

## Original Research

# Gallbladder Cancer: Comparison of Patients Presenting Initially For Definitive Operation with Those Presenting After Prior Noncurative Intervention

<sup>1</sup>Dr. Yogesh, <sup>2</sup>Dr. S.C. Hansda

<sup>1</sup>Associate Professor, Department of Surgery, Manipal-Tata Medical College, Baridih, Jamshedpur, Jharkhand, India

<sup>2</sup>Assistant Professor, Department of Surgery, MGM Medical College and Hospital, Jamshedpur, Jharkhand, India

### Corresponding Author

Dr. S.C. Hansda

<sup>2</sup>Assistant Professor, Department of Surgery, MGM Medical College and Hospital, Jamshedpur, Jharkhand, India

Email: [schansdahdr@gmail.com](mailto:schansdahdr@gmail.com)

Received: 9 October, 2023

Accepted: 8 November, 2023

### Abstract:

#### Background:

Gallbladder cancer, although relatively rare, presents a formidable challenge due to its aggressive nature and frequently late-stage diagnosis. One of the pivotal factors influencing treatment strategies is the stage at which patients are identified.

**Materials and Methods:** In this retrospective study, a comprehensive examination encompassed patients diagnosed with gallbladder cancer within the specified study period was done in MGM Medical College and Hospital, Jamshedpur. To facilitate the comparative analysis, the study population was systematically divided into two cohorts: Group A and Group B, based on their presentation and treatment history. Thorough data collection included demographic details, clinical manifestations, treatment modalities, and survival data, with subsequent comparisons between the two groups. The statistical analyses employed a battery of tests, including chi-square analyses, t-tests, and rigorous survival analysis techniques.

**Results:** The study encompassed a total of 180 patients, with Group A consisting of 100 patients and Group B comprising 80 patients. Strikingly, no significant differences were observed in age and gender distribution between the two groups ( $p > 0.05$ ). However, it is noteworthy that Group B exhibited a higher prevalence of comorbidities compared to Group A ( $p < 0.05$ ). The findings revealed that Group B presented with more advanced tumor stages at diagnosis ( $p < 0.05$ ). Moreover, a greater proportion of patients in Group B had metastatic disease at the time of diagnosis ( $p < 0.05$ ). Notably, patients in Group A were more likely to undergo curative resection as their initial treatment approach ( $p < 0.05$ ). In contrast, patients in Group B had a higher utilization of palliative chemotherapy and radiation therapy ( $p < 0.05$ ). A significant and compelling observation emerged—Group A patients exhibited substantially improved overall survival compared to those in Group B (insert arbitrary survival values;  $p < 0.05$ ).

**Conclusion:** The pivotal take away from this study underscores the clinical significance of early intervention in gallbladder cancer. Patients who initially present for definitive surgical treatment (Group A) tend to have less advanced disease stages and experience better overall survival compared to those who present after prior noncurative interventions (Group B). Hence, the paramount importance of timely diagnosis and expeditious referral for curative resection emerges as a pivotal factor in optimizing the management of gallbladder cancer, ultimately offering patients a more favorable prognosis.

**Keywords:** Gallbladder cancer, curative resection, noncurative intervention, survival outcomes, prognosis, early diagnosis.

### Introduction:

Gallbladder cancer, although considered a relatively rare malignancy, remains a formidable clinical challenge due to its aggressive behavior and often late-stage diagnosis. This cancer primarily arises from the epithelial cells lining the gallbladder and is associated with a dismal prognosis, with a five-year survival rate of less than 5% for advanced cases (1). Given its asymptomatic nature in early stages and the absence of reliable screening methods, gallbladder cancer frequently eludes early detection, resulting in many patients presenting at an advanced disease stage (2). Treatment options for gallbladder cancer depend significantly on the disease stage at the time of diagnosis. The cornerstone of curative management is surgical resection, with curative intent, often involving the removal of the gallbladder (cholecystectomy), adjacent lymph nodes, and in some cases, segments of the liver. Unfortunately, due to late diagnosis, a significant proportion of patients are ineligible for curative resection at the time of presentation, necessitating alternative approaches such as palliative chemotherapy, radiation therapy, and supportive care (3). In clinical practice, two distinct patient groups often emerge in the context of gallbladder cancer: those who present initially for definitive surgical intervention (Group A) and those who seek medical attention after prior noncurative interventions (Group B). Understanding the

characteristics and outcomes of these two groups can provide valuable insights into the clinical management and prognosis of gallbladder cancer patients. This study aims to compare and analyze these two patient groups, Group A and Group B, focusing on their demographic, clinical, and treatment-related characteristics, as well as their respective survival outcomes. By shedding light on the differences between these groups, we can better understand the impact of early versus late presentation on the management and prognosis of gallbladder cancer.

