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Early and delayed Laparoscopic Cholecystectomy of Acute Cholecystitis in Department of Surgery, Faculty of Medicine, University of Misurata at period between 2018-2021

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Abstract

Background: Early laparoscopic cholecystectomy has been approved as the treatment of choice for acute cholecystitis because of shorter hospital stay and no increased morbidity when compared to delayed cholecystectomy, That's why Many surgeons prefer to do early laparoscopic cholecystectomy (within 3 days from starting symptoms) for treatment of acute cholecystitis. Her in my study we will compare between early (within 72hr) and elective(after 72hr) laparoscopic cholecystectomy of acute cholecystitis in all age group (young, adult, or elderly patients) .
Methods: Laparoscopic cholecystectomy was performed within 72 hours of symptoms in 84 patients (group 1) and after 72 hours in 116 patients (group 2).
The result of our study reveal relatively no difference between two groups in postoperative analgesia requirements, the rate of conversion ,or postoperative complications. But in the group 1 (early LC) had longer operating time, and shorter hospital stay. Most studies published in international literature show a statistically significant difference in the total hospital stay
Results: Laparoscopic cholecystectomy was performed within 72 hours of symptoms in 84 patients (group 1) and after 72 hours in 116 patients (group 2).
The result of our study reveal relatively no difference between two groups in postoperative analgesia requirements, the rate of conversion ,or postoperative complications. But in the group 1 (early LC) had longer operating time, and shorter hospital stay. Most studies published in international literature show a statistically significant difference in the total hospital stay
Conclusion: Treatment of patients suffering from acute cholecystitis with Early laparoscopic cholecystectomy within 72 hours of onset of symptoms has better medical and financial outcome if the operation done by surgeons with adequate experience in laparoscopic cholecystectomy. Also Because of less total hospital stay &faster return to the work in early laparoscopic cholecystectomy make it definitive treatment of acute cholecystitis at initial admission despite of longer operative time.

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I) Introduction:

Acute cholecystitis (AC) is the inflammation of gallbladder that occurs due to obstruction of the biliary outflow from cystic duct or ineffective emptying of the gallbladder". [1-3]. Laparoscopic cholecystectomy (LC) is an important approach for treating acute cholecystitis nowadays[2] Gallstone disease is three times more common in women than men. With advancing age, prevalence increases from 4% in the third decade of life to 27% in the seventh decade of life. [4] in the past, laparoscopic cholecystectomy was contraindicated in patients with acute cholecystitis because of the fear of increased morbidity and high rates (60%) of conversion to open cholecystectomy.[5] also, the bile duct injury of 5.5% during LC for acute cholecystitis was a major concern[6]. and initial medical treatment for acute cholecystitis followed by elective laparoscopic cholecystectomy is associated with several inadequacies.

First performed in 1985 by Dr. Erich Muhe. Laparoscopic cholecystectomy has now replaced open cholecystectomy as a first choice of treatment for gallstones and information of the gallbladder unless contraindications are found with the laparoscopic approach. With the development in laparoscopic skills and equipment, laparoscopic cholecystectomy has been reported to have significantly lower complication rates than open cholecystectomy [7].

Many prospective randomized studies demonstrated that early cholecystectomy within 3 days of the onset of symptoms was the preferred strategy to manage the acutely inflamed gallbladder, because of shorter hospital stay and reduced potential risk of late complications such as gangrenous or emphysematous cholecystitis, without an increase of postoperative morbidity and mortality. [9]

Postponing the definitive treatment for acute cholecystitis, however, results in further complications, such as the failure of non-operative management, which then necessitates immediate surgery. Additional readmissions for complications of cholelithiasis comprised of recurring acute cholecystitis, repeated occurrences of biliary colic, biliary pancreatitis, and cholangitis. In addition, persistent inflammation that results in fibrosis, adhesions, and anatomical distortion might make the dissection process challenging during laparoscopic cholecystectomy.[11]

II) Methods:

Retrospective study was done in the Department of emergency & general Surgery in Misurata Medical Center, from October 2018 to June 2021. The study was approved by local ethics committee.

The study contained 200 cases in which 84 cases undergoes early laparoscopic cholecystectomy and other 116 cases undergoes elective laparoscopic cholecystectomy. in all cases the consent for Operation taken and all patients fully informed. about the risks and possibility of conversion to open cholecystectomy.

The patients were admitted with a diagnosis of acute cholecystitis and randomly assigned to receive either early laparoscopic cholecystectomy within 72 hours of admission (early group, n = 84) or initial conservative treatment followed by delayed interval surgery 6-12 weeks later (delayed group, *n* = 116), by a computer-generated random number list kept by a third part.

The diagnosis of acute cholecystitis was based on the finding of acute upper abdominal pain, with acute right upper quadrant tenderness for more than 6 hours, associated nausea or vomiting, fever (>37.5°C), and ultrasonography shows evidence. of acute cholecystitis such as distended gall bladder,

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presence of gallstones with a thickened and edematous gallbladder wall, positive Murphy's sign, and pericholecystic fluid collections. also increased total leukocyte count (>10,000/mm3).

