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 5th 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, 5th 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% [1]. 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 [2].

A Ultrasound (US) is the simplest and most reliable method for diagnosis of Gallstones [3]. 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 [4].

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 [5].

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 [6].

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. 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               |

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.

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

Types 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

| Age group (years) | Present study | Herman’s series | Rushad’s series |
|-------------------|---------------|-----------------|-----------------|
|                   | No. | %   | No. | %   | No. | %   |
| 11-20             | 25  | 50  | 22  | 50  | 25  | 50  |
| 21-30             | 65  | 100 | 47  | 60  | 125 | 100 |
| 31-40             | 135 | 100 | 115 | 88  | 90  | 36  |
| 41-50             | 135 | 100 | 115 | 88  | 90  | 36  |
| 51-60             | 135 | 100 | 115 | 88  | 90  | 36  |
| >60               | 135 | 100 | 115 | 88  | 90  | 36  |

Age incidence

In this study, cases fall between 19 and 75 years. There is an increased incidence in the 5th and 6th decade with the maximum incidence in the 5th decade. Similar incidence is seen in the studies of Herman et al. (5th decade) [7].

Sex distribution

| Sex     | Present study | Battacharya’s series | Alok Sharma series |
|---------|---------------|----------------------|--------------------|
|         | No. | %   | No. | %   | No. | %   |
| Male    | 20  | 40  | 26  | 52  | 41  | 70  |
| Female  | 30  | 60  | 65  | 100 | 71  | 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.

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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.

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.

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Table 10: Duration of hospital stay

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

Table 11: Type of stones

| Type of stone          | No. | %   |
|------------------------|-----|-----|
| Cholesterol stone      | 4   | 8   |
| Mixed stones           | 45  | 90  |
| Pigment stones         | 1   | 2   |

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             | 25  | 50  | 22  | 50  | 25  | 50  |
| 21-30             | 65  | 100 | 47  | 60  | 125 | 100 |
| 31-40             | 135 | 100 | 115 | 88  | 90  | 36  |
| 41-50             | 135 | 100 | 115 | 88  | 90  | 36  |
| 51-60             | 135 | 100 | 115 | 88  | 90  | 36  |
| >60               | 135 | 100 | 115 | 88  | 90  | 36  |

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  | 52  | 41  | 70  |
| Female  | 30  | 60  | 65  | 100 | 71  | 30  |
| Total   | 50  | 100 | 91  | 100 | 58  | 100 |

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   |

Table 15: Comparison of ultrasound findings with other study

| Ultrasound findings      | Present study | Alok Sharma series |
|--------------------------|---------------|--------------------|
| 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 |
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 4/50. 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 7th 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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