

Index Admission Laparoscopic Cholecystectomy for Gall Stone Pancreatitis.

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ABSTRACT

Background: Timing of Laparoscopic Cholecystectomy (LC) after gallstone pancreatitis varies considerably between surgeons. We examined outcomes at JN Medical College and hospital where most patients underwent LC following initial management of gallstone pancreatitis. **Methods:** This prospective study is carried out between June 2009 to June 2013 in J.N.M.C.H. Patients with signs and symptoms of acute pancreatitis were admitted and evaluated. All patients admitted were provided the standard care. After exclusion of some patients, remaining underwent laparoscopic cholecystectomy irrespective of severity of disease in index admission, although patients with severe biliary pancreatitis were operated after stabilization of general condition. **Results:** A total of 134 patients with gallstone pancreatitis were identified of whom 90 underwent laparoscopic cholecystectomy (LC) in the index admission. 77 patients were of mild pancreatitis while 13 were of severe pancreatitis. Out of 77 patients with mild pancreatitis 8 patients and 6 out of 13 patients with severe pancreatitis had a difficult dissection (p value < 0.05). In terms of hospital stay mean duration of stay was 8.7 days in mild pancreatitis group, whereas it is 19.8 days in severe pancreatitis group (p value < 0.05). Of these 90 patients 79 (88%) underwent LC successfully while 11 (12%) required conversion to open cholecystectomy where 8 were of mild and 3 were of severe pancreatitis. 14 (15%) had a difficult dissection, where 8 were of mild and 6 were of severe pancreatitis. There were 6 (6.7%) postoperative complications in form of wound infection and bile leak overall. The difference in terms of variables like conversion rate to open surgery, need of drain placement, bile leak and wound infection was statistically not significant. **Conclusion:** LC should be used for GSP during the same hospital admission with favorable outcome with complications and conversion rate compared to elective LC. All patients of mild pancreatitis and patients of severe pancreatitis with no local and systemic complications could undergo laparoscopic cholecystectomy in index admission.

Keywords: Gallstone pancreatitis, index admission, laparoscopic cholecystectomy.

INTRODUCTION

Acute biliary pancreatitis (ABP) is an inflammatory disease affecting the pancreas and is caused by gallstones.^[1] In the present era established management for mild forms of acute gallstone pancreatitis is cholecystectomy during the same admission after acute symptoms have subsided, but in severe pancreatitis usually the surgery is delayed^[2,3]. Early surgery has the potential disadvantages of operating on a systemically unwell patient and increased difficulty of dissection due to inflammation in the region of the gallbladder.

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On the other hand, delayed surgery places the patient at risk of recurrent pancreatitis or other complications of cholelithiasis.^[4,5] In cases of mild pancreatitis, the UK guidelines for the management of acute pancreatitis^[2] recommend definitive management of gallstones, ideally within 2 weeks and no longer than 4 weeks. Also evidence-based guidelines given by the International Association of

Pancreatology in 2002 (based on studies from 1970s through 2000) recommend that cholecystectomy be performed for mild gallstone pancreatitis as soon as the patient has recovered from the acute pancreatitis, ideally during the same hospitalization.^[6] The timing of cholecystectomy in patients with clinically severe pancreatitis, with local complications such as pancreatic necrosis and organ failure, is deliberately delayed until local complications have resolved, typically after some 6 weeks.^[7-11,28] The concept of early surgical intervention is often not followed in patients with moderate to severe acute pancreatitis because a large amount of time is spent in managing the patient's acute episode. Thus, the amount of delay before consideration for cholecystectomy is longer in a patient who has had moderate to severe attack. Some patients with severe acute pancreatitis recover enough to undergo same admission cholecystectomy. Our study evaluates the efficacy and safety of laparoscopic cholecystectomy in severe acute gallstone pancreatitis in index admission in terms of feasibility, hospital stay, difficulty in surgery like difficult dissection or conversion to open procedure and complications.

