EARLY LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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ABSTRACT

Objective: To determine the frequency of post operative complications after early Laparoscopic Cholecystectomy (LC) for Acute Cholecystitis (AC).

Material and Methods: This descriptive cross sectional study was carried out in Surgical A Unit, Khyber Teaching Hospital, Peshawar from April 2012 to November 2014. A total of 369 patients were included in the study. All patients presented with AC and subjected to early LC. Data regarding age, gender, and main outcome measures such as biliary leak, hemorrhage, port site infection (PSI) and post-operative vomiting (POV) were collected on the predesigned proforma and analyzed. Frequencies and percentages were calculated for categorical variables such as gender, biliary leak, hemorrhage, PSI and POV while mean ± SD was calculated for continuous variables such as age.

Results: A total of 369 patients were analyzed. The mean age of patients was 41.30 years ± 12.54SD. There were 83 males and 286 females with a M/F ratio of 1:3.45. Biliary leakage was observed in 4 (1.1%) patients. There was uncontrollable hemorrhage in 2 (0.54%) patients. PSI was observed in 13 (3.5%) patients and POV in 34 (9.2%) patients.

Conclusion: Early laparoscopic cholecystectomy does not increase the complication rates and is a safe and feasible procedure for acute cholecystitis.

Key Words: Early laparoscopic, cholecystectomy, Cholelithiasis, Acute cholecystitis, Biliary leak, Port site.

INTRODUCTION

Gall stone disease is one of the commonest gastrointestinal diseases and a major burden to health care system[1]. It was previously considered a disease of the West, where it accounts for more than 700,000 cholecystectomies per year in United States[2,3]. Its incidence is continuously increasing in the population at risk[4]. Of all, 80% of gall stones are asymptomatic and only 20% present with a wide variety of symptoms[5]. It is this subgroup which is at the risk of developing serious complications ranging from simple biliary colic to severe life threatening conditions like ascending cholangitis and acute pancreatitis[5,6]. Cholelithiasis was considered uncommon in infants and children, but nowadays it is increasingly diagnosed due to the easy availability of ultrasonography[7,8].

The need to operate on patients with gall stones depends on whether they are symptomatic[9]. Acute cholecystitis (AC) is one of the many presentations of gall stones which is diagnosed in almost 10-35% of patients admitted to hospital for cholecystectomy[10]. Open Cholecystectomy (OC) was considered as the gold standard treatment for gall stone disease until 1987 when the minimally invasive laparoscopic procedure flourished and replaced its open counterpart[11].

Traditionally acute cholecystitis was preferably treated in two stages with an initial conservative treatment followed by an interval laparoscopic cholecystectomy (LC)[12]. Acute cholecystitis is considered as the major complication of gall stones and results in distortion of the Calot's triangle due to severe inflammation. This fact is responsible for the increased morbidity, longer operative time and technical difficulty[10]. Earlier acute cholecystitis was considered a relative contra indication for laparoscopic cholecystectomy which was supported by many researchers and clinicians who reported inflammation, edema and adhesions as the cause of distorted anatomy leading to high complication rates[13,14]. Timing of surgery has been controversial in acute cholecystitis with some favoring early (first 96 hours) intervention in contrast to others who prefer an early conservative management followed by delayed

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cholecystectomy, 6 to 8 weeks later[12,14]. The conservative management of acute cholecystitis includes rest, intra venous fluids, antibiotics, analgesia and when the acute attack settles, the majority of patients are sent home[13].

Early laparoscopic cholecystectomy has the advantage that it is cost effective as there is short hospital stay and lower incidence of readmissions due to recurrent attacks of acute cholecystitis[14]. It is suggested that if burden on the patients and health care system has to be reduced then early laparoscopic cholecystectomy should be the option within 48 hours of admission.

