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Original Article

Frequency of Gall Bladder Carcinoma after Cholecystectomy for Symptomatic Gallstone Disease in Tertiary Care Hospital, Peshawar

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ABSTRACT

Objective: To determine the frequency of gall bladder carcinoma after cholecystectomy for symptomatic gallstone disease and to determine the most commonly affected age group and its gender-based predominance in our population.
Study Design: Cross sectional study.
Place and Duration of Study: Histopathology Lab, Tertiary Care Teaching Hospital, Peshawar Pakistan, from Jan 2015 to Jan 2021.
Methodology: A total of 995 patients of all age groups and of either gender were included in our study. The demographics, clinical data of the patient (signs, symptoms and ultrasound report), and histopathology findings were recorded.
Results: The mean age of our study participants was 41.5±15 years. Cholecystitis was found in 807(81.1%) patients, acute cholecystitis in 101(10.2%) patients, and chronic cholecystitis with cholesterols in 72(7.2%) patients. Benign polyps were found in 6(0.6%) patients, while carcinoma gall bladder was found in 9(0.9%) patients. The frequency of gall bladder carcinoma was high in females (n=774, 66.7%). The most commonly affected age group affected by gall bladder carcinoma was 51 to 60 years.
Conclusion: Routine histopathology of all grossly looking normal gall bladder specimens after cholecystectomy should be done as it is the only measure to detect carcinoma gall bladder at early stages.

Keywords: Cholecystectomy, Cholelithiasis, Gall bladder neoplasms, Pathology.

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INTRODUCTION

The gall bladder is an intra-abdominal organ situated on the inferior surface of the liver. The length of the gall bladder is up to 10 cm and contains 50 cc of fluids (bile) under normal circumstances.[1] The gall bladder has four anatomical parts, i.e., neck, infundibulum, body and fundus. From the neck of the gall bladder, a cystic duct arises, which has great variation in anatomy.[2]

Cholecystectomy is a surgical procedure done for the removal of a diseased gallbladder. It can be performed in either an open or laparoscopic technique.[3] In the United States, 20 million people suffer from gall bladder pathologies each year. Out of these 20 million people, 300,000 patients undergo cholecystectomy per annum. In Pakistan, the annual surgical incidence of cholecystectomy is 18.4%, of which 4.2% are males and 14.2% are females.[4]

The carcinoma gall bladder is the most commonly occurring malignancy of the biliary tract and is the 5th most common malignancy of the GI tract.[5,6] Incidence varies among different ethnic groups and is more common in Native Americans and Hispanics in the USA. The prevalence of gall bladder cancer is 8.5 cases per 100,000 population in the United States and 13.6 cases per 100,000 in Asia.[7] According to Cancer statistics from The American Cancer Society for gall bladder and large bile duct in the United States for 2022, about 12,130 new cases were diagnosed. Out of these, 4 in 10 was gall bladder carcinoma.[8]

According to our local statistics, the frequency of incidental gall bladder carcinoma in KPK Pakistan is 2%.[9] GLOBOCAN 2018 states that gallbladder cancer constitutes 1.2% of cancer deaths.[10]

The prognosis of gall bladder carcinoma is poor because of late diagnosis and its unclear pathogenesis as it is related to different genetic and environmental factors. Timely cholecystectomy and histopathological evaluation of gall bladder specimens is most important as it detect carcinoma in early stages and thus improves survival rates.[9,10] Diagnosis in the initial stages and prompt treatment can improve life expectancy. Our aim was to find out the frequency of gallbladder carcinoma in patients undergoing routine

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cholecystectomy for symptomatic gallstone disease. This fact can yield important information about early detection and proper treatment at the initial stages, which can improve the survival of patients and the quality of life.

METHODOLOGY

The cross-sectional study was conducted at the Tertiary Care Hospital, Peshawar Pakistan from January 2015 to January 2021. The study was approved by the Institutional Review Board of Prime Institute of Public Health (prime/IRB/2021/368).

Inclusion Criteria: Patients of all age groups and of either gender who underwent cholecystectomy for symptomatic gallstone disease with no clinical or gross evidence of carcinoma gall bladder were included in our study.

Exclusion Criteria: Preoperatively diagnosed cases of gall bladder carcinoma, patients in whom cholecystectomy was performed as part of other abdominal procedures, and patients with clinical evidence of carcinoma gall bladder and evidence of metastatic disease were excluded from the study.

The study was conducted on patients presenting to the tertiary care hospital of Peshawar for cholecystectomy. The study was based on histopathological reports of gall bladder specimens

The demographics of patients (age, gender), clinical data of the patient (signs, symptoms and ultrasound report), and histopathology findings were recorded. Statistical Package for Social Sciences (SPSS) version 25.0 was used for the data analysis.

