

Laparoscopic cholecystectomy in patients over 70 years of age: review of 176 cases

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ABSTRACT

Introduction: we assessed the results of laparoscopic cholecystectomy in 176 patients over the age of 70 years.

Patients and methods: the study included all patients older than 70 years of age who underwent laparoscopic surgery cholelithiasis during the previous ten years. Variables studied included age, sex, type of operation (programmed/emergency), comorbidity, anesthetic risk, intraoperative cholangiography, conversion to open surgery, number of trocars, reoperation, residual choledocholithiasis, postoperative hospital stay, morbidity and mortality.

Results: the study included 176 patients (23.29% men and 76.71% women). The mean age was 74.86 years. The mean hospital stay was 1.27 days, with 16.98% morbidity and 0.56% mortality.

Conclusions: laparoscopic cholecystectomy is a safe procedure in older patients. It results in faster recovery, a shorter postoperative stay and lower rates of morbidity and mortality than open bile duct surgery.

Key words: Laparoscopic cholecystectomy. Elderly. Age. Cholelithiasis.

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INTRODUCTION

Life expectancy has increased greatly over the previous 100 years. Age is one of the main factors affecting rates of morbidity and mortality after open cholecystectomy

for cholelithiasis or cholecystitis (1,2). Smith and Max (3) reported rates of morbidity and mortality after open cholecystectomy of 25% in patients 60-69 years of age, increasing to 50% in patients over 70 years. Surgery is known to be associated with an increased risk in older patients, although age is not a formal contraindication for surgery.

Biliary tract disorders are one of the most common reasons for surgery in older patients (4). Autopsy studies have shown that the presence of gall bladder stones increases with age; they occur in 51.9% of patients aged 70-80 years but in just 8.9% of patients 30-40 years old.

Since its introduction in 1988, laparoscopic cholecystectomy has become the technique of choice for the treatment of cholelithiasis (5). After overcoming the learning curve, the rates of reconversions, morbidity and mortality have improved, and its use is now routinely considered in older patients requiring surgery.

Awareness of the results of laparoscopy in older patients with biliary tract disorders may help with appropriate decision-making in individual patients. We therefore evaluated the results of laparoscopic cholecystectomy in patients over 70 years of age at our hospital.

PATIENTS AND METHODS

We undertook a retrospective study of all patients over the age of 70 years who underwent laparoscopic cholecystectomy cholelithiasis in our hospital from January 1993 to December 2002. Patients undergoing cholecystectomy as a secondary procedure during a different operation were excluded. The following variables were studied: age, sex, type of operation (programmed/emergency), comorbidity, anesthetic risk, intraoperative cholangiography, conversion to open surgery, number of trocars, reoperation, residual choledocholithiasis, postoperative hospital stay, morbidity and mortality. Morbidity

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and mortality were considered to be complications or death either directly or non-directly related with surgery.

RESULTS

From January 1993 to December 2002 a total of 176 patients over 70 years of age underwent laparoscopic cholecystectomy, representing 24.31% of all these operations during the study period. There were 41 (23.29%) men and 135 (76.71%) women and the mean age was 74.86 years (range: 70-93). One third of the patients had an anesthetic risk grade higher than 2. Comorbidity is shown in Table I. Intraoperative cholangiography was undertaken in 76 (43.18%) patients; initially, from 1993-1996, this was performed in all cases, but later only in patients whose clinical, laboratory or imaging studies suggested the possibility of choledocholithiasis. On 20 (11.36%) occasions it was necessary to convert to open surgery, for such reasons as adhesions, inflammatory process, complicated anatomy, hemorrhage, cholecysto-

duodenal fistula and adenocarcinoma of the gallbladder. Reoperation during the first 30 days after surgery was necessary in 2.27% of the patients, due to postoperative bleeding (50%), choledocholithiasis (25%), and biliary leak (25%). Post-operative complications arose in 16.98% of the patients, due to hemorrhage (6.82%), biliary leak (5.68%), infection (2.84%), respiratory complications (1.7%) and other complications (0.57%). Postoperative endoscopic retrograde cholangio-pancreatography was necessary on 3 (1.7%) occasions due to residual choledocholithiasis. The mean postoperative stay is 1.27 days. Only one patient (0.57%) died because of postoperative heart attack.

DISCUSSION

The first open cholecystectomy was undertaken in Germany by Langenbuch in 1882 and for many years it was the treatment of choice for cholelithiasis (6). Biliary tract disorders in older patients are becoming an increasing problem as the population ages. The incidence of biliary tract disorders is higher than 50% in persons over 70 years of age, complications associated with cholelithiasis are more common in older persons and the surgical risk is also greater.

