

Frequency of Carcinoma in Gall Bladder Specimens sent for Histopathology in a University Hospital

Abdul Ghani Soomro, Muhammad Jarwar, Syed Asad Ali, Noor Bakht Nizamani, Abdul Sattar Memon

ABSTRACT

OBJECTIVE: To find out the frequency of carcinoma of gall bladder in the cholecystectomy specimen sent for histopathology.

DESIGN: Retrospective study.

SETTING: Department of surgery, Liaquat University Hospital, Jamshoro & Depart of Pathology, Liaquat University of Medical & Health sciences Jamshoro.

DURATION: From January 2007 to December 2008.

METHOD: A retrospective histopathological analysis of specimen collected after cholecystectomies during January 2007 to December 2008 along with patient's notes, hospital records were analyzed. In addition demographic details were also collected. Data was entered into SPSS 13 and analyzed.

RESULTS: 521 cases that were operated for cholelithiasis, nineteen were found to have carcinoma of gall bladder with incidence of 3.64%. The age ranged from 35 to 70 years, with mean age of 54 years in females and 55 years in males. Male to female ratio was 1:3.75. Adenocarcinoma (89.47%) was the most common histological variant.

CONCLUSION: We conclude that carcinoma Gallbladder is having a high incidence of 3.64%, occurring at an early age with female preponderance. Since preoperative clinical examination and other radiological investigations cannot diagnose it efficiently in asymptomatic cases, therefore we suggest every gallbladder specimen should be routinely subjected to histopathology for early and curable management.

KEYWORDS: Cholecystectomy, Gall, Bladder specimen, Carcinoma frequency.

INTRODUCTION

Gallstone disease constitutes a major health problem with the highest incidence in the Western World¹. In America, it is estimated to affect 20-25 million adults (i.e., 10-15% of the population)². The incidence of gallstone disease has significantly increased in Asia owing to rise in calorie and fat consumption, decrease in fiber intake, and increased prevalence of the sedentary lifestyle³. Though the gall stone disease is benign and cholecystectomy performed for carries very less morbidity yet the gallstones are a major risk factor for carcinoma of gallbladder (CaGB)^{4,5}. This is more so when the gall stone remains silent for years causing no symptoms.

Carcinoma of gallbladder though rare is the most common malignancy of the biliary tract⁶ It is more common in India and Pakistan than in the Western world^{7,8,9}. Women are more commonly affected than men,^{9,10} with a peak incidence occurring in 6th and 7th decades of life⁹. It is usually detected preoperatively in advanced stages with five year survival of less than 5%¹¹. Mostly it is diagnosed incidentally (0.2-1.1%) on

histopathology after cholecystectomy done for gallstones^{12,13}. Approximately 1-2% of cholecystectomy specimen contains adenocarcinomas, and 10% have small noninvasive lesions confined to the gall bladder. Metaplasia, hyperplasia, dysplasia, and carcinoma in situ are known potential precursors of carcinoma gall bladder. Adenocarcinoma is the most common variety of malignancy found in gall bladder^{12,14}. Clinical and Ultrasound examination are an inefficient tool for diagnosing early and asymptomatic carcinoma of gall bladder pre-operatively^{15,16}.

It is observed that current practice is not to sent cholecystectomy specimen, in really all cases, for histopathology; solely relying upon gross examination of the tissues to avoid additional financial burden on patients' family. Thus the aim of this retrospective analysis was to determine the frequency of carcinoma gall bladder in post cholecystectomy specimens operated for uncomplicated cholelithiasis.

METHODOLOGY

A retrospective histopathological analysis of all the

gall bladder specimens obtained after cholecystectomies whether performed open or laparoscopic, from January 2007 to December 2008, was carried out in the department of surgery, Liaquat University Hospital, Jamshoro. During this period 521 cholecystectomy specimens received from different surgical units of Liaquat University Hospital, Jamshoro. Patients of both sexes and all age groups with symptomatic gallstones were included in the study. A total number of 521 patients' histopathology reports were included in the study. Histological findings are based on haematoxylin and Eosin stained slides in standard way. Patients' personal data including demographic were obtained from the patients' records. The biopsy reports were collected from the pathology department. Data was entered into SPSS 13 and analyzed.

RESULTS

Over a period of two years 521 patients underwent cholecystectomy for symptomatic gallstones. There were 79 males and 442 females with a male to female ratio of 1: 5.5. The age of the patients ranged from 7 to 75 years with an average age of 47 years.

Among 521 specimens, carcinoma gall of bladder was found in 19 (3.64%) cases **Table I**.

Out of 19 cases of gallbladder carcinoma, 4 were males (21.05%) and 15 females (78.94%) with a male to female ratio of 1:3.75. Their age and sex distribution is shown in Figure I and **Table II**. The age ranged from 35 to 70 years, with a mean age of 55 years in males and 54 years in females. There were two peaks age wise: first from 41-50 years (36.84%) and second greater than 61 years (36.84%). Histopathologically 17 (89.47%) were adenocarcinoma while 2 (10.52%) were adenosquamous carcinomas.

