

# EXPERIENCE OF AMBULATORY LAPAROSCOPIC CHOLECYSTECTOMY IN TURKISH PATIENTS

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**Aim:** Laparoscopic cholecystectomy (LC) has become established as the standard procedure for gallstone disease. This study was performed to investigate safety and efficacy of ambulatory LC in selected patient population.

**Methods:** 70 patients were selected for ambulatory LC based on ASA classification and the patient's willingness to accept the outpatient procedure. ASA-I and ASA-II patients were included into the study. The pain control consisted of using NSAID and infiltration of the port sites with a local anesthetic. The discharged patients were called by telephone in the evening after the operation and asked about their subjective symptoms.

**Results:** All of the patients were successfully discharged at the day of surgery after mean 8 hours. Only one patient rehospitalised. All patients were controlled 7 days after the operation and no serious complication was noticed.

**Conclusion:** Ambulatory LC is feasible and safety procedure that can be recommended for carefully selected patient population without overnight stay in hospital.

**Key words:** Ambulatory, Outpatient, Laparoscopic cholecystectomy.

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## INTRODUCTION

Surgical removal of the gallbladder for symptomatic gallstones is an established operation that was first performed in 1882 by Carl Langenbuch (1). Since the introduction of laparoscopic approach a decade ago, surgeons and patients have lowered the threshold for proceeding to cholecystectomy (1).

Laparoscopic Cholecystectomy (LC) has received near universal acceptance and is currently considered the "gold standard" for treatment of cholelithiasis (2-6). The main advantages of this technique are earlier return of bowel function, less postoperative pain, shorter duration of hospitalization, more rapid return to full activity, and decreased overall costs (2-8). Ambulatory surgery is the oldest known form of surgery. Early discharge after operations does not increase the complication rate. It has been pointed out that morbidity begins in the operating room, not at home, and clinicians tend to be meticulous with a patient scheduled for early discharge to minimize

complications (9). Ambulatory LC had not been performed for a long period with the fear of serious complications such as bleeding and fistula or other reasons for readmission, and the argument that patients might feel safer when observed for one night (3, 10-13). But the advantages of LC has encouraged performing this technique as an ambulatory procedure and it has become popular in all countries recently (3, 6, 11, 12).

This study was performed to investigate the safety and efficacy of ambulatory LC in a carefully selected patient population without overnight stay in hospital. To the best of our knowledge this is the first report of ALC in English literature from Turkey.

## MATERIAL AND METHODS

A total of 70 patients were included the study in General Surgery Clinics of Alanya Private "Hayat" Hospital, Çankırı State Hospital and Suleyman Demirel University School of Medicine between June 1999 to June

**Table 1. Characteristics of the patients following ambulatory LC**

n	70
female	55 (78.6%)
male	15 (21.4%)
Age (year, mean)	37
<u>ASA class</u>	
I	59 (84.3%)
II	11 (15.7%)
Operative time (min)	36 (25-55)
Drain placed	0
Discharge time (h, mean)	8 (5.2-13)
Rehospitalised patients	1 (4%)
<u>Indications for hospital admission</u>	
Nausea/vomiting	1 (1.4%)
Dispnea	1 (1.4%)
Dizziness	1 (1.4%)
<u>Perioperative complications</u>	
Converted to open	0
<u>Postoperative complications</u>	
Epigastric ecchymosis	2 (2.9%)
Umbilical ecchymosis	3 (4.3%)
Wound infection	0
Abscess	0
Bile leakage	0

2004. Patients were selected for ambulatory LC based on The American Society of Anesthesiologists (ASA) classification (14) and the patient's willingness to accept the outpatient procedure. ASA-I and ASA-II patients were included into the study.

There was symptomatic cholelithiasis in all patients. All the patients were undergone physical examination, routine biochemical and hematological analysis. Upper abdominal ultrasound was also performed routinely. The patients were evaluated by the clinics of anesthesiology and cardiology preoperatively and were hospitalized at the operation day. The patients were given 1 g. Ceftazidim (Fortum®, GlaxoSmithKline, Izmit, Turkey) via intravenous route an hour before the operation as an antibiotic prophylaxis. Nasogastric decompression was performed to all patients perioperatively and was removed at the completion of the procedure.

The standard American technique was successfully used in all patients. The operating surgeon was not surgical resident, and used two-handed technique. The 10-mm trocar sites were closed. Pain control in the patients was provided with local anesthetic infiltration perioperatively (0.5% bupivacaine HCl about 5 cc. for each trocar sites), and with the usage of diclofenac sodium postoperatively for three days (as daily dose 75 mg). Ondansetron HCl was given to all patients for the possible symptoms of nausea and vomiting in the

postoperative period (as single dose 4 mg).

