Day Care Laparoscopic Cholecystectomy: A Study of Feasibility and Safety in Qatar

*Zarour A. M., Al Sulaiti M., Al Harami M., Al-Aali A.Y., Khairat M.
*Department of Plastic Surgery, Rumailah Hospital, **Department of Medical Statistics & Epidemiology, Hamad Medical Corporation, Doha, Qatar

Abstract:
Laparoscopic cholecystectomy (LC) is the treatment of choice for symptomatic gall bladder disease and is one of the most frequently performed operations in Qatar. Day-care laparoscopic cholecystectomy (DCLC) was started in 2003 offering many advantages over conventional laparoscopy including reduced demand for hospital beds. DCLC has been shown to be safe in many centers worldwide but in Qatar its feasibility and safety had not been studied.

During the 24 months July 2003-July 2005 fifty-six cases of DCLC were studied. Inclusion criteria were aged less than 60 years, Grade 1 and 2 anesthesia risk according to American Society of Anesthesiology (ASA), living within an hour’s drive of the hospital, had telephone access, living with a responsible adult, capable of reaching the hospital with or without depending on emergency medical services (EMS), able to understand discharge instructions, agreeing to participate by informed consent and the presence of symptomatic gall bladder disease. Complicated cases were excluded.

The success rate of DCLC (same day discharge) was 48/56 (86%), most patients being observed in the Daycare Unit (DCU) for 6-8 hours. Pain, post-operative nausea and vomiting (PONV) were the most common causes of failure. There were no re-admissions within 30 days of surgery. Complications were minor and most patients were highly satisfied with same day discharge from the hospital.

We conclude that DCLC is safe, feasible and has potential benefits for the health care system in Qatar. Surgeons performing laparoscopic cholecystectomy should recognize the advantages of DCLC and offer this approach to their patients in uncomplicated cases.

Introduction:
The safety and advantages of laparoscopic cholecystectomy make it the treatment of choice for symptomatic cholelithiasis (13). Removal of the gall bladder was first performed laparoscopically by Muhe in Germany in 1985 (7) and the potential for laparoscopic cholecystectomy to be performed as a daycare procedure was first recognized by Riddick & Olsen in 1990 (8). Most complications of the procedure occur more than 24 hours after operation and overnight admission does not improve patient safety (6,10). Day care laparoscopic cholecystectomy (DCLC) offers many advantages including a high level of patient’s acceptance while reducing hospitalization and health care cost (5,6,10). DCLC has been shown to be safe in many centers worldwide but in Qatar its feasibility and safety have not been studied.

Patients and Methods:
This study was performed between July 2003 and July 2005 at Hamad General Hospital, a teaching and referral center with 660 beds providing medical and surgical care of different specialties and sub-specialties to a population of more than 800,000 citizens and residents. The daycare unit has a capacity of 12 beds, and is staffed with 12 nurses, four patients per nurse, and is open from 6:00 am to 10:00 pm. Patients were selected on the basis of defined criteria. [Table 1].

Table 1: The Selection Criteria to DCLC.

- Aged less than 60 years
- ASA 1 & 2
- Lives within 1 hour drive.
- Has telephone access
- Living with a responsible adult.
- Able to reach the hospital on their own with or without depending on Emergency Medical Services (EMS)
- Able to understand discharge instructions
- Agrees to do the procedure as an outpatient (informed consent)
- Has symptomatic uncomplicated gall bladder disease (gall bladder stones or polyps.

Address for correspondence:
Ahmad M. Zarour MD, FRCSI, CABS
General Surgery Section, Department of Surgery
Hamad Medical Corporation, P.O. Box: 3050, Doha, Qatar
Email: zarour69@yahoo.com
Pre-operative assessment was done as an outpatient, and all patients were admitted to the daycare unit on the morning of the procedure. Patients received a single dose of prophylactic antibiotic and deep vein thrombosis prophylaxis when indicated. All procedures were performed under standard general anesthesia by fully qualified surgeons using a standard 4-port technique with CO2 insufflation. Abdominal pressure was kept at <15mm Hg and an intra-operative cholangiogram was done for specific indications. In the recovery room analgesics were given according to the pain score of the patient and all patients were given an analgesia package upon discharge. All patients were fed prior to discharge and allowed home based on the discharge criteria (Table 2) after being informed of the expected recovery pattern, pain control and potential complications. The success rate, reasons for admission, re-admissions, observation time, complications, and patient satisfaction were recorded.

Table 2: The Discharge Criteria for DCLC

<table>
<thead>
<tr>
<th>The Discharge Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No operative complications</td>
</tr>
<tr>
<td>• Post operative pain controlled with analgesia</td>
</tr>
<tr>
<td>• No postoperative nausea and vomiting</td>
</tr>
<tr>
<td>• Patient able to go to the toilet and void urine (preferable)</td>
</tr>
<tr>
<td>• Patient confident about going home</td>
</tr>
<tr>
<td>• Discharge instructions understood by patient</td>
</tr>
<tr>
<td>• Patient reassessed prior to discharge</td>
</tr>
</tbody>
</table>

**Results:**

Of 56 cases, 17 (30.3%) were Qatari, 39 (69.7%) were non-Qatari, 27 (48.2%) were female and 29 (51.8%) were male. Thirty-two patients (57%) were below 40 years of age, 18 (32%) were aged between 40 and 50 years and six (11%) were aged between 50 and 60 years. Fifty-one patients (91%) presented with symptomatic cholelithiasis and five (9%) presented with symptomatic gall bladder polyps. Pre-operative assessment using the American Society of Anesthesiology (ASA) grading system showed ASA 1: 42 patients (75%), ASA 2: 14 patients (25%).

