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## Day case laparoscopic cholecystectomy – a feasibility study

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The feasibility of performing laparoscopic cholecystectomy on an outpatient basis was evaluated in 55 selected patients who underwent the procedure with careful back-up. Nine per cent of patients required overnight hospitalization whereas 5% were readmitted at a later date. Fifty-nine per cent of patients described their postoperative pain as severe or moderately severe and 27% complained of vomiting or severe nausea. Despite these findings, 66% of patients expressed complete satisfaction with the procedure as performed and 82%, given the choice, would have opted for the same method again. The advantages to the patient are the high likelihood that the procedure will take place as planned and they are able to convalesce in familiar surroundings. The advantages to the hospital are the freeing up of inpatient beds and potential cost savings.

Key words: Ambulatory surgery, cholecystectomy, laparoscopic

### Introduction

Improvements in patient care together with increasing pressure on inpatient beds have resulted in an ever-increasing proportion of surgical procedures now being performed on an outpatient basis. The field of surgery in which there has been the greatest innovation of late is that of minimally invasive techniques using laparoscopy and microchip video systems. In particular, laparoscopic cholecystectomy has become established as the method of choice for patients in whom gall bladder removal is required<sup>1-4</sup>. The lack of tissue trauma is such that patients are often fully mobile within a few hours of surgery.

The aim of this study was to assess prospectively the feasibility of performing laparoscopic cholecystectomy as an outpatient procedure, in terms of safety, logistics and patient satisfaction.

### Patients and methods

All patients requiring cholecystectomy under the care of one consultant surgeon over a 2 yr period from February 1993 to February 1995 were considered for entry into the study. Those selected were required to fulfil the standard criteria set for day case surgery; in particular, to fall within anaesthetic ASA (American Society of Anesthesiology) categories I and II. Patients

were also required to be driven home, with a journey time of not more than 1 hr and to have responsible adult care that evening.

Excluded from the study were patients likely to require exploration of the common bile duct, patients with evidence of current acute cholecystitis or patients likely to require a prolonged procedure, including those with multiple abdominal scars.

All patients were given an information sheet and were seen in a pre-assessment clinic 1 week prior to surgery to identify any cardiorespiratory problems. Admission to the day unit subsequently occurred at 8 am on the morning of surgery.

Anaesthesia was performed in a standard fashion: after induction by propofol, maintenance was by inhalation of a nitrous/oxygen mixture with 1% halothane. Each patient received 100 mg voltarol (diclofenac sodium) per rectum at the start of the procedure unless contraindicated for medical reasons.

After antiseptic preparation of the skin, CO<sub>2</sub> was insufflated via a Verres needle to a maximum pressure of 13 mmHg. Operations were performed via two 10 mm and either one or two 5 mm endoscopic ports using standard techniques of dissection. Marcaine 0.5% was injected into the port sites at the end of the procedure.

In the recovery ward, opiate analgesia was avoided unless pain control was poor. A postoperative assessment was performed after 3 hr; if the patient had remained stable, pain and nausea were minimal and they were fully alert and oriented, they were discharged home with a further information sheet containing relevant contact telephone numbers and a combination of

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voltarol and coproxamol (dextropropoxyphene and paracetamol) analgesia.

Patients were given a questionnaire to complete in the immediate postoperative period and all of these were returned. Patients were asked to grade pain and nausea using a simple scale of severe, moderate, mild and nil. They were also asked the number of days spent in bed on return home, the number of days before return to normal activity, their overall satisfaction with the procedure and, finally, given the choice again, would they still elect to have the procedure done as an outpatient. Any further problems were discussed at a review clinic 1 month post surgery.

**Results**

Over the 2 yr period, 55 patients were recruited to the study from a total of 227 patients requiring laparoscopic cholecystectomy. Their details are recorded in Table 1. No patients required conversion to open surgery. The immediate postoperative admission rate was 9% (four patients) whereas three patients were subsequently re-admitted after uneventful discharge (Table 2).

Postoperative pain and nausea scores are shown in Figures 1 and 2, respectively. Fifty-nine per cent of patients described their pain as moderate or severe, although only 27% of patients described vomiting or severe nausea.

The mean number of days spent in bed postoperatively was 2.5 (range 0–7) whereas the mean number of days elapsing before return to normal activity was 15 (range 2–42).

Subjective patient satisfaction is shown in Figure 3. Overall, 66% of patients were completely satisfied with the procedure whereas 82%, when asked directly, said that given the choice, they would still have had the procedure performed on a day case basis.

