Original Article

Outcome of early cholecystectomy in acute mild biliary pancreatitis

Yousaf Jan, Muhammad Shah, ShaukatHussain, Waqas, Ahmad Din

Department of Surgery, Hayatabad Medical Complex, Peshawar and District Headquarters Hospital, Nowshehra, Pakistan

Objective: To evaluate if early cholecystectomy was safe in mild biliary pancreatitis.

Methodology: This prospective observational study included 72 patients with mild biliary pancreatitis over a period of 3 years. Cholecystectomy was performed within 48-72 hours of admission by an open approach. The patients were evaluated for the surgery related complications.

Results: The morbidity rate was 11.1% with wound infection in 5.5%, subphrenic abscess in 2.7% and biliary leakage in 2.7%. There was no mortality. The hospital stay varied from 5-12 days. No further episodes of pancreatitis occurred after cholecystectomy.

Conclusion: It is concluded that early cholecystectomy can be safely performed after a mild attack of biliary pancreatitis without increasing the morbidity and mortality rates. (Rawal Med J 2014;39: 281-284).

Keywords: Biliary pancreatitis, gall stones, cholecystectomy.

INTRODUCTION

Pancreatitis is the inflammation and autodigestion of the pancreas.[1] In 80% of cases, acute pancreatitis is caused by gallstones or heavy alcohol use.[2] Pancreatitis secondary to gallstones or sludge is associated with a high morbidity rate (15-50%) and mortality rate (20-35%).[3] Gallstone migration and obstruction of the common bile duct (CBD) and pancreatic duct can be the triggers for acute biliary pancreatitis (AP). In about 86% of patients, obstruction is transient and the responsible stone passes rapidly into the duodenum.[4]Most patients with AP suffer a mild attack and recover fully with conservative treatment.[5] Cholecystectomy during index admission for AP minimizes the risk of recurrent AP and other biliary complications.[5,6] Different scoring systems have been devised to assess the severity of pancreatitis which help in predicting morbidity and mortality.[7]

While initial treatment of gallstone pancreatitis is supportive, definitive treatment of gallstone pancreatitis to prevent recurrence requires cholecystectomy to remove the source of gallstones. Without definitive treatment, the recurrence rate of gallstone pancreatitis is as high as 60%.[8] Whereas patients with AP and coexisting acute cholangitis benefit from early endoscopic sphincterotomy,[9] early endoscopic retrograde cholangiopancreatography (ERCP) has not been shown to be much helpful in patients without acute cholangitis.[10]There is no consensus on the ideal timing for cholecystectomy in AP but the recent evidence, with the introduction of laparoscopic surgery, has suggested that patients with mild gallstone pancreatitis, which comprises 80% to 90% of all patients with gallstone pancreatitis, may be better served with earlier intervention.[11]The aim of this study was to evaluate if early cholecystectomy was safe in AP.

METHODOLOGY

This prospective study was conducted in surgical unit of Hayatabad Medical Complex, Peshawar, Pakistan from January 2008 to December 2011 and included 72 patients with first episode ofAP induced by gallstones. Patients above 15 years of age and both genders were included in this study. Patients above 75 years of age, moderate to severe biliary pancreatitis, pancreatic necrosis, chronic pancreatitis, alcohol abuse and pregnant females were excluded. Laboratory investigations and ultrasonography were performed for the diagnosis and stratification of patients. Patients with Ranson score ?3 were labeled as mild acute pancreatitis.

Patients were treated with intravenous fluids, Injection Cefuroxime1.5gm twice daily, Injection ketorolac 0.5mg/kg body weight with vitals monitoring and intake output record. CT scan

abdomen was advised in those patients in whom the initial ultrasound abdomen was not conclusive. Magnetic resonance cholangiopancreatography (MRCP) was performed for the detailed study of biliary channels. Patients with common bile duct (CBD) stones and showing signs of cholangitis were sent for ERCP to remove CBD stones. Those with CBD stones but showing no signs of cholangitis were managed in the same admission with cholecystectomy.

