

A RETROSPECTIVE HISTOPATHOLOGICAL STUDY OF 120 CASES OF CHOLECYSTECTOMY SPECIMENS IN BARABANKI DISTRICT OF UTTAR PRADESH

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ABSTRACT

BACKGROUND

Gallbladder is an important organ of the body, where the storage and concentration of bile takes place. More than 95% of the biliary tract disease is attributed to cholelithiasis (gall stones). The gall bladder pathology ranges from cholecystitis to highly lethal carcinoma.

The present study was conducted to review the significant histopathological findings encountered in gallbladder specimens received in our institute.

MATERIALS AND METHODS

In this retrospective descriptive study, one hundred and twenty (120) cholecystectomy specimens were studied over a period of two years (January 2015 to December 2016). It was conducted in Department of Pathology, Mayo Institute of Medical Sciences, Barabanki, UP, India. The histopathological changes in the gallbladders were examined and correlation with age, sex and religion was evaluated.

RESULTS

A total of 120 cholecystectomy specimens were received over a period of 2 years. The mean age of the patients was 45 years (Age range 10 - 80 years) with Male: Female ratio of 1: 3.5. Histopathologically, the most common lesion was inflammation (91.7%) followed by tumour-like lesions (6.0%) and then carcinoma gallbladder (2.5%).

CONCLUSION

The results of this study suggest that females were found to be more commonly affected in all pathologies of gallbladder. We found chronic cholecystitis to be the most common histopathological diagnosis.

KEY WORDS

Cholecystectomy, Cholelithiasis, Tumour-Like Lesions, Chronic Cholecystitis, Gallbladder, Malignancy.

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BACKGROUND

Gallbladder is an important organ of the body, where the storage and concentration of bile takes place. Normal capacity of adult gallbladder is 50 mL. More than 95% of the biliary tract disease is attributed to cholelithiasis (Gall stones). The gall bladder pathology ranges from cholecystitis to highly lethal carcinoma. The number of cholecystectomies has increased more than 50% in the last 10 years.

The vast majority of surgeries were performed due to gall stones related pathology. The purpose of the present study is to classify different lesions of gallbladder (their respective frequency) in 120 cholecystectomies in the last 2 years in the Department of Pathology.

Objective

This retrospective descriptive study was undertaken with a purpose to determine the frequency and classify different histopathological lesions encountered in cholecystectomy specimens in Barabanki region of Eastern Uttar Pradesh.

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MATERIALS AND METHODS

This is a retrospective descriptive study which includes 120 gallbladder specimens collected over a period of 2 years in the Department of Pathology, Mayo Institute of Medical Sciences, from Barabanki region in Eastern Uttar Pradesh, India. The study was conducted to reveal the various pathologies of gallbladder which included cholecystitis, cholelithiasis, dysplasia, tumour-like lesions and malignancy.

The specimens were incised and left overnight for proper fixation. Later grossing was performed as per standard protocol.^[1,2] The sections were taken from cystic duct, fundus, body and neck. If found, additional sections were taken from lymph node and from growth/ ulcer or thickening of the gallbladder wall. The tissues were processed as per the standard routine processing technique and later stained with H and E stain.

RESULTS

The prepared stained slides were analysed microscopically and accordingly classified into various categories like acute cholecystitis, chronic cholecystitis with and without cholelithiasis, cholesterosis, xanthogranulomatous cholecystitis, adenomatous hyperplasia, polyp, dysplasia and malignancy. Variables of patient's characteristics were taken into account which included age, sex and religion. A detailed correlation was made between patient's characteristics and different gallbladder pathologies.

Age	Inflammatory (Acute/Chronic/Xanthogranulomatous)	Tumour-Like Lesion	Malignant
10-20	3 (2.5%)	1 (0.83%)	0
20-30	23 (19.0%)	1 (0.83%)	0
30-40	28 (23.33%)	1 (0.83%)	0
40-50	23 (19.0%)	2 (1.66%)	0
50-60	16 (13.0%)	0 (0%)	1 (0.83%)
60-70	13 (10.8%)	1 (0.83%)	0
70-80 Yrs.	4 (3.0%)	0 (0%)	2 (1.7%)
Total (120)	110 (91.7%)	7 (6.0%)	3 (2.5%)

Table 1. Correlation between Age and Histopathological Lesions (Total 120 Cases)

