

# HISTOPATHOLOGICAL PATTERN OF 400 CHOLECYSTECTOMY SPECIMENS

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## ABSTRACT

**Objective:** To determine the frequency of histopathological lesions in cholecystectomy specimens at tertiary care hospital of Peshawar.

**Methodology:** This was a descriptive study carried out at histopathology section of the Department of Pathology Lady Reading Hospital, Peshawar over a period of five years ranging from January 2011 to December 2015. Laboratory request forms and histopathology reports of all those patients who underwent cholecystectomy (open or laparoscopic) were analyzed for clinical findings, histopathology results and demographic data like age, gender etc.

**Results:** During the study period a total of 400 specimens of gall bladder were received in the laboratory which were subjected to histopathology. Out of these specimens 110 were of males and remaining 290 were of females. Chronic cholecystitis was the most dominant histopathologic finding seen in about 82.25% specimens followed by acute cholecystitis / abscess in 10% of specimens. Adenocarcinoma was also found in 2% of the cholecystectomy specimens.

**Conclusion:** Chronic cholecystitis was the commonest histopathologic finding in this study.

**Key Words:** Histopathology, Cholecystitis, Carcinoma gall bladder

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## INTRODUCTION

Gall bladder is affected by a variety of pathological lesions which produce signs and symptoms to such an extent that removal of gall bladder remains the solution. Most of these removed gall bladders contain stones, considered to be a main cause of pain in epigastrium or upper right quadrant of abdomen<sup>1</sup>.

Cholecystectomy is commonly performed surgery in routine practice and it is difficult to diagnose distinctively benign and malignant lesions of gall bladder before surgery without histopathological examination<sup>2</sup>. Despite the concept by people that routine histopathology of cholecystectomy plays a dismal role in the management of most patients<sup>3</sup>, it plays an important role in clinicopathologic correlation of various lesions of gall bladder and helps in diagnosing pre-malignant condition like porcelain gall bladder or malignant conditions like carcinoma in situ and early carcinoma. This is the reason that each and every specimen of cholecystectomy should be evaluated in the histopathology laboratory<sup>4</sup>.

On routine histopathologic examination of cholecystectomy specimens, the most commonly found pathology is cholelithiasis which is considered to be a disease of civilization<sup>5,6</sup>. Among other pathologies; cholecysti-

tis both acute and chronic is common. Cholesterolosis, xanthogranulomatous cholecystitis, benign polyps, pre-malignant and malignant conditions are the less common pathological entities<sup>6</sup>.

Cholecystitis associated with cholelithiasis is a common disease particularly found in fertile and fatty females in their 4<sup>th</sup> and 5<sup>th</sup> decades of age but can also affect both males and children. This condition has increased in the past two decades both in western world and India due to increased intake of high calorie diets, fatty meals and alcohol<sup>7,8</sup>. Common histological findings in chronic cholecystitis are fibrosis, thickening of wall and lymphocytic infiltration<sup>8</sup>.

The objective of this study was to report the frequency of various histo-morphological lesions in cholecystectomy specimens and to highlight the importance of histopathologic examination of each and every specimen of gall bladder.

## METHODOLOGY

This was a descriptive study conducted at histopathology section of the Department of Pathology Lady Reading Hospital, Peshawar. Its duration spread over five years starting from 1<sup>st</sup> January 2011 to 31<sup>st</sup> Decem-

ber 2015. Laboratory request forms and histopathology reports of all those patients who underwent cholecystectomy (open or laparoscopic) were retrieved from the record and were analyzed for different histopathologic lesions in relation to age and gender. The Department of Histopathology had a standardized procedure regarding processing, block formation, sectioning, staining the slides, evaluation and final diagnosis of cholecystectomy specimens. All the gall bladder specimens were processed in the same way to authenticate the results. All patients who had cholecystectomy either open or laparoscopic at LRH Peshawar during the study period and whose histopathological reports were available in the record were included in the study. Patients having inadequate or autolysed specimens of gall bladder or unavailable records of histopathological examination after cholecystectomy were excluded from the study. Data regarding age, gender, pre-cholecystectomy ultrasound or CT findings for any suspicion of carcinoma or mass gall bladder was obtained from the request forms

of the patients while subsequent histopathology results of the gall bladder specimens were retrieved from computer of the concerned histopathology section. The data was entered into and analyzed by Microsoft Excel software.

## RESULTS

A total of 400 gall bladder specimens were subjected to the histopathology examination during the mentioned five years period. Among these specimens, 110 were of males and 290 were of females. Age wise patients ranged from 17-75 years with a mean of 43 years (Table 1). Out of the total 400 cholecystectomy specimens, chronic cholecystitis was the main diagnostic entity and was reported in 329 (82.25%) specimens followed by acute on chronic cholecystitis which was reported in 40 specimens. Complete break up of these histopathological diagnostic entities in all the 400 gall bladder specimens is shown in table 2.