RESULTS

Out of 995 patients operated for symptomatic gallstone disease, 774(77.8%) were females, and 221 (22.2%) were males. The mean age of our study participants was 41.5±15 years, and the most common age group affected by gall bladder pathologies was 41 to 50 (n=258, 25.9%), followed by 31 to 40 (n=220, 22.1%) (Figure).

Chronic cholecystitis was found in 808(81.1%) patients, acute, chronic cholecystitis in 101 (10.2%) patients, and chronic cholecystitis in 72(7.2%) patients. Benign polyps were found in 6 (0.6%) patients, while carcinoma gall bladder was found in 9(0.9%). The adenocarcinoma gall bladder was found in 8 patients, while a single case of squamous cell carcinoma gall bladder was also detected (Table).

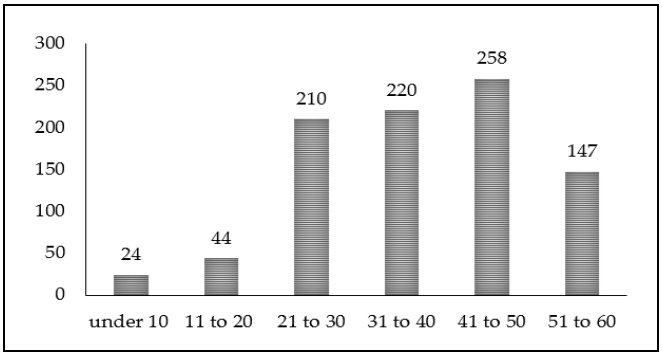

Figure: Gall Bladder Pathologies with respect to Age Groups

The frequency of gall bladder carcinoma was high in females (n=6, 66.7%) while (n=3, 33.3%) were in males. The most commonly affected age group suffering from gall bladder carcinoma was 51 to 60 years (n=4, 44.4%), followed by 61 to 70 (n=3, 33.1%).

Table: Histopathological findings of Gallbladder Specimens (n=995)

Diagnosis	Frequency(%)
Chronic Cholecystitis	807(81.1%)
Acute on Chronic Cholecystitis	101(10.2%)
Chronic Cholecystitis with Cholesterolosis	72(7.2%)
Benign Polyps	6(0.6%)
Adenocarcinoma	8(0.8%)
Squamous Cell Carcinoma	1(0.1%)

DISCUSSION

Carcinoma gallbladder is an uncommon intra-abdominal malignancy, but it is the most common malignancy of the biliary tract. It is a very aggressive and lethal disease.[11,12] Detection in early stages, and proper treatment can increase chances of survival. In its early stages, it is a clinically silent disease with nonspecific signs and symptoms. Histopathology of gallbladder specimens after cholecystectomy can detect the disease at an early stage.[13,14]

In our study, we revived 995 patient records who underwent cholecystectomy for symptomatic gallstone disease over a period of six years. Carcinoma gallbladder was detected incidentally in 9(0.9%) cases, out of which 8(0.8%) had adenocarcinoma, and a single case of squamous cell carcinoma was also detected. The percentage is small but cannot be neglected because of the poor prognosis of the disease when detected in the late stages.

The result of our study is coherent with another study done at Isra University Hospital, Hyderabad, Sindh, by Samad, which showed an incidence of 1.1%.[15] Another study was performed by Ayyaz *et al.* in which they reported the incidence of incidental

carcinoma was 2.7%. This incidence was high as compared to our study.[16] Other national studies show a varying incidence from 6.9 to 12%.[17,18] Some international studies show different incidences from 0.17% to 12.4%.[19,20] Mittal *et al*., a study conducted in India, that showed an incidence of 0.99%.[21] Beena *et al*. showed an incidence of 1.05%.[22]

In our study, the mean age of patients having carcinoma gall bladder was 61.4±12, which was comparable with a study conducted at Lady Reading Hospital Peshawar by Aslam *et al*. and various other national and international studies.[23]

Carcinoma gall bladder is predominantly found in female gender; however, there are regional differences in male to female ratio. In our study, the frequency of gall bladder pathologies was high in females compared to males.

CONCLUSION

Routine histopathology of all grossly normal-looking gall bladder specimens after cholecystectomy should be done as it is the only cost-effective measure to detect carcinoma gall bladder at early stages, thus increasing the overall survival rate and reducing the disease burden on our nation.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

ZU, & AAT: Conception, study design, drafting the manuscript, approval of the final version to be published.

MT, & MI: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

SN, & RN: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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