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ORIGINAL ARTICLE

Outcomes of Early Vs. Delayed Laparoscopic Cholecystectomy in Acute Biliary Stone-Induced Pancreatitis a Prospective Observational Study

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ABSTRACT

Objective: This study aims to compare the outcomes of early and delayed laparoscopic cholecystectomy in patients with acute biliary stone-induced pancreatitis

Methods: this prospective observational stusy conducted in department of surgery hmc Peshawar From January 2015 to December 2019, 200 patients (100) (50%) male and 100(50%) female) with acute biliary stone-induced pancreatitis underwent laparoscopic cholecystectomy. Hospital E.M.R.s provided patient data. Laparoscopic cholecystectomy was performed early (before 72 hours) or delayed (beyond 72 hours). Complications and death were crucial outcomes. Recovery, hospitalization, and postoperative discomfort were secondary outcomes. Chi-square and t-tests analyzed data.

Results: 200 patients were evaluated with a median age of 45 (IQR=35-56) years. 43 (21.5%) patients had difficult dissection. The median operative time was 46 (IQR=37-55) minutes, while the median hospital stay was 8 (IQR=5-8) days. 65(32.5%) patients had drain placement. Only minor complications were seen in 22 (11%) patients. Furthermore, most of the patients in the gallbladder group, i.e., 90.5%, had complete recovery, while the mortality rate was also meager, i.e., 0.45%. Early laparoscopic cholecystectomy had a reduced incidence of complications ($p<0.05$), shorter inpatient time ($p<0.001$), and quicker recovery time than delayed surgery. Both groups had similar death rates ($p=0.070$). Early laparoscopic cholecystectomy reduced discomfort ($p<0.001$).

Conclusion: This research suggests that early laparoscopic cholecystectomy for acute biliary stone-induced pancreatitis is safe and effective. Early laparoscopic cholecystectomy reduces postoperative discomfort, hospitalization, and complications.

Keywords: Early Laparoscopic Cholecystectomy, Acute Biliary Stone, Delayed Laparoscopic Cholecystectomy, Pancreatitis, Biliary Tract Diseases.

INTRODUCTION

The most terrible side effect is severe pancreatitis. Between 30 to 50 percent of instances of acute pancreatitis are caused by gallstones [1]. Despite improvements in the healthcare industry, acute pancreatitis is becoming more common in Pakistan. Acute pancreatitis occurs 13 and 45 times per 100,000 people worldwide[2]. Males experience acute pancreatitis more often than females do moreover, the pattern becomes worse as people get older. [3]. Surgeons have a hurdle when treating acute pancreatitis from gallstones since there is no agreed-upon standard for care and therapy. Moreover, 30 percent of those diagnosed with acute pancreatitis go on to have life-threatening complications, and between 25 and 35 percent of individuals with the condition have a severe clinical course.[4,5] In cases of severe acute pancreatitis, the death rate might reach 30%. Acute pancreatitis related to the gallbladder accounted for up to 58.7% of patients in research by Yin et al., followed by hyperlipidemia in 14.3% of cases and alcohol in 4.5% of cases. [6] The shared pathway for bile and pancreatic enzymes is the pathophysiology of acute pancreatitis owing to gallbladder stones. [7] Gallbladder stones have the potential to go through the biliary channels and damage Vater's ampulla. Patients with gallbladder issues may have a less invasive surgery with laparoscopic cholecystectomy. It is the preferred course of therapy since it also reduces recurrence. [8] Due to the short hospital stay and small incisions in laparoscopic surgery, cholecystectomy has become a standard technique.

Nevertheless, a significant incidence of postoperative nausea and vomiting has been documented in these patients. [9, 10] There is still no agreement regarding which patients would benefit from an early laparoscopic cholecystectomy and which would profit from a late operation. Also, there is a dearth of information from the neighborhood community about the procedure's consequences and patient outcomes. As a result, the present study's objective was to assess the clinical effects in patients with acute pancreatitis who had laparoscopic cholecystectomy in our system.

MATERIALS AND METHODS

This prospective observational study was conducted at department of surgery hmc Peshawar From January 2015 to December 2019, sample size 200 patients (100) (50%) male and 100(50%) female) with acute biliary stone-induced pancreatitis underwent laparoscopic cholecystectomy. Hospital E.M.R.s provided patient data. Laparoscopic cholecystectomy was performed early (before 72 hours) or delayed (beyond 72 hours). Complications and death were crucial outcomes. Recovery, hospitalization, and postoperative discomfort were secondary outcomes. Chi-square and t-tests analyzed data.

