

# HISTOPATHOLOGICAL SPECTRUM OF GALLBLADDER LESIONS IN CHOLECYSTECTOMY SPECIMENS- A TERTIARY CARE EXPERIENCE

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## ABSTRACT

Gall Bladder can be affected by various pathologies of which gall stones and inflammatory conditions are common. Neoplasms are rare but can be fatal if diagnosed late, thus the histopathological studies of all the cholecystectomy specimen is essential. The aim of this study was to determine the histopathological spectrum of gallbladder lesions in cholecystectomy specimens and their association with age & sex of the patients. This study was done in the Department of Pathology, IIMSR in UP from May 2022 to February 2024. A total of 115 specimens were taken and their clinical details and histological findings were analysed. Out of 115 cases, gallstones and related diseases showed female preponderance 84 (73.04%), male patients were 31(26.95%). Maximum incidence was seen in 2<sup>nd</sup> & 3<sup>rd</sup> decade of life (64cases). Histopathological examination revealed Chronic cholecystitis (CC) with cholelithiasis was the most prevalent lesion (46 patients) which was followed by CC(25 cases),CC with cholestrolosis(11 cases),CC with cholestrolosis and cholelithiasis (8 cases),CC with pyloric metaplasia (5 cases),CC with reactive atypia (4 cases),CC with cholelithiasis and dysplasia (4 cases),Chronic fibrosing CC with focal reactive atypia(3cases),Acute on chronic cholecystitis with mild focal dysplasia(2 cases),Xanthogranulomatous CC(2 cases),CC with papillary hyperplasia(2 cases),CC with adenomatous hyperplasia and focal dysplasia(1 case),GB adenocarcinoma(1case),Intracystic papillary neoplasm with an associated invasive carcinoma(1 case).

**KEYWORDS:** Chronic Cholecystitis, Cholecystectomy, Histopathology.

## INTRODUCTION

Gall bladder is located under the liver surface. Its primary function is to store bile and its storage capacity is 30 to 50 ml. It concentrates the bile by water absorption. The gallbladder has three main parts namely fundus, body and neck or infundibulum. (1) Gallbladder diseases are a commonly encountered health issue, which requires cholecystectomy. Benign lesions of gallbladder are more commonly encountered in our routine practices. Inflammation of the gallbladder occurs due to impacted stone in the cystic duct. Helicobacter pylori, Escherichia coli, Streptococcus, Klebsiella are the commonly associated organisms causing gallbladder lesions. Clinically the patients of acute cholecystitis and chronic cholecystitis present with fever, vomiting, nausea, mild jaundice and colicky pain in the right hypochondriac region. (2,3). Gall bladder cancer is considered rare but has poor prognosis as its often detected at advanced stages. Dysplasia and adenomas, are the premalignant forms of gallbladder carcinogenesis. As per Globocan 2020, there have

been 84,695 deaths due to GBC worldwide. Incidence of gall bladder cancer (GBC) is high in India and it contributes to around 10% of the total cases worldwide. (4).

The histopathology of all the cholecystectomy specimen plays a crucial role in diagnosing benign and malignant lesions of gallbladder. This study aimed to find the histopathological patterns of gallbladder lesions in the cholecystectomy specimens received post op in our hospital and get further information on the etiopathogenesis of various GB lesions.

## RESEARCH QUESTION

What are the various histopathological lesions seen in cholecystectomy specimens?

## AIM

To study the histopathological spectrum of gallbladder lesions in cholecystectomy specimen.

## OBJECTIVE

To find the association of gallbladder lesions with age & sex of the patients

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**MATERIALS AND METHODS**

The study done was a retrospective study, period of study was from May 2022 to February 2024 and it was done in the Department of Pathology, IIMSR, Lucknow on a total of 115 cholecystectomy samples. The relevant clinical details and histological findings were analysed. Information regarding gross examination, processing of the specimen was taken. The cases were evaluated and further classified.

**RESULTS**

Out of the 115 cholecystectomy specimens, age of the evaluated patients ranged from 6 to 75. Most commonly affected age group was 30-40. (Table 1) High association with gallstones was noted. The male to female ratio was 1:2.7 and a clear female preponderance was observed. (Table 2) Most of the GB lesions which were analyzed were non-neoplastic (Table 3) Chronic cholecystitis (CC) with cholelithiasis was most common followed by chronic CC with cholesterolosis. Cholesterolosis (19 cases) was a common change noticed in this study (16.52%). Grossly, the mucosal surface showed fatty streaks and on microscopy lipid laden macrophages were seen. In cases of acute and chronic cholecystitis, on histology normal as well as hyperplastic mucosa, inflammatory cells in the muscularis mucosae layer were noted. In chronic cholecystitis, on gross examination, GB appeared firm with fibrotic walls. On microscopy

flattened mucosa, fibrosis and chronic inflammatory infiltrates were seen. Adenocarcinoma (malignancy) was noted in two cases only. Grossly these gall bladders appeared slightly enlarged. A fragile papillary mass in the body region of gall bladder was grossly visible in one of the cases. Microscopically, mucosal glands were lined by cuboidal cells. Nucleus of the cells was hyperchromatic and cytoplasm was moderate to scanty, many mitotic figures were also seen. Arrangement of the cells were in glandular form with luminal secretions.

