ORIGINAL ARTICLE

A Comparison of Results from Early and Late Laparoscopic Cholestectomies in Acute Biliary Pancreatitis Treatment

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ABSTRACT

Aim In the treatment of acute biliary pancreatitis (ABP), a cholecystectomy is used to prevent acute pancreatitis recurrences. In this study, we aimed to compare the results of early and late-stage LC in patients hospitalized in our clinic with an ABP diagnosis. **Material and Methods** The patient group was comprised of 35 females (77.8%) and 10 males (22.2%). The 22 patients who underwent LC after ABP treatment were in Group 1, while the patients who were given a two-month interval after the ABP treatment and then underwent LC were in Group 2. **Results** The average age of the patients was 56 (range: 26–93) years. The average hospital stay was 13.18 days in Group 1 and 8.3 days in Group 2. The mean duration of LC was 57.8 minutes in Group 1 and 45.7 minutes in Group 2 ($p < 0.01$). The conversion to a conventional cholecystectomy was performed in three (13.6%) patients in Group 1 and two (8.7%) in Group 2. Postoperative complications were seen in four (18.1%) patients in Group 1 and four (17.4%) patients in Group 2. Acute pancreatitis was seen again in one (4.5%) patient in Group 1 and two (8.7%) patients in Group 2**. Conclusion** In this study, we showed that cholecystectomy surgery can be performed safely after the ABP picture regresses.

INTRODUCTION

Gallstone pancreatitis accounts for 35-40% of acute pancreatitis cases worldwide. It constitutes the majority of acute pancreatitis cases in Turkey [1-4]. Pathophysiologically, the ampulla of Vater becomes obstructed by migrating stones. The initial treatment in these patients may be conservative or interventional. More specifically, conventional [5-7] or laparoscopic surgery [8-10] is recommended due to the high recurrence rates (29-63%) in patients without any intervention. However, there is no consensus yet on the timing of a cholecystectomy in patients with biliary pancreatitis. The aim of this study was to compare early laparoscopic cholecystectomies (LCs) to late LCs performed during the first attack in the treatment of acute pancreatitis, and to evaluate their effects on mortality and morbidity.

Materials and Methods

The files of patients hospitalized with the diagnosis of acute biliary pancreatitis (ABP) in the General Surgery Clinic of Fatih Sultan Mehmet Training and Research Hospital were retrospectively analysed. The patients were assigned to one of two groups according to their treatment methods. Group 1 included patients who underwent an early LC during the first pancreatitis attack after showing clinical improvement. Group 2 included patients who received medical treatment during the first attack and planned an elective LC (interval cholecystectomy) for at least eight weeks later. The patients were evaluated in terms of age, sex, clinical findings, number of attacks, length of hospital stay, morbidity and mortality. An ABP diagnosis was considered when the following criteria were met: (1) an acute abdominal pain and tenderness; (2) serum amylase and/or lipase values three times higher than normal; (3) the detection of stones in the biliary system with ultrasonography; and (4) the exclusion of alcohol, familial hyperlipidaemia and other causes of pancreatitis aetiology. Acute cholecystitis was considered when gallbladder wall thickness or pericholecystic fluid observed in the preoperative imaging examinations. Disease severity was assessed by Ranson scoring. Mild and moderate patients were classified as ≤ 3 [11, 12]. Clinical improvements were determined as having a normalization of serum amylase and lipase and liver function tests (if these were high at baseline) and a regression of abdominal pain. The Statistical Package for Social Sciences (SPSS) for Windows 13.0 program was used for all statistical analyses in the study. While evaluating the study data, Student's *t*-tests were used to compare normally distributed data between groups in a comparison of quantitative data, as well as descriptive statistical methods (e.g. mean, standard deviation and frequency). Chi-square tests and Fisher's exact chi-square tests were used to compare qualitative data. The results were evaluated at a 95% confidence interval, and the significance level was $p < 0.05$.

