

Feasibility of 'day case' laparoscopic cholecystectomy

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Laparoscopic cholecystectomy was offered as a day case to 15 patients (mean age 42; range 33-72 years). Three patients required overnight admission for non-operative reasons. The mean in-hospital stay for those patients successfully treated as day cases was 8.5 h and overall 12 h (range 6-28 h).

In selected cases day case laparoscopic cholecystectomy is a feasible alternative to conventional inpatient management.

In the majority of patients undergoing laparoscopic cholecystectomy there appears to be little wound discomfort, a shortened hospital stay and subsequent early return to normal activity (1). It is because of these apparent advantages that an increasing number of laparoscopic cholecystectomies are being performed in the UK (2) and other countries (3,4). Indeed, laparoscopic cholecystectomy has been performed as an outpatient procedure (5), although this has not been British practice. With the recent Audit Commission suggesting that more widespread use of day case surgery would be merited (6,7), we have offered laparoscopic cholecystectomy on a day case basis to determine its feasibility and patient acceptability.

Patients and methods

Patient selection for day case laparoscopic cholecystectomy was established at the preliminary outpatient visit, following the criteria outlined by The Royal College of Surgeons of England (8).

Table I. Patient suitability for 'day case' laparoscopic cholecystectomy

Suitable	Unsuitable
Age < 70 years	Age > 70 years
ASA grades I/II	ASA grades III/IV
Body mass index < 35	Body mass index > 35
Biliary colic	Acute/chronic cholecystitis
No history of jaundice	History of obstructive jaundice
Motivated	Anxious personality
	Previous failed day case procedure
	Patient living alone
	Remote home or no telephone

Suitable patients (Table I) with a history of biliary colic, with proven cholelithiasis and in the absence of a history of jaundice were considered suitable for day case laparoscopic cholecystectomy. Patients with obvious cholecystitis were excluded. Further preoperative assessment included routine blood tests and ECG/chest radiograph if clinically indicated. In addition, the patients were questioned with respect to their home and social circumstances.

All procedures were carried out in a day surgery unit with its own theatre by one consultant surgeon (KDV) and with a consultant anaesthetist. As with all laparoscopic cholecystectomies, patients were informed of the possibility of conversion to open cholecystectomy (current conversion rate 3.7%). The anaesthetic was discussed with the patient but no premedication was given. Anaesthesia was induced using intravenous propofol (2 mg/kg), 0.1 mg of fentanyl and vecuronium 0.1 mg/kg. Anaesthesia was maintained with 30% oxygen in nitrous oxide supplemented with enflurane. Each patient was also given either 2 mg of droperidol or 10 mg of

metoclopramide intravenously and 60 mg of ketorolac (Toradol®, Syntex) intramuscularly. Laparoscopic cholecystectomy was performed using a standard four-portal technique. Intraoperative cholangiograms were not performed. Care was taken to ensure that all insufflated gas was expelled at the end of the procedure.

Criteria for discharge home included the ability to tolerate oral fluids, to void urine satisfactorily and to have only minimal abdominal discomfort. On discharge patients were given simple oral analgesia to take home and the telephone number of the senior author for contact within 48 h of the operation. All patients were reviewed 1 month postoperatively.

Results

Of the 15 patients, five were men and 10 were women with a mean age of 46 years (range 33–72 years). One patient had a normal ERCP before admission for cholecystectomy because of a suggestion of dilated ducts on ultrasound. All patients were ASA grade I or II (Table II). The mean operating time was 39 min (range 25–60 min). At operation, five of the patients had evidence of cholecystitis but no drains were used.

Three patients required admission overnight; one because she was unable to take oral fluids because of nausea and one because of anxiety. The third patient (no. 13) was admitted with suspected urinary retention but subsequently voided satisfactorily without the need for catheterisation. Overall, the mean duration of hospital stay was 12 h (range 6–28 h) and in those discharged home on the day of admission 8.5 h (Table II).

No patient complained of shoulder tip pain, either before discharge or on subsequent review. The three patients admitted overnight had been prescribed opiate analgesia but had not required it. One patient had a

wound infection in the epigastric portal which necessitated a short course of antibiotics.

The mean time taken to return to normal activity was 4.5 days (range 2–10 days). Eight of our patients were in full employment and had returned to work at a mean of 8 days (range 7–14 days). All but one of the patients were pleased with their day case experience and the result of their laparoscopic cholecystectomy.

Discussion

We set out to determine the feasibility of offering laparoscopic cholecystectomy as a day case procedure. Our early results are encouraging and indicate that such an offer is practical. However, setting up such a service demands that certain guidelines are kept to and that there is also a certain degree of surgical/administrative flexibility if the need arises. Furthermore, familiarity with the procedure is essential. Indeed, we had not offered this short-stay alternative until we had perfected the technique and had performed over 50 such procedures. During this time our mean operating time had fallen from 72 min (range 40–120 min) to 53 min (range 30–100 min).

