

# Clinical Profile of Patients Presenting with Gallstone Disease in University Hospital of Nepal

Joshi HN, Singh AK, Shrestha D, Shrestha I, Karmacharya RM

Department of Surgery,  
Dhulikhel Hospital, Kathmandu University Hospital,  
Kathmandu University School of Medical Sciences,  
Dhulikhel, Kavre, Nepal.

## Corresponding Author

Hem Nath Joshi  
Department of Surgery,  
Dhulikhel Hospital, Kathmandu University Hospital,  
Kathmandu University School of Medical Sciences,  
Dhulikhel, Kavre, Nepal.  
E-mail: hemnjoshi@hotmail.com

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## ABSTRACT

### Background

Gallstone disease is one of the most common surgical problem throughout the world. The rise in gallstone disease burden and its wide spectrum of non-specific presentation makes the disease more challenging.

### Objective

To know the various modes of presentation, socio-demographic details of the patients with gallstone disease, any associated factors and its treatment options.

### Method

This is a prospective descriptive study in the patients presenting to Dhulikhel Hospital Kathmandu University Hospital diagnosed with gallstone during May 2018 to April 2020. After receiving ethical clearance from institutional Review committee, the informed consent was taken from all patient involved in the study. The presence of gallstone was confirmed by abdominal ultrasonography (USG). This study included total of 202 patients with gallstone disease.

### Result

A total of 202 individuals with gallstone were included in the study; 48 males (24%) and 154 females (76%). The disease condition was common in age group 31-40 years (26.24%). Majority of the study population consumed mixed diet (92.57%). Out of 202 patients; 52 patients (25.74%) were overweight. In this study series 185 patients (91.58%) were symptomatic. Pain abdomen was one of the commonest symptoms (97.84%) followed by Nausea (28.11%), Dyspepsia (28.11%), Vomiting (18.38%), Fever (1.62) and Jaundice (1.08%). All cases were planned for laparoscopic cholecystectomy however 4 cases had to be converted to open surgery for completion.

### Conclusion

Gallstone disease is a common surgical problem in Female population that presents most commonly with pain abdomen. Laparoscopic cholecystectomy can be easily performed in all cases of gallstone disease.

## KEY WORDS

*Cholecystolithiasis, Cholecystectomy, Gallstone disease, Laparoscopic cholecystectomy*

## INTRODUCTION

Gallstone disease, also known as cholecystolithiasis is a common surgical problem that a patient presents to a general surgery outpatient department (OPD). It is also one of the common diseases worldwide.<sup>1,2</sup> Globally the incidence of gallstones ranges from 3 to 21.9 %. The incidence of gallstones in Asia is 4-15%.<sup>3,4</sup> The disease is predominantly common in females with female to male ratio being as high as 4:1.<sup>5,6</sup> The exact prevalence of disease is difficult to assess and there are very few studies done in Nepal as the disease condition remains asymptomatic in majority of the cases. The traditional risk factors for gallstone disease are known to be 4F; "Fat", "Female", "Forty" and "Fertile".<sup>4</sup> The occurrence of gallstone in pediatric age group is uncommon and highest prevalence is noted to be in the 3<sup>rd</sup> to 6<sup>th</sup> decade of life.<sup>7</sup>

An abdominal ultrasonography (USG) is the simplest and most reliable mode of investigation to evaluate the gallstone disease.<sup>8,9</sup> USG abdomen not only detects the stone in gallbladder but also helps to evaluate the hepatobiliary anatomy in details. Laparoscopic cholecystectomy has become the prime mode of treatment in symptomatic gallstone disease since it was first performed back in 1988.<sup>10</sup>

In this study we planned to evaluate the clinical profile of gallstone disease patient, associated risk factors and mode of management of this disease condition.

## METHODS

This is a prospective descriptive study in the patients presenting to Dhulikhel Hospital, Kathmandu University Hospital diagnosed with gallstone during May 2018 to April 2020. After receiving ethical clearance from institutional review committee, the informed consent was taken from all patient involved in the study. The presence of gallstone was confirmed by abdominal ultrasonography (USG).

