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Retrospective histopathological analysis of all gallbladder lesions in a tertiary healthcare center

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Abstract

Introduction: Gallbladder affected by variety of benign and malignant lesions. Carcinoma in early stage confined to mucosa and difficult to differentiate from Chronic Cholecystitis hence histopathological examination provide valuable tool to diagnose nonneoplastic and neoplastic lesions of the Gallbladder.

Material & Methods: In our study, 500 cholecystectomy specimens received over a period of 34 months in Dept. Of Pathology, Gajra Raja Medical College and Hospital. Sections were taken from Neck, Body & Fundus of Gallbladder, stained with H&E and examined under microscope.

Result: In our study of 500 cholecystectomy specimens, 494 cases were benign and only 6 cases were malignant. Chronic Cholecystitis, Acute Cholecystitis, Hyperplasia, Mucocele constitute 94%, 3.2%, 1%, .6% respectively making chronic cholecystitis (94.6%) as the commonest histopathological finding while Malignancy(Adenocarcinoma) constitute only 1.2%. Out of 500 specimens 256 patients had gall stones. Out of these 218 were female and 38 were male patients. Male to female ratio (M:F) was 1:4.5 and regarding gall stones, it was 1:5.73, showing gall stone disease predominance in females.

Conclusion: Present study emphasize on the need of a careful macroscopic as well as microscopic examination to understand the varied presentation of Gallbladder lesions and to rule out malignancy, to establish diagnosis, grading and guide management of disease accordingly.

Keywords: Cholecystectomy, chronic cholecystitis, gall stones

1. Introduction

Gall bladder is located in right hypochondrium, in fossa of gall bladder. It serves as a storehouse of bile, where bile is concentrated. It is frequently encountered organ with a variety of non-neoplastic and neoplastic lesions [1]. More than 95% of biliary diseases are attributable to cholelithiasis [2]. Sex, age, ethnicity or region greatly affect the prevalence of gallstone disease. In India gallstone disease is more common in north than the south [3]. It affect 10-20% of adult population [4].

Non-Neoplastic conditions include acute cholecystitis, chronic cholecystitis, cholesterolosis, hyperplasia, fibrosis, metaplasia, empyema and porcelain gall bladder.

Neoplastic conditions includes adenoma, adenocarcinoma and squamous cell carcinoma. Gall bladder lacks submucosal layer hence at the time of diagnosis of gall bladder malignancy, it has already progressed to advanced stage and metastasis.

Carcinoma in its early stage are confined to mucosa and are difficult to differentiate clinically from cholecystitis. So histopathological examination is necessary for diagnosis of these early malignancies for better prognosis and appropriate management of the patients.

2. Materials and Methods

This is a study done retrospectively of 500 cholecystectomy specimens received in the Department of Pathology, GRMC, Gwalior over a period of 34 months from January 2014 to Nov 2016. Clinical and histopathological data was obtained from departmental records. During the processing specimens were fixed in 10% formalin. Full thickness bits were taken from neck, body and fundus of gall bladder of size 2x2x2cm⁵. Any abnormal finding seen on gross examination was further examined by taking additional sections. Staining was done with H and E stain and examined in microscope under low & high magnification [6].

3. Results

The age of the patients ranged from 11 to 90 years. Mean age of the patients was 41.2±12.7 years. In our study of 500 cholecystectomy specimens 256 patients had gall stones. Out of these 218 were female and 38 were male patients. Male to female ratio (M:F) was 1:4.5 and regarding gall stones, it was 1:5.73. (Table 1)

Maximum number of patients were between 31 and 40 years age group (33.4%). There were 136 (81.43%) females and 31 (18.57%) males with M:F ratio of 1:4.38 (Table 2)

All specimens were examined microscopically and morphological changes noted (Table 3). Chronic cholecystitis was the most frequently found abnormality in

470 patients (94%). Other benign lesions were acute cholecystitis in 16(3.2%), hyperplasia in 5(1%), mucocele in 3(.6%). Total of 6(1.2) cases of malignant were found, all lesions diagnosed as adenocarcinoma of the gallbladder (Fig 1-5) (Table 3).

Table 1: Sex distribution of cholecystectomy patients with or without stones

Gall stone	Present	Absent	Total
Female	218	192	410
Male	38	52	90
Total	256	244	500

Table 2: Age and Sex distribution of cholecystectomy patients having gall stone

Age	Female	Gall stone present	Male	Gall stone present	Total	Gall stone present (both sexes)	Overall % in which gall stone present (n=500)
11-20	15	5	5	1	20	6	4
21-30	49	24	14	6	63	30	12.6
31-40	136	92	31	15	167	107	33.4
41-50	112	57	19	7	131	64	26.2
51-60	53	26	11	4	64	30	12.8
61-70	35	15	5	2	40	17	8
71-80	8	3	3	1	11	4	2.2
81-90	2	0	2	1	4	1	.8

Table 3: Histological diagnosis /Microscopic diagnosis in cholecystectomy specimen and correlation with Gallstone.

