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ORIGINAL RESEARCH

Analysis of Histopathological findings of gallbladder mucosa among gallstone patients undergoing laparoscopic cholecystectomy

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Abstract
Background: To analyse histopathological findings of gallbladder mucosa among gallstone patients undergoing laparoscopic cholecystectomy
Materials & methods: 200 gallstone patients were enrolled. Laparoscopic cholecystectomy was done in all the patients and gallbladder mucosal specimens were obtained.Samples were properly sampled and processed by routine histological techniques by hematoxylin and eosin staining of the sections. The various morphological responses were then categorized into four broad categories – cholecystitis, hyperplasia, metaplasia, and carcinoma.SPSS software was used for analysis.
Results: On histopathologic examination, chronic cholecystitis was the diagnosis in 79 percent of the patients while chronic cholecystitis with hyperplasia was the diagnosis in 11.5 percent of the patients. Chronic cholecystitis with metaplasia was the diagnosis in 7.5 percent of the patients while papillary carcinoma was the diagnosis in 2 percent of the patients.
Conclusion: Gallstones produce diverse histopathological changesin the gallbladder including hyperplasia, metaplasia andcarcinoma.
Key words: Gall bladder, Gallstones, Histopathological

Introduction

Cholelithiasis or gallstones are hardened deposits of digestive fluid that can form in your gallbladder. The gallbladder is a small organ located just beneath the liver. The gallbladder holds a digestive fluid known as bile that is released into your small intestine. In the United States, 6% of men and 9% of women have gallstones, most of which are asymptomatic. In patients with asymptomatic gallstones discovered incidentally, the likelihood of developing symptoms or complications is 1% to 2% per year. Asymptomatic gallbladder stones found in a normal gallbladder and normal biliary tree do not need treatment unless they develop symptoms.[1- 3]

Basic and clinical aspects of gallstone pathogenesis continue to receive attention worldwide. Housset et al reviewed several functions of the gallbladder in health and disease. The European Society for the Study of the Liver has published exhaustive Clinical Practice Guidelines on prevention, diagnosis, and treatment of gallstones. A study on 1 064 089 pregnant women, associated gallstone disease with adverse maternal and neonatal outcomes

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including preterm birth, a condition linked with risk of developmental problems. The multivariable logistic regression models within the WHO Multinational monitoring of trends and determinants in Cardiovascular disease (WHO MONICA) studies in Denmark confirmed a strong association between gallstone disease and insulin resistance, systemic inflammation, and genetic predisposition to obesity or type 2 diabetes.[3-7]Gallstone disease produces diverse histopathological changes in gallbladder mucosa-namely, acute inflammation, chronic Inflammation, granulomatous inflammation, hyperplasia, cholesterolosis, dysplasia and carcinoma. The gallbladder mucus plays a regulatory role in cholelithiasis as it promotes the nucleation of stones. Mucus, calcium and lipids act in concert to form the gallstones.[8]Hence; the present study was conducted for carrying out histopathological assessment of gallbladder mucosa among gallstone patients.

Materials & methods

The present study was conducted for carrying out histopathological assessment of gallbladder mucosa among gallstone patients.200 gallstone patients were enrolled. Laparoscopic cholecystectomy was done in all the patients and gallbladder mucosal specimens were obtained.Samples were properly sampled and processed by routine histological techniques by hematoxylin and eosin staining of the sections. The various morphological responses were then categorized into four broad categories – cholecystitis, hyperplasia, metaplasia, and carcinoma. SPSS software was used for analysis. Chi-square test and ANOVA were used for evaluation of level of significance.

Results

151 patients were males while remaining were females. 49.3 years was the mean age of the patients. On histopathologic examination, chronic cholecystitis was the diagnosis in 79 percent of the patients while chronic cholecystitis with hyperplasia was the diagnosis in 11.5 percent of the patients. Chronic cholecystitis with metaplasia was the diagnosis in 7.5 percent of the patients while papillary carcinoma was the diagnosis in 2 percent of the patients. While assessing the correlation of histopathologic diagnosis with gallstone size, significant results were obtained.

