

Cholecystectomy- Diagnostic Stratification on the Basis of Age and Sex

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Abstract

Background: To study the histopathological specimen of gall bladder inflammation and to correlate the pattern of inflammation with age and sex and to detect undiagnosed carcinoma of gall bladder.

Method:-In this descriptive study patients undergoing laparoscopic cholecystectomy for symptomatic gall stones were included. Laparoscopic cholecystectomy was performed in all cases but had to be converted to open procedure in cases where anatomical distortion and dense adhesions prevented any further progress. Specimens were evaluated grossly and microscopic study was done.

Results: Over a period of two and half years, three hundred patients with symptomatic gallstones were admitted for cholecystectomy. There were 237 females (79%) and 63 males (21%) with a male to female ratio of 1:7.9. The age ranged from 21 to 80 years (mean age = 41.5 ± 5.3 years). Chronic cholecystitis was the commonest diagnosis. Adenocarcinoma was found in one patient, more than 70 years of age. Extensive gallbladder inflammation in the form of necrotizing or gangrenous cholecystitis was recorded in a significant number of male patients 5 (83.3%) compared to one female patient (16.7%). Commonest age group for chronic cholecystitis was 41-50 years age group. For acute on chronic cholecystitis, 51-60 years age group was commonest.

Conclusion:-Chronic cholecystitis is the commonest presentation. Suppurative cholecystitis more common in females whereas gangrenous gall bladder was detected more in males.

Key words: - Cholelithiasis, Cholecystectomy, Laparoscopic.

Introduction

Gall bladder disease manifest as gall stones or cancer gall stones affects 10 to 15% of adult population.¹ An estimated 20% of adults over 40 years of age and 30% of those over age 70 have biliary calculi. During the reproductive years, the female-to-male ratio is about 4:1, with the sex discrepancy narrowing in the older population to near equality.² Gall stones can either be

symptomatic or asymptomatic. Symptomatic gall stones manifest as biliary colic, acute cholecystitis, chronic cholecystitis.³

Laparoscopic cholecystectomy is the gold standard treatment for gall bladder disease. In acute cholecystitis, however, the use of laparoscopic cholecystectomy has been controversial until recently, because of the high open conversion rate and the high incidence of postoperative complications. Nevertheless, the 2006 Tokyo Guidelines recommended laparoscopic cholecystectomy as the first option for the treatment of acute cholecystitis.⁴⁻⁸

Patients and Methods

This study was done on patients undergoing laparoscopic cholecystectomy for symptomatic gall stones admitted in surgical department from June 2012 to December 2014 over the period of two and half years. Histopathological results were evaluated. The study consisted of 300 patients with acute or chronic cholecystitis secondary to gallstones admitted through the outpatient Department. Non-probability convenient sampling technique was used. Laparoscopic cholecystectomy was performed in all cases but had to be converted to open procedure in few cases where anatomical distortion and dense adhesions prevented any further progress laparoscopically. All gallbladder specimens, including those with no obvious gross abnormality, were sent for histopathology. All of 300 hundred specimens were evaluated grossly and microscopic study was done. Histological features that include mucosal hyperplasia, presence of Rockintsky Aschoff sinus and presence inflammatory mediators were noted.

Results

Out of 300 patients 237 were females (79%) and 63 were males (21%) with a male to female ratio of 1:7.9. The age ranged from 21 to 80 years with the mean age of 41.5 ± 5.3 years (Table 1). Chronic cholecystitis was the commonest diagnosis (Table 2). Adenocarcinoma was found in one patient, more than 70 years of age (Table 3).

Table 1: Age distributions among gender

Age variation(years)	Female	Male	Total
21-30	35	07	42 (14%)
31-40	55	15	70 (23%)
41-50	63	20	83 (27%)
51-60	50	12	62 (20%)
61-70	20	08	28 (9.3%)
71-80	14	01	15 (5%)

Table 2 : Histopathological finding of specimen(n=300)

	Female	Male	Total
Chronic cholecystitis	211(70.3%)	49 (15.7%)	260(86%)
Acute on chronic cholecystitis	19(6%)	05(1.6%)	24(7.6%)
Acute suppurative cholecystitis	05 (1.66%)	01(0.44%)	06(2%)
Empyema gall bladder	02 (0.7%)	01 (0.3%)	03(1%)
Gangrenous gall bladder	01 (0.33%)	05 (1.6%)	06(2%)
Adenocarcinoma	00	01(0.33%)	01(0.33%)

Table 3: Gall bladder pathology according to age (n=300)

Age (years)	Chronic Chocystit-is	Acute on chronic Chole-cystitis	Acute suppur-ative cholecy-titis	Empyem a Gall bladder	Gan-grenous Gall blad-der	Adenoca-rcinoma Gall blad-der
21-30	37	02	0	0	0	0
31-40	58	05	2	0	0	0
41-50	78	05	1	2	4	0
51-60	50	06	2	0	2	0
61-70	24	02	1	1	0	0
71-80	13	03	0	0	0	1
Total	260	23	6	3	6	1

