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ORIGINAL RESEARCH

Study of Assessment of Mucosal Changes Occurring in Gall Stone Patients in a Tertiary Care Centre

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ABSTRACT

Background: The present study was conducted for evaluating Mucosal changes occurring in gall stone patients.**Materials &Methods:** A total of 100 gallstone patients were enrolled. Complete demographic and clinical details of all the patients were obtained. A performa was made, and baseline hematological and biochemical findings were evaluated. Preoperative ultrasonographic evaluation of all the patients was done. All the patients underwent laparoscopic cholecystectomy was done. On examination, the size of gallstones was assessed. Gallbladder mucosal specimens were processed, and their H & E sections were evaluated. Histopathologic changes were evaluated. A correlation of histopathologic changes with gallstone thickness was done.**Results:** Mean age of the patients in the present study was 46.2 years. It was seen that cholecystitis was the final diagnosis in 79 percent of the patients while hyperplasia was the final diagnosis in 12 percent of the patients. Cholecystitis with metaplasia was the diagnosis in 6 percent of the patients whereas carcinoma was encountered in 3 percent of the patients. Mean gallbladder mucosal thickness among patients with cholecystitis, hyperplasia, metaplasia and carcinoma was 0.56 mm, 1.69 mm, 1.12 mm and 4.02 mm respectively. On comparing the results statistically, significant results were obtained. **Conclusion:** Diseases of the gallbladder can manifest in a variety of ways, both histologically and clinically. Therefore, in order to improve patient care, a thorough and rigorous macroscopic and microscopic evaluation of every cholecystectomy material should be required.
Key words: Mucosal, Gallbladder, Gallstone.

INTRODUCTION

Gallbladder disease represents a major healthcare problem in the United States. Approximately 12% of the U.S. population, or 30,000,000 Americans have gallstones. More then 750,000 cholecystectomies are performed each year, and the cost of caring for these patients is between 8 and 10 billion dollars annually.[1-3] GD is a common disorder all over the world. The prevalence of GD varies widely by region. In Western countries, the prevalence of gallstone disease reportedly ranges from approximately 7.9% in men to 16.6% in women. In Asians, it ranges from approximately 3% to 15%, is nearly non-existent (less than 5%) in Africans, and ranges from 4.21% to 11% in China.[4-8]

Another common gallbladder disease is gallbladder polyps, characterized as a local protrusion of the inner wall of the gallbladder into the gallbladder cavity. Its main etiology and clinical manifestation are similar to that of gallbladder stones. As a result of the increased cholesterol content in the bile, macrophages aggregate and phagocytose in this region, gradually forming protrusions that protrude out of the mucosal surface.[3, 4]Cholecystectomy is the first treatment option in symptomatic cholelithiasis. Indications for a laparoscopic approach to the gallbladder and biliary tree include symptomatic cholelithiasis, biliary dyskinesia, acute cholecystitis, and complications related to common bile duct stones including pancreatitis with few relative or absolute contraindications. Cholelithiasis produces diverse histopathological changes in gall bladder, namely acute inflammation, chronic inflammation, cholesterolosis, metaplasia, dysplasia, and carcinoma. The gallstones may be solitary or multiple. Solitary stones are mostly cholesterol stones.[6- 8]Hence; the present study was conducted for evaluating Mucosal changes occurring in gall stone patients.

MATERIALS & METHODS

The present study was conducted in Department of General Surgery, L. N. Medical College & Research Centre, Bhopal, Madhya Pradesh (India) for evaluating mucosal changes occurring in gall stone patients. A total of 100 gallstone patients were enrolled. Complete demographic and clinical details of all the patients were obtained. A Performa was made, and baseline hematological and biochemical findings were evaluated. Preoperative ultrasonographic evaluation of all the patients was done. All the patients underwent laparoscopic cholecystectomy was done. On examination, the size of gallstones was assessed. Gallbladder mucosal specimens were processed, and their H & E sections were evaluated. Histopathologic changes were evaluated. A correlation of histopathologic changes with gallstone thickness was done. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software. Chi-square test was used for evaluation of level of significance.

RESULTS

Mean age of the patients in the present study was 46.2 years. 74 percent of the patients were females while the remaining 26 percent were males. While assessing the residence, it was seen that 57 percent of the patients were of urban residence while the remaining were of rural residence. On analyzing the H & E specimens, it was seen that cholecystitis was the final diagnosis in 79 percent of the patients while hyperplasia was the final diagnosis in 12 percent of the patients. Cholecystitis with metaplasia was the diagnosis in 6 percent of the patients whereas carcinoma was encountered in 3 percent of the patients. Mean gallbladder mucosal thickness among patients with cholecystitis, hyperplasia, metaplasia and carcinoma was 0.56 mm, 1.69 mm, 1.12 mm and 4.02 mm respectively. On comparing the results statistically, significant results were obtained.

