The Commonest Clinical Presentation of Gallstone Disease in Laparoscopically Cholecystectomized Patients

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Abstract

Cholelithiasis is the presence of one or more gallstones within the gallbladder**.** Gallstone disease is a common cause for surgical intervention all over the world**.**The objective of the study is to determine the order of frequency of clinical presentations for cholelithiasis in laparoscopically cholecystectomized patients in AL-Karama teaching hospital.A total sample of 156 clearly documented gallstone disease and laparoscopic cholecystectomized patients were involved in the present study. In the current study, 156 laparoscopic cholecystectomized patients; (34) males and (122) females, ages range between 20 and 69 years with a mean (m=39.24±11.7). Common factors that justified the indication for laparoscopic cholecystectomy (LC) were found in the majority of patients with asymptomatic and mild GI presentation those factors include microlithiasis < 3mm, risk for gallbladder CA, history of bariatric surgery, coexistent morbidities like diabetes mellitus (DM) and hemolytic anemia (HA) or the LC was done in concomitant with another laparoscopic surgery.From the present study, we concluded that the mild GI symptoms represented by dyspepsia, nausea, flatulence and constipation, were at the top of clinical presentations for gallstone patients who underwent LC. The distribution of cases was higher in the 4th decade of life with female predominance.

Keywords: *Gall bladder, Cholelithiasis, Cholecystectomy, laparoscopic cholecystectomy.*

Introduction

Cholelithiasis is the presence of one or more gallstones within the gallbladder**.** Egyptian mummies investigations showed cholelithiasis since 3400 B.C.[(1)]. Gallstone disease is a common cause for surgical intervention all over the world[(2,3)].

The incidence of gallstone is different from one population to another due to many factors, but in general it is (10-15)%, the occurrence of GS in any population is difficult to be valued exactly since most people develop asymptomatic disease [(4)]. Although male to female ratio is geographically dependent, fatty and fertile females in forties are more likely to have cholelithiasis[(1)].

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Laparoscopic cholecystectomy is the method of choice in the treatment of symptomatic GS, otherwise approximately 80% of cases are asymptomatic which may develop symptoms in the next 10 years. This dyspepsia is called GS dyspepsia, and its presence transformed GS from asymptomatic to symptomatic disease [(5)].

GS disease symptoms range between simple biliary colic and complicated symptoms [(6)]. Biliary colic manifested as right hypochondrial pain lasting for half an hour, is a good indication of GS disease, and is the symptom of higher frequency for symptomatic GS disease[(2,7)] . Recurrence of symptoms and/or complication is highly expected when biliary colic was developed.

The most familiar complication of gallstone disease is acute cholecystitis, which is an inflammatory condition determined by fever, pain and leukocytosis. This complication occurs mainly in old and diabetic

patients. Cholestatic jaundicecan be developed when stone moved from GB and obstruct the common bile duct, accompanied with increased serum conjugated and unconjugated bilirubin[8]. Patients with disease of immunosuppression (DM, chronic hemolytic syndrome and organ transplantation) are highly indicated for prophylactic LC[9].

Methodology

A cross-sectional study was conducted in the general surgical department of Al-Karama teaching hospital in Kut city/ Wasit Province by reviewing the medical records of all patients have undergone LC over the period from March 2019 to February 2020.

Inclusion criteria: All Patients aged > 19 years and <70 years with GS disease, who got admitted to the hospital and underwent LC.

Exclusion criteria:

1. Acalculous cholecystitis.
2. Primary CBD stones
3. Patients with incomplete data.

Data collection:

Demographic data including age, gender, address, medical history and clinical presentation were obtained from the medical records provided by the hospital, and some of the missing information was supplemented by the patients' records in the private clinics. The total number of patients was (n=395).

Sample selection:

Three hundred and ninety five patients represent the total number of sample, only 156 subjects were included in our study because of missed data. According to the patients' clinical presentation before the diagnosis of gallstones, the subjects were divided into 5 groups:

Group 1: Silent (asymptomatic) and accidentally discovered.