MATERIALS AND METHODS

Our study is a prospective study carried out between June 2009 to June 2013. During these 4 years duration all patients who presented to J.N.M.C.H with signs and symptoms of acute pancreatitis were admitted and evaluated. All patients admitted were provided the standard care for patients with this diagnosis. A battery of laboratory tests was obtained. Diagnosis of acute pancreatitis were made when at least two of the three following features present [12]

1. upper abdominal pain.
2. serum lipase or amylase levels above three times the upper level of normal.
3. characteristic findings of acute pancreatitis on cross-sectional abdominal imaging.

Diagnosis of biliary pancreatitis was made when any of the following three definitions [13-18]

1. Gallstones and/or sludge diagnosed on imaging (transabdominal USG).
2. In the absence of gallstones and/or sludge, a dilated common bile duct on ultrasound (>8 mm in patients ≤75 years old or >10 mm in patients >75 years old).
3. Alanine aminotransferase level >2 times higher than normal values, with serum alanine aminotransferase levels >aspartate aminotransferase level).

Investigations including those pertinent to prognostic scales were also done. Patients were stratified and defined as moderate to severe acute pancreatitis on the basis of Ranson’s prognostic indicators. Any patient with greater than 3 Ranson indicators was designated as severe acute pancreatitis.

In the first 24 hours of admission all patients will undergo an abdominal ultrasound aimed at detecting gallstones and/or sludge in the gallbladder and at determining the diameter of the common bile duct. Contrast-enhanced computed tomography (CECT) and LFT was performed routinely in all patients. MRCP was performed in selected patients in which either liver function was deranged, status of CBD was not clear or CBD was dilated.

All the patients with diagnosis of gallstone pancreatitis underwent laparoscopic cholecystectomy after resolution of acute episode.

Data were obtained from chart, review, paper medical records. Data collected for analysis include patient age, primary diagnosis, comorbidities, and other factors(smoking status and alcohol abuse). Data were also collected on radiologic studies performed as part of diagnostic evaluation, including right upper quadrant ultrasound, CTscan. Results of laboratory tests for admission, such as white blood cell count (WBC), International Normalized Ratio (INR), amylase, and lipase levels

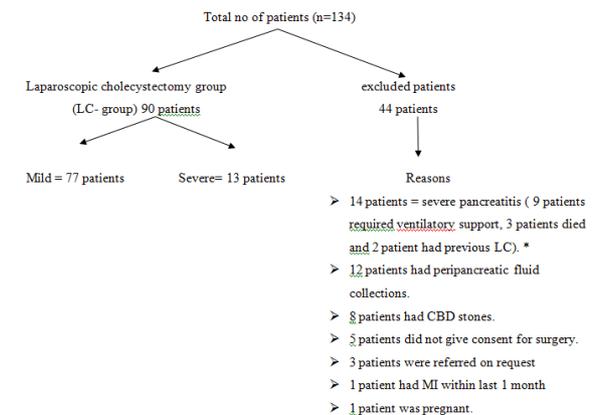
on admission were also recorded. Other variables of interest like length of hospital stay, open vs.Laparoscopic cholecystectomy, and perioperative complications (bile leak, bile duct injury, retained stones, biloma abscess, wound infection, pneumonia) were noted.

As there are no facilities for ERCP and perioperative cholangiogram at our centre only those patients were taken for surgery whose USG/ MRCP showed normal CBD and total bilirubin and alkaline phosphatase are within normal limits.

Statistical analysis was done using fisher exact test (two tailed) and two-tailed t – test.

RESULTS

In all, 134 patients were identified who met the definition given above for gallstone pancreatitis of whom 87 were female (65%). This was an elderly patient population with a range in age from 17 to 68 years, a mean age of 43 years and a median age of 47years. The 134 patients were classified as mild and severe pancreatitis based on ranson’s score. Any patient with greater than 3 ranson indicators was designated as severe acute pancreatitis rest as mild pancreatitis.



108 patients had mild pancreatitis and 26 had severe pancreatitis.

Table 1: Pancreatitis

Type of pancreatitis	Number of patients
Mild	108
Severe	26

Out of 134 patients, 90 patients underwent laparoscopic cholecystectomy. These 90 patients made our study group (n=90). Rest 44 patients were excluded from the study due to reasons discussed below. The age of the 90 patients undergoing LC ranged from 17 to 67 years with a mean of 40 years and a median of 44 years.

*Out of 14 patients of severe pancreatitis 9 required operative interventions like necrosectomy and drainage of infected peripancreatic collections.

Out of 77 patients of mild pancreatitis who underwent laparoscopic cholecystectomy 8 patients had to be converted to open cholecystectomy that is a conversion rate of 10.3% whereas in 13 patients of severe pancreatitis 3 patients were converted to open cholecystectomy that is a conversion rate of 23%.

In our study 14 patients (15%) have difficult dissection due persisting edema and inflammation but were completed laproscopically. In patients of severe pancreatitis, only those patients were operated who had neither local nor systemic complications. They were taken up surgery in index admission after their symptoms and signs had disappeared. One finding present more frequently in cases of severe pancreatitis was presence of adhesions and sometimes difficult anatomy like frozen calot's triangle, thickened gall bladder wall and edema was there. Out of 77 patients of mild pancreatitis, 8 patients had difficult dissection whereas 6 out of 13 patients of severe pancreatitis had the same.

The time taken to perform laproscopic cholecystectomy in 69 patients of mild pancreatitis has a mean value of 57.42 minutes with standard deviation of 15.97 minutes. 30 minutes was the minimum time taken and median was 57.5 minutes. 8 patients of mild pancreatitis were converted to open cholecystectomy has a mean value of 128 minutes.

The time taken to perform laproscopic cholecystectomy in 10 patients of severe pancreatitis has a mean value of 78 minutes with standard deviation of 15.59 minutes. 56 minutes was the minimum time taken and median was 77 minutes. 3 patients of severe pancreatitis were converted to open cholecystectomy has a mean of 137 minutes.

Drains were placed only in 11 patients depending on per operative scene and surgeons discretion.

Only 6(6.7%) patients out of 90 developed postoperative complications. 3 patient developed wound infection, 3 patients have bile leak in postoperative period. All complications were conservatively managed.

In terms of hospital stay, mean duration of stay was 8.7 days in mild pancreatitis group whereas it is 19.8 days in severe pancreatitis group. The difference was statistically significant.

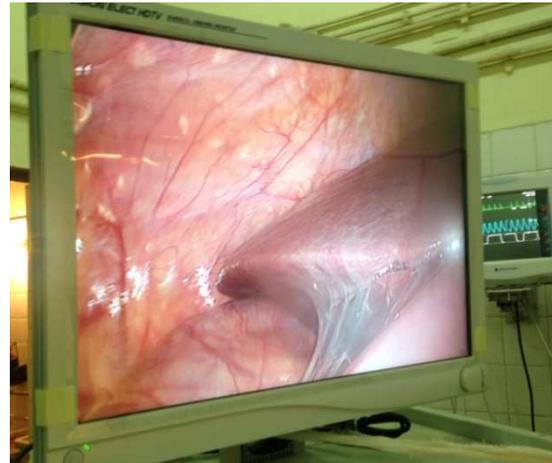


Figure1: Intraoperative images of presence of adhesions.

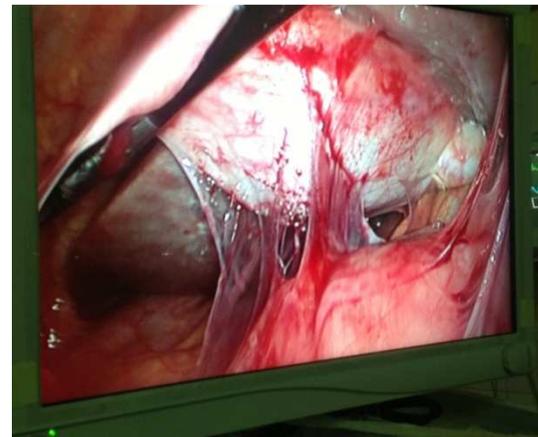


Figure2: Intraoperative images of presence of adhesions.

DISCUSSION

Gallstone pancreatitis is an inflammatory condition of the pancreas induced by gallstones.^[1] The initial treatment of ABP can be either conservative or interventional. The incidence of recurrent acute biliary pancreatitis varies widely, from 0% to 57%, depending on the population studied, the initial treatment, and the follow-up time.^[19-23] Several treatment guidelines state that cholecystectomy should be performed in the first weeks after recovery of mild biliary pancreatitis in order to minimize readmissions for biliary events.^[6,11,24-27] In a systematic review it was demonstrated that cholecystectomy should probably be performed during index admission because an early procedure was not associated with an increased risk of complications whereas interval cholecystectomy (after median 40 days) was associated with a biliary event recurrence rate of 18%.^[7-11,28] The present study was done to know the outcome of same admission cholecystectomy in case of acute pancreatitis. Both mild and severe pancreatitis cases

Table 2: Depicts the observed variables and comparison of both groups

	Mild pancreatitis (n=77)	Severe pancreatitis (n=13)	P value
Difficult dissection	8	6	0.004
Conversion to open	8	3	0.19
Drain placement	8	3	0.19
Bile leak	2	1	0.37
Wound infection	2	1	0.3
Hospital stay	8.7 days	19.8 days	0.03

were included in the study. In the pre-laparoscopic era, three schools of thought regarding optimal timing of biliary surgery following gallstone pancreatitis were advocated. Traditionally, biliary surgery was delayed until complete recovery from the illness. In the 1970s, same-admission surgery was increasingly described as a means of preventing recurrence. Subsequently, a number of authors recommended emergency surgery, within 72 h and often within 24 h of admission.^[29-31] It was felt that early removal of stones, could prevent progression of pancreatitis and decrease mortality. However, Ranson^[32] found an increased mortality in patients undergoing definitive biliary surgery in the first week of treatment, especially those with severe pancreatitis. With the advent of laparoscopic cholecystectomy, early surgery was found to be feasible and safe, but technical difficulty is often increased after gallstone pancreatitis compared with surgery for uncomplicated cholelithiasis.^[33] For this reason, many surgeons prefer interval cholecystectomy. Traditionally, early cholecystectomy has been suggested to be technically more demanding than interval cholecystectomy, but data to support this statement are lacking. Notably, a recent study found that early cholecystectomy was technically less demanding, which corresponds to nature of peritoneal healing and adhesion formation.^[34] This concept is supported by a recent retrospective study from India that focused on difficult dissection during laparoscopic cholecystectomy after mild biliary pancreatitis.^[35] There is no evidence to suggest that deferring the cholecystectomy in such patients reduces the operative difficulty.^[14,36] Tang *et al.*^[17] found no difference in conversion rates for early surgery compared with later surgery if pancreatitis was mild, but increased conversion rates for early surgery in patients with 3 or more Ranson's criteria. Conversion rates of 4% and 10% for interval LC are reported.^[37] In our series, the majority of cases were completed laparoscopically without undue difficulty. Only 3 of 13 patients in severe pancreatitis group required conversion to open as compared to 8 out of 77 patients in mild pancreatitis group (p value not significant). The difference in other parameters like wound infection, bile leak, drain placement in both groups were statistically not significant. In severe pancreatitis group dissection was difficult (p value=0.004) and hospital stay was longer (p value <0.05) as compared to mild pancreatitis group. So in this study laparoscopic cholecystectomy was performed in index admission in both mild and severe acute biliary pancreatitis without significant difference on morbidity and post operative recovery of patients.

CONCLUSION

LC should be used for GSP during the same hospital admission with favourable outcome with complications and conversion rate comparable to elective LC. All patients of mild pancreatitis and patients with severe pancreatitis with no local and systemic complications could undergo laparoscopic cholecystectomy in index admission. The only way to provide convincing, level I evidence that early cholecystectomy is indeed superior to interval cholecystectomy is to perform a randomized controlled trial.

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