



SPECTRUM OF HISTOPATHOLOGICAL CHANGES IN CHOLECYSTECTOMY SPECIMENS DUE TO CHOLELITHIASIS WITH SPECIAL REFERENCES TO DYSPLASIA ACCORDING TO AGE

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ABSTRACT

Gall stone disease is a common health problem throughout the world and majority of this problem occurs in developing countries. Most of the gall bladder carcinoma is associated with gall stone disease but there is still lacuna of information in this aspect. Gallstones present for a longer period predispose for carcinoma of gall bladder. In India, cholelithiasis is found to be seven times more common in North India than in South India and predominantly affected women. The purpose of the study is to describe the morphological spectrum of diseases in the gallbladder and to assess the histopathological changes in association with gallstones in respect to age and of the patients.

KEYWORDS : cholecystectomy, Gall stone, Dysplasia, age

INTRODUCTION

Gall stone disease is a common health problem throughout the world and majority of this problem occurs in developing countries. Gall bladders with carcinoma usually also contain calculi in 80-90% of cases¹. A high incidence of carcinoma of gall bladder is observed in subjects with high incidence of stone or who has been harbouring stones for a longer duration. It has a wide spectrum of diseases ranging from congenital anomalies, gallstones and its complications, non-inflammatory, inflammatory to the neoplastic lesions.

All gall bladder containing stones should be removed surgically because of the risk of cancer, this being greater than the operative mortality risk. Gallstone afflict 10%-20% of adult population in developed countries². It is difficult to diagnose distinctly benign and malignant lesions of gallbladder before surgery without histopathological examination³. Despite the concept by people that routine histopathology of cholecystectomy specimen plays a dismal role in the management of most patients⁴, it plays an important role in clinic pathologic correlation of various lesions of gallbladder and helps in diagnosing premalignant conditions like porcelain gallbladder or malignant conditions like carcinoma in situ and early carcinoma. This is the reason that each and every specimens of cholecystectomy should be evaluated in the histopathology laboratory⁵. On routine histopathologic examination of cholecystectomy specimens, the most commonly found pathology is cholelithiasis. Among other pathology cholecystitis both acute and chronic is common. Cholesterolosis, Xanthogranulomatous cholecystitis, benign polyps, Dysplasia, Intestinal metaplasia, premalignant and malignant conditions are the less common pathological entities^{6,7}.

Method-

The study will be conducted in the Department of Pathology, Medical College, Kolkata, from January 2019-June 2020. Patients with Gall bladder disease who underwent cholecystectomy in the department of surgery, medical college

and hospital, Kolkata were included in the study. 100 cases during the study period will be included.

Sample Design:

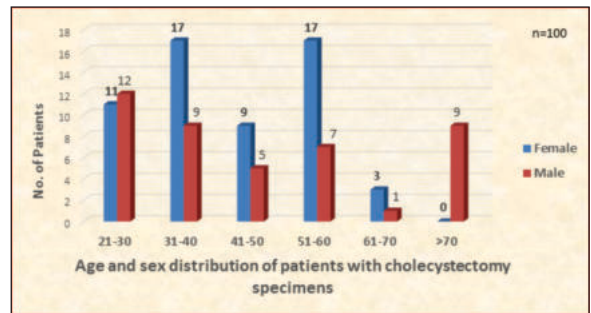
Inclusion Criteria:

All cholecystectomy specimens received in the central laboratory, Department of Pathology, Medical College, Kolkata.

Exclusion Criteria:

- Specimens without any clinical details
- Autolyzed specimens.

RESULTS AND ANALYSIS



Bar Dia Gram 1:

Multiple Bar Diagram shows age and Sex distribution of patients with cholecystectomy specimens

Table 1:- Histopathological Findings Of Gallbladder Specimens (n= 100)

Sl No.	Histopathological findings	No. of specimens	%	Males	Females
1	Chronic cholecystitis	64	64.0%	29	35
2	Acute cholecystitis	9	9.0 %	4	5
3	cholesterics	2	2.0 %	1	1

4	Acute gangrenous cholecystitis	2	2.0 %	1	1
5	Adenocarcinoma	2	2.0 %	0	2
6	Xanthogranulomatous cholecystitis	4	4.0 %	1	3
7	Dysplasia	6	6.0 %	2	4
8	Intestinal metaplasia	11	11.0%	5	6
Total	----	100	100%	43	57

Table 2. Distribution Of Histopathological Changes In Relation To Gender

Histopathological change	Male		Female		p-value
	n	%	n	%	
Chronic cholecystitis	29	45.31%	35	54.69%	0.2421
Acute cholecystitis	4	44.44%	5	55.56%	0.6466
cholesterics	1	50.0%	1	50.0%	1.0000
Acute gangrenous cholecystitis	1	50.0%	1	50.0%	1.0000
Adenocarcinoma	0	0.0%	2	100.0%	0.0833
Xanthogranulomatous cholecystitis	1	25.0%	3	75.0%	0.0833
Dysplasia	2	33.33%	4	66.67%	0.2688
Intestinal metaplasia	5	45.45%	6	55.55%	0.6103

Table 3: Comparison Of The Reported Histopathological Findings In ≤ 60 And > 60 Years Old Patients.