Age Group	No. of Patients	Total no of Patients
<10	4	115
11-20	5	
21-30	33	
31-40	31	
41-50	19	
51-60	17	
>60	6	

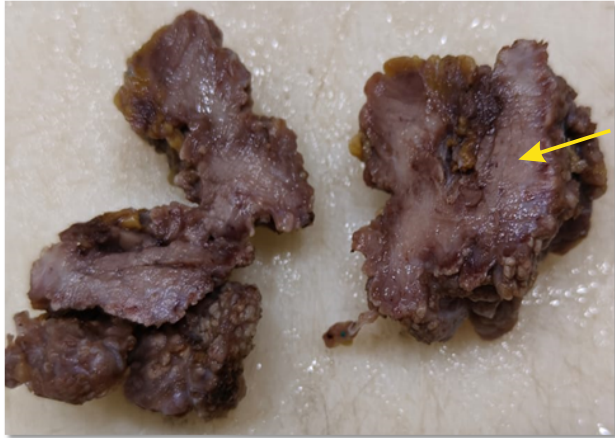
*Table 1 – Distribution of Patients as per age Group*

Gender	No. of cases	%	Total No. of Cases
Femal	84	73.04%	115
Male	31	26.95%	

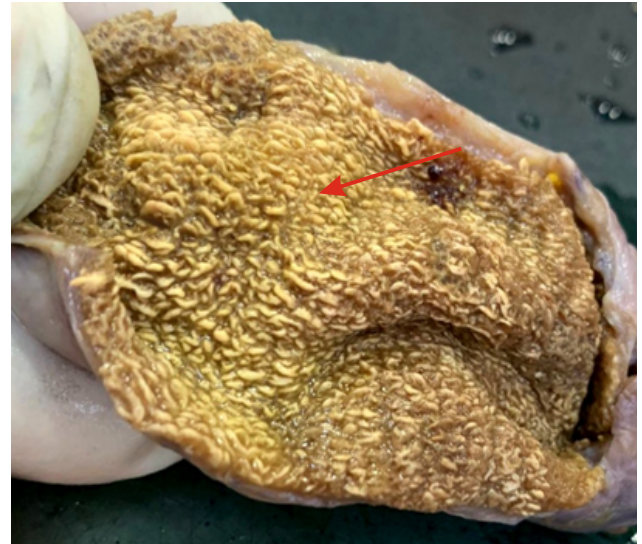
*Table 2- Distribution of Patients as per Gender*

Diagnosis	Total cases	Percentage of cases
CC with cholelithiasis	46 cases	40%
Chronic cholecystitis (CC)	25 case	21.73%
CC with cholesterolosis	11 cases	9.56%
CC with cholesterolosis and cholelithiasis	08 cases	6.95%
CC with pyloric metaplasia	05 cases	4.34%
CC with reactive atypia	04 cases	3.47%
CC with cholelithiasis and dysplasia	04 cases	3.47%
Chronic fibrosing CC with focal reactive atypia	03 cases	2.60%
Acute on chronic cholecystitis with mild focal dysplasia	02 cases	1.73%
Xanthogranulomatous CC	02 cases	1.73%
CC with papillary hyperplasia	02 cases	1.73%
CC with adenomatous hyperplasia and focal dysplasia	01 case	0.87%
GB adenocarcinoma	01 case	0.87%
Intracystic papillary neoplasm with an associated invasive carcinoma	01 case	0.87%