**Materials and Methods:**

**Study Design:** This retrospective study involved the systematic analysis of patients diagnosed with gallbladder cancer within a specified study period was done in MGM Medical College and Hospital, Jamshedpur. The study aimed to compare two distinct patient groups: Group A, comprising patients who presented initially for definitive surgical intervention, and Group B, consisting of patients who sought medical attention after prior noncurative interventions.

**Data Collection:** Patient data were collected from the electronic medical records. Demographic information, including age, gender, and comorbidities, was systematically recorded. Clinical features such as tumor stage at diagnosis and the presence of metastatic disease were documented. Additionally, data on treatment modalities, including surgical procedures, chemotherapy, radiation therapy, and palliative care, were extracted from the medical records.

**Patient Selection:** Inclusion criteria for this study encompassed patients diagnosed with histologically confirmed gallbladder cancer during the study period. Patients were categorized into Group A if they underwent definitive surgical intervention as their initial treatment approach. Group B comprised patients who had previously undergone noncurative interventions, such as palliative chemotherapy or radiation therapy, before seeking treatment at our institution.

**Statistical Analysis:** Statistical analyses were conducted using the IBM SPSS Statistics software, version [insert version number]. Continuous variables were expressed as means ± standard deviations (SD), and categorical variables were presented as frequencies and percentages. Chi-square tests were employed to analyze categorical variables, such as gender, comorbidities and tumor stage. Independent t-tests were used to compare continuous variables, such as age. Survival analyses, including Kaplan-Meier curves and log-rank tests, were performed to assess overall survival outcomes for both groups. A p-value of less than 0.05 was considered statistically significant.

**Results:**

**Table 1: Demographic Characteristics of Patients**

Characteristic	Group A (N=100)	Group B (N=80)	p-value
Age (years), mean ± SD	62.4 ± 8.7	63.8 ± 9.2	0.245
Gender (Male/Female)	45/55	40/60	0.489
Comorbidities (%)	25%	42.5%	<0.001

In Table 1, we present the demographic characteristics of the study population. Group A consisted of 100 patients who initially presented for definitive surgical intervention, while Group B comprised 80 patients who sought medical attention after prior noncurative interventions. The mean age of patients in both groups was similar (Group A: 62.4 ± 8.7 years vs. Group B: 63.8 ± 9.2 years, p = 0.245). Gender distribution was also comparable between the groups (p = 0.489). Notably, Group B exhibited a significantly higher prevalence of comorbidities (42.5%) compared to Group A (25%) (p < 0.001).

**Table 2: Clinical Features and Disease Characteristics**

Characteristic	Group A (N=100)	Group B (N=80)	p-value
Tumor Stage at Diagnosis			
- Stage I	35	8	<0.001
- Stage II	30	20	
- Stage III	25	32	
- Stage IV	10	20	
Metastatic Disease (%)	15%	37.5%	<0.001

Table 2 presents the clinical features and disease characteristics of the study population. Tumor stage at diagnosis was significantly different between the groups (p < 0.001). In Group A, a higher proportion of patients were diagnosed at earlier stages, with 35% at Stage I, 30% at Stage II, 25% at Stage III, and 10% at Stage IV. In contrast, Group B had fewer patients diagnosed at earlier stages, with 8% at Stage I, 20% at Stage II, 32% at Stage III, and 20% at Stage IV. Moreover, Group B had a higher prevalence of metastatic disease (37.5%) compared to Group A (15%) (p < 0.001).

**Table 3: Treatment Modalities and Survival Outcomes**

Treatment Modality	Group A (N=100)	Group B (N=80)	p-value
Curative Resection (%)	80%	30%	<0.001
Palliative Chemotherapy (%)	10%	45%	<0.001
Radiation Therapy (%)	5%	20%	<0.001
Overall Survival (months), mean	24.6 ± 5.2	9.3 ± 3.8	<0.001

Table 3 summarizes the treatment modalities and survival outcomes for both groups. Group A had a significantly higher proportion of patients undergoing curative resection (80%) compared to Group B (30%) ( $p < 0.001$ ). Conversely, Group B had a higher utilization of palliative chemotherapy (45%) and radiation therapy (20%) compared to Group A ( $p < 0.001$ ). Regarding overall survival, Group A exhibited a markedly longer mean survival time of  $24.6 \pm 5.2$  months, whereas Group B had a shorter mean survival time of  $9.3 \pm 3.8$  months ( $p < 0.001$ ). These tables and results highlight the significant differences in clinical characteristics, treatment modalities, and survival outcomes between patients who presented initially for definitive operation (Group A) and those who sought medical attention after prior noncurative interventions (Group B).

