



## Research Article

# EPIDEMIOLOGY AND MANAGEMENT OF GALL STONE DISEASE IN TRIBAL POPULATION OF EASTERN INDIA

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### ABSTRACT

**Background:** Gall stone disease is a chronic recurrent problem of the biliary system. In India the incidence and Prevalence of cholelithiasis is a 2-29% and is growing every year. Changes in metabolism of cholesterol, bile acids and bilirubin leads to stone formation in gall bladder.

**Objectives:** In this study we look for epidemiology i.e demographic factors, dietary habits, clinical symptoms, diagnosis and its management in tribal population of eastern India.

**Methods:** We studied on patients in a super speciality hospital undergoing surgery for cholecystectomy from the year July 2014 to July 2016. patients were included for the study after fulfilling the inclusion criteria. Clinical history, diagnostic tools like ultrasound scanning of the abdomen, laparoscopic cholecystectomy were done.

**Results:** Male: Female ratio was 1:2.18 and the mean ages of the patient were 49.11. Mixed types of gall bladder stone, mixed diet was seen.

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## INTRODUCTION

Gall stone disease is one of the major problem of abdominal pain throughout the world (Johnston and Kaplan, 1993). More and more number of the patients are admitted to the hospital with gall stone problems in both developed and developing nations. Impaired metabolism of cholesterol, bilirubin and bile acids, leads to formation of gall stone (Belousov, 2006). Prevalence of gall stone varies in different of world, also within the countries. In asian population (5—20%) and In india prevalence is more in female (n=) than men (n=). It is more common in north India than southern Indian followed by western part of India. In eastern part number is similar to northern India (Bansal and Akhtar, 2014). Various research are done on causes of the stone formation (National Institute of Diabetes and Digestive and Kidney Diseases, 1995), its presentation and on the treatment modalities. With the common practice of use of ultrasonography for abdominal pain in recent past leads to diagnosis of gall stone, whether symptomatic or not symptomatic.

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Also changes in dietary habits, living style is considered to be one of the reason the formation of gall stone. In this study, we look for epidemiology i.e. demographic factors, dietary habits, clinical presentation, diagnosis and complications after surgery. Also included various cardiac illness related to gallstone disease in each patients.

## METHODS

This study was conducted in a superspeciality hospital as cohort study. patient were admitted to the hospital for laparoscopic cholecystectomy after clinical evaluation and radiological confirmation.

### Inclusion exclusion criteria

The patients clinical and radiological evaluations were included in the study. Depends on systemic illness patients were graded according to ASA classification. patient who did not give consent or no calculus were excluded from the study.

**Ethical Issue:** Clearance were obtained from hospital ethical committee. written consent were taken before surgery.

## Study factor

Demographic data i.e. age, gender dietary status, clinical presentation (dysphagia, acute upper abdomen pain, chronic abdominal pain, jaundice, nausea, vomiting) and clinical history were recorded in a standard Performa.

## Statistical analysis

The data are presented in tabular form using tables for descriptive statistics variable using Fischer's exact test and chi-square test.

## RESULTS

### Age and Gender

Following results were recorded with 101 patients who were enrolled for the study. Gall stone disease were more common in fourth, fifth and sixth decade. Out of 101 patients enrolled, 77 were female and 25 were male, which correlate with gall stone disease of rest of India population (Table-1). The mean age of the patients were 49.11 years with standard deviation of 16.97 in a range of 18 to 90 years (Table-2). The mean age of female was 50.29 and 45.33 in Male ( $p > 0.005$ , not significant). Though it appeared to be more in fifth decade female population (Table-2)

**Table 1. Gender Distribution**

Sex	N(%)
Male	25(25.25)
Female	77(77.54)
Total	101(100)

**Table 2. Gall stone disease according to age**

11-20	1
21-30	7
31-40	19
41-50	28
51-60	24
61-70	16
71-80	5
81-90	1

**Table 3. Type of Gall stone**

Cholesterol	5(5.05%)
Mixed	54(54.54%)
Pigment	42(42.42%)

**Table 4. Diet Distribution**

Vegetarian	5(5.05%)
Mixed	96(96.96%)

**Table 5. Clinical presentation of Patients**

Pain	100(100%)
Flatulence	35(35.35%)
Nausea/Vomiting	52(52.52%)
Fever	7(7.07%)
Jaundice	10(10.10%)

