

LAPAROSCOPY REPRESENTS THE GOLD STANDARD FOR ACUTE CHOLECYSTITIS EVEN IN ELDERLY PATIENTS

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Abstract

Nowadays the laparoscopic approach represents the gold standard for acute cholecystitis, but we are facing little evidence regarding the elderly patients. The purpose of this study is to define the benefits in terms of early outcome for laparoscopic cholecystectomy in patients over 70 years old and to compare them with the open cholecystectomy through a retrospective study of patients that underwent a cholecystectomy during 12 months in the Emergency Hospital of Bucharest, Romania. Out of 49 patients, 20 had a laparoscopic cholecystectomy (LC) and 29 an open approach (OC). The mean age was $74,6 \pm 4,2$ (LC) vs. $77,2 \pm 5,4$ (OC) ($P > 0.05$). There were 7 (33,3%) (LC) vs. 2 (7,1%) (OC) catarrhal cholecystitis, 13 (62%) (LC) vs. 9 (32,1%) (OC) phlegmonous cholecystitis, and 1 (4,8%) (LC) vs. 17 (60,7%) (OC) gangrenous cholecystitis ($P = 0.001$, Cramer's $V = 0,590$). The median operative time was 90 (LC) vs. 60 (OC) minutes ($P = 0.001$). There were no differences regarding the ASA risk scale ($P = 0,253$). The median number of days to resume the diet was 3 (LC) vs. 4 (OC) ($P = 0.009$). The median length of hospital stay was 72 hours (LC) vs. 120 hours (OC) ($P = 0.011$). One patient died in the OC group and none in the LC group. To conclude, the laparoscopic approach in acute cholecystitis of elderly patients is safe. It is followed by a lower morbidity rate, a shorter length of hospital stay and by a more rapid return to normal activities.

Keywords: acute cholecystitis, gallbladder stones, surgical approach, laparoscopy

Introduction

The prevalence of gallbladder stones increases with age, the same increase being observed in the proportion of population over 60 years old. Therefore, more and more surgical procedures are performed in elderly patients. Laparoscopic cholecystectomy (LC) represents the gold standard for acute cholecystitis, but studies for elderly patients, in emergency conditions are lacking. Postoperative complications and conversions to open surgery are more frequent in LC for people over 80

years old [1]. The study of Syrakos et al. presents the same morbidity for laparoscopic and open cholecystectomy in aged population, but a reduced one in mini-laparotomy cholecystectomy (3,8% vs. 0,8%) [2]. Mini-laparotomy cholecystectomy has a 980 € lower price and the in-hospital stay was the same [2]. Nevertheless, there is no doubt that postoperative pain is lower, that immune and respiratory function are less altered by the laparoscopic approach. All these things are beneficial for the elderly patients [3,4].

Material and Methods

All patients over 70 years old, admitted for acute cholecystitis during one year in the Emergency Hospital of Bucharest, were selected for the present study. We have collected the following data: demographics, associated morbidities, imagistic and intraoperative findings, physiological conditions, fluid resuscitation, time to resume diet and in-hospital course. Two groups were identified: LC group received a laparoscopic cholecystectomy and OC group received an open cholecystectomy. We have compared the LC group with the OC group. Categorical variables were compared by Chi-square test or Fisher exact test and continuous variables by the Mann-Whitney U test. A level of $p < 0.05$ was used to declare the statistical significance. For statistical analysis we used IBM SPSS Statistics 20 software.

Results

Out of 49 patients 29 were managed by open(OC) and 20 by laparoscopic(LC) approach. There was no difference between the two groups regarding the M/F ratio and the average age (Figure 1).

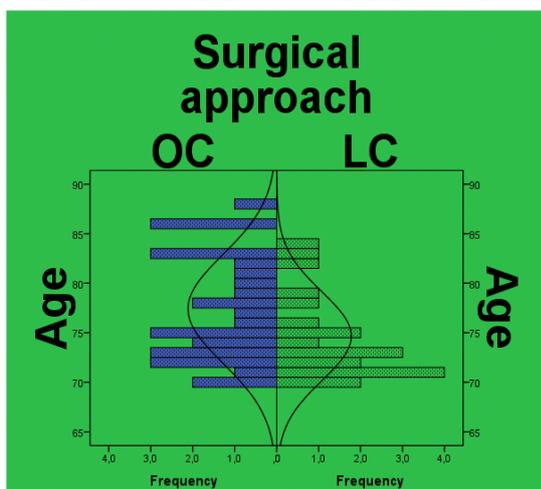


Figure 1 – Distribution of patients by age

There was no difference regarding the associated pathology between the two groups ($P > 0.05$). In the LC group phlegmonous cholecystitis exceeded and in the OC group the gangrenous cholecystitis one ($P = 0.001$) (Figure 2).