Patients were discharged when they were able to meet standard discharge criteria (adequate pain control, ability to stand, ambulate, void, and tolerate oral liquid), in case vital parameters and physical examination were normal and there were no subjective symptoms in the postoperative period. Patients were given instructions to contact their attending surgeon if they developed fever, chills, evidence of bile drainage from the incision, significant nausea and/or vomiting, or abdominal pain. The patients who discharged were called via telephone in the evening and asked about their subjective symptoms. Patients were also then followed up by telephone calls at 24 and 48 hours. All patients were seen postoperatively in 7 to 10 days for a follow-up examination.

The results were evaluated to investigate the safety and efficacy of ambulatory LC in a carefully selected patient population without overnight stay in hospital.

## RESULTS

Overall, 70 patients underwent elective LC (Comparison of the patients following ambulatory LC is shown in Table 1). Preoperative diagnosis was symptomatic cholelithiasis in all patients. The patient population consisted of 55 female (78.6%) and 15 male (21.4%) with an age range of 19 to 66 years (mean age 37 years). The

American Society of Anesthesiologists (ASA) classification of the patients found that 59 of them (84.3%) were ASA-I, 11 patients (15.7%) were ASA-II. The duration of the operation was between 25 to 55 minutes (mean 36 minutes). No patients underwent conversion to an open cholecystectomy. Perioperative complications did not occur in any of the patient. No drain was used in all patients. All of the patients were discharged at early postoperative period (range 5.2-13 hours, mean 8 hours). Mean hospital stay was about 10 hours for the first 30 patients, and about 6 hours for the last 40 patients. Only one patient who had dyspnea, nausea, vomiting and dizziness was rehospitalised. The patient was in ASA-II classification (heavy smoker), and remained in the hospital for 24 hours. Symptomatic treatment was performed and he was discharged 24 hours after surgery uneventfully. In postoperative 7<sup>th</sup> day, ecchymosis at epigastric port and umbilical port sites was determined in 3 patients and 2 patients, respectively. These ecchymosis resorbed spontaneously.

## DISCUSSION

Currently, LC is almost universally applied and is considered by most to be the "gold standard" for the treatment of symptomatic gallbladder disease (3). Ambulatory LC is becoming increasingly accepted as its safety and feasibility (4). This procedure significantly decrease duration of hospitalization and the average hospital cost (12). We found that ambulatory LC is safe and effective procedure for the carefully selected patients. Ambulatory LC is preferable for Turkish patients because staying at home is more comfortable. Telephone follow up of the patients seems as an effective follow up (3, 15, 16). We also observed that this approach causes a confident relationship between the surgeon and the patient. Widespread use of the LC as an ambulatory procedure will lead to increase all other ambulatory surgical procedures. Consequently, this approach will decrease the hospital costs and encourage establishing outpatient clinics in developing countries as Turkey.

Postoperative pain, nausea and vomiting after laparoscopic cholecystectomy have been important limiting factors for ambulatory laparoscopic cholecystectomy (6, 17, 18). Perioperative infiltration of local anesthetic to the trocar site and postoperative parenteral analgesic and ondansetron application improve patient comfort and success of ALC

(6, 19-21). Infiltration anesthesia to the trocar site and using ondansetron was found effective as in the series of some studies (6, 19, 20). We obtained that our results were compatible with these studies'. Characteristics of our study: 1. Patient population that was very carefully selected, 2. In addition to the standard American LC technique, local anesthetic application with bupivacaine administered to the trocar sites, 3. Telephone follow-up was performed by the surgeon, 4. The study was performed in all three kinds of hospitals namely state, private and teaching hospital.

In the report by Robinson et al. (4), Serralta et al. (22), Hollington et al. (23), the readmission ratios were higher (50%, 23.6 %, 18.3%, respectively) than the present study (1.4%). It's thought that the high readmission ratios reported in these studies are associated with unselected patient population. Only ASA-I and ASA-II patients were included in our study and ALC was not performed to the ASA-III and ASA-IV patients. It has been suggested that selection of the patients (ASA-I and ASA-II) improved the success of ALC while decreasing readmission rate.

It's also found that the telephone follow-up by the surgeon was effective. We observed that this method provided winning the patient's confidence. This study could not clarify the feasibility of the ALC in ASA-III and ASA-IV patients. Further studies are necessary for the evaluation of feasibility of ALC in ASA-III and ASA-IV patients. Despite the number of patients in the study were limited in 70 patients, the successful results of ALC encourage us to apply this procedure more widely, i.e. ASA-III and ASA-IV patients.

In conclusion, ALC as true outpatient procedure can be routinely applied to selected patients at all medical centers. ALC is effective and safe procedure that can be recommended for carefully selected patient population without overnight stay in hospital. It has been suggested that selection of the patients (ASA-I and ASA-II) improved the success of ALC while decreasing readmission rate. Telephone follow up of the patients seems as an effective follow up. This approach will decrease the hospital costs and encourage establishing outpatient clinics in developing countries. Perioperative infiltration of local anesthetic to the trocar site and postoperative parenteral analgesic and ondansetron application improve patient comfort and success of ALC.

