

Spectrum of the Gallbladder Diseases in a Teaching Hospital of Lahore, Pakistan – 20 Years Experience

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ABSTRACT

Objective: To document the prevalence and the histologic pattern of gallbladder diseases in our setup.

Study Design: Observational study.

Place and Duration of Study: This study was conducted at the Department of Histopathology, Gulab Devi Hospital, Lahore from January 1996 to December 2015.

Materials and Methods: Our study consisted of 1083 consecutive cholecystectomy specimens, received in 20 years (1996 to 2015) by the Department of Histopathology, Gulab Devi Hospital, Lahore, Pakistan. Cholecystectomy accounted for 9% of the total operations during the study period. The patients' medical and histopathology records were entered in Proforma. Their age, sex, clinical complaints, history of gall stones and histological diagnosis was entered accordingly.

Results: There were 921(85.04%) females and 162(14.96%) males. The male to female ratio was 1:5.7. The pathologies were divided mainly in two groups: Non-malignant lesions numbered 1027 (94.8%) while the malignant lesions were 56 (5.17%). The main underlying complaints were pain in right hypochondrium 1018 (94%), nausea/vomiting 353 (33%) and jaundice 21 (2%) cases. The ages ranged from 7 to 93 years.

Conclusion: Gallbladder pathologies are very common in Central part of the Pakistan. We found that rate of malignancies in this study is much higher than those in the northern areas of the country.

Key Words: Adenocarcinoma, Cholecystectomy, Cholelithiasis, Gallbladder

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INTRODUCTION

Cholecystectomy is the most common elective abdominal operation all over the world and is overwhelmingly necessitated by the presence of gall stones¹. A summary of several large studies that estimated the prevalence of gall bladder disease in different populations show several interesting points which include disease prevalence among different populations which may reflect real genetic or environ-

mental factors or differences in the populations chosen in different studies².

Around 700,000 cholecystectomies are executed for gallstone disease in the USA every year. Approximately 5% or 25000 of these cases do not have gallstones on ultrasonographic examination but typically present with chronic symptoms of biliary colic³. Gallbladder pathologies are very common and similar in both women and men. The true incidence of gallstones in a given population has been much harder to elucidate than the prevalence⁴.

The laparoscopic Cholecystectomy has reformed the way routine gallbladder surgery is conducted. This has changed the approach to gallbladder disease but it has not changed the specimen type for histologic examination⁵. We have many examples when this technique is overcome by the classical open surgery especially in cases of multiple stones or the slipping of stone in the CBD⁶. Except for the few complications, the diagnosis of gallbladder disorders is fairly basic, as most of the diseases are linked with cholelithiasis⁷. The incidence of cholelithiasis and Cholecystectomy in other parts of the country is also high except in the Northern areas and is supposed to be related with high lipid containing food habits, repeated eating habits, betel and tobacco chewing and family history⁸.

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MATERIALS AND METHODS

This study was planned at Department of Histopathology, Gulab Devi Hospital, Lahore. A total of 1083 consecutive cases of cholecystectomies specimen were received in the department from 1st January 1996 to the end of December 2015.

The data was collected on a proforma containing informations regarding name, age, sex, complaints and histologic diagnosis.

The summary of main gallbladder pathologies was tabularized. Age and sex allocation for gallbladder malady and gallstones was also tabularized. The number of gallbladders received with stones and the cases where an already cut opened gallbladder was received were entered.

RESULTS

Out of 1083 cases of the gallbladder, 921 cases were females and 162 cases were males, having a male to female ratio of 1:5.7. Seventeen cases were found below the age of twenty while a maximum of 357 cases were found in the 5th decade (Table 1). Biliary colic, nausea, vomiting and jaundice were the commonest complaints (Table 2). The mean cholecystectomy rate concerning the total number of operations was 9%. The occurrence of gallstones in persons below aged 30 years was 1.6% and 3.8% for men and women, respectively; gallstone occurrence in persons between 50 to 60 years of age was 14.4% for men and 46.6% for women.

Table No.1: Number of cases in different age groups

| Age Group (Yr) | No of cases | Percentage |
|----------------|-------------|------------|
| 0-9 | 1 | 0.09 |
| 10-19 | 16 | 1.48 |
| 20-29 | 91 | 8.40 |
| 30-39 | 263 | 24.28 |
| 40-49 | 357 | 32.97 |
| 50-59 | 208 | 19.21 |
| 60-69 | 101 | 9.33 |
| 70-79 | 34 | 3.14 |
| 80-89 | 10 | 0.92 |
| 90+ | 2 | 0.18 |
| Total | 1083 | 100.00 |

Table No.2: Presenting complaints of the patients

| Complaints | No of cases | Percentage |
|--------------------------|-------------|------------|
| Pain Right Hypochondrium | 1018 | 93.99 |
| Nausea, Vomiting | 353 | 32.59 |
| Jaundice | 21 | 1.94 |
| Diarrhea | 9 | 0.83 |

Non malignant lesions comprised of 1027(94.8%) cases with a 45.25 years of mean age. Most of these cases were those of chronic cholecystitis (Figure 1). These included 892(82.36%) cases. Acute cholecystitis was seen in 84 (7.76%) cases. Malignant lesions (Figure 2)

comprised of only 56 (5.17%) cases with a mean age of 51.87 years. Metastatic tumor was diagnosed in one patient only (Table 3).