All patients receive the same initial treatment during the acute phase. This treatment are intravenous (i.v.) fluid infusion and i.v. antibiotics. For patients assigned to early group, laparoscopic cholecystectomy was performed within 72 hours by a consultant general surgeon having experience in laparoscopic surgery. Patients in the delayed group were treated conservatively and discharged after acute attack subsided. Then subsequently readmitted for elective laparoscopic cholecystectomy 6-12 weeks later

III) Exclusion criteria:

Patients excluded from the study were those with symptoms for more than 72 hours before surgery, patients with surgical jaundice (bilirubin level above 3.5 mg/dl), USG-proved CBD stone, malignancy, preoperatively diagnosed acute gallstone- induced pancreatitis, previous upper abdominal surgery, significant medical disease making them unfit for laparoscopic surgery, and those who refused to undergo laparoscopic surgery.

IV) Statistical analysis:

All data obtained were entered into the database and analyzed by means of Statistical Package for Social Sciences (SPSS) software using appropriate statistical tests like Fisher's exact test or paired t-test as and when needed.

V) Results:

A) Patient demographics

The study comprised 200 cases (84 in early group &116 in delayed group). Age distribution in both groups was comparable, with no statistically significant difference observed (P >0.05). The mean age of patients in the early and delayed groups was 39 + 8 years and 38 ± 9 years, respectively. Out of 200 cases, 50 were male and 150 were female. The male: female ratio was 1:4.

Tabe1:- Physical examination between to group.

characteristics	Group1<72h (n=84)	Group2>72 hr (n=116)
age	39±8	38±9
Sex(m-f)	21:63	29:87
body mass index	29.5±5.1	28.3±6.5
Fever>37.5	55(65%)	69(59%)
Murphy's sign	38(44%)	59(42%)
Leukocytosis >10*10/l	73(87%)	102(88%)

In early group80 patient presnted with neausea&vomiting and111 patient in delayed group.In both groups all patients presented with Rt hypochodrial pain ,fever presented in 55 patients in the early group and 69 patients inn the delayed group.finding of physical examination of patient in both groups are presented in table 1

Table 2: results of early&delayed laparascopic cholecystectomy of acute cholecystits

characteristics	Group1 <72 hr	Group2 >72hr
Conversion (n%)	4(4.7%)	5(4.31%)
Post operative stay (days)	3±2	2±1
Operative time (minutes)	130±50	90±40
Complication(n%)	1(1.19%)	9(7.75%)
Total admission(days)	5±2	10±5

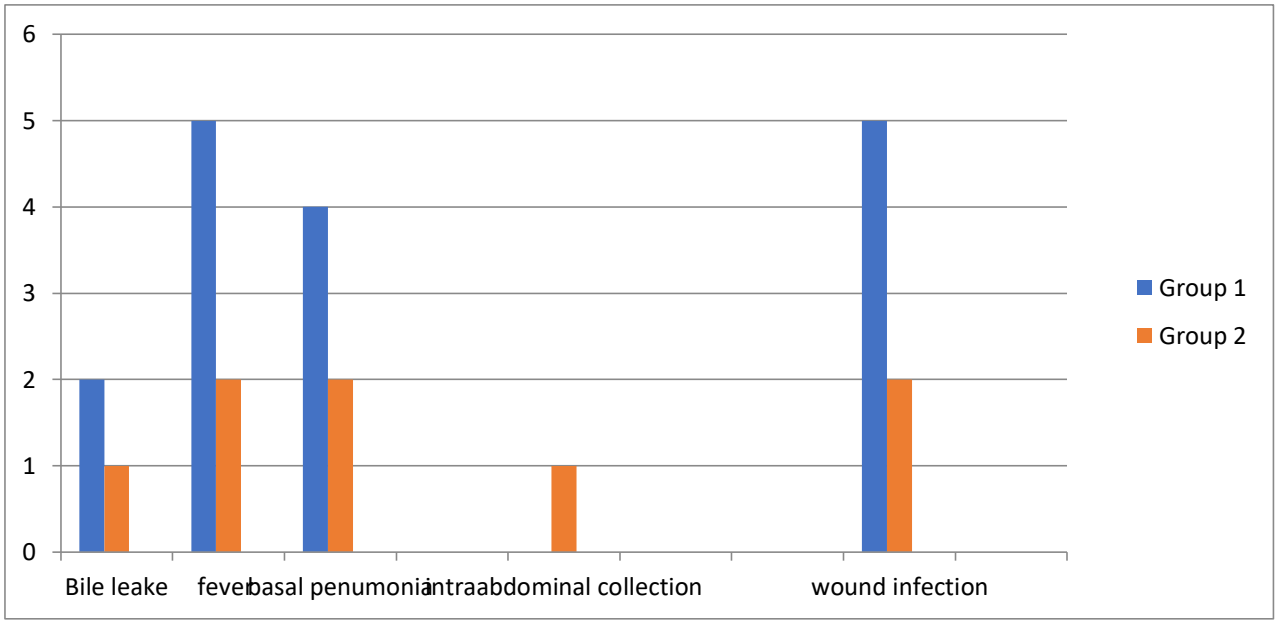
VI) Operative technique &complication:

reveal numerous variations in the operative technique in the two groups. There was statistically significant difference in terms of decompression of gallbladder and placement of sub hepatic drain. Nevertheless, no statistically significant difference was observed in the conversion rate. The reasons for conversion to open surgery in the early group were the friable and edematous gall bladder, which ripped when grasped; and in the delayed group, the main cause for conversion was difficulty in gall bladder exposure and dense adhesions obscuring the anatomy of Calot's triangle.