The first laparoscopic cholecystectomies were undertaken in 1987 and 1988 in France by Mouret, Dubois and Perissat. The procedure, which was soon being used in the United States followed by the rest of the world (7-9), opened up a possible solution to the problem of surgery in older patients. This could now be undertaken with less postoperative pain, less morbidity and a shorter hospital stay (10), so that the age of patients in whom surgery was indicated could be increased.

Older patients with biliary tract disorders have higher rates of complications, which explains the higher mortality rate in these patients. Some studies have reported that mortality rose with age (in patients over 65 years old). It is not surprising, therefore, that emergency cholecystectomies in older patients are associated with important rates of morbidity and mortality, despite advances in perioperative care. Considering the high probability of complications associated with biliary tract disorders in older patients, we believe that in the absence of medical contraindications, these patients with cholelithiasis would benefit from early programmed surgery. In our study only one patient died because of postoperative heart attack. Complications were present in 20.15% of the patients, so the morbidity rate of our study was similar to that of other recent studies (Table II).

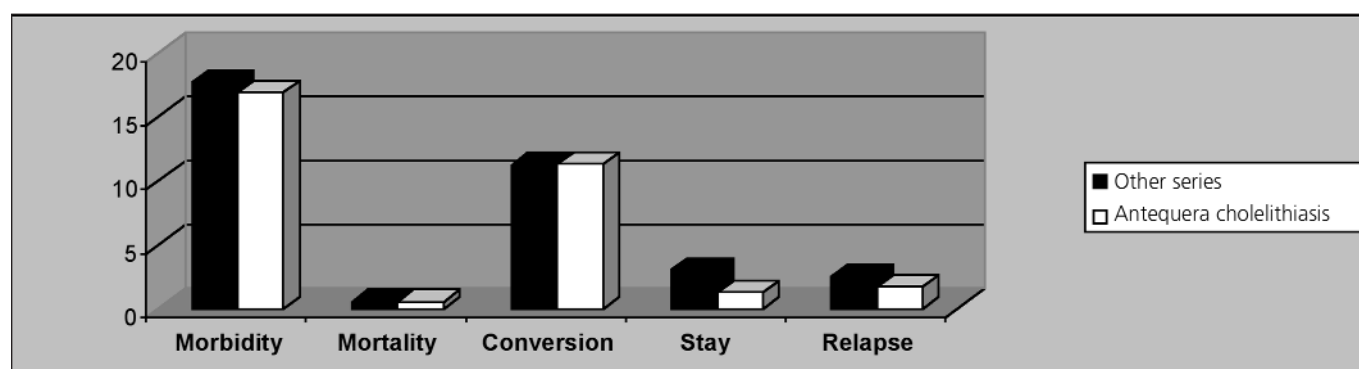
The value of intraoperative cholangiography during laparoscopic cholecystectomy is controversial (11-13). No conclusive data are available concerning the yield of this technique as a routine method for searching for stones in the main bile duct. We think that intraoperative cholangiography is beneficial when it is undertaken for a clinical, laboratory or radiological suspicion of choledocholithiasis.

Table I. Results of laparoscopic cholecystectomy in 176 patients over 70 years of age

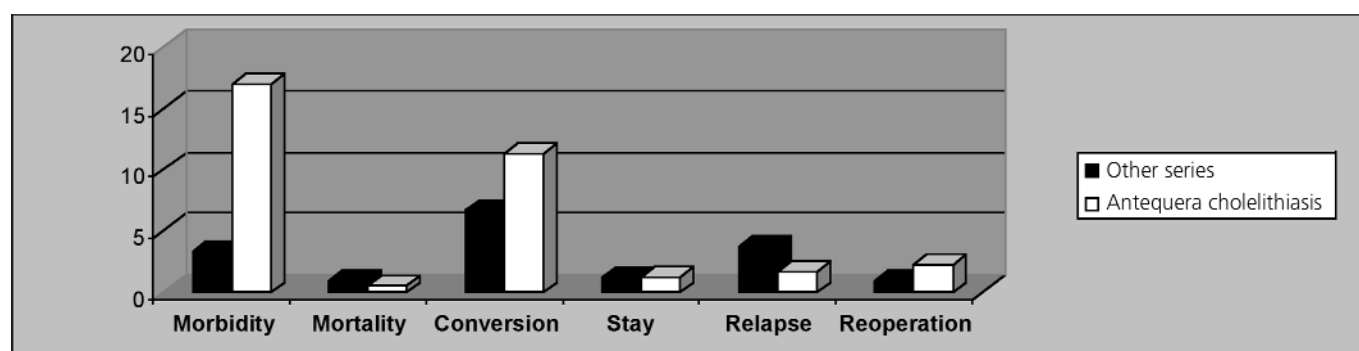
	<i>Cholelithiasis</i>
Number	176
Age	74.86
Sex (M/F)	23.29/76.71%
Programmed/emergency	97.16/2.84%
History	
COPD	9.09%
Hypertension	30.11%
Diabetes mellitus	10.23%
Cardiopathy	11.93%
GERD	11.36%
Pancreatitis	27.84%
ASA	
I	5.11%
II	63.05%
III	31.81%
IV	0%
Jaundice	3.41%
Cholangiography IO	43.18%
Kehr	5.11%
Conversion	11.36%
Trocars	
6	1.7%
5	3.98%
4	47.14%
3	47.14%
Reoperation	2.27%
Complications post-op.	
Biliary leak	5.68%
Hemorrhage	6.82%
Infection	2.84%
Respiratory	1.7%
Others	0.57%
Postoperative stay	1.27 d
Postoperative ERCP	1.7%
Mortality	0.57%