Table No.3: Histological diagnosis on the surgical specimens

| Sr No | Histological Diagnosis | No of cases | Percentage |
|-------|------------------------|-------------|------------|
| 1 | Edema and congestion | 18 | 1.66 |
| 2 | Atrophic, fibrosed | 3 | 0.28 |
| 3 | Cholesterolosis | 5 | 0.46 |
| 4 | Mucocoele | 7 | 0.65 |
| 5 | Pyocoele | 13 | 1.20 |
| 6 | Hematocoele | 1 | 0.09 |
| 7 | Gangrene | 3 | 0.28 |
| 8 | Acute cholecystitis | 84 | 7.76 |
| 9 | Chronic cholecystitis | 892 | 82.36 |
| 10 | Papillary adenoma | 1 | 0.09 |
| 11 | Adenocarcinoma | 55 | 5.08 |
| 12 | Metastatic carcinoma | 1 | 0.09 |
| | Total | 1083 | 100.00 |

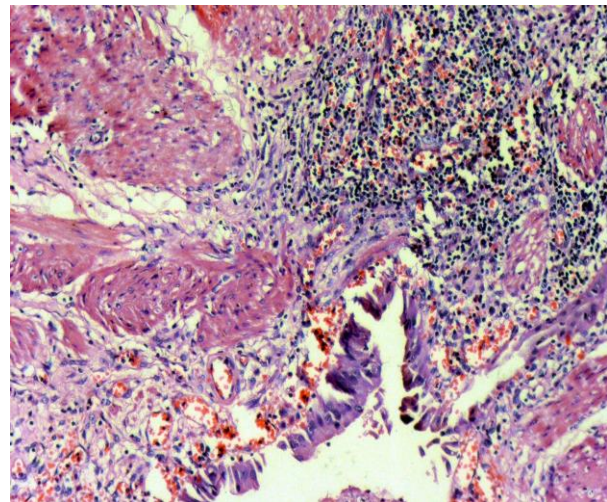


Figure No.1: Chronic Cholecystitis

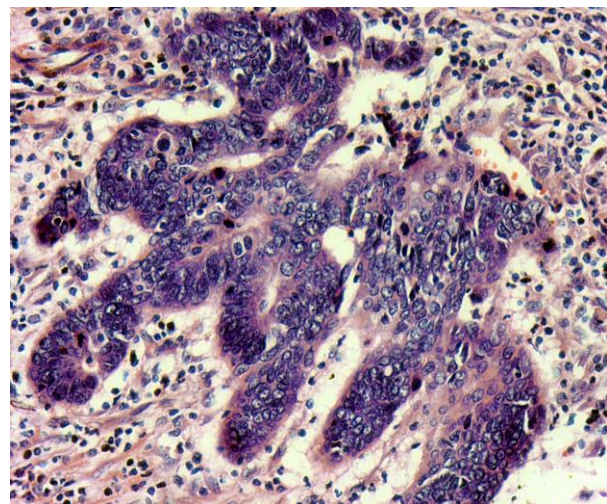


Figure No.2: Malignant lesions

DISCUSSION

The range of gallbladder diseases varies from asymptomatic gallstones to gallbladder colic, cholecystitis, cholangitis and choledocholithiasis. It is readily assumed that gallstones are common in Pakistani women. However, no exact index of incidence of the country is available. Correlation of the prevalence of gallstones amongst the various communities of Pakistan is troublesome not only with the discrepancy in the accessibility of diagnostic facilities and attitude towards treatment but even many patients with gallstones remain free of symptoms².

In a study from Italy, 20% of women and 14% men were diagnosed with stones correspondingly. The population-based Italian study showed 78% of subjects with gallstones were asymptomatic. In a Danish report, gallstone incidence in individuals aged 30 years was 4.85% for females and 18% for males; gallstone incidence was 22.4% for women and 12.9% for men in persons aged 60 years⁹. In our study prevalence of gallstones in individuals below aged 30 years was 1.6% for male and 3.8% for female. The incidence in individuals aged amid 50 to 60 years was 14.4% to 46.6% from men to women.

Three major factors can be involved in the formation of gallstones in addition to the other risk factors. These are elevated biliary cholesterol, diminished bile acids and defects in nucleation¹⁰. The additional risk factor includes family history, age and sex, obesity, oral contraceptives, smoking, dietary factors and diabetes mellitus¹¹.

In our study, all the 1083 patients were operated for clinical presentation of acute and chronic cholecystitis. The male to female ratio was 1:5.7. The mean age was 45.6 year. A study was conducted in Ethiopia which includes 712 patients which were operated. The mean age was 42.7 years¹².

In a total of 892 cases of chronic cholecystitis, 761(85.31%) were females with the peak incidence in the 5th decade, and a mean age of 46.02 years, whereas 131(14.69%) were males with the mean age of 48.36 years. The uttermost incidence of chronic cholecystitis in both males and females was in the 5th decade, while in a study conducted by Zahrani and Mansoor¹³ in Saudi Arabia found 83% of total cases with diagnosis of chronic cholecystitis. Among those cholecystitis, 79% of female patients were in the 3rd decade and 71% of male had a peak age in the 4th decade. A study on 750 patients was conducted in Northern areas of Pakistan. In this study chronic cholecystitis was reported in 512 (68.27%) patients, acute/empyema cholecystitis in 225 (30%) which is entirely different than our Central region study⁸. In our study, out of 84 cases of acute cholecystitis, 62(73.81%) cases were females with the peak incidence in the 4th decade and a mean age of 38.52 years. Twenty two (26.19%) cases

were males with the peak incidence in the 3rd decade with the mean age of 32.27%

Cholelithiasis is an uncommon condition in childhood^{14,15}. There are several other conditions which are treated by cholecystectomy, like edema and congestion, atrophy, acute cholecystitis instead of actual cholelithiasis. In the pediatric age group gallstones are rare with a range of 0.13-0.22%. Stones propagate for the first 2 to 3 years, after which their progress stabilizes¹⁶. In our study we didn't find gallstone in any pediatric case.

After the age of 60, the occurrence of gallbladder diseases in men and women is 10% to 15% whereas 20% to 40% has been reported by Zahrani and Mansoor¹³. In our study we found that the gallbladder disease in men and women after the age of 60 is 13.57%.

The three phases of gallstones are clinically categorized as asymptomatic, symptomatic and with complications (e.g., cholecystitis, cholangitis, choledocholithiasis). Majority of gallstones (60-80%) are without symptoms, however certain symptoms, such as pomposity, pain in right upper quadrant are traditionally concomitant with gallstones¹⁷. Consistently 1-3% of people have biliary colic and 20-33% developed symptoms in 20 years. Most of the patients describe symptoms prior to complications. Once symptoms of biliary colic occur, 3-9% of patients progress to severe symptoms. In patients with mild symptoms, 50% have complications after 20 years^{18, 19}. In our study 38% of the patients were found to be symptom free. The most common symptoms were pain in the right hypochondrium (94%) and nausea with vomiting (33%).

The cholesterolosis is documented in literature to be about 20% of the cholecystectomy specimens¹⁶. In our study cholesterolosis was seen only in 5 cases (0.46%). The etiology of cholesterolosis is anonymous, most theories belief that either super saturation of the bile along with cholesterol, which is found in several but not every case, or abnormal transport of lipid across the mucosa prompts the lipid deposits formation^{20, 21}.

In our series in addition to acute cholecystitis, chronic cholecystitis and cholesterolosis, we reported edema and congestion in 18 cases (1.66%) with no histological changes in the mucosa of the gallbladder. In 3 cases (0.28%) we found atrophic and fibrosed gallbladder. There were 13 cases of pyocoele, making 1.2% of all the cases and 7 cases of mucocoele (0.65%) along with only one case of hematocoele and necrosis of mucosa. In our study we found 3 (0.28%) such cases in which emergency cholecystectomy was done. In one case we reported papillary adenoma as diagnosis which was clinically suspected as carcinoma.

There were 55 (5.08%) cases of carcinoma of the gallbladder in our study. Out of these 6(10.9%) occurred in male (mostly in 5th decade) and were diagnosed as adenocarcinoma. There were 49 (89.1%)

cases in females (mostly in 5th and 6th decade) with the same diagnosis. This is in contrast to the study conducted in Saudi Arabia, that reported only 2% malignant lesions¹³. Literature from the west have revealed gallbladder carcinoma as the most common malignancy of the gastrointestinal tract, with the occurrence of 2.5 cases per 100,000 populations per year^{22,23}. A study shows 17.9% higher odds of cancer in Chile than in Sweden and Czechoslovakia²⁴. The study which was conducted in a teaching hospital of Northern areas of Pakistan on 750 patients had reported 3 cases (0.4%) of malignancies⁸. Another study which included 112 consecutive cases²⁵ showed 6-8% of gallbladder malignancies which is higher than our study. Among Chile, Swedes and Czechoslovakians the risk of gallbladders cancer was 7 times more among patients with stones than those without stone^{24, 26}. The age difference may be more apparent than real as the life expectancy in Pakistan is low but even after the adjusting the present data 74.5% cancer occurred below the age of 60 years while a study from Canada²⁷ showed that 84% of the cases were above the age of 60 years.

CONCLUSION

The frequency of gallbladder stones and associated diseases is reported high. There is a big difference in the malignancies ratio in between the Northern and the Central part of the Pakistan and this may include the dietary habits like reuse of boiled ghee, defective storage of food in hot and humid climate, repeated heating of the cooked food improperly, repeated habits of eating the food, betel and tobacco chewing. A large scale population based study is required to get a more accurate picture.

Author's Contribution:

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|----------------------------|--|
| Concept & Design of Study: | Nadeem Reyaz |
| Drafting: | Muhammad Bahadur Baloch |
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| Revisiting Critically: | Nadeem Reyaz, Muhammad Bahadur Baloch |
| Final Approval of version: | Nadeem Reyaz |

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