



CORRELATION OF CLINICAL PROFILE AND HISTOPATHOLOGY IN PATIENTS WITH SOLITARY AND MULTIPLE GALLSTONES

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ABSTRACT

Gallstones represent a major health problem within the world.¹ The study was undertaken with the aim to evaluate the difference in clinical profile, operative findings and histopathology in patients with solitary versus multiple gall stones. Patients of cholelithiasis were divided in two groups of "single GB stone" and "Multiple GB stones" of 30 and 47 patients respectively depending on the USG findings. All types of cholelithiasis had fairly similar clinical signs and symptoms but despite the common belief solitary stones patients were associated with adverse signs and symptoms with comparatively poorer outcomes. Single stone patients may be technically more demanding in view of more chances of stone impacted at GB neck along with contracted GB and adhesions around GB.

KEYWORDS : Gallstone; Ultrasonography; Histopathology

Introduction

Gallstones represent a major health problem within the world.¹ In India, the prevalence of gallstone disease varies in different regions. Higher prevalence of gallstones has been reported in North Indians compared to South Indians by the previous studies.² Patients with symptomatic stones most often present with recurrent episodes of right upper quadrant or epigastric pain, probably related to the impaction of a stone in the cystic duct. Solitary gallstone disease is more dramatic in presentation and is associated with more pronounced physical signs and is associated with increased risks of developing mucocele, empyema, gallbladder perforation and postoperative complications as compared to multiple gallstones.³ Histological diagnosis of acute cholecystitis and gallbladder cancer was more frequent in patients with multiple stones while cholesterosis is more common with solitary stones.⁵ Morbid complications such as cholangitis and pancreatitis were rare and occurred mostly in the multiple stone group.³

Material and methods

The study was undertaken with the aim to evaluate the difference in clinical profile, operative findings and histopathological correlation in patients with solitary versus multiple gall stones. A total of 77 patients of cholelithiasis were divided in two groups of "single GB stone" and "Multiple GB stones" of 30 and 47 patients respectively depending on the USG findings. Patients of any age and either gender with gallstones and those consented for the surgery were included in the study. Patients with pregnancy and those having suspicion of carcinoma gall bladder, acute pancreatitis, obstructive jaundice, biliary tract disorders due to strictures, malignant disease, retained stones or acalculus cholecystitis and acute cholecystitis were excluded from the study.

Observations

The incidence of single/solitary gallstone was found to be highest in 4th decade with a mean age incidence of 43.33±11.31; while, the incidence of multiple gallstones was found to be highest in 3rd decade of life with a mean age incidence of 43.5±13.45. Although the peak incidence

amongst solitary and multiple gallstones patients varied but overall age distribution was comparable. There was a total 61(79.2%) female and 16(20.8%) male patients in this study. In "single stone group", 23(76.7%) were female and 7(23.3%) were male, making female to male ratio of 3.2:1. In "multiple stone group", 38(81%) were female and 9(19%) were male with female to male ratio of 4.2:1. The gender distribution was comparable in both groups. Patients presented with various clinical feature and showed that in "single GB stone" group 9(30%) patients had pain only at epigastrium, 19(63.3%) had pain only right hypochondrium, and 2 (6.6%) had pain at both sites. Whereas, in "multiple GB stone" group 12 (25.5%) patients had pain only at epigastrium, 32 (68.1%) had pain only at right hypochondrium 3 (6.4%) had pain at both sites. Both the groups were comparable and showed that the most common site of abdominal pain was right hypochondrium followed by epigastrium. Other symptoms like nausea presented in 9(30%) patients, vomiting in 9(30%) patients, dyspepsia in 1(3.3%) patient, and fever in 2(6.7%) patients seen in "single GB stone" group, and in "multiple GB stone" group, nausea seen in 18(38.3%) patients, vomiting in 19(40.4%) patients, dyspepsia in 7(14.9%) patients and were comparable in both the groups. In "single GB stone" group 17(56.7%) patients presents with colicky type of pain and 13(43.3%) had dull pain. While, in "multiple GB stone" group 37(78.7%) patients has colicky type pain and 10(21.3%) has dull pain. The present study showed that colicky type of pain was most common nature of pain and was comparable in both the groups.

Abdominal ultrasonography was done in all patients, 30(38.96%) patients had solitary gallstone and 47(61.04%) had multiple gallstones, showing a higher incidence of patients with multiple gallstones. The "single GB stone" group revealed that 8(26.7%) patients had stone impacted at GB neck, 4(13.3%) patients had mucocele, 8(26.7%) patients had contracted GB and 1(3.33%) patient had thick GB wall (>3mm). In "multiple GB stone" group 1(2.1%) patient had stone impacted at GB neck, 7(14.9%) patients had contracted GB and 3(6.38%) patient had thick GB wall (>3mm). The present study revealed that stone impacted at GB neck,

mucocoele and contracted GB was more common with single gallstone patients; while thick GB wall was comparable in both the groups.

Intra-operative findings revealed that in "Single stone group" 9 patients had stone impacted at GB neck while 21 patients had single stone present in the lumen of gallbladder. A total of 22(73.3%) patients had adhesions around GB out of which 9(30%) patients had stone impacted at neck, 5(16.7%) patients had mucocoele and 1(2.1%) patient had empyema. Rest 7 patients with adhesions around GB didn't had stone impacted at GB neck. Among "multiple stone group", 10(21.3%) patients had adhesion around GB out of which 1(2.1%) patient had stone impacted at GB neck besides multiple stones in gallbladder lumen and 9 patients had adhesions around GB along with stones in lumen only. The study was statistically significant (p value <0.05) in terms of stone impacted at gallbladder neck and adhesions around GB in patients with single GB stone.

