

Retrospective histopathologic findings of routine cholecystectomy specimens in a teaching hospital in North East India

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ABSTRACT

Background: Cholecystectomy is one of the most common general surgical operations performed worldwide. Limited data is available about the histopathological diagnoses of various gallbladder diseases in North Eastern part of India even though a higher incidence of gallbladder cancer has been reported from this part of the Country. Hence, a retrospective review of the histopathological findings of routine cholecystectomy specimens was done to assess the incidence of gallbladder cancer and other gallbladder pathologies. **Aims and Objective:** To study the incidence of gallbladder cancer and other pathologic findings in routine cholecystectomy specimens. **Methodology:** A retrospective study of the histopathological findings of cholecystectomy specimens with presumed benign gallbladder diseases who had undergone cholecystectomy from June 2013 till October 2021. **Results:** A total of 1683 patients had undergone cholecystectomy during the study period. In total, 1354 patients underwent laparoscopic cholecystectomy and 339 patients underwent open cholecystectomy. Gallstones were present in 1631 patients. Chronic cholecystitis and cholesterosis were the most common histopathologic findings, followed by pyloric metaplasia. Unsuspected gallbladder cancer was detected in eight patients (0.48%). **Conclusion:** Chronic cholecystitis was the most common histopathologic finding followed by pyloric metaplasia. Gallstones were found in most patients. Incidental gallbladder cancer was detected in 0.48% of patients.

Keywords: Benign gallbladder disease, cholecystectomy, gallbladder cancer, histopathology, routine operation

Introduction

Cholecystectomy is one of the most common routine general surgical procedures. It is done mostly for patients with stones in the gallbladder. Obesity and metabolic syndrome which are globally on the rising trend might be responsible for the increased incidence of gallstones and its associated complications.^[1-3] Gallbladder cancer is one of the dreaded gastrointestinal malignancies with dismal

outcome.^[4] Gallstones are found in approximately 85% of patients with gallbladder cancer and the association ranges from 2.3 to 34.4 in several case-control studies.^[5] The approximate incidence of patients developing gallbladder cancer in patients with gallstones is 0.5%,^[6] and in patients with incidentally detected gallbladder cancer, the incidence ranges from 0.3 to 1.5%.^[7]

The other histopathologic findings in postcholecystectomy specimen can be chronic cholecystitis, xanthogranulomatous cholecystitis, pyloric metaplasia, etc.

This retrospective study was conducted to record the various histopathologic findings of postcholecystectomy specimens in

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a teaching hospital in North East India, where the incidence of gallbladder cancer is apparently high. According to National Cancer Registry Programme, 2013 the age adjusted ratio of gallbladder cancer for females from North East India was 14.0, which was second in the World after Chile.^[8]

Material and Methods

This data-based retrospective study was carried out in a teaching hospital in North East India. Gallbladder biopsy reports of patients with symptomatic, benign gallbladder disease who had undergone cholecystectomy from June 2013 till October 2021 were analysed. Patients with suspected or proven gallbladder malignancies were not included in the study. Cholecystectomy specimen is routinely sent for histopathological examination in the institute. In total, 10% buffered formaldehyde was used to fix the surgical specimens, embedded with paraffin and examined under light microscopy after staining with haematoxylin and eosin. When no evidence of any acute or chronic inflammation or other pathologies was detected microscopically, a diagnosis of normal or negative cholecystectomy was made. Clinical data of age and gender distribution of patients were noted from the available records in the histopathological reports.

Results

A total of 1683 patients had undergone cholecystectomy during the study period (1334 by laparoscopic cholecystectomy and 349 by open cholecystectomy). The mean age of the patients was 37.6 years. The youngest patient was a 9-year-old girl and the oldest was a 76-year-old lady. There was a strong female predominance among the patients (1306 females; 377 males). Thirty-two patients did not have gallstones in the gallbladder and were operated polyps or gallbladder sludge. Most patients had multiple small to medium-sized calculi in the gallbladder. Mixed stone was the most predominant type. The patient profile is shown in Table 1.

Chronic cholecystitis (70.47%) was the most common histopathologic diagnosis amongst the patients, as shown in Table 2. Carcinoma was diagnosed in eight patients (0.48%). Gallbladder wall was thickened in 326 patients.

Discussion

Gallbladder specimens are routinely sent for histopathological examination (HPE) mainly to rule out incidental gallbladder cancer.^[9] The incidence of unsuspected gallbladder carcinoma in routine cholecystectomy specimens ranges from 0.2 to 2.9%^[10,11], and in the present series, it was found to be 0.48%. Malignant disease of gallbladder is very aggressive in nature and is more common in females.^[12] Hence, all cholecystectomy specimens are routinely sent for histopathological examination in the institute.

