Demographic and Clinico-Pathological Profile of Gall Bladder Carcinoma Patients in a Tertiary Care Hospital in Odisha

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Abstract

Background: Gall Bladder cancer ranks as sixth most common digestive tract cancer with very poor survival rate. The data from India shows a very wide variation in incidence. The purpose of this study is to determine the Demographic and Clinico-pathological Profile of Gall Bladder carcinoma patients in a tertiary care hospital in Odisha.

Methods: We retrospectively analyzed 103 patients of gall bladder carcinoma from our Hospital database between 2016 and 2019. The demographic and epidemiological characteristics were analyzed. Socioeconomic status was determined by the modified Kuppuswamy's socioeconomic scale. The clinical features were analyzed as documented by history, physical examination, and imaging features.

Results: Out of 103 patients, 44 (42.7%) were males and 59 (57.3%) were females. The largest numbers of patients were seen in the age group more than 40 years of age. 46.4% of patients were in low socioeconomic status. Pain abdomen was the most common symptom in 58(56.3%) patients. There was no statistically significant association of cancer with gall stone disease. In Odisha, more gall bladder cancer was seen in females. Due to lack of awareness & poor socioeconomic status maximum patients present in advanced stage with common symptom as pain abdomen.

Conclusion: Most of the patients in this study belong to lower socioeconomic classes. Females were more commonly affected from gall bladder cancer and presented at an advanced stage. In our study 37.9% Gall bladder cancer were associated with gall stone disease, though it was not statistically significant.

Keywords: Clinico-Pathological Factors; Demographic Profile; Demographic Profiles; Gallbladder Carcinoma; Risk Factors

Abbreviations: GBC: Gall Bladder Cancer; CT: Computed Tomography

Introduction

Gall bladder cancer (GBC) is the most aggressive disease due to its high mortality; the only treatment is surgical intervention. Absence of serosa leads to rapid spreading of the disease which results in the diagnosis of cancer at an advanced stage. Thus, the 5-year survival is less than 5% [1]. Gall bladder cancer is the common biliary tract cancer resulting in 80–95% of the cases and 6th in overall gastrointestinal cancer [2,3]. The worldwide incidence of gall bladder cancer is less than 2 per 100,000 individuals which shows variation in the number based on geographical

distributions [3]. Based on different geographic areas and ethnicities incidence rates vary widely in North and South American, Indians mainly in Chilean Mapuche Indians [4]. Worldwide gallbladder cancer has its significant, unique, and remarkable gender, geographic and ethnic variation in its incidence [5]. In Chilean women it is the most leading cause of cancer death and it is the most aggressive cancer with very poor survival rate.

Gallbladder cancer has very low incidence from the west however, the data from India has variation in the incidence when it's compared between Northern and Southern parts of India [6]. It is one of the five most common gastrointestinal cancers in north-east part of India 6. The disease is very advanced and rarely detected at an early stage with a very poor clinical outcome. This variability is likely due to the combination of environmental and genetic factors. Northern India shows the highest incidence of gall bladder cancer [7]. The highest incidence rates of gallbladder cancer are found to be 21.5 per 100000 in females in Delhi, 13.8 per 100000 in Karachi and 12.9 per 100 000 in Quito [7]. Gall bladder cancer is one of the most extensive diseases in north and north-eastern states of Uttar Pradesh, Bihar, Odisha, West Bengal and Assam [8]. Higher incidence ratio is seen in women than men [9]. A prolonged clinical history of gallstones has become the single most important risk factor associated with the development of GBC independent of age or sex [10]. Thus, the aim of the present study was to undertake an institutional survey to estimate the prevalence and stage of Gall bladder cancer and association with gall stones visiting to the tertiary care hospital in Odisha.

Materials and Methods

The demographic data and clinical profile of 103 patients diagnosed as Gallbladder cancer was studied from January 2016 to December 2019. The demographic features included age, sex, and socioeconomic status. Clinical profile included performance status, systematic examination, chief complaint, stage and extent of disease, clinical stage, and pathological features. The demographic characteristics and nonclinical characteristics were collected by interview. Socioeconomic status was determined by the modified Kuppuswamy's socioeconomic scale. Documentation of all the clinical features was done by history, physical examination, and imaging features. Ultrasound and computed tomography (CT) scan report were taken for Gallbladder cancer and stone. Statistical analysis was done to see the association between the variables by using SPSS version 20.0.