	≤ 60 years old patients (n = 66)	>60 years old patients (n = 34)	p-value
Chronic cholecystitis	52/66 (78.79%)	12/34 (35.29%)	P < 0.0001
Acute cholecystitis	4 (6.06%)	5 (14.71%)	0.1543
cholesterics	2 (3.03%)	0 (0.0%)	0.3077
Acute gangrenous cholecystitis	1 (1.52%)	1(2.94%)	0.6328
Adenocarcinoma	0 (0.0%)	2 (5.88%)	0.0477
Xanthogranulomatous cholecystitis	1(1.52%)	3 (8.82%)	0.0792
Dysplasia	2 (3.03%)	4 (11.76%)	0.0831
Intestinal metaplasia	4 (6.06%)	7 (20.59%)	0.0286

Table 4 : Findings From USG

Types of cholecystitis		Number of cases
Multiple stones noted	GB wall thickened	88 (88%)
	GB wall partially thickened	12 (12%)

Table 5: Gross Findings Of Gall Bladder Specimens (N = 100)

Mucosa	No. of patients		p-value
	Male	Female	
bile stained	31(31.0%)	42 (42.0%)	p>0.05
bile non-stained	12 (12.0%)	15 (15.0%)	
TOTAL	43 (43.0%)	57 (57.0%)	

Images



Figure 1: A- Gall Bladder Specimen With Cholesterol Stone

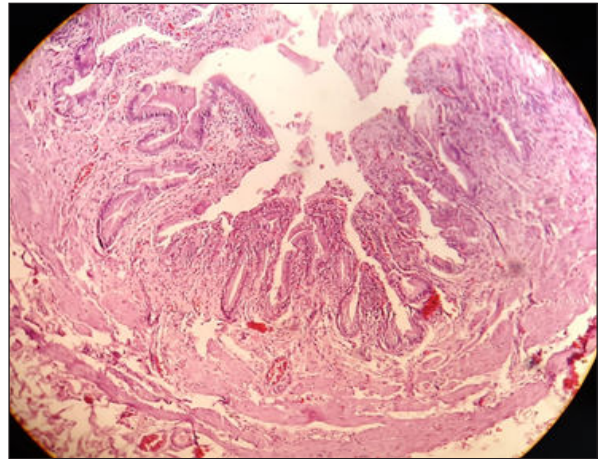


Fig :2 Histopathology Of Chronic Cholecystitis,h &e Staining, High Power View

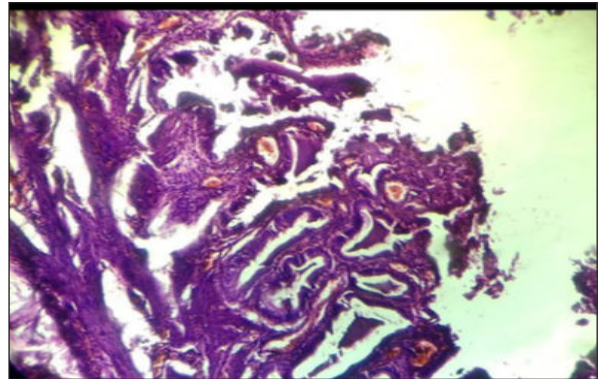


Fig3: Chronic cholecystitis-follicular type and with hyperplasia of glands-, H&E staining ,low power view

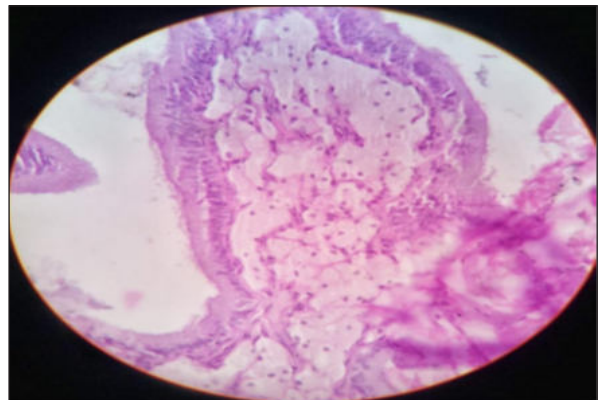


Fig 4: Histopathology of cholesterolosis of Gallbladder, H&E staining , High power view

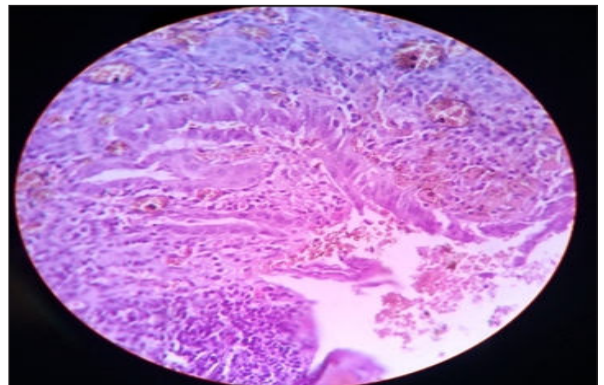


Fig 5: Histopathology of Low-grade epithelial dysplasia of Gallbladder, H &E staing ,High power view