Table 1 INTRA-OPERATIVE FINDING

variables		Stone impacted at GB neck	Empyema	Mucocoele	Adhesion around GB	
GB Stone	Single (N=30)	N	9	1	5	22
		%	30.0% (p value =0.001)	2.1%	16.7%	73.3% (p value =0.001)
	Multiple (N=47)	N	1	0	0	10
		%	2.1%	0.00%	0.0%	21.3%
Total		N	10	1	5	32
		%	13.0%	1.3%	6.5%	41.6%

In present study "single stone group" showed 6(20%) patients with chronic cholecystitis along with cholesterol stone and 19(63.3%) patients with chronic cholecystitis with mixed stones. Among "multiple stone group" 2(4.3%) patients had chronic cholecystitis with cholesterol stone and 39(83%) patients were found to have chronic cholecystitis with mixed stones on histopathological report. This suggested that mixed stones were more common with multiple gallstones while cholesterol stones were more common with solitary gallstone disease (p value <0.05). Other histopathological findings like acute on chronic cholecystitis, cholesterosis, pigment stone, metaplasia, xanthomatous changes and ulcerated mucosa were also observed in the present study and was comparable in both groups

Table 2 HISTO-PATHOLOGICAL FINDINGS

Histopathological Findings	Single GB Stone	Multiple GB Stones
Acute on chronic cholecystitis/cholesterol stone	0	1
Chronic cholecystitis/cholesterol stone/Cholesterosis	1	0
Chronic cholecystitis/cholesterol stone	6 (20.0%) (p value = 0.001)	2 (4.3%)
Chronic cholecystitis/mixed stones	19 (63.3%)	39 (83%) (p value = 0.001)
Chronic cholecystitis/mixed stones/metaplasia	0	1
Chronic cholecystitis/pigment stone	2	4
Chronic cholecystitis/pigment stone/xanthomatous changes	1	0

Chronic cholecystitis/ulcerated mucosa	1	0
Total	30	47

Discussion

Gallstone disease is a common problem worldwide including India and represents the major cause of morbidity and mortality throughout the world. Laparoscopic cholecystectomy provides a standard treatment for most patients with symptomatic gallstones. Laparoscopic cholecystectomy provides distinct advantages over open cholecystectomy. Cholelithiasis produces diverse histopathological changes in gall bladder mucosa namely acute/chronic inflammation, glandular hyperplasia, granulomatous inflammation, cholesterosis, dysplasia and carcinoma.

The study conducted by Misrani JK et al¹⁰, showed that in "single stone group" 45% patients presented with nausea/vomiting, 50% patients with dyspepsia and 5% patients with fever while in "Multiple stones group" 35% patients presented with nausea/vomiting, 50% patients with dyspepsia and 6% patients with fever. These results were comparable with present study. Verma G R et al⁵, in his study concluded that in "single stone group" no patients presented with nausea/vomiting, 62% patients with dyspepsia and 4.4% patients with fever while, in "Multiple stones group" 1.8% patients presented with nausea/vomiting, 83.6% patients with dyspepsia and 7.27% patients with fever. There was no significant difference in the clinical presentations of patients in the two groups and the results were comparable with present study. Misrani JK et al¹⁰ reported 64.9% were multiple stones, while 35.1% were solitary stone. Celika S et al¹⁷ reported multiple stones in 66.1% and single stone in 33.9% patients. Aslam et al¹² reported 84.5% had multiple stones while 15.4% had single stones. Jalali SA et al⁴ reported the incidence of multiple stones was higher than the single stones (69% and 31% respectively). Mofti AB et al⁷ reported 89.44% had multiple stones and remaining 11.56% solitary stone. These studies showed higher incidence of patients with multiple GB stones then single GB stone. These results were comparable with the present study. The findings of present study (73.3% patients in single stone group and 10% patients in multiple stones group had adhesion around GB) were in contrast to the study conducted by Verma G R et al⁵ who observed that the incidence of adhesions around GB was 55.6% in "single stone group" and 52.7% in "multiple stones group" which was comparable in both the groups. He concluded that solitary stones once they attain considerable size tend to settle in the dependent part of the gallbladder (Hartmann'spouch) and with the passage of time the stone increases in size and causes stretching of the wall of the gallbladder around it leading to accelerated transmural inflammation and pericholecystic adhesions around the porta hepatis. Domeyer et al⁸ who concluded that the solitary gallstones were the most important predictors for severe inflammation and thereby causing adhesions around GB and a contracted GB. The results observed in a study conducted by Lokesh K et al¹³, in which 18 (50 %) patients had mixed type of stone in "single stone group" and 31 (48.4%) patients had mixed type of stones in "multiple stone group". Similar results were observed by a study conducted by Bansal A et al¹¹. Mixed type of stones were more frequently observed in the multiple GB stone group in the present study which was comparable with the study conducted by Lokesh K et al¹³ and Bansal A et al¹¹. The histopathology report of almost all patients showed the features of chronic cholecystitis with cholelithiasis. none of the 77 patients in present study were reported to have carcinoma of gall bladder on histopathology. These findings are consistent with Hsing et al¹⁴ who could not establish a clear temporal relation between gallbladder stones and gallbladder cancer. Similarly, Khanna et al¹⁵ could not document any association between the gallbladder stones

and gallbladder cancer.

Conclusion

All types of cholelithiasis have fairly similar clinical signs and symptoms but despite the common belief solitary stones are usually associated with adverse signs and symptoms with comparatively poorer outcomes. Single stone patients may be technically more demanding in view of more chances of stone impacted at GB neck along with contracted GB and adhesions around GB. Mixed stones still remain most common stones amongst the single or multiple stone group and histopathology report invariably reveals chronic cholecystitis with cholelithiasis with few exceptions and surprise sometimes.

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