

# Frequency of Gall Bladder Carcinoma in Cholecystectomy Specimens - In Government Hospital of Garhwal Region of Uttarakhand

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## ABSTRACT

**Introduction:** Gall Bladder cancer is the most common and aggressive malignancy of biliary tree it accounts for 80% to 90% of biliary tract cancers. Overall, it is a rare malignancy. Incidence of Gall Bladder carcinomas varies in different countries of the world. Environmental triggers play a critical role in the development of Gall Bladder carcinoma. Symptoms of Gall Bladder carcinomas are very vague due to which there is delay in diagnosis and treatment hence results in poor prognosis and high mortality. This study was carried out to find out the incidence of Gall Bladder malignancy and the incidental carcinoma in cholecystectomy specimens.

**Material and Methods:** A retrospective study from May 2010 to May 2016 was carried out in the department of pathology of VCSGGM CandRI in hilly regions of Uttarakhand. Records of all patients of cholecystectomy were analyzed for age, sex, clinical presentation and radiological examination. Histopathological analysis of all cholecystectomy specimen sent was done.

**Result:** Out of 502 cases of cholecystectomy malignancy was present in 12 cases (2.4%). All the malignant cases were not diagnosed preoperatively as malignant. Thus in neoplastic group incidental carcinoma was diagnosed in 5 cases (1.07%)

**Conclusion:** We conclude that histopathological examination of all cholecystectomy specimens should be done mandatory so that no asymptomatic carcinoma go undetected. Thorough sampling of all Gall Bladder specimen is must to detect incidental carcinoma or focal neoplastic changes.

**Keywords:** Gall Bladder Carcinoma, Cholecystectomy Specimens

## INTRODUCTION

Gall Bladder disease is a very common problem worldwide. According to recent data of the national registry program of India, northern part of India especially the gangetic belt has the highest incidence.<sup>1</sup> The incidence of gall stone disease has increased in Asian countries owing to change in their food habits, as diet in Asian countries are high in calories and fat.<sup>2</sup> Cholecystectomy is the most common major abdominal surgery worldwide which is mostly done for gall stones. Approximately 90% of Gall Bladder cancer have accompanying stone<sup>3</sup>, but only 5% to 3% of patients with cholelithiasis will develop Gall Bladder carcinoma.<sup>4</sup> Despite of improved imaging techniques preoperative diagnosis of Gall Bladder carcinoma is not always possible, 80% of cases present in late stages.<sup>5</sup> Such cases cannot be operated and therefore Gall Bladder specimen not available for histopathological diagnosis. The cases which are detected preoperatively are usually in advanced stages, such cases show five year survival rate of less than 5%.<sup>6</sup> The patients with incidental carcinoma of Gall Bladder in the cholecystectomy

specimens are very fortunate to be incidentally found of carcinoma Gall Bladder. Such an early diagnosis is very helpful in reducing mortality due to Gall Bladder carcinoma. In India, Gall Bladder cancer is the fourth commonest cancer overall in the female population. Women are more commonly affected than men.<sup>7,8</sup> Peak age of Gall Bladder carcinoma is 6<sup>th</sup> and 7<sup>th</sup> decade.<sup>8</sup> This study was carried out to find out the incidence of Gall Bladder malignancy and the incidental carcinoma in cholecystectomy specimens.

## MATERIAL AND METHODS

A retrospective study was done from May 2010 to May 2016 in the department of pathology of VCSGGM CandRI Uttarakhand. Patients of all age groups and both the sexes were included in the study. A total number of 502 cases of cholecystectomy were retrieved. All the sections of Gall Bladder were reviewed; further sectioning was done wherever needed. Histopathological sections were stained with haematoxylin and eosin. Patient's personal data, Clinical information, operating notes were taken from record. Patient's clinical presentation, histopathological findings and their follow up were evaluated.

## STATISTICAL ANALYSIS

Microsoft office 2007 was used for the statistical analysis. Descriptive statistics like mean and percentages were used for the data analysis.

## RESULTS

A total of 502 cholecystectomy for symptomatic Gall Bladder disease was done during this period. There were 84 male and 418 female, with a male to female ratio of 1:4.9. Age range for Gall Bladder disease was 20 years to 78 years with the peak age group of 41 to 50 years (Table 1). Out of 502 patients 13 were diagnosed as carcinoma Gall Bladder. Of these 13 cases of carcinoma only three were male rest of the ten were female with male to female ratio of 1:3.3. Age range for carcinoma cases were from 24 to 68 years. Most common age group was

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7<sup>th</sup> followed by 6<sup>th</sup> decade (Table 2). Of the total 13 cases, six cases were prediagnosed as carcinoma Gall Bladder and 7 cases were incidental Gall Bladder carcinoma. Of these 13 carcinoma cases 11 were associated with gall stone, two presented as cholecystitis. Grossly there was variable amount of thickened wall, ulcerated mucosa, small polypoidal elevation, nodular formation in different Gall Bladder specimens. Microscopically all were diagnosed as adenocarcinoma, two of them showed papillary pattern. Two cases showed metastasis, one in bone other in lymph nodes at the time of diagnosis. They died within 6 months of follow up. All the incidental carcinoma were intramucosal carcinoma. One patient of incidental carcinoma and two from pre diagnosed as carcinoma Gall Bladder died of metastatic disease within 33 months of diagnosis. Rest of the carcinoma patients is doing well after the mean follow up duration of two years.