Table II. Comparison with other series of laparoscopic cholecystectomy in older patients

	Number	Morbidity	Mortality	Conversion	Stay	Relapse	Reoperation
Firilas (1996)	194	18%	1%	10.6%	2.7 d	–	–
Mayal (1997)	158	20%	0%	–	2.5 d	3%	–
Pesaux (2001)	50	18%	0%	32%	–	–	0%
Paganini (2002)	77	12%	1.3%	2.86%	–	1.3%	–
Hazzan (2003)	67	18%	0%	7.4%	5.3 d	–	–
<i>Total</i>	<i>548</i>	<i>17.71%</i>	<i>0.55%</i>	<i>11.28%</i>	<i>3.03 d</i>	<i>2.55%</i>	<i>0%</i>
<i>Antequera (2003)</i>	<i>176</i>	<i>16.98%</i>	<i>0.57%</i>	<i>11.3%</i>	<i>1.27 d</i>	<i>1.7%</i>	<i>2.27%</i>

**Table III. Comparison with other series of laparoscopic cholecystectomy at all ages**

	Number	Morbidity	Mortality	Conversion	Stay	Relapse	Reoperation
NEJM (1991)	1,518	5.1%	0.07%	4.7%	1.2 d	–	–
Larson (1992)	1,983	2.07%	0.1%	4.5%	–	3.8%	0.91%
Golden (1996)	449	–	–	13-28%	–	–	–
Chen Arnold (1998)	3,318	–	1.05%	–	–	–	–
Gharaibeh (2003)	204	–	0%	12%	–	3.3%	–
<i>Total</i>	<i>7,472</i>	<i>3.34%</i>	<i>0.94%</i>	<i>6.69%</i>	<i>1.2 d</i>	<i>3.75%</i>	<i>0.91%</i>
<i>Antequera (2003)</i>	<i>176</i>	<i>16.98%</i>	<i>0.57%</i>	<i>11.3%</i>	<i>1.27 d</i>	<i>1.7%</i>	<i>2.27%</i>



The rate of conversion to open surgery in our series was 11.36%, compared with 4.5-28% in other series (Table II) and with 2.86-32% in series of laparoscopic cholecystectomies in older patients (Table III).

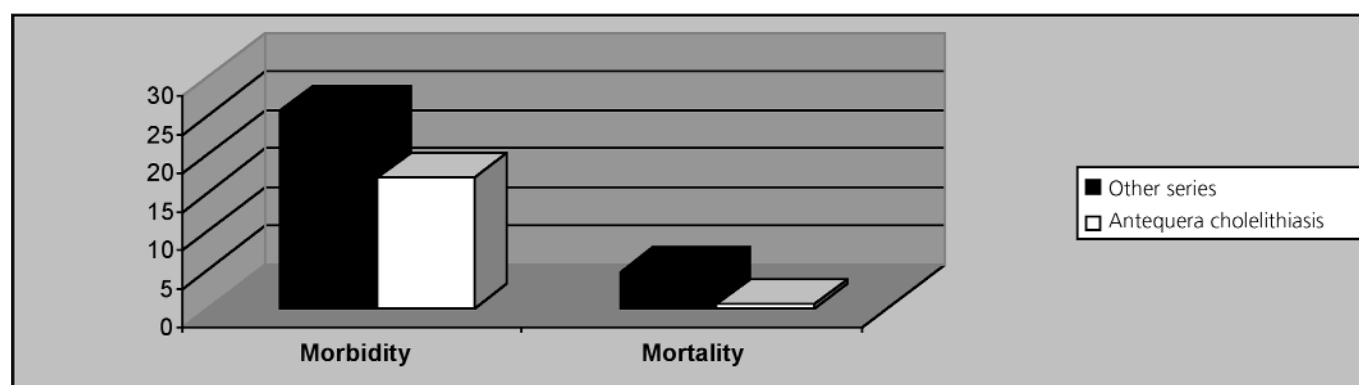
Many series have reported that laparoscopic cholecystectomy is associated with less postoperative pain, a

shorter hospital stay and earlier recovery (14-16). These facets were also seen in our study, where the mean hospital stay was 1.27 days, which is shorter than with open cholecystectomy, where patients remain in hospital from 5.4-12.8 days (Table III).

