

**Prevalence of Malignancy in Cholelithiasis: A Cross-Sectional Study in a Tertiary Care Hospital of Odisha****Nirod Kumar Sahoo<sup>1</sup>, Soubhagya kumar Das<sup>2</sup>, Sujit Kumar Mohanty<sup>3</sup>, Rakesh Kumar Ludam<sup>4</sup>, Satyaprakash Dhal<sup>5</sup>**<sup>1</sup>Assistant Professor, Department of General Surgery, MKCG Medical College & Hospital, Berhampur, Odisha, India<sup>2</sup>Assistant Professor, Department of Anaesthesiology & Critical care, SCB Medical College & Hospital, Cuttack, Odisha, India<sup>3</sup>Assistant Professor, Department of General Surgery, SCB Medical College & Hospital, Cuttack, Odisha, India<sup>4</sup>Assistant Professor, Dept. Of Anaesthesiology & Critical Care, MKCG Medical College Hospital, Berhampur, Odisha, India<sup>5</sup>Superintendent, CHC Tato, Mayurbhanj, Odisha, India

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**Abstract:**

Gall stone is the most common risk factor for carcinoma gall bladder. The aim of this study is to find out the prevalence of malignancy in patients with Cholelithiasis in Western Odisha, as no epidemiological data is available for Odisha. All the radio logically diagnosed cases of cholelithiasis underwent surgery were taken into consideration. All the cases of cholelithiasis operated of in General Surgery Department of VSSIMSAR, Burla were considered for study. The diagnosis confirmed by Ultra sonography/MRCP in Department of Radio diagnosis. Total numbers of patients operated are 347, out of which 279 undergone laparoscopic surgery, 58 cases undergone open surgery and 10 cases converted from laparoscopic to open surgery. Most number of patients belongs to age group 31-40, consisting of 32.85% of total number, followed by age group 41-50, and consisting of 25.07%. A female patient constitutes about 77.81 % of total number. Male: female ratio is 1: 3.5. The mean age of the patients of study group is 41.71. Mean age of female patients is 41.09 and males are 43.88, p value 0.072 (no significant deference between mean of female and male). The excised specimens sent for histopathological examination in Department of Pathology, VSSIMSAR, Burla. Out of 347 cases two cases found to have carcinoma specifically adenocarcinoma of gallbladder.

**Keywords:** Malignancy, Cholelithiasis, Carcinoma Gall Bladder, Adenocarcinoma of Gallbladder.

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**Introduction**

Gallbladder cancer is generally considered as a rare entity. It is the most common malignancy of the biliary tract accounting for 80%–95% of biliary tract cancers. Geographic and ethnic disparities exist in carcinoma gallbladder, high occurrence in American Indians, elevated in Southeast Asia, but low in the Americas and the other parts of world. The important risk factors include Age, female sex, congenital biliary tract anomalies, and a genetic predisposition. Environmental offenders have a critical role in developing cancer of gallbladder, for example by cholelithiasis and chronic cholecystitis, inflammation of biliary tract and parasitic infestations [1]. Mortality rates closely follow incidence; those countries with the highest prevalence of gallstones experience the greatest mortality from gallbladder cancer. Vague symptoms often delay the diagnosis of gallbladder

cancer, contributing to its overall progression and poor outcome. Surgery is the mainstay of treatment. Incidentally a diagnosed case of carcinoma gallbladder carries a better prognostic outcome, at the time of cholecystectomy being performed for cholelithiasis. Patients presenting late usually have advanced staging, nodal involvement, and usually recur following surgery [1]. Gallstones represent an important risk factor for carcinoma gallbladder, being present in about 85% patients with gallbladder cancer. However, the overall risk of gallbladder cancer in gallstones patients is low; and less than 3% of individuals with cholelithiasis have gallbladder cancer [1]. Gallstone characteristics further influence the frequency at which gallbladder cancer develops. Increasing stone size augments the risk of gallbladder cancer; stones >3 cm size carry a

tenfold increased risk when compared with smaller stones [2,3].

