

# Laparoscopic Cholecystectomy in the Elderly

R. K. Annamaneni, MD, D. Moraitis, MD, C. G. Cayten, MD

## ABSTRACT

**Objective:** To evaluate the outcomes of laparoscopic cholecystectomy in elderly patients at a single institution.

**Methods:** A retrospective chart review was conducted of all patients  $\geq 65$  years of age who underwent laparoscopic cholecystectomy over a 5-year period (January 1995 to December 1999). Four-trocar site laparoscopic cholecystectomy using the open Hasson technique were performed in all patients. The demographic data (age, sex), associated comorbidities, American Society of Anesthesiologist's (ASA) score, postoperative morbidity, mortality, and length of stay were recorded for each patient. Statistical analysis was done using Fisher's exact test and chi-square analysis. Statistical significance was defined as  $P \leq 0.05$ .

**Results:** The patient cohort included 46 patients with a median age of 71 years (range, 65 to 87). Seventeen (37%) patients were  $\leq 70$  years of age, and twenty-nine (63%) patients were  $\geq 70$  years of age. Twenty-two (48%) patients had ASA scores of  $\geq 3$ . Patients  $\geq 70$  had significantly higher ASA scores. Eighteen patients  $\geq 70$  years had ASA  $\geq 3$  compared with 4 patients  $\leq 70$  with ASA  $\geq 3$  ( $P < 0.05$ ). Twenty-two patients  $\geq 70$  and 8 patients  $\leq 70$  required urgent surgery ( $P < 0.05$ ). Fifteen (33%) patients presented with acute cholecystitis, and 31 (67%) patients presented with a greater number of chronic symptoms. Four (9%) patients had pancreatitis on presentation, and 6 patients underwent preoperative endoscopic retrograde cholangiopancreatography (ERCP). Two of these 6 patients also underwent sphincterotomy. Urgent surgery was performed in 30 (65%) patients. The mean operative time was  $103 \pm 37$  (SD) minutes. One (2%) conversion to open cholecystectomy was required. The mean postoperative stay was 7 days (range, 1 to 46). Fourteen (30%) patients had

only a 1-night postoperative stay. Patients  $\geq 70$  had significantly longer postoperative stays. Nine patients  $\geq 70$  and only 1 patient  $\leq 70$  stayed in the hospital for more than 7 days. Postoperative complications were noted in 6 (13%) patients, most of which were chest infections. Five patients  $\geq 70$  and only 1 patient  $\leq 70$  developed postoperative complications. No mortalities occurred.

**Conclusion:** Laparoscopic cholecystectomy is safe and feasible in elderly patients. Patients  $\geq 70$  years seem to have a longer postoperative stay and slightly more postoperative complications. Age alone should not be a contraindication to laparoscopic cholecystectomy in the elderly patient.

**Key Words:** Laparoscopic cholecystectomy, Elderly, Outcomes.

## INTRODUCTION

Laparoscopic cholecystectomy was introduced in the United States in 1988.<sup>1</sup> By early 1992, more than 80% of the general surgeons in the United States had adopted the procedure. Laparoscopic cholecystectomy is currently the procedure of choice for management of gallstone disease.<sup>2</sup> Laparoscopic cholecystectomy is being used with increasing frequency even in the elderly population. It has been argued that laparoscopic cholecystectomy in the elderly has comparable safety and efficacy to that in younger populations.<sup>3</sup> The purpose of this study was to evaluate the outcome of laparoscopic cholecystectomy in the elderly population at our institution.

## METHODS

This is a retrospective chart review. All patients  $\geq 65$  years of age who underwent laparoscopic cholecystectomy at our institution over a 5-year period (January 1995 to December 1999) were studied. Four-trocar laparoscopic cholecystectomies using the open Hasson technique were performed. The study comprised 2 groups of patients, one  $\leq 70$  years of age and the other  $\geq 70$  years. Statistical analysis was done using Fisher's exact test and chi-square analysis. Statistical significance was defined as  $P \leq 0.05$ .