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Table 1: General Informatıon of Patıents.

patients	Group1	Group2
number	22	23
MRCP	5 (%22,7)	9 (%39,1)
ERCP	**3 (13,6)**	**7 (%30,4)**
operation time	57,8 minute	45,7 minute
conversion to conventional cholecystectomy	**3 (%13,6) patients**	**2 (%8,7) patients**
length of hospital stay	13,18 days	8,3 days

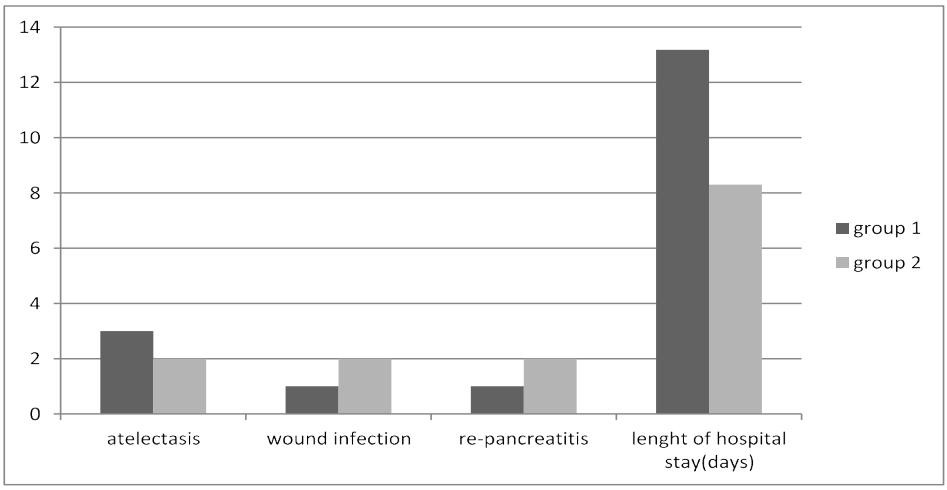

Figure 1. Comparison of early and late laparoscopic cholecystectomy results in acute biliary pancreatitis.

RESULTS

Of the 45 patients who applied to Fatih Sultan Mehmet Training and Research Hospital General Surgery Clinic for ABP and underwent a cholecystectomy, 35 (77.8%) were females and 10 (22.2%) were males. All patients were retrospectively evaluated. The patients who underwent an LC after ABP treatments were assigned to Group 1 and patients who were given a two-month interval after ABP treatment and then underwent LC were assigned to Group 2. The entire patient population for this study had 45 patients, with Group 1 having 22 patients and Group 2 having 23 patients. The average age of the patients was 56 (26–93) years. Ultrasound was performed in all patients and stones were found in the gall bladder. In the USG, intrahepatic bile ducts and dilatation of the common bile duct and biochemical parameters showed a pattern of obstructive jaundice. In five (22.7%) patients in Group 1 and nine (39.1%) patients in Group 2, an MRCP was performed. Patients with common bile duct stones as a result of MRCP, in three (13.6%) patients in Group 1. In Group 2, seven (30.4%) patients underwent an ERCP + sphincterotomy. The mean duration of the LC in Group 1 patients was 57.8 minutes, and 45.7 minutes in Group 2 ($p < 0.01$). The changeover from laparoscopic to conventional cholecystectomy was found in three (13.6%) patients in Group 1 and two (8.7%) patients in Group 2 **(Table 1).**

Postoperative complications were observed in eight (17.7%) patients. Of these, in Group 1, three patients had atelectasis, one patient had a wound infection and four (18.1%) patients had complications. In Group 2, complications were observed in four (17.4%) patients, two of these patients had atelectasis and two patients had a wound infection. There was no statistical significance between the mortality and morbidity rates between the two groups. An acute pancreatitis attack was observed in one (4.5%) patient in Group 1 and two (8.7%) patients in Group 2. The mean hospitalization periods were 13.18 days in Group 1 and 8.3 days in Group 2 **(Figure 1).**

DISCUSSION

The definitive treatment in ABP is a cholecystectomy. The risk of recurrent pancreatitis attacks after a cholecystectomy is 1-2% [13, 14]. However, it has been reported that more than two-thirds of the patients who did not receive definitive treatment after the first pancreatitis attack had recurrent pancreatitis attacks within the first three months [13, 14]. Recurrent pancreatitis attacks occur approximately 4-50% in the form of severe pancreatitis attacks, and the morbidity and mortality rates are 10-40% 10% and 40% respectively [15, 16]. In the past, because the risk of complications and conversion of pancreatitis-related inflammation increased, it was recommended a cholecystectomy be performed after 6-8 weeks. However, today, a cholecystectomy is recommended at the first admission or within the first 2-4 weeks [17, 18, 19]. Only 39-51% of this patient group was treated according to these treatment schemes [20, 21]. In studies conducted in our country, it has been reported that an interval cholecystectomy was applied in most patients, while only 42.5-52.1% of the patients underwent a cholecystectomy at the first admission [22, 23]. A gallstone obstruction occurring anywhere from the bile duct to the ampulla of

