was present over the gallbladder.

### Operating room time

The operative room time for open cholecystectomy was ranged from 55 min to 100 min, with approximate average time being 55 min, and lap cholecystectomy was Ranged from 100 min to 130 min, with approximate average time being 110 min. Which were similar to study of Trondsen *et al.* (50 min) [15].

For open cholecystectomy, 100 min for lap cholecystectomy. Operating room time for open cholecystectomy in my study was also similar to the studies of Axel Ros, *et al* [16].

### Duration of hospital stay

The operative time in our study was 55 min for open cholecystectomy and 110 min for laparoscopic cholecystectomy.

### Types of stones

In our study the most common type of stone is Mixed stones, 45 out of 50 cases, In the present study 90% had mixed stones and 8% had cholesterol stone, 2% had pigment stone, which is similar to the studies of Mathur SN *et al* [17].

### Postoperative complication

In the present study wound infection was the most common complication, which was 6%. The wound infection rate in the study of Saxena *et al.* was 6.3%. One patient had bile leakage through the drain tube, the patient was managed conservatively and the patient improved. In this case drain was removed on the 7<sup>th</sup> day.

### Follow up

There was no problem in the follow up period in any patient. Nothing more can be stated because of limited period of follow up of patients.

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### Declarations

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**Ethical approval:** institution ethical committee approved

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