Group 2: GI symptoms (nausea, vomiting, belching, bloating, dyspepsia and flatulence)

Group 3: recurrent biliary colic represented by right hypochondriac cramping pain (minutes to hours) withradiation to right shoulder and interscapular region.

Group 4: Acute calculus cholecystitis: severe agonizing right hypochondriac pain (lasts more than 12 hours) associated with anorexia, fever and rigors.

Group 5: Jaundice

Regarding group 1 & 2, further issues including past medical and surgical history and sonographic reports were reviewed in order to identify whether the clinical presentation solely was the indication for LC.

Ethical issues:

1. Surgical operations were done in governmental hospital and informed consent was taken that the information regarding their illness can be used for scientific researches.

2. Data and information of the patients kept confidentially and any personal or private information that identify the participant were kept secret.

Statistical analysis: Categorical data were presented as the number of cases and percentages and tested by chi square for independence using IBM SPSS version 22.0 and Microsoft Word have been used to generate graphs.

Results

In this study, the subjects (n=156) are composed of (34) 21.8% males and (122) 78.2% females, ages range between 20 and 69 years, the mean values of the subjects were (39.24 ±11.7). The distribution of cases by age groups and gender is shown in figure 1.

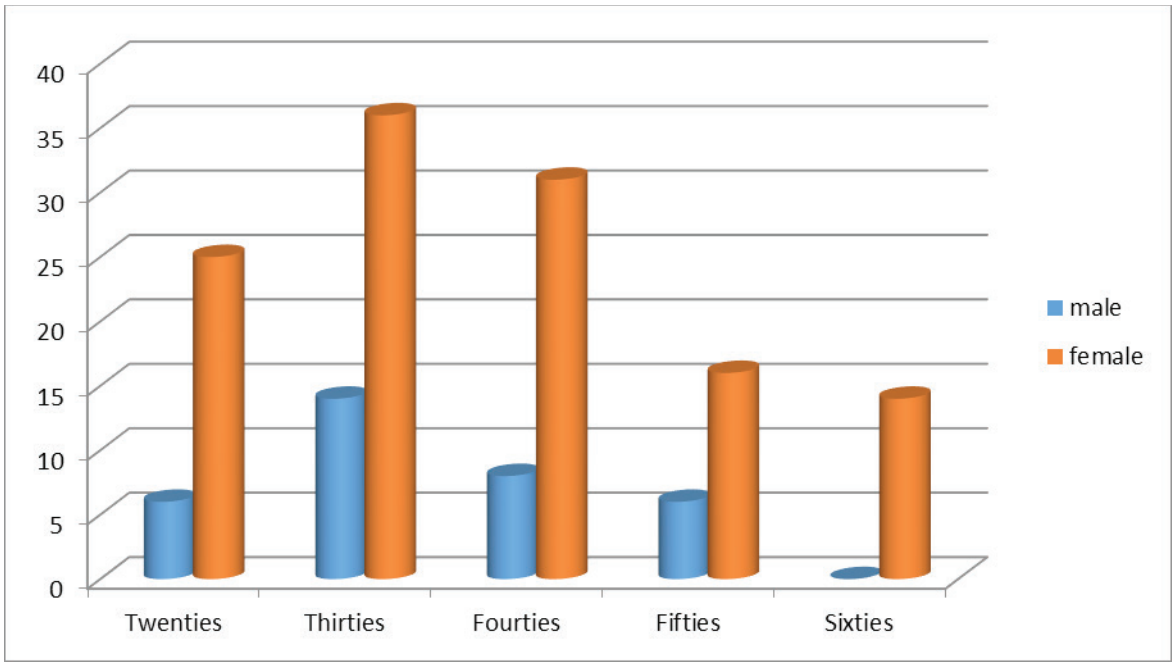

Fig.1: Distribution of cases by age and gender (Age by years on X-axis and frequency on Y-axis)

The GI symptoms were the commonest clinical presentation comprising 48%; others are shown in table1.