After initial resuscitation and stabilization, surgery was performed within the first 48-72hrs. Cholecystectomy was performed without CBD exploration. In all those patients having preoperative CBD stones, CBD was explored. Antibiotics, analgesics and I/V fluids were continued. Patients without CBD exploration were discharged on 4th or 5th post-operative day. T-Tube Cholangiogram was performed on 8th post-operative day and was removed after getting radiographic evidence of a patent CBD. The primary end point was perioperative complications. Secondary end point was composite of hospital stay and recurrence of biliary events after cholecystectomy.

RESULTS

Out of 72 patients,there were 51(70.8%) females and 21(29.2%) males with M:F ratio of 1:2.4. Age ranged from 15-70 years (mean 35.79±11.02), most between 31-50. The initial serum amylase level ranged between 310-850 IU/L(Table 1).

Table 1. Initial laboratory investigations on admission.

Investigations	Normal values	Results
Serum amylase	(30-165 IU/L)	310-850 IU/L
Serum bilirubin	< 1 mg/dl	0.8-4.2 mg/dl
Total leucocyte count	4000-11000 mm3/dl	8000-16700 mm3/dl
Serum calcium	8.5-10.5 mg/dl	7.2-10.3 mg/dl
Alkaline phosphatase	60-170 u/l	215-1356 u/l
SGPT	9-40 u/l	38-245 u/l

Ultrasound examination showed gall bladder stones in 100% of cases, CBD stones in 51(70.8%) and pancreatic enlargement in 41(56.9%) of cases. CT scan confirmed pancreatic enlargement in 69(95.8%) cases. Acutely inflamed thick walled gall bladder was present in 55(76.3%) of cases.Pathologic grading of the pancreatitis noticed during operation was edematous in 69(95.8%) patients and seemingly normal in 3(4.2%) patients.

Table 2. Post-operative complications.

Complications	Number	Percentage
Wound infection	4	5.5
Biliary leakage	2	2.7
Sub hepatic abscess	2	2.7
Total	8	11.1

ERCP was performed in 7(9.7%) patients who had clinical diagnosis of acute cholangitis, this was followed by open cholecystectomy. In rest of the 44(61.1%) patients CBD was explored. Postoperative complications were noticed in only 8(11.1%) patients;wound infection being the commonest(Table 2). No recurrence of pancreatitis or mortality occurred. Hospital stay varied from 5-12 days.

DISCUSSION

The leading cause of acute pancreatitis is biliary stones.[12] As long as the stones are in the biliary tract, there is an increased risk for re-admission for biliary events and even a potentially fatal acute pancreatitis.[5] About 18% recurrence rate of biliary events have been reported in patients with interval cholecystectomy.[6] To avoid these complications, stones should be removed from the biliary tract as soon as possible. But the optimal timing for cholecystectomy in AP is still controversial.[13] In most cases, patients with AP suffer a mild attack, recover quickly, are fit for early cholecystectomy and can be discharged within 5-10days.[5,14]

The M:F ratio in our study was 1:2.4, as compared to M:F ratio of 1:2.6 in a study by Jan et al.[15] The mean age of patients in current study was 35.79±11.07, as compared to 37.56±10.97 in that study.[15]For patients with AP (Ranson score ?3), who have no evidence of biliary obstruction, laparoscopic/open cholecystectomy within 48 hours of admission is safe and decreases hospital stay (even with

persistent abdominal pain and elevated serum pancreatic enzymes).[16] Most importantly, this practice makes recurrent gallstone pancreatitis exceedingly unlikely. These patients do not need routine preoperative ERCP, and even intraoperative cholangiogram may be largely unhelpful. Finally, if the surgeon is comfortable with laparoscopic common bile duct exploration, then preoperative ERCP can be omitted entirely, and reserved for the very minority of patients whose common bile duct stones cannot be cleared by the surgeon at the time of cholecystectomy.[16]

Keeping in view the nature of peritoneal healing and adhesion formation, it has been shown that early cholecystectomy was technically less demanding and difficult.[17] Our study also favors the concept of early cholecystectomy because of softer fewer adhesions. On the other hand, it has been seen that dissection is significantly difficult in patients with delayed cholecystectomy.[5,14]

Cholecystectomy should probably be performed during index admission in AP because an early procedure was not associated with an increased risk of complications, whereas interval cholecystectomy was associated with a biliary event recurrence rate of 25-61%.[18] It had no advantage regarding intraoperative complications[19] and may even increase overall morbidity leading to prolonged hospital stay.[20] A study by observed a rate of recurrent biliary events in 22% of patients and recurrent biliary acute pancreatitis in 9% patients who underwent delayed cholecystectomy for gallstone pancreatitis.[4] One study even showed that the reduction in recurrences made early cholecystectomy cost effective.[21] Another randomized trial showed a shorter length of stay for the patient who had laparoscopic cholecystectomy within 48 hours regardless of abdominal pain or persistent enzyme abnormalities with no increase in perioperative complication or technical difficulty.[22]

The overall morbidity rate of 8% has been observed while the mortality rate has been reported to be 0.[15]Our study shows a morbidity rate of 11.1% while no mortality was observed. We observed 5.5% incidence of wound infections (treated conservatively), as compared to 3.3% and 4% in their studies by Bismar et al[23] and Jan et al,[15] respectively. No recurrence of pancreatitis or mortality occurred in patients with early cholecystectomy.

Biliary leakage occurred in 2 patients (2.7%), one due to cystic duct stump avulsion at CBD junction, was treated by ERCP plus stenting and another patient had partial CBD injury repaired primarily over a T-tube. In studies by Bismaret al[23] and Jan et al[15] 0.9% and 2% incidence of biliary leak was reported, as compare to 2.7% in current study. Two patients (2.7%) developed subphrenic abscess, which were treated by ultrasound guided drainage and antibiotics. Hospital stay varied from 5-12 days, as compare to 7-16 days and 1-8 days in other studies.[15,23]

CONCLUSION

We conclude that mild cases of acute biliary pancreatitis can be safely managed by Laparoscopic/Open cholecystectomy during the index admission with acceptable morbidity and mortality rates. This strategy will reduce the risk of recurrent acute biliary pancreatitis while waiting for interval cholecystectomy as well as the number of admission and total hospital stay.

Author Contributions:
Conception and design: Yousaf Jan
Collection and assembly of data: Yousaf Jan, Waqas
Analysis and interpretation of the data: Yousaf Jan, Ahmad Din
Drafting of the article: Muhammad Shah
Critical revision of the article for important intellectual content: Yousaf Jan, ShaukatHussain
Statistical expertise: Amjad Khan
Final approval and guarantor of the article: Yousaf Jan
Corresponding author email: dr. yousaf.shinwari@gmail.com
Conflict of Interest: None declared
Rec. Date: Apr 17, 2014 Accept Date: July 8, 2014

REFERENCES

1. Cushier SA, Robert J, Moosa RA. Disorders of the pancreas"pancreatitis".Essential Surgical practice.edition 2002; 492-502.
2. Asifi M, Choudary MS, Ghazanfar A. Aetiological factors of acute pancreatitis. Ann King Edward Med Uni 2003;9:37-9.
3. Schietroma M, Carlei F, Lezoche E, Rossi M, Liakos CH, Mattucci S, et al. Acute biliary pancreatitis: staging and management. Hepatogastroenterology 2001;48:988-93.
4. Nebikar CA, Frey DM, Hamel CT, Oertli D. Early versus delayed laparoscopic cholecystectomy in patients with acute biliary pancreatitis. Surgery 2009;145:260-4.
5. Bouwense SA. Pancreatitis of biliary origin, optimal

timing of cholecystectomy (PONCHO trial): study protocol for a randomized controlled trial Trials 2012; 13:225.doi:10.118611745-6215-13-225.
6. Van Baal MC, Besselink MG, Bakker OJ, Van Santvoort HC, Schaapherder AF, Nieuwenhuijs VB, et al. Dutch Pancreatitis Study Group: timing of cholecystectomy after mild biliary pancreatitis: a systematic review. Ann Surg 2012;255:860-6.
7. Balthazar EJ. Acute pancreatitis: Assessment of severity with clinical and CT evaluation. Radiology 2002;223:603-13.
8. Lee JK, Ryu JK, Park JK.Roles of endoscopic sphincterotomy and cholecystectomy in acute biliary pancreatitis.Hepatogastroenterology 2008;55:1981-5.
9. Nagino M, Takada T, Kawarada Y, Nimura Y, Yamashita Y, Tsuyuguchi T, et al. Methods and timing of biliary drainage for acute cholangitis: Tokyo Guideline. J HepatobiliaryPancreatSurg 2007;14**:**68-77.
10. Petrov MS, Van Santvoort HC, Besselink MG, Heijden GJ, Van Erpecum KJ, Gooszen HG. Early Endoscopic Retrograde Cholangiopancreatography Versus Conservative Management in Acute Biliary Pancreatitis Without Cholangitis: A Meta-Analysis of Randomized Trials. Ann Surg 2008;247**:**250-7.
11. Rosing DK, De Virgilio C, Yaghoubian A. Early cholecystectomy for mild to moderate gallstone pancreatitis shortens hospital stay. J Am CollSurg 2007;205:762-6.
12. Alimoqlu O, Ozkan OV, Sahin M, Akcakava A, Ervimaz R, Bas G. Timing of cholecystectomy for acute biliary pancreatitis: Outcomes of cholecystectomy on first admission and after recurrent biliary pancreatitis. World J Surg 2003;27:256-9.
13. Sinha R. Early laparoscopic cholecystectomy in acute biliary pancreatitis: the optimal choice? HPB 2008;10:332-5.
14. Larson SD, Nealson WH, Evers BM. Management of gallstone pancreatitis. AdvSurg 2006;40:265-84.
15. Jan H, Khan A, Khan MM. Is early cholecystectomy safe in mild biliary pancreatitis? Pak J Surg 2013;29:4-8.
16. Wilson CT, Moya MA. Cholecystectomy for acute gallstone pancreatitis: Early VS Delayed approach. Scand J Surg 2010;99:81-5.
17. Reinders JS. Early laparoscopic cholecystectomy improves outcomes after endoscopic shincterotomy for choledochocystolithiasis. Gastroenterology 2011; 138:2315-20.
18. Cameron DR, Goodman AJ. Delayed cholecystectomy for gallstone pancreatitis: re-admissions and outcomes. Ann R CollSurgEng 2004;86:358-62.
19. Schachter P, Peleg T, Cohen O. Interval laparoscopic cholecystectomy in the management of acute biliary pancreatitis. HPB Surg 2000;11:319-22.
20. Alimoglu O, Ozkan OV, Sahin M, Akcakaya A, Eryilmaz R, Bas G. Timing of cholecystectomy for acute biliary pancreatitis: outcomes of cholecystectomy on first admission and after recurrent biliary pancreatitis. World J Surg 2003;27:256-9.
21. MonkhouseSJ, Court El, Dash I, Coombs NJ. Two-week target for laparoscopic cholecystectomy following gallstone pancreatitis is achievable and cost neutral. Br J Surg 2009;96:751-5.
22. Aboulian A, Chan T, Yaghoubian A. Early cholecystectomy safely decreases hospital stay in patients with mild gallstone pancreatitis: a randomized prospective study. Ann Surg 2010;251:615-9.
23. Bismar HA, Al-Salamah SM. Outcome of laparoscopic cholecystectomy in acute biliary pancreatitis. Saudi Med J 2003;24:660-4.