Sex	Inflammatory (Acute/Chronic/Xanthogranulomatous)	Tumour-Like Lesion	Malignant
Male	23 (19.2%)	3 (2.5%)	0 (0%)
Female	87 (72.5%)	4 (3.0%)	3 (2.5%)
Total (120)	110 (91.7%)	7 (6.0%)	3 (2.5%)

Table 2. Correlation between Sex and Histopathological Lesions

Religion	Inflammatory (Acute/Chronic/Xanthogranulomatous)	Tumour-Like Lesion	Malignant
Hindu	83 (69.2%)	6 (5.0%)	2 (1.7%)
Muslim	27 (22.5%)	1 (0.83%)	1 (0.83%)
Total (120)	110(91.7%)	7 (6.0%)	3 (2.5%)

Table 3. Correlation between Religion and Histopathological Lesions

Age	Dysplasia	Adenomatous Hyperplasia	Polyp
10-20	0	1 (0.83%)	0
20-30	0	0	0
30-40	0	2 (1.7%)	0
40-50	1 (0.83%)	0	1 (0.83%)
50-60	1 (0.83%)	0	0
60-70	0	1 (0.83%)	0
70-80	0	0	0
Total (07)	2 (1.7%)	4 (3.3%)	1 (0.83%)

Table 4. Correlation between Age and Tumour-Like Lesion

Sex	Dysplasia	Adenomatous Hyperplasia	Polyp
Male	0	2 (1.7%)	1 (0.83%)
Female	2 (1.7%)	2 (1.7%)	0
Total (07)	2(1.7%)	4(3.33%)	1(0.83%)

Table 5. Correlation between Sex and Tumour-Like Lesions

Religion	Dysplasia	Adenomatous Hyperplasia	Polyp
Hindu	1 (0.83%)	3 (2.5%)	1 (0.83%)
Muslim	1 (0.83%)	1 (0.83%)	-
Total (07)	2 (1.7%)	4 (3.33%)	1 (0.83%)

Table 6. Correlation between Religion and Tumour-Like Lesions

Age	CC-CL#	CC+CL*	Acute Cholecystitis	Xanthogranulomatous Cholecystitis	Cholesterosis
10-20 yrs.	02 (1.67%)	01 (0.83%)	01 (0.83%)	00	01 (0.83%)
20-30 yrs.	10 (8.3%)	06 (05%)	01 (0.83%)	00	03 (2.5%)
30-40 yrs.	12 (10.0%)	05 (4.2%)	00	01 (0.83%)	02 (1.7%)
40-50 yrs.	19 (15.8%)	10 (8.3%)	00	00	03 (2.5%)
50-60 yrs.	06 (5.0%)	08 (6.7%)	01 (0.83%)	00	02 (1.7%)
60-70 yrs.	03 (2.5%)	03 (2.5%)	02 (1.7%)	00	05 (4.2%)
70 -80 yrs.	01 (0.83%)	02 (1.7%)	00	00	00
Total 110	53 (44.2%)	35 (29.2%)	05 (4.2%)	01 (0.83%)	16 (13.3%)

Table 7. Showing Inflammatory Pathologies in different Age Groups

CC-CL#- Chronic cholecystitis without cholelithiasis.
 CC+CL*- Chronic cholecystitis with cholelithiasis.

Gender	CC-CL#	CC+CL*	Acute Cholecystitis	Xanthogranulomatous Cholecystitis	Cholesterosis
Male	13 (10.8%)	05 (4.2%)	02 (1.7%)	00	02 (1.7%)
Female	40 (33.3%)	30 (25%)	03 (2.5%)	01 (0.83%)	14 (11.7%)
Total 110	53 (44.2%)	35 (29.2%)	05 (4.2%)	01 (0.83%)	16 (13.4%)

Table 8. Showing Inflammatory Pathologies in different Sex Groups

CC-CL#- Chronic cholecystitis without cholelithiasis.
 CC+CL*- Chronic cholecystitis with cholelithiasis.

