Complications of Laparoscopic Cholecystectomy in a Sample of Patients Admitted to Al-Ramadi Teaching Hospital, Anbar-Iraq

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Abstract

Laparoscopic cholecystectomy is currently thought as a surgical procedure that can be done with less risk of complications. However, intraoperative and postoperative complications were existing in 56 (15.01%) patients. Open surgery is the case when laparoscopic cholecystectomy fails to be proceeded with due to many causes such as difficult Calot triangle dissection and empyema of gallbladder.

The high occurrence of cholecystitis in the group of patients aged 40-60 (56%) with 151 female and 59 males initiating the floor to many arguments that may help give a good understanding for such a problem.

Iatrogenic perforation of gallbladder was the most common cause of intraoperative complications. Wound infection was the most cause of postoperative complications. Difficult Calot triangle dissection was the most common cause to convert to open surgery.

Keywords: *Hospital; Laparoscopic cholecystectomy ; Infection.*

Introduction

In the treatment of benign gallbladder disease, laparoscopic cholecystectomy became the first choice that may be taken instead of open surgery[1,2]. On the other hand, surgeons believed that this procedure involved high risk of injury compared to open cholecystectomy[3,4]. In this context, experienced surgeons are needed to proceed with such new technique of treatment.

It has been estimated that in USA about one million patients annually diagnosed with gallbladder disease in which about 75% of them underwent laparoscopic cholecystectomy[5].

Complications of this treatment procedure may vary according to the health status of patients, experience of surgeons, the post-operative care, as well as many other things that may affect negatively the success of the procedure. In this study a light will be casted on most of the common complications as recorded from patients underwent laparoscopic cholecystectomy.

In this technique a gallbladder is removed by a key-hole-sized incision usually using two 10mm ports and two 5mm ports in which this procedure believed to result with less postoperative complications[6].

This study aims to evaluate the intraoperative, post -operative complications and rate of conversion treatment in patients with cholecystitis.

Patients and Method

During the period Jan. 2012 to the end of Dec. 2013, 373 patients (102 male and 271 female) with history of cholecystitis admitted to AL-Ramadi General Teaching Hospital, Anbar province, Iraq, were considered in this study.

Data collected from each patient included age, gender, clinical signs and symptoms as well as relevant examinations. Medical investigations such as WBC counts, ultrasound findings, postoperative histopathological findings of gallbladder were recorded.

The collected data were classified in tables according to the purpose of presentation and descriptive and inferential statistics were made whenever needed in this paper.

Results

Table 1 shows the distribution of patients according to age groups with reference to their gender groups. Age ranged between 18-70 years with mean age of 49.28 years. Most of the patients were female and accounted for 72.65%. Patients aged 40-60 constitute the highest percentage among all other.

Table 1. Distribution of patients according to gender and age groups.

Age in years	Male	Female	Total	%
Less than 20	0	6	6	2
20-40	31	82	113	30
40-60	59	151	210	56
More than 60	12	32	44	12
Total	102	271	373	100

Out of the total patients involved in this study, 56 (15.01%) showed different complications. Table 2 shows the distribution of those patients according to gender and age groups. Males were accounted for relatively higher percentage 55.4% compared to 44.6% of females. About 88% of those patients were in the ages of 40 years or more.

Table 2. Distribution of patients with complications according to age and gender groups.

Age in years	Male	Female	Total	%
Less than 20	0	0	0	0
20-40	4	3	7	12.5
40-60	19	9	28	50.0
More than 60	8	13	21	37.5
Total	31	25	56	100.0

Recorded complications are classified into two main categories, intraoperative and postoperative as presented in table 3. Out of the total patients of this study, 22 (5.9%) revealed intraoperative complications whereas 34 (9.12%) showed postoperative complications. Out of the intraoperative complications, 7 cases (22.58%) found to have vascular injuries. Iatrogenic perforation of GB was accounted for the highest percentage (41.94%) among all other types of intraoperative complications.