Sample size was calculated by using proportion formula  $n = z^2 p(1-p)/d^2$  where  $n$ =required sample size,  $z=1.96$  at 95% confidence interval,  $p$ =prevalence of gallstone disease in Nepal (15%) and  $d=5\%$  maximum tolerable error. With This formula;  $n=196$ . However, for the better yield 202 cases were taken for the study.

Collected data were analyzed using SPSS 25.0 version. Qualitative and quantitative analysis were done using various statistical tools. P value less than 0.05 was considered statistically significant.

## RESULTS

A total of 202 individuals with gallstone were included in the study; 48 males (24%) and 154 females (76%). Female to male ratio was 3.20:1. In our study the prevalence of gallstone was common in age group 31-40 years (26.24%) followed by age group 41-50 years (21.78%). Gallstone

was least present in age group less than 20 years. The sociodemographic characteristics of the study population are shown in table 1. Majority of the study population consumed mixed diet (92.57%). Out of 202 patients; 52 patients (25.74%) were overweight and 53 patients (26.24%) were obese.

**Table 1. Sociodemographic characteristics of study group (n=202)**

Variables	n (% distribution)	Others
Gender	Male	48(24 %)
	Female	154(76 %)
Age	≤20 years	5 (2.48%)
	21-30 years	30 (14.85%)
	31-40 years	53(26.24%)
	41-50 years	44 (21.78%)
	51-60 years	43(21.28%)
	>60 years	27 (13.37%)
Dietary Pattern	Vegetarian	15(7.43%)
	Mixed	187(92.57%)
BMI	Underweight	3 (1.49%)
	Normal	94(46.53%)
	Overweight	52(25.74%)
	Obese	53(26.24%)

Mean age: 44.51  
SD: 14.57  
Range: 17-86 years

**Table 2. Clinical Profile of study population (n=202)**

Variables	N (% distribution)	
Presentation	Symptomatic	185 (91.58)
	Asymptomatic	17 (8.42)
Pain Abdomen	Yes	181 (97.84)
	No	4 (2.16)
Site of Pain	Right Upper	125 (69.06)
	Epigastric	53 (29.28)
	Left Upper	1 (0.55)
	Others	2 (1.1)
Other Symptoms	Nausea	52 (28.11)
	Dyspepsia	52 (28.11)
	Vomiting	34 (18.38)
	Jaundice	2 (1.08)
	Fever	3 (1.62)
Signs	Murphy's sign	9 (4.86%)
	High Temperature	3(1.62%)
	Palpable lump	2(1.08%)
Blood Group	A POSITIVE	59(29.20)
	A NEGATIVE	1 (0.50)
	B POSITIVE	58 (28.71)
	B NEGATIVE	1(0.5)
	AB POSITIVE	10 (4.95)
	O POSITIVE	68 (33.66)
O NEGATIVE	5 (2.48)	

Among 202 patients, 185 patients (91.58%) with gallstone presented to hospital with some sorts of symptoms. Pain abdomen was one of the commonest symptoms (97.84%) that patient presented with gallstone followed by Nausea (28.11%), Dyspepsia (28.11%), Vomiting (18.38%), Fever (1.62) and Jaundice (1.08%).

Table 2 shows the clinical profile of study population. Only 17% of study population had incidental finding of gallstone disease in our study. On examinations, 9 patients (4.86%) had Murphy's sign present, 3 patients (1.62%) had fever and 2 patients (1.08%) had a palpable mass in right upper abdomen. Sixty-eight patients (33.66%) out of 202 had a blood group of "O-positive". Next common blood group was "A-Positive" followed by "B-Positive". All 202 patients were subjected to laparoscopic cholecystectomy. Out of these 4 cases (2%) had to be converted to open cholecystectomy due to difficult anatomy as shown in Table 3. None cases were planned for open cholecystectomy in this study group.