The mean operating time in the early group was 130±50 minutes, while that in the delayed group was 90+40 minutes. Mean hospital stay in the early group was 5±2 days, while that in the delayed group was 10±5 days.

Table 3:post operative complication of early&delayed laparascopic cholecystectomy of acute cholecystits

characteristics	Group1 <72 hr	Group2 >72hr
Bile leak	2(2.3%)	1(.86%)
fever	5(5.9%)	2(1.7%)
Basal pneumonia	4(4.7%)	2(1.7%)
Inntra-abdominal collection	0(0%)	1(.86%)
Wound ifection	5(5.9%)	2(1.7%)



VII) Discussion:

Treatment of acute cholecystitis by laparoscopic cholecystectomy done at the same day of admission is safe and related with a low rate of conversion and no mortality raSLaparoscopic cholecystectomy should be done early, better within the ideal period of 72 hours after onset of symptoms, to reduce the morbidity rate, time of procedure, and total hospital stay.

LC procedure is found to be the better treatment of acute cholecystitis due to shorter hospital stay time, earlier recovery, and faster return to work. Conversely, early laparoscopic cholecystectomy for acute cholecystitis still not become routine, since the timing and approach to the surgical management in patients with acute cholecystitis is still a matter of controversy.[10]

Some researches recorded high conversion rate (from 6% to 35%) in patients with acute cholecystitis treated with early LC. And due to these studies early LC become a controversial &remove it's advantage. So, it is said may be elective laparoscopic cholecystectomy is the preferred treatment option if though that will be technically easier surgery with a lower conversion rate, and it may be a superior treatment option for acute cholecystitis. But the idea of the initial elective management raises the opportunities of a successful LC at a later time is may be not right. Because in my study, delayed group had higher conversion rates than early group.

The cause of conversion in the early group was the friable and edematous gall bladder destroyed when grasped & in some cases the gall bladder was highly inflamed and may be gangrenous make it technically hard to finish it by laparoscopy. And in the delayed group, the chief cause for conversion was difficulty in gall bladder exposure and thick adhesions confusing the anatomy of Calot's triangle.

The most important topic in comparison of the two groups is the bile duct injury. None of the patients in either group had bile. duct injury. 2 (2.38%) patient had bile leak in the early group due to distal incomplete block by a small stone in distal CBD, which had slipped of gallbladder during dissection and was successfully removed by Endoscopic retrograde cholangiopancreatography (ERCP) and the leak settled,while just one patient (0.86%) had bile leak in delayed group.

Numerous practical important points must be kept in mind when laparoscopic surgery is performed for acute cholecystitis. For good exposure of Calot's triangle, decompression of the gallbladder should be done early because this allows better grasping and retraction of the gallbladder. In my study, during early surgery, a distended and edematous gall bladder was encountered in 71 (84.5%) cases, which posed a difficulty in grasping and retraction of the gall bladder and also obscured the Calot's triangle.

Suction (drainage) of gallbladder content used to clarify the anatomy of Calot's triangle. Gallbladder drainage was done in 35 (25.86%) patients in the elective group, and in early group done in 42(50%) of cases. Drain in sub hepatic area was inserted in 79 (94.04%) patients in the early group and in 91 (78.44%) patients in the elective group. This because of leakage of bile and stones during dissection of gallbladder from liver bed.

About the bleeding it's occur more in the early group, but no blood transfusion given to any patient. This event happened may be due to increased & engorgement of blood supply of the gallbladder and Calot's triangle in an inflamed gallbladder.

The total admission days was more in elective group than in early group in which in elective group was 10±5 days while in early group about 5±2 days. Most studies published in international literature show a statistically significant difference in the total hospital stay.

VIII) Conclusion:

We assess the efficacy &safety of laparoscopic cholecystectomy in both groups according to morbidity, mortality &conversion rate also operative &postoperative complications.

Because of less total hospital stay & faster return to the work in early laparoscopic cholecystectomy make it definitive treatment of acute cholecystitis at initial admission despite of longer operative time & more blood loss.

Also early surgical treatment avoid the recurrent admission of the patients because of recurrent symptoms. At the end, early LC (within 72 hours of onset of symptoms) carries both medical and socioeconomic advantages and should be the favored method for patients treated by surgeons with sufficient practice in laparoscopic cholecystectomy.

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