Table 1: Demographic data

Variable		Number	Percentage
Age group (years)	**Less than 40**	41	41
	More than 40	59	59
Mean age (years)		46.2	
Gender	**Males**	26	26
	Females	74	74
Residence	**Rural**	43	43
	Urban	57	57

Table 2: Gallbladder mucosal changes

Gallbladder mucosal changes	Number	Percentage
Cholecystitis	79	79
Hyperplasia	12	12
Cholecystitis with metaplasia	6	6
Carcinoma	3	3
Total	100	100

Table 3: Correlation of Gallbladder mucosal changes with gallstone thickness

Gallbladder mucosal changes	Gallstone thickness	p-value
Cholecystitis	0.56	0.000 (Significant)
Hyperplasia	1.69	
Cholecystitis with metaplasia	1.12	
Carcinoma	4.02	

DISCUSSION

Gallstone disease is the term used in this guideline to refer to the presence of stones in the gallbladder or common bile duct and the symptoms and complications they cause. Most people with gallstone disease have asymptomatic gallbladder stones, meaning the stones are confined to the gallbladder and they do not have any symptoms. The disease is identified coincidentally as a result of investigations for other conditions. Gallstones are categorized into several types, including cholesterol, pigment, and mixed stones. Evidence suggests that 90% of cholelithiasis patients have cholesterol stones. Cholesterol sources in the human body mainly consist of ab initio synthesis of acetyl coenzyme, enterohepatic circulation, and food intake.[9, 10] Gallstones represent one of the most prevalent digestive disorders in Western countries and patients with gallstone disease are one of the largest categories admitted to European hospitals. About 80% of gallstones in Western countries are made of cholesterol due to disturbed cholesterol homeostasis which involves the liver, the gallbladder and the intestine on a genetic background. The incidence of cholesterol gallstones is dramatically increasing in parallel with the global epidemic of insulin resistance, type 2 diabetes, expansion of visceral adiposity, obesity, and metabolic syndrome.[9-12] Hence; the present study was conducted for evaluating Mucosal changes occurring in gall stone patients.

In the present study, mean age of the patients in the present study was 46.2 years. 74 percent of the patients were females while the remaining 26 percent were males. On analyzing the H & E specimens, it was seen that cholecystitis was the final diagnosis in 79 percent of the patients while hyperplasia was the final diagnosis in 12 percent of the patients. Our results were in concordance with the results obtained by previous authors who also reported similar findings. In a study conducted by Khanna R et al, found that outer gallbladder surface was congested in 40 patients (28.5%), wall thickness was increased in 60 (42.5%) and mucosal abnormalities were present in 90 patients (64.5%). At microscopy, epithelial hyperplasia was observed in 83 (69%), antral metaplasia in 23 (16.5%), intestinal metaplasia in 22 (15.5%), dysplasia in 12 (8.5%) and carcinoma in situ in 1 specimen (0.7%). Conclusion: Gallstones are an important risk factor for cancer of gallbladder to develop. We found that cholelithiasis and even silent gallstones whichwere asymptomatic produced a series of epithelial pathological changes in the gallbladder mucosa, which could be precursor lesion of gallbladder carcinoma. [13]

In the present study, cholecystitis with metaplasia was the diagnosis in 6 percent of the patients whereas carcinoma was encountered in 3 percent of the patients. Mean gallbladder mucosal thickness among patients with cholecystitis, hyperplasia, metaplasia and carcinoma was 0.56 mm, 1.69 mm, 1.12 mm and 4.02 mm respectively. On comparing the results statistically, significant results were obtained. In another similar study conducted by Kumar A et al, authors evaluatedA total of 50 patients undergoing laparoscopic cholecystectomy were included in the present study. Out of 50 patients, in 80 percent of the patients, the stones were of mixed or combined type. Mean size of stones in patients with histopathologic diagnosis was 3.98 cm while in patients with hyperplasia and cholecystitis with metaplasia, the size of stone was found to be 1.5 and 0.85 cm respectively. Conclusion: Size of stone significantly correlates with the type of mucosal response in gallstone patients undergoing laparoscopic cholecystectomy.[14]

CONCLUSION

Diseases of the gallbladder can manifest in a variety of ways, both histologically and clinically. Therefore, in order to improve patient care, a thorough and rigorous macroscopic and microscopic evaluation of every cholecystectomy material should be required.

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