**Discussion**

This study supports the proposition that laparoscopic cholecystectomy can be performed safely on an out-

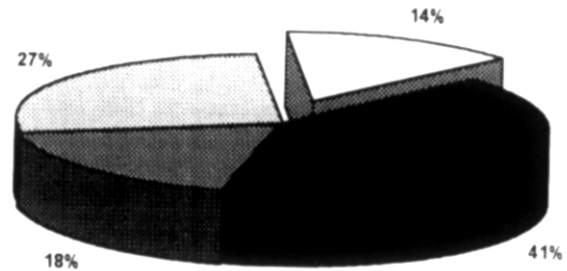
**Table 1.** Patient details

Number of patients	55
Male : female ratio	1 : 9
Mean weight (kg)	72 (range 49–87)
Mean duration of operation (min)	59 (range 30–90)

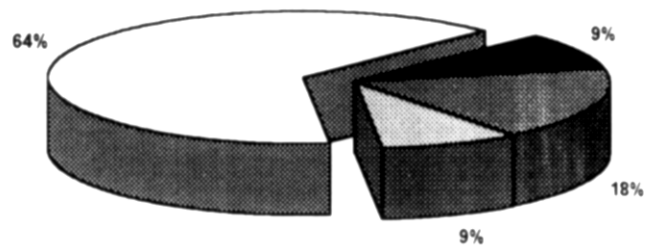
**Table 2.** Immediate and late re-admissions following day case laparoscopic cholecystectomy

Admission rate	No. of patients (%)
Immediate	5 (9)
Operative reasons	2
Nausea	1
Faintness	1
Pain	1
Late	3* (5)

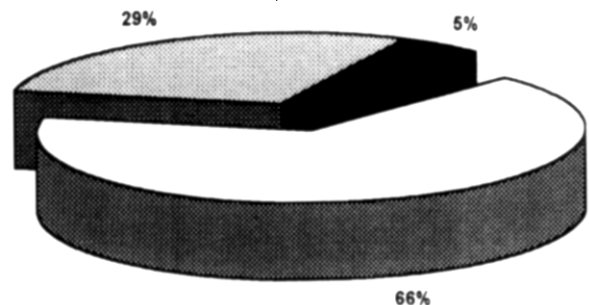
\*10th postoperative day – suspected biliary leak; 3 months – unrelated abdominal complaint; 14th postoperative day – pain, unknown cause.



**Figure 1.** Postoperative pain score following day case laparoscopic cholecystectomy. ■ Severe; ■ moderate; ■ mild; □ no pain.



**Figure 2.** Postoperative nausea score following day case laparoscopic cholecystectomy. ■ Vomiting; ■ severe nausea; ■ mild nausea; □ no nausea.



**Figure 3.** Patient satisfaction following day case laparoscopic cholecystectomy. □ Completely satisfied; ■ acceptable; ■ unsatisfactory.

patient basis. Re-admission rates are comparable to published, non-day case series<sup>2, 3</sup> and are acceptably low. In particular, no serious events occurred which would have been avoided by overnight hospital admission.

Nevertheless, there is a price to be paid in terms of patient comfort. Despite ‘pre-emptive’ analgesia in the form of a voltarol suppository and the use of local anaesthetic, 59% of patients still described their postoperative pain as moderate or severe and 27% described severe nausea or actual vomiting. This resulted in only two-thirds of patients describing the experience as completely satisfactory. The fact that 82% of patients would, however, still choose the outpatient method probably reflects the appeal of convalescing in a familiar environment, and the feeling of confidence that the procedure would take place as planned.

One of the effects of a change in working practice such as this is the shift in postoperative care to the community, and clearly access to adequate backup is essential<sup>5</sup>. Over a quarter of patients sought advice from the hospital following their discharge although, interest-

ingly, no patients requested visits from their family doctors in the immediate postoperative period.

The small number of previous studies on outpatient laparoscopic cholecystectomy<sup>6-10</sup> support the findings of this study. Admission rates are generally of the order of 10–20%, and there are no reports in the literature of any adverse sequelae resulting from the omission of overnight hospitalization. Careful patient selection is emphasized as most important in achieving a successful series. As in our experience, factors likely to lead to the patient requiring hospitalization are advanced age, major associated health problems, acute cholecystitis and prolonged surgery<sup>10</sup>. Also emphasized are the potential cost savings and logistical advantage which may be achieved by avoiding hospital admission and the freeing of inpatient beds.

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