There is an accumulating evidence of safety and benefits regarding early laparoscopic cholecystectomy in acute cholecystitis but still there is a general fear about early laparoscopic intervention in patients with acute cholecystitis in our local population, because of difficult intra operative milieu and post operative outcome, so this study will also justify this fear as true or otherwise. Additionally, we have limited objective evidence available in literature about early laparoscopic intervention in acute cholecystitis in our local population and at the national level, so we need to establish our own guidelines regarding laparoscopic intervention in acute cholecystitis. The main aim of this study is to determine the post operative complications of early laparoscopic intervention in patients presenting and admitted with acute cholecystitis in our population. Additionally the aim is to evaluate our own experience and compare our results with other national and international series. All these facts necessitate the study of these factors to establish better guidelines for early laparoscopic cholecystectomy in acute cholecystitis.

MATERIAL AND METHODS

This descriptive cross sectional study was in Surgical A Unit, Khyber Teaching Hospital, Peshawar from April 2012 to November 2014. Approval of ethical committee of Khyber Teaching Hospital was taken before conducting the study. A sample of 369 patients were included in the study, using 95% confidence interval, 4%[16] proportion of biliary leak after early laparoscopic cholecystectomy and a margin of error of 2% under WHO formula for sample size calculation. The sampling technique was non-probability consecutive sampling. Patients of 16 to 60 years age group and of any gender presenting within 48 hours of onset of symptoms of acute cholecystitis were included in this study. Following patients were excluded from this study, patients with obstructive jaundice diagnosed by yellowish discoloration of sclera and laboratory findings of elevated alkaline phosphatase and dilated common bile duct more than 8mm on ultrasound, patients with diabetes mellitus diagnosed by blood fasting and random sugar levels more than 126mg/dl and 180mg/dl respectively on two occasions, patients taking steroids.

These factors were excluded as they might act as confounders and introduced bias to the study results. All the patients were subjected to 4 ports standard laparoscopic cholecystectomy after pre-operative baseline investigations. All the laparoscopic cholecystectomies were done by experienced laparoscopic general surgeons. The patients were observed for biliary leak, hemorrhage, and vomiting during the hospital stay and then for 7 days post-operatively and port site infection for 30 days. The details were recorded in a specialized Proforma structured with the help of a statistician. The exclusion criteria were strictly followed to exclude confounders and bias in the results.

RESULTS

The study comprised 369 patients, all of whom presented within 48 hours of the onset of symptoms of acute cholecystitis. The mean age of presentation was 41.3 ± 12.54SD years Table 1. Distribution of gender is shown in Table 2.

Table 1: Age distribution of study population

Age in years	No. of patients with %age
16–20	23 (6.23)
21–25	20 (5.42)
26–30	54 (14.63)
31–35	46 (12.47)
36–40	56 (15.18)
41–45	34 (9.21)
46–50	48 (13.01)
51–55	30 (8.13)
56–60	58 (15.72)
Total	369 (100)

Table 2: Gender distribution

Gender	Frequency with %age
Female	286 (77.5)
Male	83 (22.5)
Total	369 (100)

Table 3: Complications

Biliary Leak	Frequency with %age
No	365 (98.9)
Yes	4 (1.1)
Total	369 (100)
Hemorrhage (ml)	
0-10	205 (55.55)
11-20	87 (23.58)
21-30	46 (12.47)
31-40	22 (5.96)
41-50	7 (1.90)
>50	2 (0.54)
Total	369 (100)

A total of 53 patients developed complications. Four (1.1%) patients developed biliary leak. There was an average hemorrhage of 15.1 ± 8.1SD ml. Two (0.54%) patients had uncontrollable hemorrhage and needed conversion to open technique. Thirteen (3.5%) patients had port site infection; umbilical port was involved in 10 patients and epigastric port in 3 patients while 96.5% had no port site infection Table 3. In 90.8% there was no post-operative vomiting while 9.2% had vomiting. One out of four patients with biliary leak was treated with ultrasonographic guided aspiration, all patients with port site infection were treated conservatively with daily dressing and those with postoperative vomiting were treated with anti emetics.

DISCUSSION

Acute cholecystitis comprises 20% of all the admissions for gall stone diseases[15]. Laparoscopic cholecystectomy was considered a relative contraindication earlier but now it is considered a safe option[16]. The optimal timing for early laparoscopic cholecystectomy is still under debate[17]. In acute cholecystitis early laparoscopic cholecystectomy has beneficial effects because there is inflammatory edema within few hours of the onset of acute cholecystitis which helps and provides a plane of cleavage during cholecystectomy[18]. There is a linear relationship between technical difficulties and timing of surgery in delayed early laparoscopic cholecystectomy as discussed by Catani et al. in their study[19].