## REFERENCES

1. Manifold DK, Anggiansah A, Owen WJ. Effect of cholecystectomy on gastroesophageal and duodenogastric reflux. *Am J Gastroenterol* 2000;95(10):2746-50
2. Hardy KJ, Miller H, Fletcher DR, Jones RM, Shulkes A, McNeil JJ. An evaluation of laparoscopic versus open cholecystectomy. *Med J Aust* 1994;160:58-62
3. Lillemoe KD, Lin JW, Talamini MA, Yeo CJ, Snyder DS, Parker SD. Laparoscopic cholecystectomy as a "true" outpatient procedure: initial experience in 130 consecutive patients. *Gastrointest Surg* 1999;3(1):44-9
4. Robinson TN, Biffl WL, Moore EE, Heimbach JK, Calkins CM, Burch JM. Predicting failure of outpatient laparoscopic cholecystectomy. *Am J Surg* 2002;184(6):515-8
5. Vuilleumier H, Halkic N. Laparoscopic cholecystectomy as a day surgery procedure: implementation and audit of 136 consecutive cases in a university hospital. *World J Surg* 2004;28(8):737-40
6. Liberman MA, Howe S, Lane M. Ondansetron versus placebo for prophylaxis of nausea and vomiting in patients undergoing ambulatory laparoscopic cholecystectomy. *Am J Surg* 2000;179(1):60-2
7. Berggren U, Gordh T, Grama D, Haglund U, Rastad J, Arvidsson D. Laparoscopic versus open cholecystectomy: hospitalization sick leave, analgesia, and trauma responses. *Br J Surg* 1994;81:1362-5
8. Skattum J, Edwin B, Trondsen E et al. Outpatient laparoscopic surgery: feasibility and consequences for education and health care costs. *Surg Endosc* 2004;18(5):796-801
9. Thomas S, Singh J, Bishnoi PK, Kumar A. Feasibility of day-care open cholecystectomy: evaluation in an inpatient model. *ANZ J Surg* 2001;71(2):93-7
10. Keulemans Y, Eshuis J, de Haes H et al. Laparoscopic cholecystectomy: day-care versus clinical observation. *Ann Surg* 1998;228(6):734-40
11. Lichten JB, Reid JJ, Zahalsky MP, Friedman RL. Laparoscopic cholecystectomy in the new millennium. *Surg Endosc* 2001;15(8):867-72
12. Rosen MJ, Malm JA, Tarnoff M, Zuccala K, Ponsky JL. Cost-effectiveness of ambulatory laparoscopic cholecystectomy. *Surg Laparosc Endosc Percutan Tech* 2001;11(3):182-4
13. Orlando R 3<sup>rd</sup>, Russell JC. Managing gallbladder disease in a cost-effective manner. *Surg Clin North Am* 1996;76(1):117-28
14. Dentz ME, Grichnik KP, Sibert KS, Reves JG. Anesthesia and postoperative analgesia. In: Sabiston DC, Lyerly HK (eds) *Sabiston Textbook of Surgery, the biological basis of modern surgical practice*. 15th edition. W. B. Saunders Company, Philadelphia 1997:186-206
15. Young J, O'Connell B. Recovery following laparoscopic cholecystectomy in either a 23 hour or an 8 hour facility. *J Qual Clin Pract* 2001;21(1-2):2-7
16. Fallis WM, Scurrah D. Outpatient laparoscopic cholecystectomy: home visit versus telephone follow-up. *Can J Surg* 2001;44(1):39-44
17. Gupta A, Thorn SE, Axelsson K et al. Postoperative pain relief using intermittent injections of 0.5% ropivacaine through a catheter after laparoscopic cholecystectomy. *Anesth Analg* 2002;95(2):450-6
18. Coloma M, White PF, Markowitz SD et al. Dexamethasone in combination with dolasetron for prophylaxis in the ambulatory setting: effect on outcome after laparoscopic cholecystectomy. *Anesthesiology* 2002;96(6):1346-50
19. Hession MC. Factors influencing successful discharge after outpatient laparoscopic cholecystectomy. *J Perianesth Nurs* 1998;13(1):11-5
20. Michaloliakou C, Chung F, Sharma S. Preoperative multimodal analgesia facilitates recovery after ambulatory laparoscopic cholecystectomy. *Anesth Analg* 1996;82(1):44-51
21. Joshi GP. Postoperative pain management. *Int Anesthesiol Clin* 1994;32(3):113-26
22. Serralta A, Garcia-Espinosa R, Martinez-Casan P et al. Outpatient laparoscopic cholecystectomy. Four years of experience (with English abstract). *Rev Esp Enferm Dig* 2001;93(4):207-13
23. Hollington P, Toogood GJ, Padbury RT. A prospective randomized trial of day-stay only versus overnight-stay laparoscopic cholecystectomy. *Aust N Z J Surg* 1999;69(12):841-3