Table 1: Gallbladder mucosal responses on histopathology

Histopathologic examination	Number	Percentage
Chronic cholecystitis	158	79
Chronic cholecystitis with hyperplasia	23	11.5
Chronic cholecystitis with metaplasia	15	7.5
Papillary carcinoma	4	2
Total	200	100

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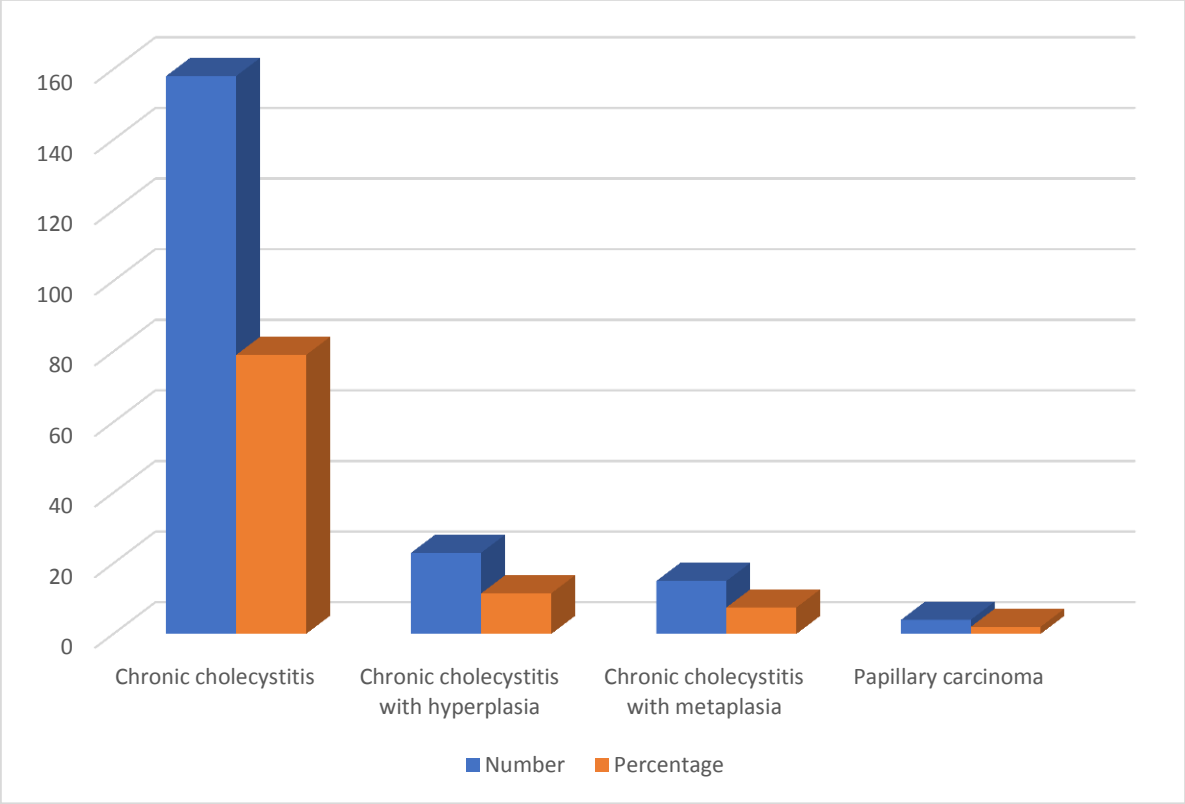
Graph 1: Gallbladder mucosal responses on histopathology



Discussion

The majority of gallstones are cholesterol stones (80%); the remaining are pigmented. In the United States, 500,00 cholecystectomies are performed at an estimated cost of 3 billion dollars per year. In India, gall stones in northern India are predominantly of the cholesterol variety. Similar findings have been reported from Kashmir, Lucknow, Sikkim and north of Bengal whereas in Mumbai, Tamil Nadu (South India) there is predominance of pigment and intermediate gallstones (98%).[7- 11]Hence; the present study was conducted for carrying out histopathological assessment of gallbladder mucosa among gallstone patients.

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sinuses. Adenomatous hyperplasia and Rokitansky-Aschoff sinuses were not seen in gallbladder containing pigment stones but seen in gallbladders containing mixed and cholesterol stones in their study.[10]

While assessing the correlation of histopathologic diagnosis with gallstone size, significant results were obtained. In another study, authors analysed 1101 patients with symptomatic cholelithiasis who had undergone elective cholecystectomy and intraoperative liver biopsy. Histological examination revealed inflammatory changes in the gallbladder in 96.7%, chronic fibrotic cholecystitis in 94.5% and a severe form of cholecystitis in 8.8%. Clinically relevant changes in the liver parenchyma were present in 27.9%, most frequently intrahepatic cholangitis (21.8%). The latter was significantly more common in choledocholithiasis than in isolated cholecystolithiasis.[11]Mohan H et al analyzed the morphologic spectrum of gall stone disease in India. They analyzed morphologic spectrum of 1100 cholecystectomies and observed that mixed type of gallstones predominated in 62.8% of cases. From the results, they concluded that morphologic spectrum of gallstones contributes to the understanding of etiopathogenesis of prevention.[12]

Conclusion

Gallstones produce diverse histopathological changesin the gallbladder including hyperplasia, metaplasia andcarcinoma. Hence; thorough examination of gall bladder mucosa of all the gallstone patients should be thoroughly done.

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