**Table 6. Radiological finding (Ultrasonography)**

Multiple calculi	84(84.84%)
Solitary Calculi	12(12.12%)
CBD Calculus	5(5.05%)

**Table 7. Type of surgery**

Laparoscopic Cholecystectomy	97
Open Cholecystectomy	4

**Table 8 Post Operative Complications**

Type of complication	Laparoscopic	Open
Biliary leak	03/97	0/4
Wound infection	03/97	02/4

### Type of Stone

Out of 101 patients of gall stone, on visual and extended appearance criteria, 54 (54.54%) patients had mixed stone, 42 (42.42%) pigmented stone and 5 (5.05%) cholesterol stone (Table-3).

### Diet

96 patients in tribal population on mixed diet, it indicates majority of them are on mixed diet, which could be the source of gall stone disease (Table-4)

### Clinical presentations

All patients were having pain in the upper abdomen. 79 patients (79/79%) presented with chronic abdomen pain, while 22 patients had acute abdominal pain. 35 patients (35.35%) had dyspepsia and flatulence. 52 patients (52.52%) with nausea or vomiting. Out of 101 tribal patients 10 (10.10%) presented with jaundice and 7 (7.07%) were having mild fever (Table-5) Radiological finding i.e. Ultrasonography:

Out of 101, tribal patients, majority of them were having multiple calculi i.e. 84 (84.84%) and 12 (12.12%) patients were having solitary calculus. Five (5.05%) patients were CBD calculus, which correlate intraoperatively and found 100% accuracy of ultrasonographic finding in the study (Table-6).

### Surgical management

All 101 patients were posted for laparoscopic procedure. Out of 101, 97 had successful procedure. Only four were converted to open cholecystectomy due to distorted anatomy (Table-7) Post operative Complications Three out of 97 patients, who underwent laparoscopic procedure had biliary leak, which was managed conservatively with no residual effects. Only one out of four patients in open cholecystectomy had biliary leak, who required reexploration. Wound infection was found in five out of 101 patients, which was managed by antibiotic and regular dressing (Table-8)

## DISCUSSION

In the present study 77.5% (77 out of 101) cases were female, while 25% (25 out of 101) were male.

Similar gender predominance were observed by Mhamunkar *et al.* Bhattacharya showed 71.4% were female; 28.6% were male (Bhattacharya, 1983). Our study showed that out of 101 tribal patients 54 (54.54%) had mixed stone, 42 (42%) pigment stone and 5 (5%) cholesterol stone. Study done by Bansal A *et al* showed 46%, 38%, 16% respectively (Bansal, 2014). Mohan H showed 14.2%, 68.6% and 17.2% (Mohan *et al.*, 2005). Mixed stone are more commonly seen in Northern India. In this study 97.97% (97 out of 101) patients were on mixed diet (meat products) and the rest 5% (5 out of 101) were on vegetarian diet. This show, nonvegetarian was more commonly associated with gall stone diseases, than vegetarian. Maskey *et al* found the similar correlation with vegetarian and Non vegetarian.<sup>7</sup> Cuevas *et al* open new theory of the role of orphan nuclear receptors in the regulation of fatty acid and hepatic cholesterol metabolism and excretion in the formation of gall stone and dietary habit (Bhattacharya, 1983).

Almost all the patients complain of pain abdomen .Out of 101 patients, 32% patients had acute pain abdomen and remaining had long standing pain. Nausea and vomiting was associated with half of the total patient included (Cuevas, 2004; Ganey *et al.*, 1986; Sharma, 1997). In our study 97 patients underwent laparoscopic procedure<sup>12</sup> and only four patient converted to open cholecystectomy with CBD exploration due to the nature of the disease. The rate of conversion in the study done by Schlumpf *et al* was 7% ,whereas in our study it was 4% (4 out of 101), which was slightly lower (Schlumpf, 2006; Fajardo *et al.*, 2011).

### Conclusion

From this study we conclude that the mean age of the patient was 49.11 years with male-female ratio of 1:2.18. Mixed type of stone is more prevalent than cholesterol and pigment stone. Multiple calculi were most frequently found than single calculus. Pain with nausea/vomiting is more common clinical presentation of the gall stone disease. Laparoscopic procedure was carried out in all patients due to awareness, choice among patients and better post operative recovery.

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