Diagnosis	Total	Stone present	% (where gall stone present)
Acute cholecystitis	16	6	3.2
Chronic cholecystitis	470	247	94.6
Hyperplasia	5	1	1
Mucocele	3	1	.6
Adenocarcinoma	6	1	1.2

Table 4: M: F and mean age comparison in various studies of cholecystectomies

Study	Year	No. Of Patients	M:F ratio	Mean Age (Years)
Siddiqui	2013	220	1:7	32.3
Selvi <i>et al</i>	2011	78	1.6	45.9
Mohan <i>et al</i>	2005	1100	1:6.4	44.5
Shah <i>et al</i>	2014	170	1:2.3	43.3
Dowerah <i>et al</i>	2015	103	1:4.6	42.43
Memon <i>et al</i>	2011	282	1:2.7	45
BMC Surgery	2013	220	1:7	32
Present study	2016	500	1:5.7	41.2 ± 12.7

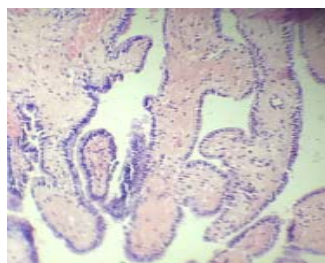


Fig 1: Hyperplasia

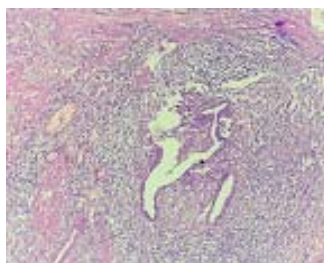


Fig 2: Chronic cholecystitis

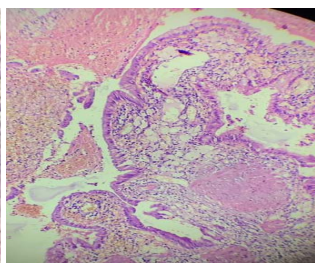


Fig 3: Mucocele

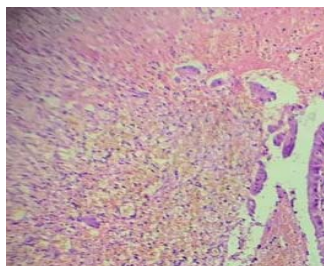


Fig 4: Acute cholecystitis

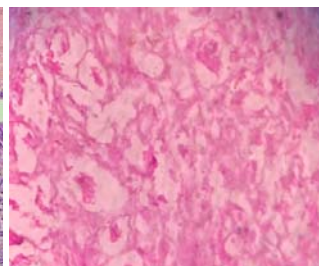


Fig 5: Adenocarcinoma GB

4. Discussion

Present study done retrospectively on 500 cholecystectomy specimens to ascertain the histopathological pattern of gallbladder diseases. In our study of 500 cholecystectomy specimens 256 patients had gall stones. Out of these 218 were female and 38 were male patients. Male to female ratio (M:F) was 1:4.5 and regarding gall stones, it was 1:5.73. (Table 1) showing gall stone disease predominance in females, exact etiology of which is not known but genetic and acquired association is seen. Other studies taken for comparison also showed female preponderance (Table 4). In our study, the age of the patients ranged from 11 to 90 years. Maximum number of patients were in the 31 to 40 yr age group with mean age of 41.2 ± 12.7 years. In a study by BMC surgery, 2013 the age of the patients ranged from 19 to 80 years with a mean age of 32.3 years ± 5.3 years and male to female ratio is 1:7.

Obesity, rapid weight loss, estrogen exposure due to the use of oral contraceptives, pregnancy, few acquired factor including stasis of gall bladder secretions either neurogenic or hormonal [7], hereditary factors including ATP binding cassette have association with gall stone formation [8].

Pregnancy because of increase expression of hepatic lipoprotein receptors and increase in hepatic HMGCoA reductase enhancing both uptake and biosynthesis of cholesterol respectively leading to increase biliary secretion of cholesterol [2].

In our study gall stone was most commonly associated with chronic cholecystitis (94.6%) which is also the commonest histopathological finding in our study (94%) followed by Acute cholecystitis (3.2%) which is consistent with another study done by Dowerah *et al* [9].

In our study incidence of gallstone disease is predominantly seen in female sex, most commonly occurring in age group 31-40 years. Out of 500 cholecystectomy specimens 6 cases of carcinoma gall bladder were diagnosed out of which 5 patients were female and one male. Youngest patient diagnosed with malignancy was a 36 yr old female.

Incidence of gallbladder carcinoma in cholecystectomy specimen reported in various study including BMC surgery 2013, Terada *et al* was 2.7% and 2.2% respectively and in our study it is 1.2%.

5. Conclusion

Gall bladder diseases can have a varied presentation both clinically and histopathologically. The present study, in accordance with other studies showed a female predominance. Majority of patients were in fourth decade of life. Cholelithiasis proved to be a major risk factor for inflammatory diseases of this organ. The most common histopathological diagnosis was chronic cholecystitis. This study emphasize on the need of a careful macroscopic as well as microscopic examination to rule out malignancy. Routine histopathological examination provide important clues for making diagnosis, grading and guide management of disease accordingly.

6. References

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