Religion	CC-CL#	CC+CL*	Acute Cholecystitis	Xanthogranulomatous Cholecystitis	Cholesterosis
Hindu	35 (29.2%)	24 (20%)	04 (3.3%)	00	11 (9.2%)
Muslim	18 (15.0%)	11 (9.2%)	01 (0.83%)	01 (0.83%)	05 (4.2%)
Total 110	53 (44.2%)	35 (29.2%)	05 (4.2%)	01 (0.83%)	16 (13.3%)

Table 9. Showing Inflammatory Pathologies in different Religion Groups

CC-CL#- Chronic cholecystitis without cholelithiasis.
 CC+CL*- Chronic cholecystitis with cholelithiasis.

Disease	Number of Cases
Chronic cholecystitis	35 (29.2%)
Acute cholecystitis	00
Xanthogranulomatous cholecystitis	00
Cholesterosis	3 (2.5%)
Polyp	00
Adenoma	3 (2.5%)
Dysplasia	00
Adenocarcinoma	2 (1.7%)
Total (120)	43 (35.8%)

Table 10. Showing Gall Stones association with different Pathologies of Gallbladder

Classification of different Gallbladder pathologies with respect to patient characteristics-

Age and Sex Distribution of Patients

Out of 120 cases, there were 26 males and 91 females with M:F of 1: 3.5. The age ranged from 10 years to 80 years with average age of 45 years. Out of 120 gallbladder specimens, inflammatory pathology was the most common diagnosis (91.7%), affecting more females (72.5%) than males (19.2%) and the age group involved was 30 – 40 years.

Religion Wise Distribution

Out of 120 cases, 83 (69.2%) number of cases of Hindu and 27 (22.5%) number of cases of Muslims with ratio of 3.1: 1. The most common diagnosis among both the religions turn out to be inflammatory pathology.

Different Categories of Gall Bladder Pathologies

1. Cholelithiasis

In the present study gallstones were seen in 43 number of cases (35.8%), which included 8 (6.7%) males and 35 (29.2%) females. Gallstones were most frequently seen in chronic cholecystitis 35 (29.2%); however, they are also seen in other pathologies such as cholesterosis 3 (2.5%), adenomatous hyperplasia 3 (2.5%) and adenocarcinoma 2(1.7%).

2. Acute Cholecystitis- Correlating the diagnosis with age, among total 5 patients, 2 cases (1.7%) were in the range of 60-70 yrs., 4 (3.3%) patients were Hindus and 1 (0.83%) patient was Muslim. Females were more affected than males.

3. Chronic Cholecystitis- With/ without cholelithiasis were reported, maximum in the age group of 40 - 50 yrs. There were 40 females and 13 males who presented with chronic cholecystitis without cholelithiasis and 30 females and 5 males were presented with chronic cholecystitis with cholelithiasis. When correlation was made with religion, 35 Hindu patients presented with chronic cholecystitis without cholelithiasis and 24 patients with chronic cholecystitis with cholelithiasis. 18 Muslim patients had chronic cholecystitis without cholelithiasis and 11 had chronic cholecystitis with cholelithiasis.

4. Cholesterosis

16 patients reported of cholesterosis, among which maximum number of cases (5) were in the range of 60 - 70 yrs. Females (14) were affected more than males (2). There were 11 Hindu patients and 5 Muslim patients.

5. Xanthogranulomatous Cholecystitis

There was only 1 case of xanthogranulomatous cholecystitis with age group of 30 - 40 yrs., who was a Hindu female.

6. Dysplasia

This is a precursor lesion of gallbladder malignancies, characterised by enlarged non-polarised hyperchromatic nuclei. In the present study, there were 2 cases. All of them were Hindu females in the group of 40 - 60 yrs.

7. Adenomatous Hyperplasia

Adenomatous hyperplasia of the gallbladder is considered a benign pseudotumour of the gallbladder and has no known malignant potential. Adenomatous hyperplasia were demonstrated in 4 cases (3.33%), among which maximum presented in 30 - 40 yrs. Male: female ratio is 1: 1. There were 3 Hindu patients and 1 Muslim patient.

8. Polyp

A single case of polyp was identified who was a 46 years old Hindu male.

9. Adenocarcinoma

In 120 cases, 3 (2.5%) cases were reported as adenocarcinoma. All the patients were female, within the age group of 50 - 70 years. Among 3 patients, 2 (1.7%) patients were Hindus and 1 (0.83%) was Muslim.