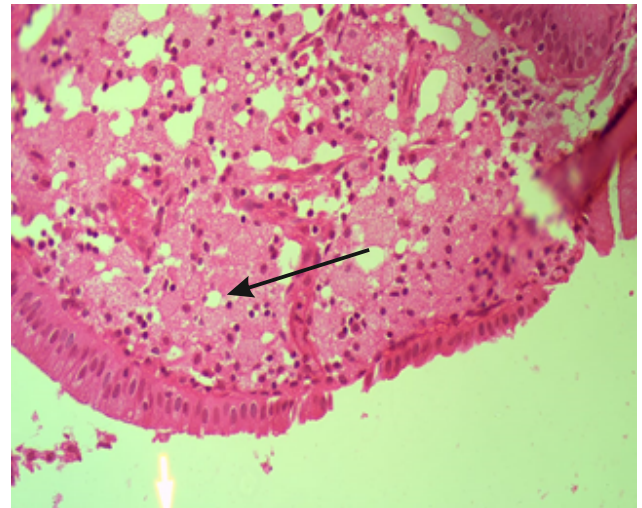
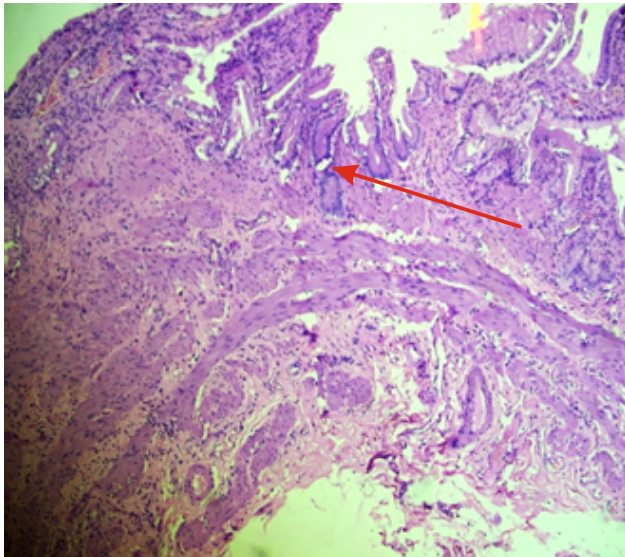
*Table 3: Incidence of Gall Bladder Lesions*



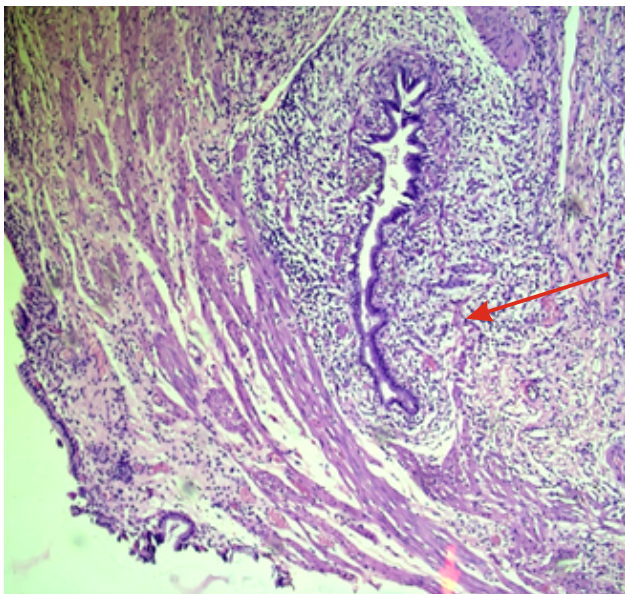
**Fig. 1: Thickened & Fibrotic Gall Bladder Seen on Gross Examination**



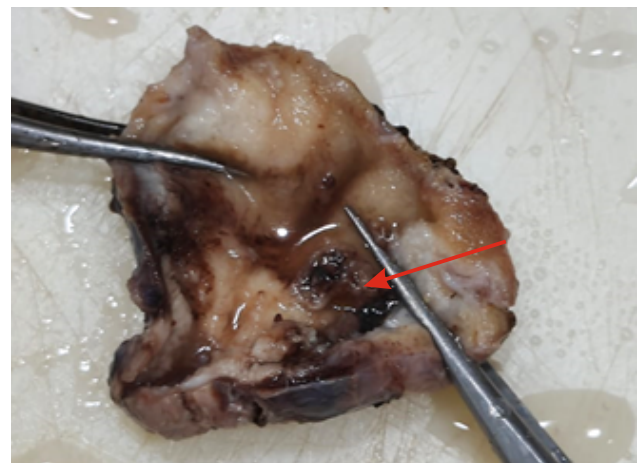
**Fig. 4: Fatty Streaks on Mucosal Surface Seen in Cholestrolis on Gross Examination**