In the present study acute cholecystitis was more common in the fourth decade of life which is consistent with others[16,17]. While in a study by Abdulmohsen A[10] it was the sixth decade. In this study there were more female patients as compared to male patients. In corroboration to our results others also reproduced similar results[17]. In contrast, however, others reproduced significant difference between the two genders as far as acute cholecystitis was concerned and reported 54.54% and 61.67% males respectively[18].

Biliary leakage is one of the well-recognized complications associated with cholecystectomy. Its incidence is two times higher in laparoscopic cholecystectomy than in OC and is associated with significant morbidity and mortality[19]. In early laparoscopic cholecystectomy bile duct injury is a major concern[15]. The incidence of bile leakage in our study was 1.1%, which is inconsistent with another studies <1% and 0.6% respectively[20]. While in a study by Glessa A et al there was no leakage.[21] While a higher incidence has been reported by others in their series which are 1.9% and 2.2% respectively[18,22]. A further higher incidence has been reported in a series conducted in Jamshoro i.e. 4%[22].

There was 160ml bile collection in the right sub-hepatic space in one patient, which needed aspiration under ultrasonographic guidance where as the other three had less than 20ml collection and were treated conservatively.

One of the main concerns in early laparoscopic cholecystectomy in acute cholecystitis is hemorrhage. Most of the patients had minimal bleeding and was managed laparoscopically. The average bleeding in our series was 15.1 ± 8.1 ml. Two patients has uncontrollable hemorrhage and needed conversion to open technique for the control of hemorrhage. A higher amount of bleeding i.e. 27 ± 5.9ml has been reported by Saeed A et al. in their series[23].

In this study we found the frequency of PSI to be 3.5% (13 cases). In 10 patients there was involvement of umbilical port and in 3 patients epigastric port was involved. Our results are comparable to many other studies.[24,25] A study conducted in Benghazi, Libya in 2010 reported 1.7% and Wu JM et al. in 2012 reported 1% cases with PSI[15,21]. Masood R et al. in 2012 found the incidence of PSI to be 4%. While it was found to be 2.2% by Qazi AR et al. in 2011[28]. Contrary to our study, the incidence of PSI shown by Jan WA et al. and Memon W et al. in their series is as high as 5.07% and 8% respectively[29,30]. The incidence of PSI reproduced in the international literature is low. All these cases were managed conservatively with daily dressing and oral antibiotic therapy.

Vomiting is a common complaint of patients in the post-operative period. The incidence of POV in our study was 9.21%. A high incidence has been reported by Qazi AR et al. in their series, which is 16%. All patients who had POV were treated conservatively with parenteral intravenous dimenhydrinate injection three times a day.

We were unable to study the various characteristics of the patients considered as potential risk factors for bile leak, PSI and POV in the literature including body mass index (BMI), smoking, history of motion sickness and POV, American society of Anesthesiologists (ASA) grade, type of anesthesia, use of opioids, duration of surgery, use of reusable trocars, length of cystic duct, stone in Hartmann's pouch, GB perforation and spillage of bile and gall stones, due to limited time period.

The incidence of PSI can be reduced if the GB is retrieved in a custom made bag or one improvised from a glove as it was more common in umbilical port from which the GB was extracted. We used the reusable trocars, which could be another reason for PSI.

CONCLUSION

Early laparoscopic cholecystectomy is a safe and preferred treatment modality for patients presenting with acute cholecystitis.

RECOMMENDATIONS

Per operative and immediate post-operative use of antiemetics on regular basis along with early mobilization can significantly reduce Post-operative vomiting therefore its use is recommended.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Afridi SS:	Concept and design, acquisition of data, final approval.
Ahmed N:	Drafting of manuscript.
Ahmad M:	Data analysis.
Khan ZM:	Acquisition of data.
Muslim M:	Final collections.
Maroof SA:	Interpretation of data.
Aurangzeb M:	Overall supervision.
Khan MA:	Bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.