Table 4: Age variation of chronic cholecystitis(n=260)

Agevariation(years)	Female	Male	Total
21-30	34	03	37 (14%)
31-40	50	08	58 (22%)
41-50	59	19	78(30%)
51-60	42	08	50 (19%)
61-70	15	09	24(09%)
71-80	11	02	13(05%

Extensive gallbladder inflammation in the form of necrotizing or gangrenous cholecystitis was recorded in a significant number of male patients 5 (83.3%)compared to one female patient(16.7%)(Table

2). Commonest age group for chronic cholecystitis was 41-50 years age group. However for acute on chronic cholecystitis, 51-60 years age group was commonest (Table 4 and 5).

Table05: Age variation of acute on chronic cholecystitis.(n=24)

Age variation(years)	Female	Male	Total
21-30	01	01	02(8.7%)
31-40	04	01	05(21.7%)
41-50	05	00	05 (21.7%)
51-60	04	02	06 (26%)
61-70	02	00	02 (8.7%)
71-80	02	01	03(13.4%)

Discussion.

The histopathological features and incidence of gall bladder lesion varies depending on races, countries, and institutes. It is well known that gall bladder diseases affect more frequently women than men and is seen more frequently in middle age population.¹⁰ The incidence of gall bladder disease increase till the age of 60 and then there is a gradual decrease in the number of patient in our study. Schirmer et al state that in older age group the male to female ratio of gall bladder disease is near equal.⁹ Our study clearly contradict that statement with more female patient in age group between 60 to 80 years(79% female as compared to 21 % male in that age group).

Incidence of chronic cholecystitis in our study is 86% that correlates well with Amjad et al study in which majority of the specimen were of chronic cholecystitis (78%).¹⁰ A similar study by Faisal et al shows 92.3% specimen with chronic cholecystitis.²⁰ Memon identified 65.4% specimen with chronic cholecystitis in his case series.¹⁸ Sartaj et al in a study of about 750 patients found chronic calculous cholecystitis as major histopathological finding (68.2%) followed by acute cholecystitis in 30% and gall bladder cancer in 0.4% patients.²¹ This observation is consistent with the findings of this study as well as an earlier local study.

In present study 25 % of the patient show evidence of acute inflammation. In majority of the patient there is pre existing chronic inflammation that is superimposed by an acute event. On chronic cholecystitis Sartaj et al showed 30% patient with acute event.²¹ Detail study of age and sex indicates a gradual increase in frequency of acute event with age upto 60 years after that the incidence decrease and a greater female gender predominance.²¹

Empyema gall bladder poses a significant risk in early post-operative recovery. There was 3 cases (1%) reported in our study. Empyema of the gallbladder is

often difficult to distinguish from uncomplicated acute cholecystitis.¹⁹ In this study, 3 (1%) cases were reported as acute cholecystitis with empyema of gallbladder. This is in stark contrast to 31.5% cases of empyema associated with cholecystitis as reported by Memon et al.¹⁸

Our study suggests male gender to be a risk factor for severe cholecystitis. Extensive gall bladder inflammation in the form of necrotizing or gangrenous gall bladder is evident in male patient as compare to female patient. Ambe et al showed similar result.¹¹ The trend presented in this series warrant early surgical intervention in acute cholecystitis due to the danger of extensive gall bladder inflammation.

Gall bladder cancer is the 5th most common cancer in world with aggressive metastatic potential with 5 year survival less than 5%²⁰. The incidence of carcinoma gallbladder associated with gallstones varies from 0.3 to 12 per cent.^{13,14} The incidence of gallbladder malignancy in this series was considerably low compared to other studies, 6.9 to 12 per cent.¹⁴⁻¹⁶ The low incidence of malignancy in our series can be attributed to high sensitivity to exclusion criteria, where all patients with any preoperative evidence of malignancy, no matter how trivial, were excluded from the study. Low incidence of malignancy in our patients can also be attributed to increased acceptance and early reporting for laparoscopic cholecystectomy due to resort to day-care surgery at our institution. Samad reports an incidence of 1.1% of malignancy in patients who underwent cholecystectomy for presumed chronic cholecystitis with cholelithiasis.¹⁹ Tayyab et al reported an incidence of 0.7.¹²

Conclusion

Histopathological spectrum of gallbladder specimen is extremely variable with chronic cholecystitis most prevalent in middle age female gender. Gall bladder carcinoma is rare with overall incidence of 0.3% in our study. The incidence of acute suppurative cholecystitis is more in female patients as compare to male patients. Gangrenous gall bladder is more common in middle age male patients with cholelithiasis. The male gender is a risk factor for severe gallbladder inflammation. An early surgical intervention may be needed to prevent complications.

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