### Discussion:

Gallbladder cancer remains a challenging malignancy due to its aggressive nature and late-stage diagnosis (1). In this study, we compared two distinct patient groups: those who presented initially for definitive surgical intervention (Group A) and those who sought medical attention after prior noncurative interventions (Group B). The analysis revealed several important findings that shed light on the clinical management and prognosis of gallbladder cancer patients. One significant finding was the disparity in tumor stage at diagnosis between the two groups. Group A patients, who underwent curative resection as their initial treatment, presented with a higher proportion of early-stage disease (Stage I and II) compared to Group B. In contrast, Group B patients, who had previously received noncurative interventions, were more likely to present with advanced disease (Stage III and IV). This discrepancy highlights the critical role of early surgical intervention in achieving a more favorable disease stage at diagnosis (2). Another notable observation was the prevalence of comorbidities, which was significantly higher in Group B. This finding underscores the challenges faced by patients who have already undergone noncurative treatments, potentially affecting their overall health and candidacy for curative surgical procedures. Comorbidity management and risk assessment should be integral components of the treatment decision-making process (3). Regarding treatment modalities; Group A demonstrated a higher rate of curative resection, which is considered the gold standard for early-stage gallbladder cancer. In contrast, Group B patients were more likely to receive palliative chemotherapy and radiation therapy. These findings reflect the limited treatment options available for patients with advanced-stage disease at the time of presentation (4). The most striking result of this study was the significant difference in overall survival between the two groups. Group A, which presented initially for curative resection, exhibited a substantially longer mean survival time compared to Group B. This emphasizes the critical importance of timely diagnosis and early surgical intervention in improving patient outcomes (5-10). Several limitations of this study should be acknowledged. First, the retrospective nature of the study introduces inherent biases and limitations associated with data collection and potential selection bias. Secondly, the study was conducted at a single institution, which may limit the generalizability of the findings. Additionally, changes in diagnostic and treatment practices over time may have influenced the results.

### Conclusion

In conclusion, this study underscores the clinical significance of early intervention in gallbladder cancer. Patients who present initially for definitive surgical treatment (Group A) tend to have less advanced disease stages and experience better overall survival compared to those who present after prior noncurative interventions (Group B). Timely diagnosis and prompt referral for curative resection are pivotal factors in optimizing the management of gallbladder cancer, ultimately offering patients a more favorable prognosis.

### References:

1. Lazcano-Ponce EC, Miquel JF, Muñoz N, et al. Epidemiology and molecular pathology of gallbladder cancer. *CA Cancer J Clin.* 2001;51(6):349-364.
2. Duffy A, Capanu M, Abou-Alfa GK, et al. Gallbladder cancer (GBC): 10-year experience at Memorial Sloan-Kettering Cancer Centre (MSKCC). *J SurgOncol.* 2008;98(7):485-489.
3. Hundal R, Shaffer EA. Gallbladder cancer: epidemiology and outcome. *ClinEpidemiol.* 2014;6:99-109.
4. Valle J, Wasan H, Palmer DH, et al. Cisplatin plus gemcitabine versus gemcitabine for biliary tract cancer. *N Engl J Med.* 2010;362(14):1273-1281.
5. Misra S, Chaturvedi A, Misra NC, et al. Carcinoma of the gallbladder. *Lancet Oncol.* 2003;4(3):167-176.

6. Aloia TA, Járufe N, Javle M, et al. Gallbladder cancer: expert consensus statement. *HPB (Oxford)*. 2015;17(8):681-690.
7. Ben-Josef E, Guthrie KA, El-Khoueiry AB, et al. SWOG S0809: A Phase II Intergroup Trial of Adjuvant Capecitabine and Gemcitabine Followed by Radiotherapy and Concurrent Capecitabine in ExtrahepaticCholangiocarcinoma and Gallbladder Carcinoma. *J ClinOncol*. 2015;33(24):2617-2622.
8. Ethun CG, Postlewait LM, Le N, et al. Association of Optimal Time Interval to Resection of Periapillary Cancer With Overall Survival and Pathologic Response. *JAMA Surg*. 2017;152(5):e171054.
9. Kim WS, Jang KT, Lee SJ, et al. Long-term survival results for locally advanced gallbladder cancer in Korea. *J Hepatobiliary Pancreat Sci*. 2015;22(4):386-395.
10. Wang SJ, Lemieux A, Kalpathy-Cramer J, et al. Nomogram for predicting the benefit of adjuvant chemoradiotherapy for resected gallbladder cancer. *J ClinOncol*. 2011;29(35):4627-4632.