

Early Vs Interval Laparoscopic Cholecystectomy in the Management of Symptomatic Gallstones

Q A AHMAD M K SAEED H ANWARH*

Department of Surgery, Services Hospital, Lahore & *Department of Breast Surgery, Princes Alexandra Hospital, Harlow, U.K.

Correspondence to Dr. Qamar Ashfaq Ahmad, Senior Registrar, E. mail: gamarsurg@yahoo.com

One hundred and fifty one patients that underwent laparoscopic cholecystectomy at Princess Alexandra Hospital Harlow were identified between January 2005 and October 2005. They were grouped according to their diagnosis (biliary colic, acute cholecystitis, CBD stones, gallstone pancreatitis) and the delay until their operation (early, interval). The delay for an interval operation was between 3 and 6 months compared with less than 2 weeks for early operations. No disadvantage was found for early LC for biliary colic. Interval cholecystectomy for all symptomatic gallstones was associated with multiple pre-operative presentations particularly if the initial presentation was to A&E (p=0.003). Complication rates were also higher. Early cholecystectomy on the next available list should be recommended for all patients presenting to general surgical teams to lower morbidity and the long-term inpatient burden from gallstones.

Key words: Lap chole, early, treatment of choice, symptomatic gallstones

Gallstones are common and are responsible for a significant proportion of acute and sub-acute general surgical consultations in the UK. The prevalence is 9% equating to 5.5 million people in the UK¹.

Two thirds of gallstones are asymptomatic and the incidence of developing symptoms from gallstones is 1-4% per year. The most common presentations of symptomatic gallstones are biliary colic, acute cholecystitis, obstructive jaundice and pancreatitis.

The most common and definitive management of gallstones is cholecystectomy, 90% of which can be completed laparoscopically. There has been a trend in recent years to favour early operations.

Prolonged outpatient waiting times for elective laparoscopic cholecystectomy (LC) for symptomatic gallstones is associated with higher morbidity particularly for patients with an initial emergency presentation². LC during the acute phase of acute cholecystitis has been shown to reduce post-operative gastrointestinal symptoms and improve quality of life³. In a meta-analysis of randomised controlled trials, no advantage was found to delaying LC for acute cholecystitis in morbidity or conversion rates to open operations⁴. Lower rates of conversion to open have been reported in calculous acute cholecystitis if LC is undertaken within 48h of the first acute admission⁵. However, it has been suggested that urgent LC elevates the costs and resource consumption in comparison to interval LC⁶. Delayed LC of greater than 4 weeks for gallstone pancreatitis is associated with high unplanned readmission rates⁷. However, early operations for symptomatic gallstones have not become routine in many UK hospitals yet.

Objectives

- To review the current management of gallstones by four surgical teams at the Princess Alexandra Hospital, Harlow, a medium sized District General Hospital.

- To compare the efficacy and appropriateness of the different treatment options in managing gallstones.
- To design a protocol for the improvement of services if necessary according to the evidence base.

Methods

All patients under four surgical teams from January 2005 to October 2005 with a discharge code of laparoscopic cholecystectomy were identified. Out of these 171 patients, 21 notes were excluded due to either incomplete notes, unavailability of investigations or due to major comorbidity or concurrent illness prolonging hospital stay. The notes of 150 patients were obtained and the patients divided into the following groups and subgroups according to the diagnosis and plan at the first presentation with symptomatic gall stones:

1. Biliary Colic
 - a. Early/ same admission laparoscopic cholecystectomy
 - b. Interval laparoscopic cholecystectomy
2. Acute cholecystitis
 - a. Early/ same admission laparoscopic cholecystectomy
 - b. Interval cholecystectomy.
3. Obstructive Jaundice
 - a. Early/ single stage same admission procedure (laparoscopic cholecystectomy with cholangiography and choledocscopy with stone retrieval)
 - b. Two stage procedure (ERCP then laparoscopic cholecystectomy)
 - i. Early/ same admission cholecystectomy
 - ii. Interval cholecystectomy
4. Pancreatitis
 - a. Early/ same admission laparoscopic cholecystectomy
 - b. Interval cholecystectomy

Early or same admission cholecystectomy was taken to be that the patient was operated on the next available list, whether they were seen in outpatients or accident and emergency. The evidence base suggests that this is preferable for most patients, particularly those initially presenting as an emergency.

The notes of each patient were reviewed with regard to days from presentation to operation, number of

preoperative presentations after the initial presentation, total preoperative inpatient stay, total operative time (arrival in theatre to arrival in recovery according to operative note), rate of conversion to open, rate of complications, total inpatient stay and total number of consultations with the surgical team including follow up appointments. A proforma recording this data was completed for each set of notes.

Results

Table 1 Results all groups.