**Table 3. Mode of Surgery (n=202)**

Mode of Surgery	N (% distribution)
Laparoscopic Cholecystectomy	198 (98.02)
Open Cholecystectomy	0
Lap. Converted to Open Cholecystectomy	4 (1.98)

## DISCUSSION

The incidence of gallstones in female; many folds more than male is a consistent finding in many studies.<sup>7,11</sup> The occurrence of gallstones is more in middle aged group. In a similar study done in Nepal in year 2009 on 80 patients also reported it to be common in age group 30-40 years old.<sup>6,7</sup> The reason for gallstones being common in female is well understood and is thought due to increase in estrogen level, which increase cholesterol excretion in bile by causing its super saturation with cholesterol and forming gallstone.<sup>12</sup>

The incidence of gallstones is less in younger age and increases with age. It is believed that with increasing age there is long-term exposure to the risk factors irrespective of the individual factors and thus more incidence of stone in latter age group.<sup>13</sup>

Study population consuming mixed diet (preferably non-vegetarian) diet was found to be more commonly involved with gallstones. The exact cause behind this is unknowns however the consumption of high protein and fat is considered to be the reason behind this. This predominance of non-vegetarian diet was also found in studies done in India and Nepal.<sup>7,14</sup>

In this study group, majority of population visiting to the surgery outpatient with gallstone were symptomatic (n=185; 91.58%) with only 17 patients (8.42%) had incidental finding of gallstone. This could be due to people seeking health services in Nepal very late or once after he/

she develops symptoms that are trouble some. This is in contrast to the study done In India where Khuroo et al. reported 94% of the study population were asymptomatic at the time of diagnosis.<sup>15</sup> Now a days more people are being diagnosed as asymptomatic gallstone disease due to easy access to ultrasound abdomen as this is cheap and non-invasive. In Nepal still the scenario is different. Pain was the predominant symptoms among the symptomatic group with total of 181 (91.58%). The commonest site of pain was right upper abdomen followed by epigastrium (69.06% and 29.28% respectively). Similar presenting symptoms were present in many studies done in past and a comparative tabulation is done in Table 4.<sup>16-19</sup>

**Table 4. Comparison of presenting symptoms with other studies**

Symptoms	Present Study		Deepak Naik Series <sup>16</sup>		Alok Sharma Series <sup>17</sup>		Ganey's Series <sup>18</sup>	
	N	%	N	%	N	%	N	%
Pain	181	97.84	49	98	58	100	987	95
Nausea	52	28.11	28	56	48	82.8	576	55.6
Vomiting	34	18.38	-	-	-	-	576	55.6
Jaundice	2	1.08	7	14	3	5.17	101	10
Dyspepsia	52	28.11	12	24	5	8.62	222	21
Fever	3	1.68	4	8	-	-	92	9

While examining the patients with gall stone disease, majority of the patients had no remarkable findings. Murphy's sign was present in 9 (4.86%), high temperature in 3 (1.62%) and palpable right upper abdomen lump in 2 (1.08%). In few major studies done in past also supports this study and those series has reported that the examination in gallstone disease in unremarkable.<sup>20,21</sup>

The choice of surgery in this study population was laparoscopic cholecystectomy. Open cholecystectomy approach was not planned in any case. Laparoscopic cholecystectomy is the choice of surgery in gallstone disease and is considered gold standard method of treatment since long.<sup>22</sup> In our center, the surgeons and the residents are well trained for laparoscopic surgery. Hands-on experience in laboratory setting for laparoscopic skills among young surgeons and surgical residents allows our center to safely perform the laparoscopic cholecystectomy in almost all the patient planned for gall bladder surgery. Among all the surgery in this study group, only 4 (1.98%) patients had to be converted to open surgery for completion. The reason for conversion to open surgery was difficult anatomy in two cases and acute cholecystitis in two cases. One major study done on the modality of surgery for gallstone disease also mentions the reason for conversion to be the acute cholecystitis causing difficult anatomy.

This study doesn't include the intraoperative and post-operative study parameters. Future study could be done including these parameters.

## CONCLUSION

Gallstone disease is one of the most common problem that a patient present to surgery outpatient department. This surgical condition is female dominant and pain abdomen is the most common symptoms. Right upper abdomen is the most common site where patient feels the pain and nausea and vomiting is the second most common symptoms.

The disease condition is more common in patients who consume preferably non vegetarian diet. Gallstone disease has no clinical findings on examination and laparoscopic cholecystectomy is the surgery of choice for symptomatic gallstone disease. Laparoscopic cholecystectomy is safer and can be done for all cases of symptomatic gallstone disease.

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