With regard to postoperative complications, wound infection was found the most common complication which accounted for 30.43% followed by bleeding from abdominal cavity with 21.74%.

Table 3. Intraoperative and postoperative complications classified by gender groups (n=373).

Complications		Males	Females	Total	%
Intraoperative:					
Vascular injury	bleeding from bed of GB	3	2	5	1.34
	bleeding from cystic artery	1	0	1	0.27
	bleeding from port site	1	0	1	0.27

Cont... **Table 3. Intraoperative and postoperative complications classified by gender groups (n=373).**

Iatrogenic perforation of GB	6	7	13	3.49
Spillage of gall stones	3	4	7	1.88
Bowel injury	1	1	2	0.54
Common bile duct injury	1	0	1	0.27
Transection of common hepatic duct	1	0	1	0.27
Total	17	14	31	8.31
Postoperative:				
Bleeding from abdominal cavity	7	3	10	2.68
Bile leak	4	3	7	1.88
Retained stone in CBD	0	1	1	0.27
Port hernia	1	1	2	0.54
Wound infection	8	6	14	3.75
Lost gall stone in abdominal cavity	3	1	4	1.07
Pneumonia	3	2	5	1.34
Pulmonary embolism	1	0	1	0.27
Deep vein thrombosis	1	1	2	0.54
Total	28	18	46	12.33

Causes of conversion to open surgery are not identical, rather they vary from patient to another. In this study, only 20 (5.36%) patients were transferred to open surgery under different reasons as presented in table 4. The most common cause was difficult calot triangle dissection which accounted for 35% followed empyema of gall bladder with 25%.

Table 4. Causes of conversion to open surgery (n=373).

Causes of conversion to open surgery	Males	Females	Total	%
Difficult calot triangle dissection	4	3	7	1.88
Empyema of gall bladder	2	3	5	1.34
Bleeding from vascular supply	2	1	3	0.8
Mirrizzi syndrome	1		1	0.27
Injury to CBD	1		1	0.27
Injury to common hepatic duct		1	1	0.27
Cholecystoduedenal fistula	1		1	0.27
Colonic injuries		1	1	0.27
Total	11	9	20	5.36

It may be worthwhile referring the cases that presented with different complications to the medical procedure on which the decision of laparoscopic cholecystectomy was decided. In this context, table 5 showed the cases according to the type of complication.

With regard to WBC counts, cases with more than 10000/mm^3 were more than others for all categories of complications. Acute cholecystitis was accounted for greater number of patients at all categories of complications for both ultrasound and histopathological findings.

Table 5. Cases with different complications classified with respect to medical procedures (n=373).

Variables	Complications		Conversion to open surgery
	Intraoperative	Postoperative	
WBC count			
More than 10000/mm3	15 (4.02%)	22 (5.9%)	12 (3.22%)
Less than 10000/mm3	7 (1.9%)	12 (3.22%)	8 (2.14%)
Ultrasound findings			
Chronic cholecystitis	9 (2.41%)	13 (3.5%)	6 (1.61%)
Acute cholecystitis empyema	13 (3.5%)	21 (5.63%)	14 (3.75%)
Histopathological findings			
Chronic cholecystitis	10 (2.68%)	15 (4.02%)	9 (2.41%)
Acute cholecystitis	12 (3.22%)	19 (5.09%)	11 (2.95%)

Discussion

Since its first introduction in 1985, laparoscopic cholecystectomy is rapidly becoming very common technique. This technique enables surgeons to avoid complications of open surgery as well as the high cost of staying at hospitals waiting for recovery.

Most of the patients considered in this study were in the range of 18-70 years with mean age of 49.28 years. This mean age is less than that obtained by Chay CH, et al., 2006 (56.9 years) which also showed a wider age range (23-89 years)[7]. However, mean age of patients considered in this study is found to be less than that obtained by Al-Salamah SM, 2005[8]. Such a discrepancy can be either attributed to the sampling technique used to select the right patient, or to a certain situation that maybe the sample' population concerned about. In Iraqi communities, people after 20 years of age become responsible about their families affairs and that they have to do more efforts in order to put their families in a good economic stands. As a result, they become gradually confronted with different health problems due to the food which is not healthy prepared or even do not suit their real needs.

