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Incidence of Incidental Gall Bladder Cancer and Role of Routine Histopathological Examination in Cholecystectomies Specimens for Benign Disease

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ABSTRACT

Background: Gallbladder cancer is the most common biliary tract cancer. Incidence rate of gall bladder cancer varies worldwide. Most of the patient with gall bladder cancer remained asymptomatic until late. Preoperative early diagnosis of carcinoma of gallbladder is rare, occurring in fewer than 20% of patients. Role of routine histopathology for cholecystectomy specimen is debatable. Aim of this study is to find the incidence of incidental gall bladder cancer and determine whether routine histopathology of cholecystectomy specimen is required or not.

Methods: This is a retrospective descriptive study carried out in Universal College of Medical Sciences, Bhairahawa, Nepal. Histopathology reports of all patients who had undergone cholecystectomies from June 2014 to September 2018 were reviewed. Patients' information regarding inpatient number, age, sex, year of diagnosis, preoperative diagnosis, intraoperative findings, histopathology report and pathological staging were recorded. Data were entered and analyzed using Microsoft Excel version 14.

Results: Total of 418 routine cholecystectomies were performed during this period. Seven cases of incidental gall bladder cancer were diagnosed. None of the patients had preoperative suspicion for malignancy. One patient had intraoperative suspicion of lesion.

Conclusions: Incidence of incidental gallbladder cancer is 1.67%. It is recommended that routine histopathology of cholecystectomy specimen should be sent for early diagnosis and improve survival of patient with gall bladder cancer.

Keywords: Cholecystectomy; gall bladder cancer; incidence, routine histopathology

INTRODUCTION

Gallbladder cancer (GBC) is the most common biliary tract cancer.¹ Incidence rate of gall bladder cancer varies worldwide. Chile has the highest rate (13/100,000 inhabitants) of gallbladder cancer in the world.^{2,3} In Nepal incidence rate (per 100 000) of GBC in male is 0.6 and 1.1 for female.⁴ It is sixth common cancer in Nepal.^{4,5}

Most of the patient with gall bladder cancer remained asymptomatic until late.⁶ Preoperative early diagnosis of carcinoma of gallbladder is the exception rather than the rule, occurring in fewer than 20% of patients.⁷

Role of routine histopathology for cholecystectomy specimen is debatable. Some surgeons prefer routine histopathology examination of all cholecystectomy

specimens.^{7,8-10} Whereas other debate that it is waste of patient's money and human resource.^{11, 12}

Aim of this study is to find the incidence of incidental gall bladder cancer and determine whether routine histopathology of cholecystectomy specimen is required or not.

METHODS

This is a retrospective descriptive study carried out in Universal College of Medical Sciences, Bhairahawa, Nepal. Ethical approval was taken from Institutional Review Board at Universal College of Medical Sciences, Bhairahawa.

Histopathology reports of all the patients who had undergone cholecystectomies from June 2014 to

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September 2018 were reviewed from database of department of pathology in same hospital. All those patients diagnosed as gall bladder cancer were noted. Informations regarding the histopathological diagnosis and inpatient number were obtained. Those patients who had preoperative diagnosis of gall bladder cancer were excluded from the study.

Files of those patients diagnosed as incidental gall bladder cancer were retrieved from the record section of the hospital. Patients' information regarding inpatient number, age, sex, year of diagnosis, preoperative diagnosis, intraoperative findings, histopathology report and pathological staging were recorded. AJCC cancer staging system based on TNM (tumour, node, metastasis) classification was used for the staging of the gallbladder cancer.¹³ Data were entered and analyzed using Microsoft Excel version 14.

RESULTS

Total of 418 routine cholecystectomies were performed during this period. Seven cases of incidental gall bladder cancer were diagnosed. Mean age of diagnosis was 49.14 years. There were 6 Females and 1 male patient. Six patients were diagnosed as Adenocarcinoma and one patient was diagnosed Adenosquamous carcinoma (Table 1).

None of the patients had preoperative suspicion for malignancy. One patient had intraoperative suspicion of lesion. Two patients had lymphovascular invasion of the tumor. Five patients had Perineural invasion of the tumor. Pathological staging (pT) of most of the tumors were at pT1 (3 pT1a, 2 pT1b). There were two cases of pT2 (Table 1).

Table 1. Preoperative, Intraoperative and Histopathology findings.