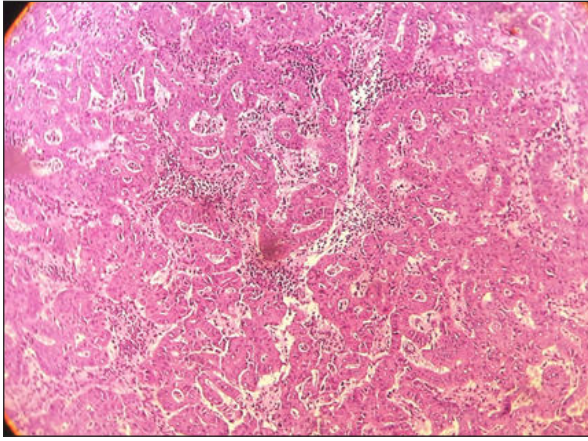


Fig 6: Histopathology of adenocarcinoma of gall bladder H &E staining, high power

DISCUSSION

Gallbladder disease is the most common surgical disorder requiring cholecystectomy either open or laparoscopic technique. Cholecystectomy specimens are received commonly in each histopathology laboratory, where they are evaluated for various pathological lesions. The estimated prevalence of the disease in India is reported to be between 2% and 29%⁸.

The present study was carried out on 100 cholecystectomy specimens to determine the histopathological spectrum and frequency of gallbladder disease. Histopathology not only establishes a tissue diagnosis in gallstone disease but also contributes towards understanding its etiopathogenesis. It can also help in planning future treatment modality.

In our present study, the age of the patients ranged from 21 to 89 years. Maximum number of patients was in the fourth decade of their life.

Out of the 100 cholecystectomy specimens studied, 43 (43.0 %) were of males and 57 (57.0 %) were of females with M:F ratio 1:1.33 in this study. Thus, the data shows that females are more affected by the disease of gallbladder.

In this study, age ranges from 21-89 years with a mean of 51.22 years. Maximum numbers of patients were between 31-40 years. From Table 1 it is observed that Histopathological findings of gallbladder specimens, Chronic cholecystitis (64 %), Acute cholecystitis (9.0 %), cholesterics (2%), Acute gangrenous cholecystitis (2%), Adenocarcinoma (2%), Xanthogranulomatous cholecystitis (4.0 %), Dysplasia (6%), Intestinal metaplasia (11%).

Tables 2 and 3 show the distributions of Histopathological findings by gender and age group (<60years and ≥60 years) respectively. We observed no statistically significant difference between the presence of cholesterols, Xanthogranulomatous cholecystitis etc. in relation to the patients' gender. From table 3, it is revealed that there is significant association between age group (≤ 60 years and > 60 years) and Histopathological variables (Chronic cholecystitis, Adenocarcinoma, Intestinal metaplasia) as p-values are < 0.05 (at 5% level of significance). It is observed that statistically significant difference between the presence of Chronic cholecystitis, Adenocarcinoma, Intestinal metaplasia in relation to patient age (<60 or ≥60) years. From table 4, it is observed that Types of cholecystitis as findings from USG, GB wall thickened where Multiple stones noted 88 % and GB wall partially thickened is 12 %. From the table 5 it is revealed that there is no significant between Sex and Mucosa bile stained and Mucosa bile non-stained as the p-value is

>0.05 (at 5% level of significance).

More than 95% of biliary tract disease is attributable to cholelithiasis. As chronic cholecystitis is associated with cholelithiasis in more than 90% of cases, the at-risk population is the same as that for gallstones. Super saturation of bile predisposes to both chronic inflammation and in most instances stone formation.

Chronic cholecystitis is rarely seen in the absence of lithiasis, although pure stones of the cholesterol and calcium bilirubin ate types may be present without inflammation. Thickening of the wall is always present sometimes to a striking degree. Occasionally this is associated with diffuse calcification a condition known as porcelain gallbladder.

Tyagi S.P. et. al., studied the morphologic changes of gallbladder in 415 cholecystectomy specimens. Females were more affected with male to female ratio of 1:6.5 and the mean age was 43.6yrs. Most of the cases were seen in 4th and 5th decade. Associated cholelithiasis were present in 85.3% of cases^{10,11}.

Amandip singh et al studied 100 cases, maximum type was of mixed stones (54%) and was multiple in number (46%). However, gallstone type and number are nonsignificant variables to produce precancerous lesions (i.e., hyperplasia and metaplasia). Statistically significant results were obtained while comparing the mucosal response with gallstone size ($P = 0.012$)¹².

So at the end of the study it can be concluded that, adequate sampling of a dysplastic gallbladder, it remains crucial for the surgical pathologist and to routinely submit a section of the cystic duct margin. If a premalignant lesion is detected, generous sampling of the gallbladder should follow to exclude frank malignancy. Additional studies are needed to better understand the long-term risk associated with premalignant lesions of the gallbladder. Cost-effective management of these lesions and optimal patient outcome can then be accomplished.

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