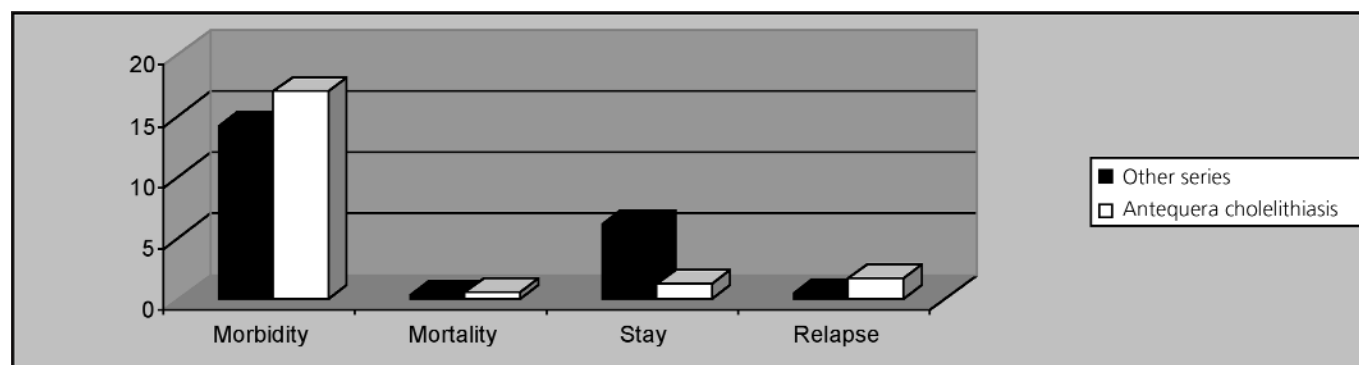
Our results agree with those of other series on laparo-

Table IV. Comparison with other series of open cholecystectomy in older patients

	Number	Morbidity	Mortality	Stay	Relapse	Reoperation
Lygidakis (1983)	475	26.3%	4.2%	–	–	–
Huber (1983)	93	28%	7.5%	–	–	–
Pessaux (2001)	89	21.3%	4.49%	–	–	0%
<i>Total</i>	<i>657</i>	<i>25.72%</i>	<i>4.73%</i>			
<i>Antequera (2003)</i> <i>(cholelithiasis)</i>	<i>176</i>	<i>16.98%</i>	<i>0.57%</i>	<i>1.27 d</i>	<i>1.7%</i>	<i>2.27%</i>

**Table V. Comparison with other series of open cholecystectomy in patients of all ages**

	Number	Morbidity	Mortality	Stay	Relapse	Reoperation
Meyer (1967)	1,261	11.3%	1.8%	–	0.8%	–
Haff (1969)	418	39.7%	0.9%	–	0.2%	–
Dietrich (1988)	240	16.2%	1.7%	–	–	–
Heberer (1988)	544	4.2%	0.4%	–	0.2%	–
Gilliland (1990)	671	4.5%	0%	–	0.2%	–
Clavien (1992)	1,252	12.93%	0%	7.44 d	–	–
Roslin (1993)	42,474	14.7%	0.17%	5.4 d	–	–
Moreaux (1994)	4,400	10.5%	0.18%	12.8 d	–	–
<i>Total</i>	<i>51,260</i>	<i>14.18%</i>	<i>0.4%</i>	<i>6.13 d</i>	<i>0.48%</i>	<i>–</i>
<i>Antequera (2003)</i> <i>(cholelithiasis)</i>	<i>176</i>	<i>16.98%</i>	<i>0.57%</i>	<i>1.27 d</i>	<i>1.7%</i>	<i>2.27%</i>



scopic cholecystectomies in older patients (Table II). However, comparison with series of laparoscopic cholecystectomies in patients of all ages (Table III) shows that we had worse results in older patients concerning mor-

bidity and conversion rates than with open surgery; we were working with patients who had more complex biliary tract disorders and a greater surgical risk. Review of different series reporting the results of open cholecystec-

tomy in older patients (Table IV) shows that the laparoscopic approach reduces morbidity and also mortality. Finally, comparison with studies of patients of all ages undergoing open cholecystectomy (Table V) shows that our results are very similar regarding morbidity and mortality, but we have better results for hospital stay. We therefore consider that the theoretically worse results to be expected when working with older patients are compensated for by the laparoscopic approach.

In conclusion, laparoscopic cholecystectomy is generally a safe procedure in older patients, despite the greater surgical risk associated with these patients. It is better than open surgery regarding rates of morbidity and mortality, recovery is faster and the hospital stay shorter.

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