DISCUSSION

Total 120 patients with gallbladder pathologies operated for cholecystectomy were studied during January 2016 - December 2017 period. The age of patients with gallbladder disease ranged from 10 years to 80 years and were most commonly found in the 4th decade. There were 23 males and 87 females with Male/ Female Ratio in our study of 1: 3.5, which showed predominance of females over males. The results are comparable to Thamil Selvi et al,^[3] Almuslamani et al^[4] and Baidya et al^[5] who concluded that male: female ratio was 1:1.6, 1:2.7 and 1:1.8 with predominance of female patients.

Thamil Selvi et al^[4] and Vahini et al^[6] found the maximum incidence of gallstones in the 6th decade and 5th decade respectively. Our study showed maximum incidence in 4th decade similar to Rakesh BH et al^[7] found 4th decade is the most commonly affected group.

Our study were similar to that of Khanna et al^[8] Thamil Selvi,^[3] Almuslamani et al,^[4] Baidya et al^[5] and Costa et al^[9] are all of the opinion that chronic cholecystitis is the most frequent histopathological condition associated with gallstones. The normal prevalence of gallstones ranges from 11 - 36%.^[10] The estimated prevalence of gallstones disease in India has been reported as 2 - 29% by Mohan H et al^[11] study and in our study gallstone disease prevalence was 35.8%.

In our study, the mean age of patients with acute cholecystitis was 65 years. This observation was also concurrent with previous study done by Glenn et al,^[12] who reported that it was more frequent in patients older than 65 years of age. The frequency of acute cholecystitis was found to be 4.2% in our study, as Tadashi Terada^[13] study showed 1.5% of cases of acute cholecystitis. Acute cholecystitis was

diagnosed more in females as compared to males in our study, which were similar to study done by Kumar H et al.^[14] However, Glenn F study showed male predominance.^[12]

The incidence of cholesterosis was reported to be 2.7% in Tyagi SP et al study.^[15] In our study incidence of cholesterosis was found to be 13.3% as compared to Tadashi Terada study, in which there was 11% incidence of cholesterosis.

Our study was similar to that of Rao et al^[16] that Cholesterosis was more common in women (11.7%) than in men (1.7%).

Xanthogranulomatous cholecystitis is an uncommon inflammatory and destructive gallbladder process. In our study, single case (0.83%) was diagnosed as xanthogranulomatous cholecystitis and not associated with gallstone. However, Kumar H et al reported two cases of it and both are associated with stones.

In our study, 4 cases of adenomatous hyperplasia (3.33%) were reported with maximum patients presented in 30-40 years with equal incidence in male and female patients. However, study done by Mathur et al^[17] and Stancu et al^[18] observed that incidence of adenomatous hyperplasia were 8%/ 7.8% respectively.

The prevalence of GB polyp was reported as 0.83%. In our study, however, prevalence rate of GB polyp were found to be 4.3 - 6.9% in Ake Andren study.^[19]

We found that mean age for dysplasia to be 50 years, similar to Mukhopadhyay et al^[20] study in which mean age was 52.6 years. Two cases of dysplasia were found in females in our study. Kumar H et al found seven cases of dysplasia with female predominance.

Gall bladder carcinoma is the most common cancer of biliary tree and the 5th most common gastrointestinal malignancy. (Bartlett, 2000; Lam et al., 2005; Shih et al., 2997). It is characterised by rapid progression and very high mortality rate. The incidence of gallbladder cancer varies by geographic region and racial ethnic group. The highest incidences are reported in Indians, Pakistanis, Chileans, Bolivians, Central Europeans, Israelis, Native Americans and Americans of Mexican origin (Lazcano-Ponce et al, 2001; Randi et al, 2006).

In our study, average age of gallbladder cancer was found to be 65 years ranging from 50 - 80 years. Our study was similar to that of Perpetuo et al.^[21] However, Shukla et al^[22] reported mean age of the patient to be 50 years (range 40-60 years).

Carcinoma of the gallbladder is predominantly a disease of elderly females, also common finding in our present study, similar to that of Shukla et al^[22] and Henson et al^[23] studies.

In our study gallbladder carcinoma is most common among the Hindu females, whereas a case control study done by Varsha et al^[24] showed both Hindus and Muslims possessing equal risk of gall bladder cancer.

CONCLUSION

The results of this study suggest that females were found to be more commonly affected in all pathologies of gallbladder. We found chronic cholecystitis to be the most common histopathological diagnosis.

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