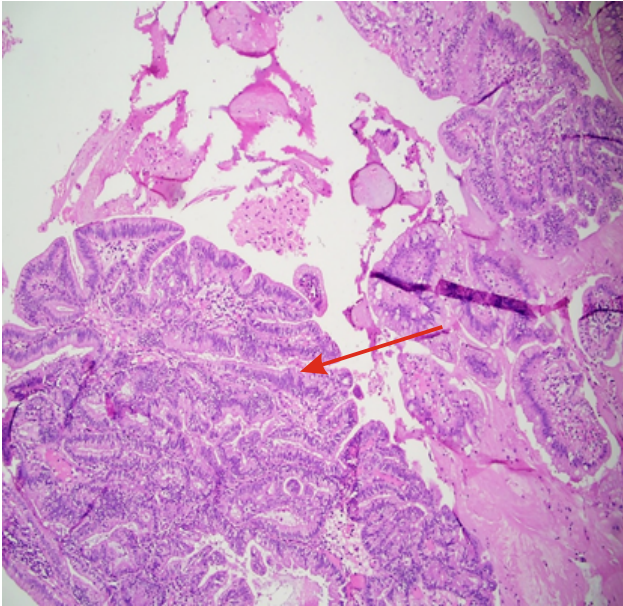
**Fig. 5: Lipid Laden Macrophages Seen in Cholestrolis**



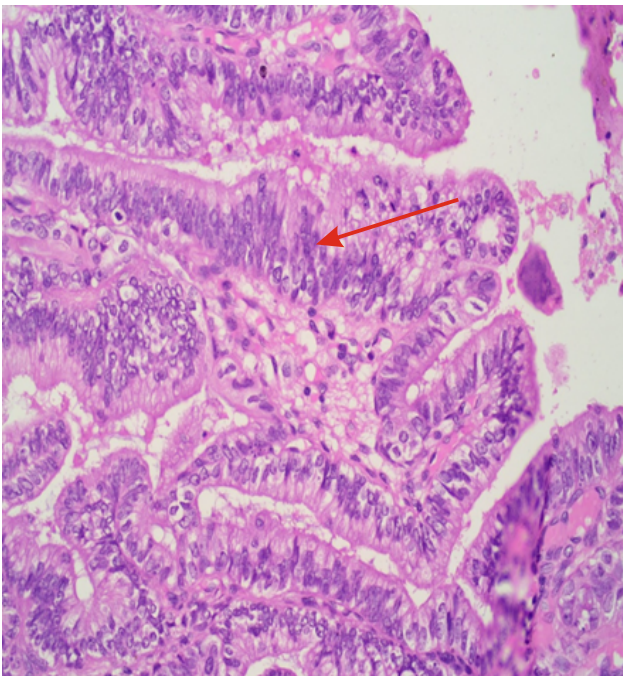
**Fig. 2 & 3: Chronic Cholecystitis**



**Fig. 6: Papillary Growth Seen on Gross Examination**



**Fig. 7: Well differentiated adenocarcinoma –low power view 10x**



**Fig. 8: Adenocarcinoma (on 40X)**

## DISCUSSION

The age of the patients was found to be ranging from 6 to 75 years. Most patients were in the 30-40 age group (33 cases) followed by fourth decade (31 cases) which was in concordance with various other studies. High association with gallstones is seen (50.43%) but it is less in comparison with other studies, for example in the study by Awasthi et al there was an association of 95.2%(5) and similarly in the study by Mohan et al it

was 95.45%.(6) Beena D et al concluded an association with gallstones in 65% of the cases.(7) One of the possible reasons for the low percentage in comparison with other studies could be dietary differences, environmental conditions etc in the various areas of studies. The M:F ratio in this study is 1:2.7. Out of 115 total cases, 84 patients were women and 31 patients were men. A very clear female preponderance is seen. Cholesterolosis (19 cases) was a common diagnosis analyzed in this study (16.52%). Our results are similar to the findings of Mohan et al. (6) 5 cases of metaplasia (pyloric or intestinal) were noted in this study which was also noted in a study done in middle-east (8) Chronic cholecystitis with reactive atypia and Chronic cholecystitis with dysplasia was seen in four cases each. Two cases of xanthogranulomatous chronic cholecystitis were noted. It is important to recognize this variant as it usually presents with wall thickness increased and can resemble carcinomas grossly. Only two cases of Gall bladder carcinoma were seen, one case was of Adenocarcinoma in a 65-year-old man while the other case was of a 45 year old lady with the diagnosis of Intracystic neoplasm with an associated invasive carcinoma. Both cases were incidental findings. 98.26% gallbladder lesions were of non-neoplastic type which was in concordance with the studies of Murmu et al (98.1%) (9), Mittal R et al (98.23%) (10) & Mohan et al (98.72%) (6) indicating neoplastic lesions of gallbladder being a rare occurrence.

## CONCLUSION

Gall bladder diseases histopathologically show wide spectrum of presentation. This study revealed that most of the GB lesions were inflammatory and mainly of non-neoplastic type. High association with gallstones was seen. It can also be concluded that GB carcinoma is a rare diagnosis. Thus, evaluation of cholecystectomy specimens should be done with utmost care and vigilance. Accurate gross examination and microscopy of these lesions is a must to diagnose incidental malignancies.

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