Operative time varied according to the experience of the surgeon and the status [status or state?] of the gall bladder. Most cases (33; 59%) were done in under 60 minutes, 20 cases (35.7%) were completed within 90 minutes and three cases (5.3%) took more than 90 minutes to conclude.

After completion of the procedure all patients were observed initially in the recovery room and analgesics for pain management were given according to the patient's pain score. Only four patients required metoclopramide for post-operative nausea and vomiting (PONV). All patients were shifted then to the daycare unit for further observation. Forty-eight patients were discharged successfully after periods of observation varying from less than six hours to twelve hours (Fig. 1).

![Figure 1](image1)

Half (24) of the patients discharged successfully complained of pain during their stay in the daycare unit and required another dose of analgesic before discharge. Transient post-operative nausea and vomiting (PONV) were experienced by seven (14.6%) of the 48 patients in this group (Fig. 2). Eight patients (14%) were admitted to hospital for various reasons (Table 3).

![Figure 2](image2)

Table 3: Reasons for Admission

<table>
<thead>
<tr>
<th>Reason</th>
<th>No. of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon preference (Difficult anatomy, insertion of drain)</td>
<td>2</td>
</tr>
<tr>
<td>Hypotension</td>
<td>1</td>
</tr>
<tr>
<td>Urinary retention required Foley's catheter</td>
<td>1</td>
</tr>
<tr>
<td>Post operative pain</td>
<td></td>
</tr>
<tr>
<td>Persistent Postoperative nausea and vomiting</td>
<td>3</td>
</tr>
</tbody>
</table>
The success rate of DCLC was 86% and only 14% of patients were admitted for overnight observation (Fig. 3) and were discharged successfully the next day.

The follow-up averaged 10 days for both groups (admitted and discharged). Five patients in the discharged group presented with port site pain, six patients presented with umbilical ecchymosis. The histopathology results are cited in Table 4. There were no post-operative complications and no patient required re-admission to the hospital within the following 30 days.

Table 4 - Histopathology Results

<table>
<thead>
<tr>
<th>Histopathology result</th>
<th>No. of patients (56)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharged Group</td>
<td></td>
</tr>
<tr>
<td>Chronic cholecystitis</td>
<td>44</td>
</tr>
<tr>
<td>Subacute cholecystitis</td>
<td>2</td>
</tr>
<tr>
<td>Granulomatous cholecystitis</td>
<td>2</td>
</tr>
<tr>
<td>Admitted Group</td>
<td></td>
</tr>
<tr>
<td>Acute cholecystitis</td>
<td>1</td>
</tr>
<tr>
<td>Chronic cholecystitis</td>
<td>7</td>
</tr>
</tbody>
</table>

Patient satisfaction:

A subjective determination of patient satisfaction for all patients was completed at the time of the follow-up visit. Although the level of satisfaction was not graded, 44 of the 48 patients (92%) discharged the same day expressed overall satisfaction with their early discharge following the operation while four patients (8%) expressed some dissatisfaction (Fig. 4) but, for obvious reasons, when the admitted patients were included, the level of satisfaction dropped to 79%.

Discussion:

This was the first study of daycare laparoscopic cholecystectomy in Qatar. Using precise selection criteria, patients can be treated without an overnight admission, with a high degree of success and patient satisfaction (1,5,6,10).

Peri-operative patient and staff education is an essential factor for success of this as an outpatient procedure (4,10) and a successful DCLC program requires adequate staff and space. Active involvement of the anesthesiologist for peri-operative pain control and management is essential (9), including the use of standard protocols to minimize the peri-operative complications (2,9).

Logistically it is important to place these cases first or second on the morning operating theater list, thus giving maximum time for recovery and observation in the daycare unit (6,12).

A significant portion of unplanned admissions in this study were due to excessive post-operative nausea and vomiting, which remains a major early complication of anesthesia. Randomized controlled trials have shown that the use of propofol and the antiemetic ondansetron decrease the frequency of PONV and this regimen may offer some advantages for DCLC (6).

In keeping with other studies, Lue & Brooks described univariate and multivariate analysis of 19 clinicopathologic predictive factors to identify independent factors of unanticipated admission after DCLC, the duration of operation being the best independent predictive factor (4). Other predictive factors might affect the success of DCLC including the experience of the surgeon, patient selection, and low insufflation pressures during the operation (4,10,11). Although this was a small selected group, the obvious advantages of DCLC, include reduction in waiting time, costs, and significant patient satisfaction. (1,2,3,5,6,10,12). Our results are comparable to those reported in the literature (10) (Fig. 5). However, in spite of selection criteria that we implemented there are some centers which support a non-selective policy with good results (2).

We consider that DCLC is safe, feasible and has potential benefits for the health care system in Qatar. Surgeons performing laparoscopic cholecystectomy should recognize the advantages of DCLC and offer this approach to their patients in uncomplicated cases.
Day Care Laparoscopic Cholecystectomy ... Zarour A. M., et. al.

References: