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Early laparoscopic cholecystectomy in acute biliary pancreatitis: the optimal choice?

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Abstract

The optimal time for managing cholelithiasis in acute biliary pancreatitis (ABP) is still controversial. One hundred and ninteen consecutive patients of ABP were taken up for the study after grouping them according to Glasgow modification of Ranson's criteria. Twelve patients with severe acute pancreatitis were excluded from the study. Laparoscopic cholecystectomy (LC) was carried out during the same admission in 81 patients, while 26 patients opted for interval LC after six weeks. The results were analysed in terms of difficult dissection, operating time, complications and discharge time. The parameters of the patients undergoing early laparoscopic cholecystectomy (ELC) were then compared with those undergoing interval LC and 90 control patients who underwent elective LC for cholelithiasis. There was no difference in the operative parameters among the three groups except that dissection was significantly more difficult in patients being operated after six weeks of the attack. Also in those being operated immediately after the attack, significantly greater number of patients required a fourth port for completion of surgery as compared to the control patients. ELC in patients with mild acute biliary pancreatitis appears to be a viable and better alternative to interval cholecystectomy.

Key Words: *acute biliary pancreatitis, laparoscopic cholecystectomy*

Introduction

Controversy over the timing of cholecystectomy in patients with acute biliary pancreatitis (ABP) still exists [1–4]. Patients with severe ABP with associated dysfunction of multiple organs (MODS) are, unequivocally, logical choice for the initial conservative approach with interval laparoscopic cholecystectomy (ILC) 6–8weeks after the subsidence of the acute phase. The major determinant in favour of this approach has its origin partly in the associated high morbidity because of the surgical stress and anaesthetic complications. But patients with mild acute ABP, who incidentally form the major group (80%) in ABP [3,5–8], do not have any associated organ dysfunction and thus are candidates who should be offered early laparoscopic cholecystectomy (ELC) during the first admission itself. This is all the more important to prevent a recurrent attack of acute pancreatitis, seen in as many as 30–50% of these patients during the waiting period for ILC [2,9–11] and also to reduce the number of defaulters. We set out to reassess the feasibility and the outcome of ELC, as compared to ILC, in patients with acute ABP. The results were also compared with those of patients with gallbladder calculus disease, without pancreatitis, who had elective LC.

Material and methods

Over a period of 10 years, 119 consecutive patients with ABP were included in the study. Diagnoses was made by clinical examination, with serum amylase level of more than two times the normal, increase in alanine aminotransferase (ALT) to three or more times the normal [12], ultrasound features of pancreatic edema and cholelithiasis with or without the common bile duct (CBD) stones. Severity was then graded according to Glasgow-Ranson's criteria [5] and patients with <5 score were considered as mild ABP [3,5–8] and were taken up for surgery. Patients with >5 Ranson were graded as severe and were treated conservatively. ELC was performed in 81 patients (Gp1) after the stabilisation of pulse rate, BP, urinary output, and respiratory rate. ELC was

defined as laparoscopic cholecystectomy carried out at anytime from 24 hours after the attack to within 7 days. Twenty-six patients did not agree for immediate surgery and opted for ILC after six weeks (Gp2). LC was carried out in the standard way with three ports: 10 mm infraumbilical camera port, 10 mm epigastric port and 5 mm right subcostal port. Additional ports were used where required. All the dissections were performed with the harmonic scalpel. Drain was optional and was used only in patients with difficult dissection in the Calot's triangle. The parameters studied included the time interval between the onset of pain and operation, operative time, operative blood loss, difficult dissection, conversion rate, complications and discharge time. Difficult dissection included fibrous adhesions around the gallbladder, or distortion of anatomy in the form of difficult identification of CBD or cystic duct and artery. The results of both Gp1 and Gp2 were then compared. The results of Gp1 (ELC) were also compared with similar parameters in 90 patients undergoing elective LC for stone disease. The operations were all carried out by the same surgeon. The patients were followed up for a minimum of three months.

Results

A total of 119 patients were taken up for the study. Twelve patients with Ranson >5 were excluded from the study. Male/Female ratio was 35/84. The average age was 41.1 years (18–70 years). CBD stone was not demonstrable in any of the patients. CBD dilatation of more than 6 mm was reported in 24 patients. Three of these patients in the ILC group experienced mild attacks of acute pancreatitis during the waiting period. In Gp1 (ELC), the average time from the onset of pain to surgery was 54.6 h (24–96 h) after admission. The operating time varied between 10 and 35 min (16.5 min) in Gp1, 12–40 min (15.7 min) in Gp 2 and 8–37 min (14.2 min) in the elective LC group (Gp3). Twelve patients with ABP required four ports for successful ELC (Gp1) as compared to two patients in the ILC and three patients in control group. Dissection was difficult in 10 patients in Gp1, 11 patients in Gp2 and 10 patients in Gp3 (Tables I and II). The figures for difficult dissection were significantly different between the ELC and ILC groups. This was because of the significantly higher incidence of fibrous adhesions in the patients of ILC group (Table III). The discharge time was 3.33 days in Gp1, as compared to 3.0 in Gp2 and 2.6 days in the control group. None of the other parameters in the ELC group were significantly different in any way from those of ILC.

When the parameters of the ELC group of patients were compared to those of the control group there was no significant difference except in one parameter, where significantly more patients required four ports for the completion of ELC. The operative time and

Table I. Comparison of early and interval LC.

	ELC $N=81$	ILC $n=26$	P value
Ports			
3	68 (83.95%)	23 (83.46%)	
4	12 (14.8%)	2 (7.69%)	NS
5	1	1	NS
Difficult dissection	10 (12.35%)	11 (42.31%)	<0.001
Operating time	16.5 (10–35 mm)	15.7 (12–40 mm)	NS
Drain	2	1	
Discharge time	3.3 d	3.0 d	NS
Complications Vascular			
Ductal	0	0	

Note: ELC, early laparoscopic cholecystectomy; ILC, interval laparoscopic cholecystectomy. P value is the test of significance based on student 't' test. The value of <0.05 is considered as significant.

discharge time, however, were not significantly different (Table II).

None of the patients had any biliary tract or vascular complications. The only complication encountered was port site discharge.

Discussion

A general surgeon treating a patient of ABP, if given the option, would probably still like to wait and perform an interval cholecystectomy after 6–8 weeks [3,13]. However, our results of ELC when compared with the interval group showed no significant difference in any of the operative parameters or postoperative parameters except that there was significantly greater difficulty in dissection in the interval group. Early LC or early open cholecystectomy as the procedure of choice in patients with mild ABP is also supported by other studies [1,8,12,14]. In contrast, a number of studies [3,10,13,15,16] have suggested deferring surgery until 6–8 weeks, because they found an increase in procedure and anaesthesia-related morbidity and mortality in these patients. The problem in many of these studies was that all patients were taken up for surgery irrespective of their Ranson scoring and thus included even those patients who had severe disease. With a better understanding of pathophysiology, and the natural course of acute bilary pancreatitis it is now well recognised that patients with mild pancreatitis do not have major alterations in body physiology, and thus even theoretically, early surgery should not pose any major anaesthetic or surgical problems.

The other reason against an early intervention is the belief that, in the period immediately following the acute attack, the anatomy in the Calot's triangle is difficult to assess and dissection is both dangerous and difficult [3,13]. However, our finding was exactly the opposite. Most of the patients in the ELC group had fibrinous omental adhesions where dissection was

Table II. Comparative parameters of ELC and LC.

	ELC $n = 81$	LC $n = 90$	P value
Ports			
3	68 (83.95%)	86 (95.56%)	<0.05
4	12 (14.8%)	3 (3.33%)	>0.001
5	1	1	
Difficult dissection	10 (12.35%)	10 (11.11%)	NS
Operating time	16.5mins (10–35 min)	14.2 min (08–37 mins)	NS
Drain	2	2	
Discharge time	3.3 days	2.6days.	NS
Complications			
Port discharge		2	2

Note: 'P' value denotes the test of significance based on student 't' test. The value of <0.05 is considered as significant. LC, laparoscopic cholecystectomy; ELC, early laparoscopic cholecystectomy.

very easy (Table III). In addition the edema in and around the CBD and cystic duct in the initial stages, which persists upto seven days makes dissection easier rather than difficult. It is only later when the edema is replaced by dense adhesions that dissection may become difficult. This is well borne out by our results showing that as compared to patients in the ELC group, patients in the ILC group had significantly more adhesions and fibrosis (Table III), and dissection was more difficult in these patients when they were operated after 6–8 weeks (Table I). In addition, there was no increase in the incidence of vascular or biliary complications in the ELC group patients as compared to the ILC group (Table I) and, we did not need to convert any of our patients to the open procedure. Similar conclusions have been drawn in a number of other studies [8,17–19]. Our observations, however, do not agree with those of Schachter [12] who assessed the difficulty in laparoscopic dissection in ABP by the presence of adhesions to gall bladder area, difficulty in dissecting the Calot's triangle, intraoperative bleeding and the need of a drain and they showed a need to convert in 10.5% of their patients. However, they also concluded that ILC in ABP is not advantageous. The findings of Tang et al. [8], too, did not agree with ours and they had a conversion rate of 67% in the group of mild ABP when operated within the first week and 18% when operated after the first week of the attack.

The only peroperative problem which we encountered was the pancreatic edema causing an increase in pancreatic size, which, often made the retraction difficult but the procedure could be completed with an additional fourth port for the retractor for pushing the duodenum caudally.

The time to discharge was also similar for both ELC and ILC groups (Table I). This again does not agree with those of Tang et al. [8] who found that the hospital stay was longer in ELC. They reported a hospital stay of 5.4 days when the patient was operated during the first week and 2.8 days when operated after the first week, but the results were not statistically significant. In conclusion, they favoured early surgery in mild ABP and ILC in severe ABP. Papi et al. [1] in a meta-analysis, in contrast, showed a longer hospital stay for patients of ILC group.

The possibility of development of postoperative pseudocyst or infected pancreatic necrosis is another factor which has been considered in the literature as a reason for deferring surgery until 6–8 weeks after the attack. Nealon et al. [7] advocate ILC in all patients of ABP because of the possibility of a pseudocyst developing later. But we should remember that mild ABP does not result in any pancreatic necrosis and usually pseudocyst does not form. And even if the pseudocyst develops, the incidence is low and intervention may be required in a smaller fraction of these patients and can be carried out laparoscopically. We did not have any of the above complications in our patients who were followed up to three months.

We also compared our results of ELC with those of routinely carried out LC, and found similar results except that significantly more number of patients required four ports for completion of surgery in the ILC group.

The main reason why most of the surgeons did not and still do not support early cholecystectomy in patients with ABP was primarily the open surgery-related morbidity [3,13] which in today's laparoscopic scenario is no longer applicable. In addition, the clear-cut demarcation of ABP into mild and severe presentations has also helped by identifying the

Table III. Pattern of adhesions.

	ELC $n = 81$	ILC $n = 26$	P value
Fibrinous omental	35		
Fibrous			
Omental	7(8.64%)	6(23.08%)	<0.001
Duodenal		2(7.69%)	
Transverse colon			
GB wall edema	31		
Difficult Calot's triangle	3(3.70%)	3(11.54%)	<0.001

Note: ELC, early laparoscopic cholecystectomy; ILC, interval laparoscopic cholecystectomy. P value is the test of significance based on student 't' test. The value of <0.05 is considered as significant.

patients with possible multiple organ dysfunction and to exclude them from the early LC group. In fact in our series ILC had two distinct disadvantages namely, more difficult dissection and the recurrent attacks seen in three patients waiting for ILC.

Conclusion

It is thus apparent from the results that early LC should be preferred in all patients with mild ABP because in addition to the optimal results, and ease of dissection, it protects against further attacks of ABP in the waiting period for interval cholecystectomy. It may be difficult to change the mindset of the majority of surgeons, but the above facts should be a strong pointer in favour of early surgery.

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