

Original Research Article

## Spectrum of Morphological Alterations in Cholecystectomy Specimens Due to Cholelithiasis: A Two Years Study

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### ABSTRACT

**Background:** Gallstone disease is a common health problem worldwide. It is commonly believed that bile stasis is the prime factor for gallstone formation. It is known to produce histopathological changes in the gallbladder. It is also one of the predisposing factors for the development of cancer of gallbladder.

**Materials and Methods:** This was a retrospective study carried out in the Department of Pathology, SGT Medical College, Gurgaon for a period of 2 years. The study included 526 cases of cholecystectomy specimens for cholelithiasis. The history, clinical findings and investigations were retrieved from the records of the hospital. Detailed macroscopic examination of the specimens was done after complete fixation in 10% formalin. Each gallbladder was sectioned serially from the neck to the fundus, processed routinely and embedded in paraffin. Sections were stained with Haematoxylin & Eosin (H & E) stain and histopathological examination was carried out.

**Results:** On gross examination, the serosal surface of the gallbladder was found normal in 340 specimens (64.64%) and congested in 186 specimens (35.36%). Gallbladder wall thickness was normal (2mm) in 230 specimens (43.72%). Mucosa was normal in 322 (61.40%), hemorrhagic in 80 (15.36%), Strawberry like in 98 (18.68%) and slightly nodular in 26 specimens (4.56%). On histologic examination, normal epithelium was seen in 79 specimens (15.01%), epithelial hyperplasia was observed in 195 (37.07%), intestinal metaplasia in 181 (34.41%), cholesterolosis in 65 (12.36%) and dysplasia in 6 (1.15%) specimens.

**Conclusion:** The pathological changes of the gallbladder epithelium may play an important role in the process of gallstone formation.

**Key words:** Gall bladder, histopathology, hyperplasia, dysplasia.

### INTRODUCTION

The gall bladder is a four-inch sac with a muscular wall that is located under the liver. Here most of the bile about three to five cups a day is removed, leaving a few tablespoons of concentrated bile. The gallbladder serves as a reservoir until bile is needed in the small intestine for digestion of fat. [1] Gallstone disease is a common health problem worldwide. It is commonly believed that bile stasis is the prime factor

for gallstone formation. A major cause for stasis is gallbladder dyskinesia which in turn may be a consequence of gallbladder wall pathology. [2] Gall bladder, gallstone, cholecystitis, hyperplasia, metaplasia, carcinoma, cholelithiasis has been described as a disease of civilization. [3]

The aim of this study was to evaluate the incidence of the changes in the gallbladder of patients undergoing cholecystectomy due to cholelithiasis.

## MATERIALS AND METHODS

This was a retrospective study carried out in the Department of Pathology, SGT Medical College, Gurgaon for a period of 2 years. The study included 526 cases of cholecystectomy specimens for cholelithiasis. The history, clinical findings and investigations were retrieved from the records of the hospital. Detailed macroscopic examination of the specimens was done after complete fixation in 10% formalin. Each gallbladder was sectioned serially from the neck to the fundus, processed routinely and embedded in paraffin. Sections were stained with Haematoxylin & Eosin (H & E) stain and histopathological examination was carried out. Data was analyzed using SPSS 17.0 version for windows.

## RESULTS

**Table 1: Histology findings of cholecystectomy specimens**

Microscopy	Number of cases	Percentage
Normal epithelium	79	15.01%
Epithelial hyperplasia	195	37.07%
Intestinal metaplasia	181	34.41%
Cholesterolosis	65	12.36%
Dysplasia	06	1.15%
Total Cases	526	100%

A total of 526 cholecystectomy specimens were received during 2 years period. The male to female ratio was 1: 2.1. The age of the patients varied from 20 to 67 years with a mean age of 51 years. On gross examination, the serosal surface of the gallbladder was found normal in 340 specimens (64.64%) and congested in 186 specimens (35.36%). Gallbladder wall thickness was normal (2mm) in 230 specimens (43.72%). Mucosa was normal in 322 (61.40 %), hemorrhagic in 80 (15.36%), Strawberry like in 98 (18.68%) and slightly nodular in 26 specimens (4.56 %). On histologic examination, normal epithelium was seen in 79 specimens (15.01%), epithelial hyperplasia was observed in 195 (37.07%), intestinal metaplasia in 181 (34.41%), cholesterolosis in 65 (12.36%) and dysplasia in 6 (1.15 %) specimens. The microscopic finding of cholecystectomy specimens is shown in Table.1.