	Biliary Colic		Acute Cholecystitis		CBD stones (All two stage-3b)		Gallstone Pancreatitis	
	Early/IP	Interval	Early/IP	Interval	Early/IP	Interval	Early/IP	Interval
Number of patients	6	90	14	20	4	11	1	4
Average age	55	52	55	59	57	54	29	46
Average days until operation	3	114	5	150	14	98	17	142
Further presentations pre-op	0	30 patients 38 visits (0.4 v/p)*	0	13 patients 18 visits (0.9 v/p)*	0	5 patients 5 visits (0.5 v/p)*	0	2 patients 2 visits (0.5 v/p)*
Average total inpatient days pre-op	1	1	5	3	14	4	17	5
Percentage converted to open	0%	2%	36%	0%	25%	9%	0%	0%
Duration of op (minutes)	72	70	103	88	108	94	73	62
Complications	0	7/90 8%	0	5/20 25%	1/4 25%	2/11 18%	0	0
Total consultations with surgeons	2.3	3.6	1.6	3.6	2.0	3.1	1.0	2.8

*visits per total number of subgroup patients v/p

Table 2. Further presentations pre-op for interval LC considering location of initial presentation.

Diagnosis	Location of initial presentation	=n	Further presentations Pre-op		
Biliary Colic	Emergency	13	11 patients,	15 visits,	1.2 v/p †
	OP	77	19 patients,	23 visits	0.3 v/p †
Acute Cholecystitis	Emergency	17	13 patients	18 visits	1.1 v/p
	OP	3	0 patients	0 visits	0 v/p
CBD stones	Emergency	7	4 patients	4 visits	0.6 v/p
	OP	4	1 patient	1 visit	0.25 v/p
Gallstone Pancreatitis	Emergency	4	2 patients	2 visits	0.5 v/p
	OP	0	N/A		

V/p = Visits per total number of subgroup patients.

† p < 0.01 (unpaired t-test)

Patients with biliary colic were primarily managed with interval operations. For several patients this led to serial presentations at OP and Accident and Emergency. Operative times, conversion rates and complications were comparable between the two subgroups. No disadvantage to an early operation was found.

In those patients presenting with acute cholecystitis, about 2/5 were operated on the next available list. This reduced the pre-operative wait from an average of 5 months to 5 days. Of those whose operations were delayed, 13 of 20 patients had 18 further presentations pre-operatively. For both biliary colic and acute cholecystitis subgroups, the post-operative complication rate was

increased for those patients waiting an interval before their operations.

For acutely inflamed gall bladders, the conversion rate to open and the operative time was increased. It should be noted however that in this DGH, same admission cholecystectomy was more often performed by registrars than by consultants (48% versus 52%) in comparison to interval elective cholecystectomies (33.6% versus 66.4%) and this may be partly responsible for the increased operative time.

All patients at this centre with proven CBD stones had ERCP before cholecystectomy. Once again, out of those who then waited for an interval operation, about half

represented to the surgeons before their operation. This was also the case for those admitted with pancreatitis.

In all groups, total days spent as an inpatient was increased in those who had early or same admission laparoscopic cholecystectomy. This was due to a combination of the patients waiting as an inpatient for the next available list when they might otherwise have been sent home, due to the delay in obtaining ERCP or due to an increased post-operative stay seen due to the increased rate of conversion to open.

Table 1 suggests that the rate of pre-operative presentation of patients awaiting interval LC is low. However, in those 77 patients with an initial diagnosis of biliary colic who presented to OP, only 19 of them had a total of 23 further pre-operative presentations. Out of the 13 who initially presented as an emergency, 11 of them had a total of 15 further presentations. This was a statistically significant difference with a p-value 0.003. This was approximately equivalent to one extra presentation per patient for interval operations. Therefore, patients with biliary colic who present for the first time as an emergency, are far more likely to be seen on multiple occasions pre-operatively in comparison to those presenting at outpatients.

Of those with acute cholecystitis, 13 of 17 patients presenting as an emergency had a total of 18 further pre-operative presentations compared to none of the outpatient subgroup. Again, emergency presentations had greater pre-operative morbidity if they were made to wait for an interval operation.

Discussion

The current evidence base indicates that all patients presenting to a surgical team with symptomatic gallstones should be placed on the next available list for cholecystectomy.

At this DGH, a typical mid-size centre, interval cholecystectomy is still the most common management plan for patients with symptomatic gallstones. This was associated with multiple further admissions and/or outpatient appointments. This increased burden was most marked for those initially presenting to A&E with either biliary colic or acute cholecystitis.

For biliary colic, no operative or peri-operative disadvantage was found with early LC. In acute cholecystitis, the operations were longer and the conversion rate was higher, although the complication rate

was low. This may be partially explained by the higher proportion of operations undertaken by registrars.

However, patients with biliary colic or acute cholecystitis first presenting to A&E rather than outpatients, had a high representation rate if the operation was delayed. This was equivalent to 1 extra surgical presentation per patient.

Therefore, early LC for biliary colic and acute cholecystitis for patients presenting to A&E is advisable. Those are the patients in whom morbidity is likely to be highest. This requires appropriate resource allocation. It is our experience that the acquisition of special tests delays confirmation of the diagnosis and this prevents consultant surgeons from offering inpatient operations on an emergency list.

At this DGH, post-take mornings are ring fenced for consultant general surgeons to manage their take patients. We propose that two ultrasound slots first thing each morning should be reserved for patients admitted with suspected symptomatic gallstones such that these patients could then be placed on the morning emergency list when the consultant is available.

This should lead to a long-term decrease in the number of admissions with symptomatic gallstones and thus reduce morbidity, increasing quality of life of patients. Resources would thus be more effectively and efficiently allocated.

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