Table 1: Showing the frequency of participants' clinical presentation

The clinical presentation	Frequency		Total	Percentage
	males	females		
Silent (accidently discovered)	0	9	9	5.8
GI symptoms	12	63	75	48.1
Recurrent biliary colic	0	23	23	14.7
Acute calculus cholecystitis	14	18	32	20.5
Jaundice	8	9	17	10.9
Total	34	122	156	100.0

Nearly half of the total 122 females presented as GI symptoms while 40% of males presented as acute cholecystitis. Asymptomatic and biliary colic cases were only confined to females. Summary is shown in figure 2.

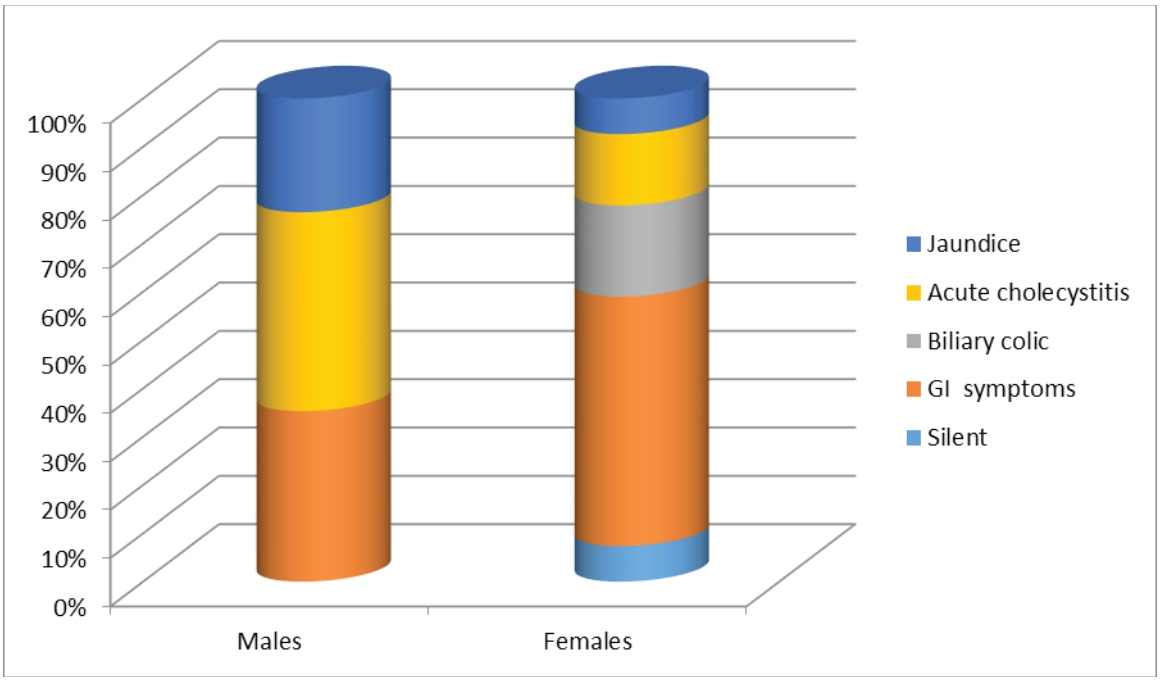

Fig.2: Distribution of males and females' clinical presentation (Gender on X-axis and percentage on Y-axis)

The association between gender and clinical presentation was assessed by applying chi square Table (2). The P-value < 0.005 is statistically significant.

Table 2: association between gender and clinical presentation

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	25.811a	4	.000
Likelihood Ratio	30.263	4	.000
Linear-by-Linear Association	16.118	1	.000
N of Valid Cases	156		
a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.96.			

