



Original Article

# Histopathological changes in gallbladder mucosa associated with cholelithiasis

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Cholelithiasis;  
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## ABSTRACT

**Background:** Gallstone is a very common gastrointestinal disorder. 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 Histopathology, B and B Hospital during a period of 1 year from April 2010 to May 2011. The study included 396 cases of cholecystectomy specimens.

**Results:** On gross examination, outer gallbladder surface was congested in 116 patients (28%), wall thickness was increased in 181 (45.7%) and mucosal abnormalities were present in 126 (31.6%) patients. At microscopy, epithelial hyperplasia was observed in 183 (46.2%), intestinal metaplasia in 112 (28.2%), dysplasia in 5 (1.3%) and cholesterosis in 56 (14%) patients.

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

## INTRODUCTION

Gallstone disease which is a common health problem in worldwide produces diverse histopathological changes in gallbladder mucosa-namely, acute inflammation, chronic inflammation, granulomatous inflammation, hyperplasia, cholesterosis, dysplasia and carcinoma.<sup>1</sup>

The gallbladder mucus plays a regulatory role in cholelithiasis as it promotes the nucleation of stones.<sup>2</sup> Mucus, calcium and lipids act in concert to form the gallstones.<sup>3</sup>

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

A total of 396 of gallbladder, electively resected for cholelithiasis, were retrieved from the archives of the department of pathology, B and B Hospital from April 2010 to May 2011. The specimens were fixed in 10% formalin and were sectioned serially from the neck to the fundus. Routine processing of tissue sections with hematoxylin and eosin staining was done and were reviewed by the authors. Data was analyzed using SPSS 17.0 version for windows.

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## RESULTS

A total of 396 of cholecystectomy specimen were received during one year period. The age range was from 20 to 85 years with a mean age of 52 years. Two hundred and fifty-six were female and 140 were male patients (M:F ratio 1:1.8).

### Gross findings

The serosal surface of the gallbladder was found normal in 280 (72%) and congested in 116 patient (28%). Gallbladder wall thickness was normal (<3mm.) in 215 (54.3%) and thickened (>3mm) in 181 patients (45.7%). Mucosa was normal in 270 (68.4%), hemorrhagic in 55 (13.8%), Strawberry like in 60 (15.1%) and slightly nodular in 11 specimens (2.7%). The gross finding of cholecystectomy specimen is shown in Table 1.

### Microscopic findings

Normal epithelium was seen in 40 specimens (20%), epithelial hyperplasia was observed in 183 (46.2%), intestinal metaplasia in 112 (28.2%), cholesterosis in 56 (14%) and dysplasia in 5 (1.3%).

## DISCUSSION

Gall stone disease known as cholelithiasis is the most common surgical disorder. Cholelithiasis is common with the incidence ranging from 10% to 20% of world population, 11% of the general population of USA.<sup>4</sup> Gallstones appear to be most important risk factor, being reported into 98% cases of gall bladder cancer, a far higher prevalence than in age-matched general population.<sup>5</sup> Autopsy studies indicate that only 1-4% of patient with cholelithiasis develop cancer compared to < 0.2% of those not containing stones.<sup>6</sup>

In our study, mean age of presentation was 52 years. This correlates well with many studies done in different parts of world.<sup>7</sup>

Epithelial Hyperplasia was the most frequent change and was found in 46.2 percent. Albores S et al suggest 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.<sup>8</sup>

Intestinal metaplasia was seen in 112 cases (28.2%). Khanna et al showed 16% of intestinal metaplasia in his study.<sup>7</sup> It is widely accepted that metaplastic epithelium is more susceptible to malignant transformation than normal.<sup>9</sup>

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

Site	Findings	No. of Cases	Percentage
Serosa	Normal	280	72.0%
	Congested	116	28.0%
Wall	Normal	215	54.4%
	Thickened	181	45.7%
Mucosa	Normal	270	68.4%
	Hemorrhagic	55	13.8%
	Strawberry	60	15.1%
	Nodular	11	2.7%

Epithelial dysplasia was found in 1.3% of gall bladder specimens. Other study has reported the incidence of dysplasia in 2.2% of cholelithiasis.<sup>9</sup> Cholesterosis was found in 14% of cholelithiasis specimens. Other study showed 13.4% of cholesterosis.<sup>10</sup>

## CONCLUSION

The mean age group for cholelithiasis was found to be 52 years with a female being more common than males. The observation from this study indicates a relationship between pathologic changes of gall bladder mucosa and gall stone. Overall, the pathological changes of the gall bladder epithelium may play an important role in the process of gallstone formation.

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