Vater is the main cause of acute pancreatin in bile. Biliary decompression can be done with an ERCP and endoscopic sphincterotomy [17, 18]. In our study, the presence of biliary stones in the main bile duct was confirmed by an MRCP before surgery in five (22.7%) patients in Group 1 and nine (39.1%) patients in Group 2. Of these, three (13.6%) patients in Group 1 and seven (30.4%) patients in Group 2 underwent a cholecystectomy after the stone was removed from the main bile duct by ERCP + sphincterotomy. After biliary pancreatitis, the recurrence of biliary pancreatitis or other biliary events, such as biliary colic, cholangitis, common bile duct obstruction and acute cholecystitis, may be observed [2, 20]. In the literature, a cholecystectomy or endoscopic sphincterotomy is recommended after biliary pancreatitis to prevent these recurrent biliary events [20]. Given this recommendation, early LC is performed immediately after recovery from the first episode of mild biliary pancreatitis.

In the past, there were opinions stating that the anatomy of Calot's triangle was difficult to evaluate correctly in procedures performed immediately after an acute pancreatitis attack and that dissection performed in this area was both difficult and dangerous [6, 24]. It has been reported that 16-18% of patients have been switched to a laparotomy due to dissection difficulties in LC operations due to ABP [25-27]. However, in recent years, there are studies that have reported the exact opposite of this view. It has been reported that the rate of complications and the transition to a laparotomy in cholecystectomy performed in the early period after a mild biliary pancreatitis are similar to patients who underwent an interval cholecystectomy [19, 28, 29]. In some studies, it has been reported that adhesions and fibrosis around the gallbladder are more common in an interval cholecystectomy, and this phenomenon makes the operation difficult [30]. In our study, a similar rate of complications and transitions to laparotomy were observed in LC in the early and late periods due to ABP. Although no criteria were used in our study regarding the difficulty of LC dissections, the fact that the operation time and complication rates were similar in both groups suggest that an early cholecystectomy did not cause additional operation difficulties. The most important support of the views advocating an early cholecystectomy is the high rate of recurrent biliopancreatic events occurring during the waiting period in patients undergoing an interval cholecystectomy. In the literature, recurrent biliary events have been shown to develop in up to 18% of patients during the 4-8 week waiting period [13]. In our study, recurrent biliopancreatic events were observed in 8.7% (2/23) of the patients. There are two different approaches to an early cholecystectomy in ABP. The first approach is to perform a cholecystectomy within the patient's arrival hour. In two studies involving a limited number of patients in which this approach was evaluated, it was reported that this approach was safe, and the length of hospital stay was shorter in this group [31, 32]. However, it has also been reported that the disease progressed to severe pancreatitis in 15% of patients who were evaluated as mild ABP at the first admission [33, 34]. Interventions performed without waiting for the regression of clinical findings and laboratory values may cause serious levels morbidity and mortality. Because of this view, the other approach in ABP is to perform a cholecystectomy after clinical improvement and normalization of laboratory findings. In various studies comparing this approach with an interval cholecystectomy, it has been shown that early cholecystectomies are performed with similar complication and exposure rates [19, 28, 29]. We prefer this approach, considering that it is safer to perform a cholecystectomy in ABP after a clinical recovery and laboratory values have returned to normal.

Compared to an early LC, patients with an interval LC had a higher rate of recurrent biliopancreatitis (Group 1: 4.5%; Group 2: 8.7%) due to during the waiting period. As a result, the durations of hospital stays were significantly longer due to re-hospitalizations. Similar results have been reported in other studies [19, 28, 29, 35]. The fact that our study was retrospective, and the number of patients was limited comprise the most important limitations to our study. Patients who received only medical treatment for acute pancreatitis (non-operative patients), emergency intervention (ERCP, laparotomy, necrosectomy, drainage, etc.) and patients with a history of chronic pancreatitis and alcohol use were excluded from the study.

CONCLUSION

There is still no consensus about the timing of cholecystectomy in patients hospitalized with an ABP diagnosis. Although it prolonged the LC time due to adhesions, and there was some difficulty in dissection and a bleeding risk in the early treatment of ABP, there was no difference in the postoperative hospitalization periods in terms of complications. In this study, after the ABP picture regresses, a cholecystectomy can be applied safely. We believe that an early LC should be performed to protect patients from complications of acute pancreatitis attacks that may develop later.

Conflicts of Interest

The authors report no conflict of interest.

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