Results

Data was collected from a hospital database of diagnosed gallbladder cancers on histopathology reports. There were 103 cases of gall bladder cancer from January 2016 to December 2019. 44(42.7%) were males and 59(57.3%) were females. The largest number of patients in the study 93(90.3%) were seen in the age group more than 40 years of age. The mean age of the patients of gall bladder cancer was 58.8 years. All the patients belonged to eastern part of India, with the majority of patients from Khurda 36 (35.0%) followed by Puri 15 (14.6%) and Nayagarh 8(7.8%).The occupation of the patients was recorded and most of them were Homemakers 48(46.6%) among females and Farmers 35(34.4%) among male. 93(90.3%) were uneducated.48 (46.4) patients belonged to no income group. 35(34.0%) patients belonged to lower socioeconomic class, 11(10.7%) were middle class and 9(8.7%) were higher class. Of all the 103 patients, there was no significant past or family history. 20(19.4%) patients had co-morbidities i.e. Diabetes mellitus in 11(10.7%) patients, hyper tension in 9(8.7%) patients, heart disease in 4 (3.9%) patients and Tuberculosis in 2 (1.9%) patients (Table 1).

Demographic Characteristics	N (%)
Study Population	103
Median Age	58.8yrs
Range	51-60yrs
Age distribution(years)	
<40	10(9.7)
41-50	12(11.7)
51-60	38(36.9)
>60	43(41.7)
Districts	
Cuttack	5 (4.9)
Jagatsinghpur	1(1.0)

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Kendrapara	5 (4.9)
Jajpur	5 (4.9)
Puri	15 (14.6)
Khurda	36 (35.0)
Nayagarh	8 (7.8)
Balasore	2 (1.9)
Bhadrak	1 (1.0)
Mayurbhanj	2 (1.9)
Bargarh	4 (3.9)
Jharsuguda	3 (2.9)
Deogarh	1 (1.0)
Dhenkanal	1 (1.0)
Angul	1 (1.0)
Keonjhar	4 (3.9)
Sundargarh	5 (4.9)
Ganjam	2 (1.9)
Outside Odisha	2 (1.9)
Gender	
Male	44(42.7)
Female	59(57.3)
Occupation	
Farmer	35(34.4)
Business	11(10.7)
Job	9(8.7)
Homemakers	48(46.6)
Education	
Educated	10(9.7)
Uneducated	93(90.3)
SES	
Lower class	48(46.4)
Upper lower	35(34.0)
Middle class	11(10.7)
Higher class	9(8.7)
Co-morbidity	
DM	11(10.7)
HTN	9(8.7)
CardiacIllness	4(3.9)
TB	2(1.9)

Table 1: Showing the demographic data.

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Table 2 illustrates the clinic pathological profile of patients. 96(93.20%) patients in this study group had advanced disease (Stage III or IV) at presentation. 94(91.3%) Patients were restricted in physically strenuous activity but ambulatory and able to carry out their work. The pain abdomen was the most common symptom in 58(56.3%) patients. Jaundice was present in 37(35.9%) patients and 8(7.8%) patients were asymptomatic. 6 (5.8%) patients presented with palpable gall bladder, 4(3.9%) patients with ascites and 21(20.4%) patients having icterus. CA 19.9 was more than 200U/ml in 84(81.6%) patients. In Ultrasound Abdomen 29(28.2%) patients were having suspicious Lymphadenopathy out of which 6(5.8%) cases were operated because of regional lymph nodes at periportal region and associated stones were found in 20(19.4%) patients.

In CECT Abdomen, 19(18.4%) patients were found to have gall stones associated with advance disease. Out of them 5 cases were resectable, 14 were unresectable and 6(5.8%) patients were found metastatic. Poorly differentiated adenocarcinoma was the predominant histology in 101(98.0%) patients followed by adenosquamous carcinoma in 2(2.0%) patients. In 103 patients only 9 (8.7%) patients were found operable and 94(91.2%) were inoperable. Out of 94 inoperable cases, 31(30.1%) patients were received palliative chemotherapy, 64(62.1%) patients were given best supportive care. Out of the 9(8.7%) operated cases 1(1.0%) patient was having stage I, 6(5.8%) patients with stage II and2(1.9%) patient with stage III disease Table 3.

Performance Status	N (%)
Restricted in physically strenuous activity but ambulatory & able to carry out work of a sedentary nature.(ECOG-1)	94(91.3)
Ambulatory & capable of self-care, but unable to carry out any work activities, up and about more than 50% of working hours.(ECOG-2)	6(5.8)
Capable of only limited self-care, confined to bed or chair requires assistance more than 50% of working hours.(ECOG-3)	3(2.9)
Chief Complaint	
Pain abdomen	58(56.3)
Jaundice	37(35.9)
Asymptomatic	8(7.8)
Syestemic Examination	
Icterus++	21(20.4)
Palpable GB	6(5.8)
Ascites	4(3.9)
CA 19.9(U/ml)	
≤40	12(11.7)
40-100	6(5.8)
100-200	1(1.0)
>200	84(81.6)
Clinical Stage	
STAGE I	0
STAGE II	7(6.8)
STAGE III	17(16.5)
STAGE IV	79(76.6)
USG-Findings	
Periportal lymph nodes	6(5.8)
Paraortic-aortic node	23(22.3)
No lymph nodes	74(71.8)

Ct Scan Findings	
No CT Report Available	40(38.8)
Stone Associated	19(18.4)
Metastatic	6(5.8)
Gall bladder mass	38(36.9)
Fnac/Final Histopathology	
Adenocarcinoma	101(98.0)
Adenosquamous	2(2.0)
Pathological Stage	
Stage I	1(1.0)
Stage II	6(5.8)
Stage III	2(1.9)
Treatment	
Surgery with adjuvant chemotherapy	9(8.7)
palliative chemotherapy	31(30.1)
Best supportive care	63(61.2)
3yrs Follow Up	
Regular	5(4.9)
Death/Lost to Follow up	98(95.1)

Table 2: Clinicopathological profile of patients.

		Staging N (%)			Chi-square value	p-value
		II&III	IV	Total		(p-value<0.05 significant)
	20-30yrs	2(7.4)	1(1.3)	3(2.9)		
Age	31-60yrs	15(55.6)	42(55.3)	57(55.3)	2.733	
	61-90yrs	10(37.0)	33(43.4)	43(41.7)		0.255
	Male	11(40.7)	33(43.4)	44(42.7)		
Gender	Female	16(59.3)	43(56.6)	59(57.3)	0.058	0.809
	Lower class	18(66.7)	65(85.5)	83(80.6)		
SES	Higher class	9(33.3)	11(14.5)	20(19.4)	4.529	0.033
Stone	YES	13(48.1)	26(34.2)	39(37.9)		
	NO	14(51.9)	50(65.8)	64(62.1)	1.645	0.2
Adj treatment	YES	5(18.5)	6(7.9)	11(10.7)		
	NO	22(81.5)	70(92.1)	92(89.3)	2.357	0.125

Table 3: Association between variables.

Chi-square test was used to find an association between sets of two variables, i.e., age, gender, SES, stone and adj treatment. All the above-said association was found to be statistically non-significant (p-value > 0.05), except for SES. It was seen that patient with lower classes reported at higher clinical stage of gall bladder carcinoma (p-value = 0.03).

Discussion

In this present study the demographic and clinicopathological profile of 103 patients of gallbladder carcinoma were studied in a Tertiary care hospital. All the patients were from the eastern part of India, majority

belongs to Khurda and Puri districts in Odisha. GBC incidence increases with age and the mean age at diagnosis is 64-69.4 years [10]. In our study the mean age of diagnosis was found to be 58.8 years. Worldwide the incidence of GBC is more in females as compared to males, mainly found in the northern part of India, Pakistan, and in American-Indians [11,12]. In this present study, 57.3% of the patients were females supporting the literature. In northern part of India, GBC is the most common gastrointestinal malignancy in women and the common cause of malignant surgical obstructive jaundice [13].

In our study, 46.4% (48) of patients were belonged to lower class or lower socioeconomic class. Diabetes is a risk factor for gall stone disease but in the absence of diabetes mellitus the risk of developing Gallbladder cancer can exist [14]. In our study, 10.7% (11) of the patients are having diabetes mellitus out of which only 3(2.9%) patients were associated with gall bladder stone. 92(89.3%) patients were non-diabetic in which 37(35.9%) patients had stones. More the depth of infiltration higher is the chances of metastatic rates. Progression of T-stage rom T2 to T4 tumors increases the rate of distant metastasis from 16% to 79% and nodal metastasis from 33% to 69% [15]. Majority of patients with gall bladder cancer present with advanced disease and they have a universally poor prognosis. In patients belonging to lower economic class with inability to differentiate symptoms of early GBC and those of gallstone disease are the major problems causing diagnosis at an advance stage [16]. In our study, 6.8% of the patient had an early stage disease (Stage II), and 93.2% patients had locally advanced or metastatic disease. A study by Batra, et al. [17] has reported lower incidence of early-stage disease (approximately 5%) in comparison to the present study, and the rest 95% patients had either locally advanced or metastatic disease. Increasingly early stage GBC is diagnosed incidentally because of the coexistence of symptomatic cholelithiasis. Studies have reported that almost 19% to 33% of the patients who underwent cholecystectomies for benign diseases were incidentally detected to have early stage GBC [18].

Conclusion

An epidemiological profile of the population of Eastern part of India for the patients diagnosed of Gallbladder cancer has been sketched here. The median age of presentation was 40 years with female predominance (57.3%). Majority of the diagnosed cases belong to no income group and low income group. Majority of them reported at the advanced stage depicts the negligence of the health care among the population. In our study 37.9% were associated with gall bladder stone, though not statistically significant. The limited number of studies and their contradictory results give rise to a need of more studies in this direction. Majority of the

patients had advanced disease and metastasis which needs early detection and improvement of survival. The limitation of our study is that it is a hospital based study which might not reflect the whole community. Further population based studies are required to better characterize the epidemiological & clinicopathological characteristics of Gall bladder cancer and association with gallstone disease. Can early cholecystectomy or asymptomatic gall stone disease with suspicious clinical characteristics prevent incidence of GBC? It is a big question & need to be further studied. Genetic analysis is required to detect specific gene amplification in gall bladder cancer which may lead to targeted therapy in near future.

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