## DISCUSSION

Gallstone diseases are very common throughout the world including India. In 1992, it was estimated that 10–15% of the adult population in USA had gallstones. In the U.K., the prevalence of gallstones at the time of death is estimated to be 17% and may be increasing. [4] Gallstones can be asymptomatic; it is estimated that between 85% and 90% of patients who have gallstones remain asymptomatic. [4] Patients with asymptomatic gallstones have less than 20% chance of ever developing symptoms, and the risks associated with “prophylactic” operation outweigh the potential benefit of surgery in most patients. [5,6] It is now commonly agreed that gallstones are an important risk factor for facilitating development of gallbladder cancer, despite it being adenocarcinoma. [7] In our study, mean age of presentation was 51 years. This correlates well with many studies done in different parts of world. [8] Epithelial Hyperplasia was the most frequent change and was found in 37.07 percent. Albores S et al suggests that a small number of hyperplasia of gall bladder evolves towards atypical hyperplasia and that may progress to in situ carcinoma which finally becomes invasive carcinoma. [9] Intestinal metaplasia was seen in 181 cases (34.41 %). Khanna et al showed 16% of intestinal metaplasia in his study. [8] It is widely accepted that metaplastic epithelium is more susceptible to malignant transformation than normal. [10] Epithelial dysplasia was found in 1.15% of gall bladder specimens. Other study has reported the incidence of dysplasia in 2.2% of cholelithiasis. [10] Cholesterolosis was found in 12.36% of cholelithiasis specimens. Other study showed 13.4% of cholesterolosis. [11]

## CONCLUSION

Gallstone diseases are very common and its complications are not infrequent. Once a patient begins to experience symptoms, there is a greater chance that the patient will continue to have symptoms.

There is also a finite risk of disease related complications such as acute cholecystitis, gallstone pancreatitis, mucocele, empyema, choledocholithiasis and carcinoma gallbladder. Overall, the pathological changes of the gallbladder epithelium may play an important role in the process of gallstone formation.

## REFERENCES

1. Juan Rosai, Ackerman's Surgical Pathology, Vol. One, 8th edition, Hardcourt Brace & co. Asian Pvt Ltd 1996; Chapter 14:943-963.
2. Velanovich VF. Biliary dyskinesia and biliary crystals: a prospective study. *Am Surg* 1997; 63:69-73.
3. Kozoll DD, Dwyer G, Meyer KA. Pathologic correlation of gall stones, a review of 1,874 autopsies of patients with gallstones. *Arch Surg.* 1959; 79:514-36.
4. Russell RCG. The Gall bladder and bile ducts. In: Russel RCG, Williams NS, Bulstrode CJK (eds), *Bailey and Love's Short Practice of Surgery*, 24th edn; London: Hodder Arnold, 2004; pp. 1094-1113.
5. Ransohoff D, Gracie W, Wolfenson L, et al. Prophylactic cholecystectomy or expectant management for silent gallstones: a decision analysis to assess survival. *Ann Intern Med* 1983; 99: 199-204.
6. Ransohoff D, Gracie W. Treatment of gallstones, *Ann Intern Med*, 1993; 119: 606-619.
7. Al-Hadeedi SY, Moorhead RJ, Leaper DJ, Wong J. Carcinoma of the gallbladder: A diagnostic challenge. *J CollSurg Edin*1991; 36:174-7.
8. Khanna R, Chansuria R, Kumar M, Shukla HS. Histological changes in gallbladder due to stone disease. *Indian J Surg* 2006; 68:201-4.
9. Albores-Saavedra J, Molberg K, Henson DE. Unusual malignant epithelial tumors of the gallbladder. *Semin Diagn Pathol* 1996; 13:326- 38.
10. Yamamoto YM, Nakajo S, Tahara E. Carcinoma of the gallbladder: The correlation between histogenesis and prognosis. *Virchows Arch Pathol Anat* 1989; 414:83-90.
11. Meirelles-Costa AL, Bresciani CJ, Perez RO, Bresciani BH, Siqueira SA, Ceconello I. Are Histological alterations observed in the gallbladder precancerous lesions? *Clinics* 2010; 65:143-50.

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