Out of the 9 asymptomatic females, 4 patients have DM, 3 have HA , for the other 2 females aged 35 and 39 years old, LC was performed in conjunction with an ovarian cyst surgery. Fig. 3

Most patients with GI complaints (89%) are found to have one or more of the followingcommon factors:

- Microlithiasis < 3mm (fig.4)
- GB polyps, calcified GB wall, or macrolithiasis >2.5cm and all constitute risk for CA
- History of bariatric surgery and rapid weight loss
- Coexistent morbidities including DM and HA

Fig. 3: US of a patient with hereditary spherocytosis showing multiple small GS

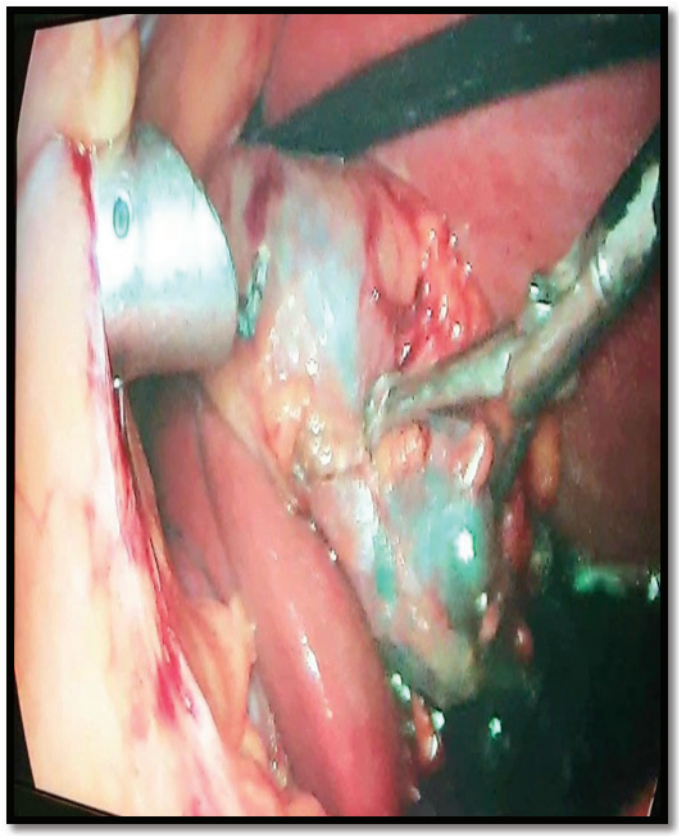

Fig. 4 shows LC for a situs inversus patient with

multiple small GS.

The remaining (10.7%) have none of the above factors. However, according to their demographic data, they all live in remote areas away from the medical service. Table 3 shows the frequency of each factor.

Table 3: Common Factors in patients with GI symptoms

The factor	Frequency			Percent
Risk for CA	Polyps (4)	Porcelain GB (2)	Macrolithiasis (8)	18.7
Multiple small stones	18			24.0
Rapid weight loss	19			25.3
presence of comorbidities	DM (12)		HA (4)	21.3
Others	8			10.7
Total	75			100.0

Discussion

Generally, GS disease is one of the commonest and costly of all digestive diseases. In Iraq, the incidence of GS is in continuous rise especially after 2003[10] . Therefore, we expect an associated increase in the number of cholecystectomies yearly. As it is known in multiple studies, GS is more common in females, for example in Europe a study found that prevalence in women is twice that in men[11]. In the present study, the females to males' ratio of patients subjected to LC due to GS were 3.5:1, taken in consideration, that the study excluded all patients with missed data and was applied only to one hospital in Al-Kut city due to pandemic covid19 situation.

In the current study, the age distribution of cases was highest in 4th decade of life followed by the 5th decade which is consistent a study done on laparoscopic cholecystectomized patients [12] .

Clinically, GS disease has a wide range of presentations from asymptomatic to the complicated presentation i.e. jaundice, empyema and pancreatitis etc.

Gupta & Shukla (2004) conducted that two thirds of patients with cholelithiasis are presented asymptomatically[13] and another study in Iraq/ Basrah who found that the prevalence of asymptomatic patients with GS is 13.6% [14] . While in our study which included only cholecystectomized patients, asymptomatic presentation comprises about 5%. All of them were females and have other factors that justified their LC like HA, DM or the LC was done in concomitant with another laparoscopic surgery.