Patient selection for day case laparoscopic cholecystectomy is crucial. Although we aimed to choose patients with only biliary colic, one-third, of our patients had evidence of cholecystitis at operation. However, this finding in itself did not contribute to the need for overnight admission. Equally important to the clinical assessment of patients being offered day case laparoscopic cholecystectomy is the knowledge of their home environment and social circumstances. All our patients lived within 24 km of the hospital, had a telephone and transport. In addition, they had a responsible person with whom they would spend at least the first postoperative night.

Although three patients needed admission, in two the reasons for this were, in retrospect, avoidable. In the first case the woman had experienced profound nausea after a previous day case D&C. In the second case, although we had thought the patient suitable, when the time came for discharge she was clearly extremely anxious, despite meeting all the criteria for discharge. Indeed, on reviewing her notes she had not asked for any analgesia that night. Thus, the first patient should probably not have been offered this alternative, but in the second the reason for admission was entirely unpredictable. We thought that our third admission might need bladder catheterisation but he subsequently voided urine satisfactorily. These reasons for overnight admission are similar to those reported by Reddick and Olsen (5). In their 6-month study, 55% of 83 consecutive patients were admitted for an unstated length of time. The most common reasons were patient preference (24%), urinary retention (11%) and nausea (9%). In addition, age was an important reason for admission as only 12% of patients aged over 70 years were managed as day cases. However, despite the similarity in the reasons for admission, the

Table II. Details of patients undergoing day case laparoscopic cholecystectomy

Age (years)	Sex	Body mass index (kg/m ²)	ASA grade	Length of operation (min)	Duration of hospital stay (h)
61	M	21.7	I	40	8.5
42	F	21.2	I	60	28
36	F	21.5	II	50	9
56	M	32.3	I	35	9
33	M	27.3	I	45	7
44	F	26.5	I	40	10
40	F	23.7	I	35	8
36	F	31.3	I	30	9
46	F	19.6	I	35	26
51	F	22.1	II	30	8
37	F	28.2	II	25	10
40	M	30.5	II	60	6
72	M	24.9	II	35	26
50	F	25.2	II	30	8
42	F	23.8	I	40	9

exact duration of in-hospital stay is unclear as their patients were treated as 'outpatients'.

The ability to cope with the idea of having a cholecystectomy as a day case is in part no doubt due to the minimal discomfort seen after laparoscopic cholecystectomy. With this in mind it is imperative that all insufflated air is expelled to avoid shoulder tip pain, which is a well-recognised complication of laparoscopic cholecystectomy. In addition, our patients were given 60 mg ketorolac intramuscularly. We found that this potent, non-steroidal, anti-inflammatory analgesic led to good relief of pain as indicated by the ability to discharge patients within hours of surgery and by the omission of the prescribed analgesia in the three patients who were admitted. The absence of significant discomfort was also presumably responsible for the early return to normal activity (4.5 days). Furthermore, in those patients in employment all had returned to work within 2 weeks, including one patient who worked in a lumber yard and one who, although he felt like returning to work, was informed by his general practitioner that he must wait until his four small stitches were removed! Finally, despite a wound infection in one patient (no. 13), all but one of the patients (no. 9) welcomed the idea of day case laparoscopic cholecystectomy and none had had cause to contact the senior author.

During the 5-month period of this feasibility study, 56 laparoscopic cholecystectomies were carried out. These 15 day cases accounted for 27% of this workload. As a comparison, the median length of stay for the inpatients was two postoperative nights (range 1–9 nights). Although three of our day case patients required admission, the finding that over 20% of laparoscopic cholecystectomies (12/56) can be managed safely as day cases may have financial implications. Despite the obvious safeguards in selecting patients for day case laparoscopic cholecystectomy (Table I), there will be the need for admission for a variety of reasons including postoperative bleeding (5) which, with 'unclear/difficult anatomy', appears to be the major reason for conversion to open cholecystectomy (4,9,10). Furthermore, as in our second admission there will always be unforeseen circumstances that may disrupt the most carefully planned of protocols. In conclusion, we have shown that performing a laparoscopic cholecystectomy as a day case procedure is a feasible proposition. Although this approach is clearly

not practical in all patients with gallstones, our patients were more than satisfied with the results of their surgery. However, if this offer were to become more widespread there would have to be a certain degree of flexibility among the staff of any hospital offering this alternative. Finally, just because 'day case' laparoscopic cholecystectomy is feasible, it is vital that administrative staff and 'cost' economists do not exert pressure on surgeons to discharge patients about whom they are not entirely satisfied, whatever the reason.

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