India is a high incidence area for gallbladder cancer and contributes to about 10% of the global burden. Within India, the incidence is high in North, North-East, Central and Eastern India, and less common in South and West India [4]. The incidence rising consistently in both genders. The presentation is often with advanced disease which carries poor prognosis. Gallbladder cancer in India usually affects younger patients in the 5th and 6th decade in comparison to the western countries. Gallstones are present in 80% of the Indian patients with gallbladder cancer and its presence increases the vulnerability of the gallbladder to mucosal injury. The incidence of gallbladder cancer is out of proportion to the prevalence of gallstones in the country.

Additional co-factors such as older age, lower socio-economic status, chronic Salmonella typhi (*S. typhi*) infection, Helicobacter pylori (*H. pylori*) infection, exposure to pollutants, heavy metals, chemicals, adulterated mustard oil and smoking in patients with gallstones have been identified which promote carcinogenesis. Large multicentric comprehensive studies are required in India to assess the attributable risk of each of the identified risk factors. This will help in formulating cost effective national strategies in preventing gallbladder cancer related mortality in the country. Meanwhile a high index of suspicion to pick up incidental gallbladder cancer, and improved access to healthcare facilities to manage gallstone diseases appropriately will help in reducing gallbladder cancer related mortality.

In India, the incidence of GBC is 10 times higher in north India compared to the southern Indian states [8.9/100,000 population in Delhi vs. 0.8/100,000 population in Chennai] [5].

The age standardized incidence rate of gallbladder cancer showed that the incidence rate was high in northern and eastern India i.e. 7–14/100,000 population as compared to south and western India i.e. <1/100,000 population. Amongst patients living in north, eastern and central India the risk for developing gallbladder carcinoma is higher than that among patients living in southern India (OR 4.82; 95% CI: 3.87–5.99). The ICMR population-based registry (2009–2011) clearly divides India into high risk area and low risk area for gallbladder cancer [6].

In western India, it is detected more often among people who have migrated from high risk areas rather than natural residents of the region. Migration from high risk region to low risk region resulted in individuals carrying higher susceptibility even when they moved to lower risk regions (OR 1.36; 95% CI: 1.02–1.82) [4].

Indians migrating to other countries also carry high risk for gallbladder cancer. Studies done in Kuwait, United Kingdom have shown that Indian immigrants are at higher risk for GB malignancy as compared to the native population of these countries [7].

In Odisha no data available for prevalence of malignancy in case of gallstone diseases. This study was designed to find out prevalence of malignancy in patients of gallstone diseases in western Odisha. No data about mean age of patients of cholelithiasis is available in Odisha.

### Materials and Methods

A cross-sectional study was conducted involving 347 numbers of patients those underwent cholecystectomy in Department of General Surgery, VSSIMSAR, Burla and excised specimens was undergone Histopathological examination in Department of Pathology, VSSIMSAR, and Burla. The study period is November 2017 to October 2019.

All the radiologically diagnosed cases of cholelithiasis attending Surgery OPD and admitted to Department of General Surgery, VSSIMSAR, Burla and those were fit to undergo cholecystectomy were included under study, patients unfit for surgery and not giving consent were excluded. With the prior consent a Comprehensive History, General examination and Systemic examination carried out initially. After making clinical diagnosis, the diagnosis confirmed radiologically.

All radiologically diagnosed and surgically fit cases undergone cholecystectomy either open or laparoscopic. The removed gall bladders was inspected for the outer surface, incised to remove gall stones, the gallbladder mucosa inspected, the number, size and type of gall stones noted. Resected specimens sent to Pathology Department for Histopathological examination.

Reports collected for analysis. The Primary Objective was to study the prevalence of gall bladder carcinoma in patients with cholelithiasis with Secondary objectives like the mean age of patients of cholelithiasis in western Odisha, whether any significant difference in mean age between male and female patients, to study the relationship if any between size and number of stones in patients of gallbladder cancer with gall stones. The study variables are demographic and clinical profile of patients presenting with gallstone diseases. Data analysis done using SPSS software. Research initiated only after due approval of institutional ethics committee of VSSIMSAR. The procedures followed in accordance to ethical norms. The research is done after taking written

consent with the patient or her/his parents or her/his legal guardian whichever is applicable.

The benefits outweigh the risk involved to the study participants as there was apparently no risk

for patients in this study. Secrecy of the personal information of the patients maintained.

#### Observation

Total numbers of patients are 347 considered for study.

**Table 1: Age Distribution of Patients.**

Age group	Number	Percentage
≤20	7	2.02
21-30	62	17.87
31-40	114	32.85
41-50	87	25.07
51-60	50	14.41
61-70	26	7.49
>70	1	0.29
Total	347	100

The minimum age is 14 and maximum age is 75.

**Table 2: Mean age of patients with cholelithiasis.**

Minimum age	Maximum age	Total number of patients	Mean	Standard deviation
14	75	347	41.71	12.016

The mean of the patients of our study group is 41.71.

**Table 3: Mean age comparison among male and female patients of cholelithiasis.**

Sex	Total number	Mean age	Standard deviation	Standard error mean
Male	77	43.88	12.710	1.448
Female	270	41.09	11.761	0.716

No significant difference between mean age of male and female patients in our study with p value 0.072.

**Table 4: Gender distribution of patients**

Gender	Frequency	Percent
Male	77	22.19
Female	270	77.81
<b>Total</b>	<b>347</b>	<b>100</b>

Gallstone disease is predominately a disease of females.

**Table 5: Types of surgery performed**

Types of surgery	Frequency	Percentage
Laparoscopic surgery	279	80.4
Open surgery	58	16.7
Lap converted to open	10	2.9

Laparoscopic cholecystectomy is considered gold standard for treatment of cholelithiasis worldwide, similarly in our institution also. Two cases found to have carcinoma gallbladder out of total 347 number of patients undergone cholecystectomy for cholelithiasis. Both of the patients are female patients, both had multiple gall stones, one had small stones of size less than 1 cm and other having stones size more than 2 cm.

#### Discussion

The cross sectional Observational study conducted over a period of two years starting from November 2017 to October 2019, on 347 number of patients with radiological diagnosis of Cholelithiasis those underwent cholecystectomy in General Surgery Department, VIMSAR, Burla. Most number of patients belongs to age group 31-40, consisting of 32.85% of total number, followed by age group 41-

50, and consisting of 25.07%. Very less number of patients from extreme age groups.

The mean age of the patients of our study group is 41.71. According similar study conducted by Dr Alok Chandra Prakash, Dr Samir Toppo, Dr Vinay Pratap, Prevalence and Management of Cholelithiasis in East India, the mean age was found to be 38 years<sup>7</sup>. Similar study conducted by V Jayanthi et al, epidemiology of gallstone disease - topline findings, the mean was found to be 51.1. The age range for the cases was between 15 and 85 years and the mean age was 51.1 years (+ 14.1 years) [8]. The mean of patients with gallstone disease is higher in South India in comparison to north and east India. According to our study the mean age group of male and female patients is 43.88 and 41.09 respectively with p value 0.072. There is no significant difference. Many similar

studies suggest same findings. According to our study female patients constitute about 77.81 % of total patients. Male: female ratio is 1: 3.5. Its similar in study conducted by by Dr Alok Chandra Prakash, Dr Samir Toppo, Dr Vinay Pratap, the mean age of the patients was 38 years with a male-female ratio of 1:3 in east india [7]. Similar study conducted by Sultan Alshoabi shows the prevalence of gallstones in this study is 18-23.5% and exactly 69.57% of gallstones were in females and 30.43% in males [6].

In our study only two cases found to have carcinoma gallbladder. So, the prevalence of gallbladder cancer is 5.7 per 1000 number of cholelithiasis patients in our study of patients of western Odisha. The overall age-adjusted incidence rates of gallbladder cancer in India are low (1.0 for men and 2.3 for women per 100000 populations). Its incidence in women of North and Central India is as high as 6.6 and 5.2 respectively, while that in Chennai and Bangalore in southern India are 0.6 and 0.8 respectively.

### Conclusion

The prevalence of gallbladder cancer in 1000 number of cholelithiasis patients in our study for patients of western Odisha is 5.7. The mean age of the patients of our study group is 41.71 with mean age of female and male patients are 41.09 and 43.88 respectively without significant deference.

The mean age of patients for western Odisha lies in between mean age of patients belonging to north, central India, and South India. Most patients with cholelithiasis are females consisting about 78 %. No relationship between number, size and type of stones with malignancy could be established in our study because of less number of malignant finding.

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