Mild GI symptoms alone were the presentation of 48% of the whole sample in our study which was less than (66.3%) that seen by [15] . This difference may be due to exclusion of asymptomatic patients in their study.

Although abdominal pain is one of the main symptoms in patient with GS disease, it is a controversy; location, radiation, severity and duration all are variables of pain. Many studies all over the world took different classifications according to these variables. Another problem is the definition of these variables may depend on patient's words and pain thresholds. In the current study, pain was classified according to chronicity based on medical records. Therefore, the patients who presented as chronic and recurrent abdominal pain were about 14.7% which nearly matches the results of (19%) in tudy[16] [7] but was different from that observed by

[15,17].

Regarding acute presentation of GS , it was 20.9% of the total sample which matches with the results of (26.9%) in ries[15]. While in another Korean study done by (2012) it was 48.9% [18]. It is worth mentioning that the prevalence of GS disease in Korea is higher in males, which is different from the general distribution in the world [19].

In the present study jaundice presentation was 10.9% which was different from that observed by (6.6%) and 17.4% who excluded asymptomatic patients [6,15].

Dyspepsia, nausea, flatulence and constipation alone are vague symptoms and not specific for GS disease, therefore, it is difficult to identify whether patients with such presentation are asymptomatic or symptomatic [20]. The other dilemma is whether or not those patients have other factors that justified their need for surgery. As declared by [5] , almost 50% of LCs are performed for dyspeptic symptoms [5]. In fact, the further review of medical records for GI presentation patients in our study has shown us common factors in term of stone size, risk for CA and concomitant illness that were added factors made them candidates for the surgery.

In the present series we have 12 diabetic patients who presented with GI symptoms and underwent LC. According to Ata et al. (2011) study that compared the prevalence of DM in CGD (47%) versus UCGD group (24%). this improves the significant association between DM and CGS [21].

Muroni et al (2015) conducted that symptomatic patients with HA are more liable to postoperative complication than asymptomatic ones; (25.5%) and (11.5%) respectively [22].

Four patients with HA presented as GI symptoms and 2 were asymptomatic in the present study and all underwent LC.

GS accompanied with symptomatic polypoid lesion of GB including dyspepsia should be removed regardless of the polyp's size [23][16]. In The present study, 4 patients of whom presented with GI symptoms had polypoid lesion and underwent LC.

It is stated that that there is an association between GB CA and porcelain GB with controversy of LC indication among studies. Two patients presented with GI symptoms in our study underwent LC [5].

In our study, the sonographic reports of GI presentation patients revealed that 8 patients have large GS > 2.5 cm in diameter. Large stones are considered high risk to develop complication with a significant difference between the numbers of patients with large gallstone in CGD 12% versus UCGD 2% in Ata et al (2011) series [21]. Macrolithiasis is also found to be coexistent with GB CA in 75-90% of cases[5].

In the present study, 18 patients of those presented with GI symptoms, their sonographic reports revealed multiple small stones. This finding might be the indication for LC as it was conducted that Patients with at least 1 GS smaller than 5 mm in diameter and stone number more than 20 each have a more than 3-fold increased risk of presenting with acute GS pancreatitis regardless of age, gender or stone composition [24].

In the current study, the past surgical history of patients with GI presentation revealed 19 patients with history of bariatric surgery in the last 5 years which might be the justifying factor for their support this claim by their conclusion that bariatric surgery increases the risk for symptomatic GS disease and cholecystectomy, especially during the first years following treatment [25].

Eight of patients presented with GI symptoms, their data revealed neither of the factors above. However they have already undergone LC. They might have other issues that made them candidates for the surgery like being away from medical services[5]. Indeed all of these 8 patients were living in remote areas away from the center.

Conclusion

From the present study, we concluded that the mild GI symptoms represented by dyspepsia, nausea, flatulence and constipation, was at the top of clinical presentations for GS patients who underwent LC. The distribution of cases was higher in the 4th decade of life with female predominance

Conflict of Interest – Nil

Source of Funding- Self

Ethical Clearance – Not required

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