TABLE I: HISTOPATHOLOGY OF GALL BLADDERS REMOVED AT CHOLECYSTECTOMY

Diagnosis	Number	Percentage
Chronic Cholecystitis	346	66.41
Chronic Nonspecific Cholecystitis	138	25.91
Adenocarcinoma	17	3.26
Adenosquamous carcinoma	2	0.38
Acute on Chronic Cholecystitis	8	1.53
Mucocoele	2	0.38
Diffuse/Chronic Suppurative Cholecystitis with empyema	7	1.34
Chronic Cholecystitis with caseating granuloma likely TB origin	1	0.19
Total	521	100

TABLE II: AGE AND SEX DISTRIBUTION OF CARCINOMA OF GALL BLADDER

Age	Female	Male	Total	Percentage
31-40	1	0	1	5.26
41-50	5	2	7	36.84
51-60	3	1	4	21.05
>61	6	1	7	36.84
Total	15	4	19	100

DISCUSSION

In our present analysis of 521 specimens over a period of two years showed carcinoma GB in 19 (3.64%) cases. Apparently the percentage of carcinoma in cholecystectomy specimen is so small that initial response is to neglect the figure however when this is considered in relation to the poor prognosis of carcinoma GB for clinical stage greater than 1, it becomes significant. Contrary to common belief that gall stones may cause metaplasia and lead to squamous cell carcinoma, in our 17 (3.26%) cases carcinoma was adenocarcinoma, while only 2 (0.38%) cases were adenosquamous. This probably reflects that in most cases carcinoma GB arise de novo, and gall stones are due to some other pathology.

Average age of patients undergoing cholecystectomy in our study is 47 years, However Gelani²⁰ et al and Tyagi et al²¹ have reported mean age of 42.7 and 43.6 years respectively in their study. In the present study only 3.64%, of patients that had undergone cholecystectomy for cholelithiasis, were diagnosed having carcinoma of gall bladder. This finding is consistent with Lohana D et al⁹ who reported the proportion of carcinoma of gall bladder (CaGB) to be 4%. Other International studies have reported rates ranging from 0.27-3.2%^{22,23}. Some local studies have reported higher proportions of CaGB viz. 5.9%¹², 6.9%¹⁷ and 7.9%¹⁸ respectively. However Gilani et al²⁰ have reported a low incidence of 2.9% locally. In other studies from Pakistan the incidence of carcinoma gall bladder in the cholecystectomy specimens ranges between 1.15-6%^{4, 8, 17}. However a local study has reported a very high incidence of 32% in gall bladder removed for gall stones¹⁸. The male to female ratio in this study was 1:3.75, which is in agreement to various national and international studies^{7,9,12}. The average age of the patients was 55 years with biphasic peaks at 5th and 7th

decade. The first peak is consistent with local studies^{4, 11, 19} while the second peak is comparable to the statistics in the west^{16, 20, 21}. This biphasic age peak is a coincidental finding, have some occult clinical impact may be the goal of future research on this subject. In consonance with previous studies the predominant histological type in this series was adenocarcinoma²⁴⁻²⁷ with a female sex preponderance^{9, 11, 12, 24}. No adenoma was reported in our study; this is also noted by Gilani et al, Albores-Saavedra et al²⁸ and Makuda et al²⁹. It is reported that the epithelial dysplasia; rather than adenoma of gall bladder; is consider to be precursor of carcinoma of gallbladder. Presence of atypical epithelium showing dysplasia and metaplasia is a frequent histopathological finding in gall bladder adenocarcinoma. However, we did not note such finding in our reports.

As mentioned previously²⁸ all patients in our study with post operative histological features of CaGB were asymptomatic preoperatively. Some authorities advocate the use of ultrasound as a tool for pre-operative diagnosis of CaGB^{29, 30}. Routine ultrasound abdomen was done in every case of this series; however, it failed to detect underlying CaGB. We therefore agree that ultrasonography has serious limitations in the pre-operative diagnosis of CaGB probably due of its inability to differentiate chronic cholecystitis from CaGB as both may present with gall bladder wall thickening. Thus relying on ultrasound findings can be hazardous, leading to over looking malignancy, therefore making it a highly unreliable tool in the pre-operative diagnosis of CaGB^{15, 16}. Dix et al³³ and G Bazoua et al³⁴, favor a more selective approach to histopathology of gall bladder. According to them CaGB should be diagnosed pre-operatively or intra-operatively and only suspicious gallbladders should be sent for histopathology saving both time and money. The intra-operative diagnosis by the surgeon can be inaccurate in detecting certain abnormalities³². With increasing incidence^{12, 17, 18} of CaGB at an early age in our population routine histopathology of all gallbladder specimens seems to be the only reliable, cost effective and readily available option in our setup for early diagnosis, curative management and consequent better survival rate.^{37, 38, 39}

CONCLUSION

We also recommend routine histopathological examination of every gallbladder specimens to diagnose

disease at an early stage for effective management and better survival rate.

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AUTHOR AFFILIATION:

Dr. Abdul Ghani Soomro

Associate Professor, Department Surgery
Liaquat University of Medical and Health Sciences
(LUMHS), Jamshoro, Sindh-Pakistan.

Dr. Muhammad Jarwar

Registrar, Department of Surgery
LUMHS, Jamshoro, Sindh-Pakistan.

Dr. Syed Asad Ali (*Corresponding Author*)

Associate Professor, Department of Surgery
LUMHS, Jamshoro, Sindh-Pakistan.
Email: sasadalishah@gmail.com

Dr. Noor Bakht Nizamani

Registrar, Department of Surgery
LUMHS, Jamshoro, Sindh-Pakistan.

Dr. Abdul Sattar Memon

Professor of Surgery
LUMHS, Jamshoro, Sindh-Pakistan.