**DISCUSSION**

The incidence of carcinoma Gall Bladder shows widely variable geographic pattern. As compared to western countries incidences of carcinoma Gall Bladder is high in Asia continent with increased incidence in northern India<sup>9</sup> especially in gangetic region of northern India, Pakistani females<sup>10</sup>, and Korean males. Gall Bladder disease is one of the commonest disease for which abdominal major surgery is done and is leading digestive cancer in women in the cities like, Delhi and Bhopal.<sup>11</sup> Some studies have reported incidence rates ranging from 0.27% to 3.2%.<sup>12,13</sup> In our study it was 2.4%. One of the study from Eastern India shows incidence rate of 4.29%.<sup>14</sup> Some studies have shown higher incidences up to 6.9% and 7.9%<sup>15-17</sup> of carcinoma Gall Bladder. Most of the carcinoma of Gall Bladder is diagnosed at late stages due to their vague symptoms. Such patients come in advanced stages, and show poor prognosis with a five year survival rate of less than 5%. When detected at early stages, they show survival rates of 90% to 100%.<sup>18,19</sup> Many times preoperative diagnosis of carcinoma is not made and are discovered incidentally on cholecystectomy specimen such patients are usually at an early stage and show best prognosis.<sup>20</sup> The reported incidence of incidental carcinoma varies from 0.35% to 2%.<sup>21,22</sup> In our study we found 7 incidental carcinomas out of total 13 cases which is 1.4%. This is high as compared to sample size of 502 cholecystectomies. Whereas Deguara et al had reported 1% incidental carcinoma in their study of 2577 cholecystectomies.<sup>23</sup> Which underscores a high risk of Gall Bladder carcinoma in our population. Associated cholelithiasis was found in 75% to 98% of incidental Gall Bladder carcinoma.<sup>15,24</sup> In our study out of 07 incidental Gall Bladder carcinoma, six (85%) were associated with cholelithiasis. Among all 13 cases of carcinoma Gall Bladder 11 (85%) were associated with cholelithiasis. Our study has shown that most of the incidental carcinomas occur in the 6<sup>th</sup> decades of life with more common in females, which is similar to other studies.<sup>6,8,17</sup> All the carcinoma cases were confirmed histologically as adenocarcinoma. Adenocarcinoma has been reported as most common type of carcinoma associated with gall stones.<sup>25</sup> This is contrary to common belief that gall stone associated carcinomas are mostly squamous cell carcinoma. Atypical epithelium showing dysplasia and metaplasia is frequently found in Gall Bladder adenocarcinoma. However, we did not note such findings in our study. All the incidental

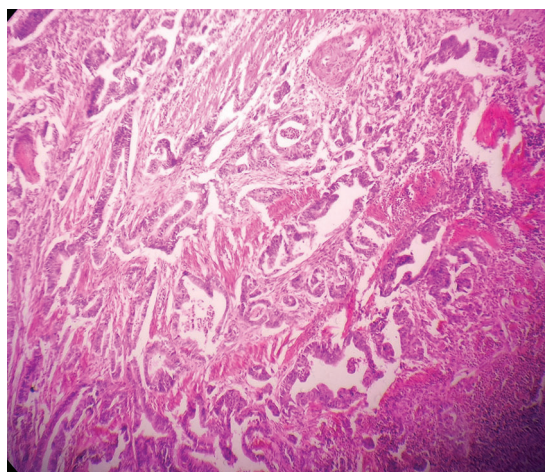
Age group	CC	Ac	AOC	XGC	Total	Neoplastic
21-30	48	05	38	01	92	01
31-40	78	04	51	03	136	01
41-50	101	05	50	05	161	02
51-60	45	02	40	04	91	04
>61	03	00	04	02	09	05
Total	275	16	183	15	489	13

CC-Chronic cholecystitis, Ac-acute cholecystitis, AOC-acute on chronic cholecystitis, XGC-Xantho-ganulomatous cholecystitis

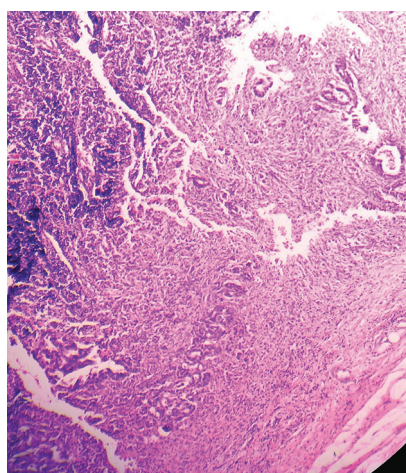
**Table-1:** Showing patterns of gallbladder disease in relation to age group

Age group	Male	Female	Total	Percentage
21-30	01	00	01	7.69
30-40	00	01	01	7.69
41-50	01	01	02	15.4
51-60	00	04	04	30.76
61-70	01	04	05	38.46
Total	03	10	13	100

**Table-2:** Showing age and sex distribution of neoplastic Gall Bladder disease



**Figure-1:** Gallbladder carcinoma with marked nuclear pleomorphism, H and E. (40X).



**Figure-2:** Malignant cell infiltration in lymph node (40X).

carcinoma patients were asymptomatic preoperatively. Routine ultrasound was done in all cases. However it failed to detect

underlying carcinoma Gall Bladder in incidental carcinomas. This may be because chronic cholecystitis and carcinoma Gall Bladder both presents with Gall Bladder thickening. Routine histopathology of all Gall Bladder seems to be only reliable, cost effective and readily available option in our setup for early diagnosis and management of the disease so as to come with better survival rate.

## CONCLUSION

The rate of incidental carcinoma of Gall Bladder in our study was 1.4%. This is very high. We recommend routine histopathological examination for all cases of cholecystectomy specimens as it helps in detecting majority of carcinomas of Gall Bladder in early stages. The primary carcinoma of Gall Bladder becomes symptomatic in their late stages. This results in poor survival rates. The incidental carcinomas of Gall Bladder are mostly detected at an earlier stages and thus have better prognosis.

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