Department of Surgery, Our Lady of Mercy Healthcare System, New York Medical College, Bronx, New York, USA (all authors).

Presented at the Bronx Chapter of American College of Surgeons on May 20, 2003 and awarded a prize for the Resident Essay Contest.

Address reprint requests to: Ravinder K. Annamaneni, MD, Department of Surgery, Our Lady of Mercy Medical Center, 600 E 233rd St, Bronx, New York 10466, USA. Telephone: 718 920 9523, Fax: 718 920 9837, E-mail: ravpal@hotmail.com

© 2005 by JSLS, *Journal of the Society of Laparoendoscopic Surgeons*. Published by the Society of Laparoendoscopic Surgeons, Inc.

## RESULTS

The study comprised 46 patients with a median age of 71 years (range, 65 to 87 years). Seventeen (37%) patients were  $\leq 70$  years of age, and 29 (63%) patients were  $\geq 70$  years. There were 33 (72%) female patients and 13 (28%) male patients. The male to female ratio was 1:3. Fifteen (33%) patients presented with acute cholecystitis, and 31 (67%) patients had a greater number of chronic symptoms. Four patients (9%) had pancreatitis at presentation. Six patients underwent preoperative ERCP. Two of these 6 patients also had sphincterotomy. Urgent (within 24 hrs) surgery was performed in 30 (65%) patients.

Twenty-two (48%) patients had ASA scores  $\geq 3$ . Patients  $\geq 70$  had significantly higher ASA scores. Eighteen patients  $\geq 70$  had ASA  $\geq 3$  compared with 4 patients  $\leq 70$  years ( $P < 0.05$ ). The mean duration of surgery was  $103 \pm 37$  (SD) minutes. Age, sex, or ASA score did not affect the duration of surgery.

Conversion to open cholecystectomy was needed in 1 of 46 (2%) patients due to adhesions and distorted anatomy. Postoperative complications occurred in 6 (13%) patients. Four patients had chest infections, 1 patient had a myocardial infarction, and 1 had a cerebrovascular accident. None of the complications were directly related to the surgical procedure.

The mean postoperative stay was 7 days (range, 1 to 46). Fourteen (30%) patients had only a 1-night postoperative stay. The mean postoperative stay for patients  $\leq 70$  was  $2.82 \pm 2.56$  compared with  $9.17 \pm 13.05$  for patients  $\geq 70$  years ( $P < 0.02$ ). No deaths occurred in either group.

## DISCUSSION

The incidence of gallstone disease in the geriatric population ranges from 14% to 27% according to various population-based studies.<sup>4</sup> Laparoscopic cholecystectomy is established as the gold standard for the surgical management of gallstone disease. The reported incidence of morbidity and mortality with elective open cholecystectomy in the geriatric population is approximately 23% to 28% and 1.5% to 2%, respectively.<sup>5-7</sup> Morbidity and mortality for laparoscopic cholecystectomy in the elderly ranges from 5% to 15% and 0% to 1%, respectively.<sup>8-11</sup> No operative mortalities occurred in our study. Six (13%) patients developed postoperative complications, which are in accordance with that reported in other studies.<sup>9,10</sup> Five of these 6 patients who developed postoperative complications were  $\geq 70$  years. Only 1 patient  $\leq 70$  years developed postoperative complications. Four patients had respira-

tory tract infections, 1 had myocardial infarction, and 1 had a cerebrovascular accident.

The majority of patients in this study underwent laparoscopic cholecystectomy for chronic symptoms. The incidence of acute cholecystitis is more common in the group  $\geq 70$  years as noted in other studies.<sup>2</sup>

Our mean operative time of  $103 \pm 37$  minutes is comparable to that in other studies.<sup>8,12</sup> The mean operative time between the 2 groups of patients (104 min vs 101 min) is not statistically significant. Preoperative endoscopic retrograde cholangiopancreatography (ERCP) was done in 6 patients for clinical and laboratory suspicion of choledocholithiasis. Two of these 6 patients also underwent sphincterotomy for common bile duct stones.