**Table 1: Age and gender distribution of patients with cholecystectomy specimens (n=400)**

Age (Years)	Male (%)	Female (%)	Total (%)	No. of cancers
17-20	4(1%)	14(3.5%)	18(4.5%)	-
21-30	11(2.75%)	31(7.75%)	42(10.5%)	-
31-40	30(7.5%)	95(23.75%)	125(31.25%)	-
41-50	42(10.5%)	88(22%)	130(32.5%)	3
51-60	21(5.25%)	54(13.5%)	75(18.75%)	4
61-70	2(0.5%)	6(1.5%)	8(2%)	1
>70	0(00%)	2(0.5%)	2(0.5%)	-
Total	110(27.5%)	290(72.5%)	400 (100%)	8

**Table 2: Histopathological findings of gall bladder specimens (n=400)**

S.No	Histopathological Findings	No. of specimens	Percentage	Male	Female
1	Chronic cholecystitis	329	82.25	86	243
2	Acute on chronic cholecystitis	40	10	13	27
3	Cholesterosis	10	2.5	4	6
4	Acute gangrenous cholecystitis (abscess gall bladder)	9	2.25	3	6
5	Adenocarcinoma	8	2	3	5
6	Xanthogranulomatous cholecystitis	4	1	1	3
Total		400	100	110	290

## DISCUSSION

Cholecystectomy specimens are received commonly in each histopathology laboratory, where they are evaluated for various pathological lesions on sound scientific parameters. Our study of five years duration consisted of 400 cholecystectomy specimens. Gender wise

females outnumbered the males with a male to female ratio of 1:2.4 showing that females are more affected by the diseases of gall bladder. Other studies conducted by Mohan et al<sup>9</sup> and Siddiqui et al<sup>4</sup> also showed that females to be outnumbered, with a male to female ratio of 1:6.4 and 1:7 respectively. Possible explanation to this high incidence of gall bladder diseases in females

is sedentary life styles and female sex hormones which expose females to the formation of gallstones<sup>9</sup>.

Age wise, maximum number of patients in our study was in the fifth decade of life (130 cases, 32.5%). It has shown by several studies that prevalence of gallstones increases with increasing age. This may be due to increase in activity of HMG CoA reductase or decrease in activity of cholesterol  $\alpha$  reductase causing increased secretion of cholesterol and saturation of bile<sup>9</sup>.

Chronic cholecystitis was the main diagnostic entity in our study involving 329 (82.25%) specimens of gall bladder. This entity has various histomorphological spectrum like acute on chronic cholecystitis, xanthogranulomatous cholecystitis, cholesterosis and porcelain gall bladder<sup>10</sup>. These results are in close approximation to the results of the study conducted by Faisal et al where chronic cholecystitis was found in 203 (92.3%) specimens<sup>4</sup>. A similar study conducted by Memon et al<sup>8</sup> also reported chronic cholecystitis as major histopathological finding to be identified in 64.8% cases.

Chronic xanthogranulomatous cholecystitis was observed in 8(2%) cholecystectomy specimens, which is in close approximate to the results of the study conducted by Mohan et al<sup>9</sup> showing this entity in 2.3% of the gall bladder specimens. There is increased wall thickness in Xanthogranulomatous cholecystitis and thus mimics carcinoma on gross examination. Therefore it is important to have awareness of this entity to avoid any aggressive diagnosis like carcinoma<sup>9</sup>.

Our study showed acute gangrenous cholecystitis (GC) to be found in 9(2.25%) cases. These findings are also in the range (2-29%) mentioned by Kayyali et al<sup>11</sup> and Nidimusili et al<sup>12</sup>. It is the last stage of gallbladder inflammation which results from progressive vascular compromise and ischemia. This leads to necrosis and perforation of the gallbladder wall. Various factors like diabetes mellitus, advanced age, increased C-reactive protein level and associated cardiovascular diseases increase the probability of GC<sup>13</sup>.

There is wide variation in the incidence of carcinoma gallbladder<sup>14</sup>. In the present study, there were eight (2%) cases. This figure is in close approximation to the results of studies conducted by Mohan et al<sup>9</sup> and Siddiqui et al<sup>3</sup> where they found carcinoma in 1.09 % and 2.7% cholecystectomy specimens respectively. Incidence of gall bladder carcinoma in different studies ranges from 1% to 12.4%<sup>15</sup>. This difference may be due to the reason that carcinoma of gallbladder usually presents at an advanced and surgically unresectable stage, thus the laboratory does not receive gall bladder specimens of such patients.

## CONCLUSION

Benign lesions of gall bladder outnumber the malignant ones and females suffer more from gall bladder pathologies. There is more chance of finding malignancy in cholecystectomy specimens of aged patients. Hardening and thickening of the wall of gall bladder in chronic and xanthogranulomatous cholecystitis can sometimes mislead towards the diagnosis of malignancy.

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#### CONTRIBUTORS

HS conceived the idea, planned the study, and drafted the manuscript. MAK and WS helped acquisition of data and did statistical analysis. All authors contributed significantly to the submitted manuscript.