However, the practice of routine histopathological examination of gallbladder specimens with grossly normal appearance is being

Table 1: Various patient parameters

Parameters	Numbers
Gender	
Males	377
Females	1306
Cholecystectomy performed	
Laparoscopic	1334
Open	349
Gallstones	1631
Gallstones ≥ 2 cm in size	107

Table 2: The histopathologic findings of gallbladder specimens

Pathology of gallbladder specimen	n	Percentage
Chronic cholecystitis	1186	70.47
Cholesterosis	223	13.25
Pyloric metaplasia	136	8.08
Xanthogranulomatous cholecystitis	58	3.45
Mucocele of gallbladder	12	0.71
Intestinal metaplasia	28	1.66
Gallbladder carcinoma	8	0.48
Acute cholecystitis	7	0.42
Adenomyomatosis	6	0.36
Empyema of gallbladder	4	0.24
Gallbladder neck ectopic gastric and pancreatic tissue	1	0.06
Lymphoplasmacytic cholecystitis	1	0.06
Porcelain gallbladder	1	0.06
Normal gallbladder	6	0.36
Gallbladder polyps	6	0.36
Total	1683	100

questioned recently, as it not only increases the burden on the pathologists but also have little or no clinical significance related to the management of such patients.^[13] Darmas *et al.*^[14] advocated a selective approach of histopathological examination of routine cholecystectomy specimens with no compromise to patient safety. Bazoua *et al.*^[15] in their analysis of 2890 cholecystectomy histopathological examination detected gallbladder malignancy in 10 patients, and all patients had thickened gallbladder walls on gross examination. In the study of Mittal R *et al.*^[16], in their series of 1312 cholecystectomy specimens, 610 (46.50%) cholecystectomy specimens had thickened walls, ulcerated mucosa or mass lesions and 13 of these 610 gallbladder specimens had underlying gallbladder malignancy. No malignancy was diagnosed in any grossly normal appearing gallbladder specimen.^[15] Benkhadoura M *et al.*^[17] and Limaïem F *et al.*^[18] too suggested that all gallbladder specimens should be examined properly after surgery, and only grossly abnormal appearing gallbladder specimens should be sent for histopathological examination.

In the present study, out of the eight patients diagnosed with unsuspected gallbladder malignancy, five had normal appearing gallbladder and three had thickened gallbladder wall. Gallbladder cancer T1a was diagnosed in the five patients, where simple cholecystectomy was adequate treatment. Revision radical

cholecystectomy was performed in the remaining three patients diagnosed with T1b. Hence, the routine practice of sending all cholecystectomy specimens needs to be elucidated further.

Chronic cholecystitis was the most common histopathologic diagnosis documented in the present series, reported in 70.47% of cholecystectomy specimens which was similar to the findings of 67% by Limaïem F *et al.*^[18] Benkhadoura M *et al.*^[17] reported a higher incidence of chronic cholecystitis as 81.60% in their series.

Other histopathological diagnoses included cholesterolosis (13.25%), pyloric metaplasia (8.08%), xanthogranulomatous cholecystitis (3.45%), mucocele of gallbladder (0.71%), intestinal metaplasia (1.66%), acute cholecystitis (0.42%), adenomyomatosis (0.36%), empyema of gallbladder (0.24%), gallbladder polyps (0.36%), etc., One case each of porcelain gallbladder, lymphoplasmacytic cholecystitis and ectopic gastric along with pancreatic tissue were also reported.

The incidence of most benign pathologies [Table 2] were similar to the previous reports.^[17,18] However, the incidence of xanthogranulomatous cholecystitis (3.45%) was found to be higher in the present series than most other reported series. Limaïem F *et al.*^[18] reported 0.30% and Benkhadoura M *et al.*^[17] documented 0.10% of xanthogranulomatous cholecystitis in their series.

The incidence of acute cholecystitis in the present series was much lower (0.42%) than most other reported series. Benkhadoura M *et al.*^[17] reported the incidence of acute cholecystitis in 6.9% of their patients, and Limaïem F *et al.*^[18] reported 6%. Most patients presenting with acute cholecystitis are managed conservatively in the present series and operated electively after 6–8 weeks. This is one of the limitations of the present study, which has resulted in lesser number of diagnoses of acute cholecystitis.

Conclusion

Cholecystectomy specimens are routinely sent for histopathological examination in the institute. The gallbladder specimens are cut open and examined for any gross abnormalities. The incidence of gallbladder carcinoma being detected in unsuspected gallbladder specimens (0.48%) is similar to the previously reported data. Whether all routine cholecystectomy specimens need to be sent for histopathological examination needs to be elucidated further by conducting well-designed randomized controlled trials as routine histopathological examination of all gallbladder specimens overwhelms the hospital resources and expertise.

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Conflicts of interest

There are no conflicts of interest.

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