One conversion (2%) from laparoscopy to open cholecystectomy was necessary. This conversion rate is lower than that previously reported,<sup>2</sup> which may be due to selection of cases. Twenty-two (48%) patients had ASA scores  $\geq 3$ . Eighteen patients  $\geq 70$  and only 4 patients  $\leq 70$  had ASA scores of  $\geq 3$ .

The postoperative stay of 7 days (range, 1 to 46) is comparable to that in other studies.<sup>8,11,13</sup> Fourteen (30%) patients had only a 1-night postoperative stay. The mean postoperative stay in the group  $\leq 70$  of  $2.82 \pm 2.56$  days is significantly lower than the stay in the group  $\geq 70$ , which is  $9.17 \pm 13.05$  days.

## CONCLUSION

Laparoscopic cholecystectomy is feasible and safe in elderly patients. The ASA scores seem to be high in extremely elderly patients with a significantly longer postoperative stay and also slightly more complications. But age alone should not be the contraindication for laparoscopic cholecystectomy.

## References:

1. NIH consensus conference statement on gallstones and laparoscopic cholecystectomy. *Am J Surg*. 1993;165:390-398.
2. Fried GM, Clas D, Meakins JL. Minimally invasive surgery in the elderly patient. *Surg Clin North Am*. 1994;74(2):375-386.
3. Ballesta LC, Cid JA, Poves I, Bettonica C, Villegas L, Memon MA. Laparoscopic surgery in the elderly patient. *Surg Endosc*. 2003;17(2):333-337.
4. Coelho JC, Bonilha R, Pitaki SA, et al. Prevalence of gallstones in a Brazilian population. *Int Sur*. 1999;84(1):25-28.

5. Houghton PWJ, Jenkinson LR, Donaldson LA. Cholecystectomy in the elderly: a prospective study. *Br J Surg*. 1985;72:220–222.
6. Lujan JA, Sanchez-Bueno F, Parrilla P, Robles R, Torralba JA, Gonzalez-Costea R. Laparoscopic vs. open cholecystectomy in patients aged 65 and older. *Surg Laparosc Endosc*. 1998;8(3):208–210.
7. Feldman MG, Russell JC, Lynch JT, Mattie A. Comparison of mortality rates for open and closed cholecystectomy in the elderly: Connecticut statewide survey. *Laparoendosc Surg*. 1994;4(3):165–172.
8. Tagle FM, Lavergne J, Barkin JS, Unger SW. Laparoscopic cholecystectomy in the elderly. *Surg Endosc*. 1997;11:636–638.
9. Massie MT, Massie LB, Marrangoni AG, et al. Advantages of laparoscopic cholecystectomy in the elderly and in patients with high ASA classifications. *J Laparoendosc Surg*. 1993;3:467–475.
10. Mayol J, Martinez-Sarimento J, Tamayo FJ, Fernandez-Represa JA. Complications of laparoscopic cholecystectomy in the ageing patient. *Age Ageing*. 1997;26(2):77–81.
11. Pessaux P, Tuech JJ, Duplessis R, Seicean R, Arnaud JP. Laparoscopic cholecystectomy after age 75. *Chirurgie*. 1999;124(4):419–422.
12. Brunt LM, Quasebarth MA, Dunnegan DL, Soper NJ. Outcomes analysis of laparoscopic cholecystectomy in the extremely elderly. *Surg Endosc*. 2001;15(7):700–705.
13. Pessaux P, Tuech JJ, Derouet N, Rouge C, Regenet N, Arnaud JP. Laparoscopic cholecystectomy in the elderly: a prospective study. *Surg Endosc*. 2000;14(11):1067–1069.