SN	Year	Age	Sex	Preoperative Diagnosis	Intraoperative Suspicion	HPE	LVI	PNI	pT
1	2014	30	F	Symptomatic cholelithiasis	No	WDA	No	No	T1a
2	2015	60	F	Symptomatic cholelithiasis	No	WDA	No	Yes	T1b
3	2016	42	F	Symptomatic cholelithiasis	No	WDA	No	Yes	T1a
4	2017	40	F	Acute calculus cholecystitis	no	WDA	Yes	Yes	T2
5	2017	60	F	Symptomatic cholelithiasis	No	MDA	No	Yes	T1b
6	2018	62	M	Acute acalculus Cholecystitis	Yes	AS	No	No	T2
7	2018	50	F	Symptomatic cholelithiasis	No	WDA	No	No	T1a

SN: Serial number, M: Male, F: Female, HPE: Histopathology evaluation, WDA: Well differentiated adenocarcinoma, MDA: Moderately differentiated adenocarcinoma, AS: Adenosquamous carcinoma, LVI: Lymphovascular invasion, PNI: Perineural invasion

Table 2. Comparison of incidence of IGBC and recommendation for histopathology in various studies.

Studies	Year	Country	Sample size	Male: Female	Mean age	Recommendation for sending histopathology	Incidence of IGBC
Siddiqui et al ⁸	2010-2012	Pakistan	220	1:7	-	All specimens	2.8%
Jha et al ⁷	2014-2016	India	4800	1:4	40.2	All specimens	0.4%
Lundgren et al ⁹	2007-2014	Sweden	36,010	1:2.03	51	All specimens	0.59%
Emmett et al ¹¹	2003-2009	UK	4,776	1:2	68	Selective specimens	0.25%
Talreja ¹²	2005-2015	Pakistan	973	1:2.66	54.18±8.95	Selective specimens	1.14%
Shrestha et al ¹⁰	2003-2007	Nepal	668	1:3	53.55	All specimens	3.3%
Our study	2014-2018	Nepal	418	1:6	49.14	All specimens	1.67%

DISCUSSION

Gall bladder cancer being the most common biliary tract cancer, early diagnosis is exception rather than the rule. The only way of early diagnosis is incidental finding of cancer in patients undergoing gall bladder surgery. In our study incidental gall bladder cancer was found in 1.67%.

In a similar study done by Ghimire et al and Shrestha et al in Nepal, incidence of incidental gall bladder cancer was 1.28% and 1.4%, respectively.^{10,14}

There was no single case of preoperative suspicion of gall bladder cancer in our study. Intra operatively one patient with diagnosis of acalculus cholecystitis had

a friable mass at the fundus, which bled easily with grasper. We suspected the mass to be malignant and converted to open surgery. Other cholecystectomies specimens were without any suspicion of malignancy. In a similar study done by Siddiqui et al where they evaluated 220 cholecystectomies specimens and found gall bladder cancer in 6 specimens (2.8%). There were no preoperative or intraoperative findings suggestive of cancer in any of the cases.⁸ Likewise, Jha et al have similar findings where none of the cases have gross abnormality intraoperatively.⁷

In contrast, study done by Emmett et al in UK, 4,776 specimens of gall bladder were evaluated and found incidence of gall bladder cancer in 12 patients (0.25%). All cases of IGBC in their study had a macroscopically abnormal gallbladder. They suggested that it is safe to adopt a selective approach to histological examination.¹¹

Other contrasting study done by Talreja et al. where 973 patients underwent cholecystectomy for symptomatic gallstone disease. Gallbladder carcinoma was incidentally found in 11 cases (1.14%). Macroscopic abnormalities of the gallbladder were found in all those 11 patients. They suggested that more selective approach based on preoperative imaging and macroscopic appearance would not only reduce cost but also reduce pathologist workload.¹²

Lundgren et al in Sweden evaluated 81,349 cholecystectomies. They found that hospitals that routinely submitted gallbladder specimens had a higher proportion of IGBC per cholecystectomy, compared to hospitals with a selective approach, indicating that a selective approach misses some of the IGBC cases and that macroscopic assessment of the gallbladder specimen is not enough to rule out gallbladder cancer. They concluded that, routine approach to histological analysis in cholecystectomies with a benign indication for surgery could uncover a higher proportion of IGBC cases.⁹

Treatment and prognosis of gall bladder cancer depends on its stage. For Tis and pT1a tumors, simple cholecystectomy is sufficient with 5year survival rate being almost 100%. However, for pT1b tumors or beyond radical resection is recommended. For pT2 tumors, the 5year survival rate improves from 20% to 70% if simple cholecystectomy is followed by radical cholecystectomy after the diagnosis of IGBC.¹⁵

In our study there were two cases of pT1b and two cases of pT2 that requires further radical re-surgery. Therefore, it is recommended that routine

histopathology of cholecystectomy specimen should be sent for early diagnosis and improve survival of patient with gall bladder cancer.

There are several limitations in this study, Because of its retrospective design there were missing data regarding the preoperative information and postoperative outcomes of the patients. These findings are from single institution in Nepal and may not be generalizable to other countries.

CONCLUSIONS

Incidence of incidental gallbladder cancer is 1.67%. It is recommended that routine histopathology of cholecystectomy specimen should be sent for early diagnosis and improve survival of patient with gall bladder cancer.

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