When the complication rate for patients having laparoscopic cholecystectomy was kept at 6%, the margin of error was observed at 4%, and the degree of confidence was maintained at 93%, a sample size of 200 was calculated. All participants with a pancreatitis diagnosis were eligible to participate in the trial. Our hospital's methodology led to the diagnosis of gallstone pancreatitis. A scan of the abdomen using abdominal ultrasonography revealed gallstones. After clinical evaluation, those with epigastric pain who had cholelithiasis on ultrasound imaging—both instances with and without stones in the common bile duct (CBD)—were included in the research. Fig. provides a flow chart outlining the inclusion and exclusion criteria (Fig,1).

RESULTS

Two hundred patients were evaluated with a median age of 45 (IQR=35-56) years. 43 (21.5%) patients had difficult dissection. The median operative time was 46 (IQR=37-55) minutes, while the median hospital stay was 8 (IQR=5-8) days. 65(32.5%) patients had drain placement. Only minor complications were seen in 22 (11%) patients. Furthermore, most of the patients in the gallbladder group, i.e., 90.5%, had complete recovery, while the mortality rate was also meager, i.e., 0.45%. All statistical data packages for social software (S.P.S.S. version 25). All non-normally distributed variables, including age, body mass index, hospital stay, and operative duration, were presented as median and interquartile ranges. Only minor complications were seen in 22 (11%) patients.

Early laparoscopic cholecystectomy had a reduced incidence of complications ($p<0.05$), shorter inpatient time ($p<0.001$), and quicker recovery time than delayed surgery. Both groups had similar death rates ($p=0.070$). Early laparoscopic cholecystectomy reduced discomfort ($p<0.001$) Table I.

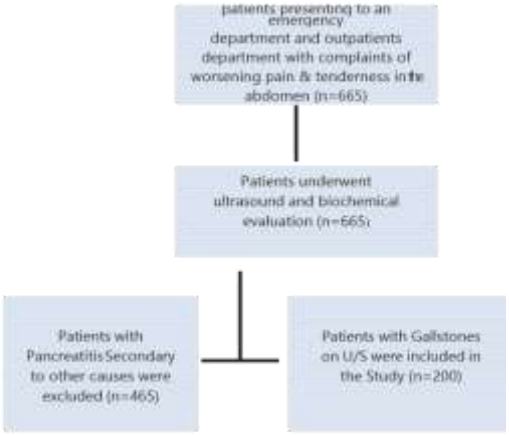

Fig. 1: selection of patients.

Using Ranson's criterion, the sickness was assessed for selection. Acute biliary pancreatitis (ABP) in patients with a Ranson's score of 3 or less was moderate, but ABP in those with a score of 3 or more was severe. The trial did not include individuals with advanced illnesses who received standard care. Early laparoscopic cholecystectomy (6 weeks) was performed on patients who had surgery between the time of the occurrence and within ten days. All of the patients received extensive explanations before signing an agreement.

The biliary tree was drained before surgery or while it was performed using choledochoscopy or ERCP. Each patient had a standard four-port laparoscopic cholecystectomy. The first 10mm port was positioned sub umbilically using the open Hasson technique to establish pneumoperitoneum. Another 10mm port was inserted in the epigastric area. Two 5mm ports were placed in the right subcostal area and midline. To fulfill the need, more ports were created. For dissection, diathermy was used, and a harmonic blade was used for complicated dissections in the clot's zone. A subhepatic tube was inserted in individuals with complex surgery who were at risk for complications or bile leakage.

Among other sociodemographic details, age, race, body mass index (B.M.I.), location, and concomitant illnesses were noted. During the operation, the average procedural time, the number of ports, the typical hospital stay, the insertion of a drain, and the postoperative occurrences were all recorded and evaluated. The outcome metric was in-hospital death. The same surgeon performed each procedure.After their postoperative recovery, all patients received their release. Complete recovery was said to have occurred when the wounds were healing correctly, and there were no signs of infection. Mild complications were defined as those that could be treated in the outpatient department without needing subsequent treatment or hospitalization. For example, postoperative infection was considered favorable if the symptoms disappeared independently or after taking broad-spectrum antibiotics for a week. The patients were observed for at least three months after an initial week of observation, followed by a month at a time.

The current research emphasizes early laparoscopic cholecystectomy's safety, with little mortality and morbidity (before six weeks).The research does have some constraints. For instance, this research did not contain a long-term follow-up and used an observational study-type design. The generalizability of the research results was constrained by the small sample size that we used. Further large-scale, multi-center research is required to conduct a thorough investigation. Fig. (2) The chart below shows that most of the patients in the gallbladder group fully recovered. Fig 2. also shows the difference in the in-hospital death rate between individuals with gallstone pancreatitis and those with pancreatitis due to other causes.