Vascular injury is one of the intraoperative complications, the percentage of this type of complication in this study was found to be 1.88 which is much lower than that (9.97) obtained by Rooh-ul-Muqim, et al,2008[9].

Iatrogenic perforation of gallbladder was found to have the highest percentage (3.49) among all other causes on intraoperative complications. This percentage is doubtless significantly lower (25.5) than that obtained by Zubair M, et al, 2010[10]. Iatrogenic perforation of gallbladder may be associated with the adhesion in right upper quadrant of gallbladder, or with other variables such as gender which is not the aim of this study.

Spillage of gall stones was found in 1.88% of patients in this study. This percentage was also much lower than that obtained by Zubair M, et al, 2010 which was 11.5. However, the percentage 1.88 was almost similar to that (2.02) obtained by Miodrag Radunovic, et al, 2016[11].

It is believed that the association of iatrogenic perforation of gallbladder and spillage of gall stones may

lead to abdominal infections which in turn can result in a number of abdominal problems[12].

With regard to the postoperative complications, the most type was found to be wound infection which was found in 14 (3.75%) patients of this study. Such problem may be caused by poor hygiene or to polluted environment where the patient(s) moved to after surgery. The second cause of postoperative complication was bleeding from abdominal cavity which occur in 10 (2.68%) patients in this study. The third type of postoperative complications in this study was the bile leak which found in 7 (1.88%) patients which is less occur when compared to 3.98% of patients in the study conducted by Rooh-ul-Muqim, et al,2008[9].

Other types of postoperative types as found by this study seems very rare and the deep vein thrombosis do not appear to be mentioned in literature reviewed during the research.

Causes of conversion to open surgery are also vary according to the patient situation as well as potential complications during key-hole-surgery. However, in this study the main causes were difficult calot triangle dissection which was seen in 1.88% of the patients and empyema of gallbladder which seen in 1.34% of the patients. In general, 5.36% of the patients of this study were converted to open surgery and when compared to 3.13% that found by Rooh-ul-Muqim, et al,2008 [9] , one may easily conclude that patients of this study were actually confronted by many problems that make their health stands in a serious situation.

Number of patients with intraoperative and postoperative complications as well as of those converted to open surgery, were cross-classified with respect to medical signs and findings. Patients with WBC counts more than 10000/mm^3 are remarkable more than those with WBC counts lower than 10000/mm^3. Acute cholecystitis was also found in a number of cases that essentially exceeds those with chronic cholecystitis. This is true for both ultrasound and histopathological findings.

Conclusion

Laparoscopic cholecystectomy is indeed well prevailed in surgical practice. It is not always the only good procedure to follow but a procedure with less pain and potential complications. Nevertheless, over the wide use of this procedure, different types of complications were recorded. Actually, complications may appear due to variety of factors including the health status of the patients.

In this study most of the admitted cases to undergo laparoscopic cholecystectomy were over 29 years of age and 68% of them were above 40 years old with male to female ration of 0.38:1.

Complications found in 56 of the patients, of them 31 males and 25 females.

Iatrogenic perforation of gallbladder, spillage of gall stones and vascular injury were the most common causes of intraoperative complications. On the other hand, wound infection, bleeding from abdominal cavity, bile leak, pneumonia and loss of gall stones in abdominal cavity were the most common causes of postoperative complications.

Difficult calot triangle dissection and empyema of gallbladder were the most common causes of conversion to open surgery.

Most of those converted to open surgery have WBC counts more than 10000/mm^3 and acute cholecystitis in both ultrasound and histopathological findings.

Ethical Clearance: The Research Ethical Committee at scientific research by ethical approval of both environmental and health and higher education and scientific research ministries in Iraq

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