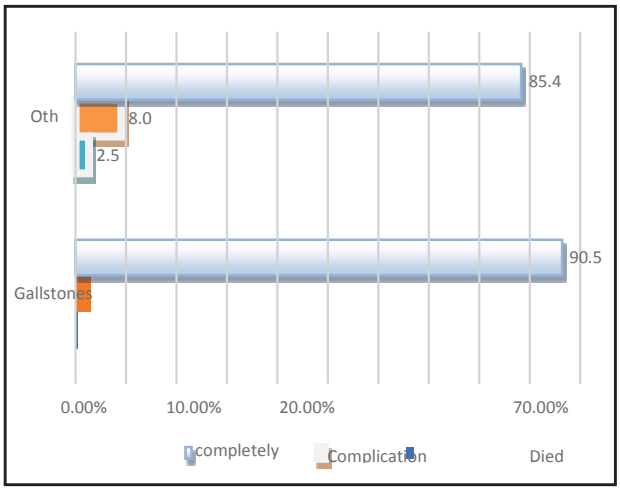

Fig. 2: Distribution of patient outcomes in our research population.

Table 1: Characteristics of study participants=200

Characteristics	Frequency (%age)	p-value
Median Age (Year)	45 (35-56)	
Gender Male Female	100(50%) 100(50%)	(p<0.001)
Median operative time	46 (37-55) Minutes	
Median Hospital stay	8 (5-8) days	
Drain replacement	65(32.5%)	
Complications	22 (11%)	(p<0.05)
Complete recovery	90.5%	
Mortality rate	0.45%	
Residence Urban Rural	115(57.5%) 85(42.5%)	

DISCUSSION

Our research discovered that patients with endoscopic sphincterotomy and endoscopic retrograde cholangiopancreatography (ERCP) were handled conservatively, and no definitive care was offered. Laparoscopic cholecystectomy did not result in any deaths, and there were no severe postoperative complications either. To not postpone treatment of the condition and avoid the recurrence of acute pancreatitis, we discovered that laparoscopic cholecystectomy was a safer option in mild gallstone pancreatitis. Also, it eliminated the problem of third-world patient disobedience with definitive therapy. Amin et al. concluded that there was no meaningful correlation between preoperative ERCP and open cholecystectomy. [11] Old age, obesity, a history of abdominal surgery, and diabetes led to open cholecystectomy. Despite its advantages in treating complex gallbladder disease, laparoscopic cholecystectomy was shown to be less dangerous in their investigation.

The median operative time was 46 (IQR=37-55) minutes, while the median hospital stay was 8 (IQR=5-8) days. 65(32.5%) patients had drain placement. Only minor complications were seen in 22 (11%) patients. Furthermore, most of the patients in the gallbladder group, i.e., 90.5%, had complete recovery, while the mortality rate was also meager, i.e., 0.45%.

Increased mortality and morbidity were seen after cholecystectomy. Gallstones were discovered to be one of the

frequent causes of pancreatitis and to have a high mortality rate in another investigation by Hameed et al. [12] Similar to our research, acute gallstone pancreatitis was more often seen in females. According to documented research, acute Cholecystitis was formerly thought to be a contraindication for laparoscopic cholecystectomy because it had a greater risk. [13, 14] Yet, research has revealed via several trials over the years that laparoscopic surgery is advantageous in the early stages of the illness. [15] In addition, Tayeb et al. discovered that laparoscopic cholecystectomy had a shorter hospital stay and a lower risk of bile damage than open cholecystectomy. [16] Laparoscopic cholecystectomy was found by Laghari et al. to be a safe operation for gallstone disease with a conversion rate of 1.67%. [17] The authors further said there was no appreciable morbidity or mortality compared to open cholecystectomy and that problems were treatable by a skilled surgeon. Studying the results of laparoscopic cholecystectomy on elderly patients (over 60 years of age), Abidi et al. discovered that the death rate was just 1%. [18] The surgery had fewer problems and less postoperative discomfort for this age range than open cholecystectomy. In their research, Salam et al. discovered that Magnetic Resonance Cholangiography (M.R.C.P.) (95.83%) was more accurate than Endoscopic Retrograde Cholangiopancreatography (ERCP) (98%) in detecting malignant obstructive jaundice. [19] Similarly, Alam et al. spoke about laparoscopic cholecystectomy having a low risk of infection at the port location where the gallbladder was removed. [20]

In their research, Rajdev et al. recommended laparoscopic cholecystectomy as the primary therapy strategy for patients presenting with cholelithiasis due to benefits such as a shorter hospital stay, aesthetic benefits, and postoperative pain relief.[21] The authors also spoke about how early conversion to open cholecystectomy by surgeons can lower mortality and morbidity rates in individuals who have high surgical difficulty scores. Also, similar to our analysis, the scientists working with the Pan Wessex Study Group discovered that laparoscopic cholecystectomy was the chosen course of therapy for those with acute pancreatitis (96%). [22]

CONCLUSION

According to the findings of this research, an early laparoscopic cholecystectomy may be an alternative to therapy that is both safe and successful in managing acute pancreatitis caused by biliary stones. Early laparoscopic cholecystectomy is linked to reduced rates of complications, shorter hospitalization times, faster recovery times, and less postoperative discomfort experienced by patients.

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