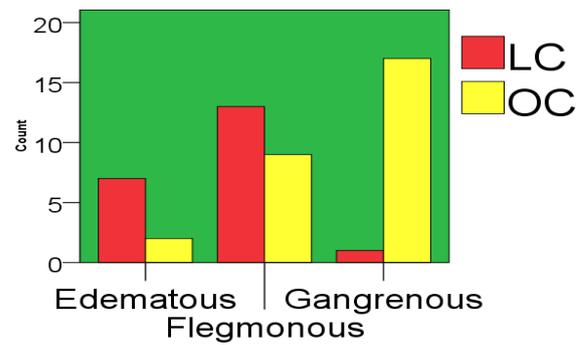


Figure 2 – Distribution of patients by cholecystitis type

One patient died in the OC group (3,6%) and none in the LC group ($P > 0.05$). Death was produced by postoperative stroke followed by pulmonary infection with *Acinetobacter baumani* and multiple organ failure.

Abdominal drains were used more frequent in the OC group ($P = 0.053$).

Surgical approach	Antibiotic uses (doses)	Mean operative time (minutes)
OC	8,13±7,5	62,2±26,5
LC	2,74±1,9	93,82±40

Table 1 - Surgical approach

There was no difference between the two groups regarding the ASA scale and the intraoperative blood loss ($P > 0.05$).

Time to resume the normal diet was one day longer in the OC group ($P = 0.001$) (Figure 3).

Mean postoperative in-hospital stay was with 38 hours longer in the OC group ($P = 0.058$).

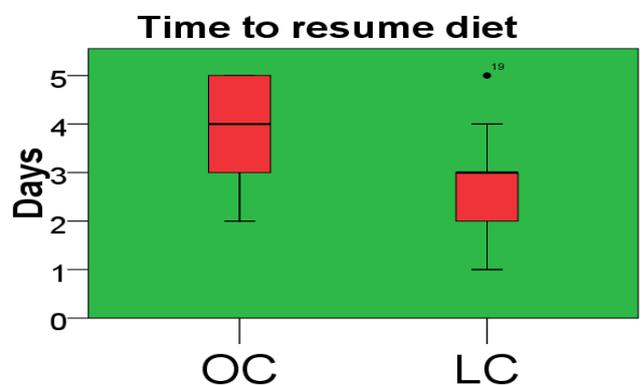


Figure 3 – Time to resume diet

Mean postoperative in-hospital stay was with 38 hours longer in the OC group ($P = 0.058$) (Figure 4).

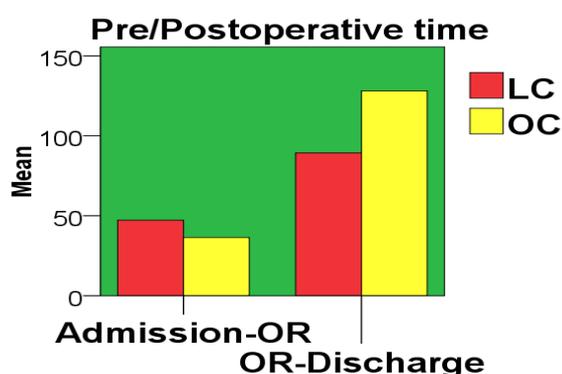


Figure 4 – Pre/Postoperative time

Discussions

The current evidence is still not strong enough to support either the laparoscopic or the open cholecystectomy as gold standard in elderly patients [5]. This may be partially explained by the heterogenous severity of the present comorbidities and the wide age interval for the patients.

The absence of a homogenous definition for the age interval, complications at admission, ASA score, the presence of other diseases and their severity, especially those with cardiac and pulmonary impairment represent shortcomings of the present data available in the literature [6]. In our group there were no differences between the two groups regarding the ASA scale and the preoperative risk factors. Mean age was the same in the two groups.

Studies published until now favored the laparoscopic approach for patients with uncomplicated symptomatic cholelithiasis, in terms of minimization of trauma, inflammatory response [7], morbidities and hospital stay [8–11]. Moreover, several studies favored the laparoscopic cholecystectomy in terms of the postoperative morbidity and hospital stay in elderly patients admitted for acute cholecystitis [12–14]. In our study gangrenous cholecystitis was approached by an open technique. Abdominal drains were used more frequent after open techniques.

The data in the literature also offer no data regarding the trocar placement and experience of the operating surgeon in laparoscopy, fact that can significantly prolong surgery time and therefore increase the complication risk. Since the published data is scarce, studies available in the literature are spread over a large period of

time, reaching the beginning of laparoscopy, age where standardization and experience with this kind of approach was somehow limited. Although statistical significance was not reached and the majority of the studies were biased towards either approach, we found a relative trend towards laparoscopic procedure. Moreover we have observed a certain degree of patient selection for the laparoscopic arm [15,16].

Recent studies that evaluate the inflammatory stress response in patients that underwent laparoscopic cholecystectomy under spinal anesthesia, showed the absence of ventilatory depression and less neuroendocrine stress response when compared with patients that underwent the same surgery but under general anesthesia, narrowing the limitation for the laparoscopic approach [17].

In our opinion, the laparoscopic cholecystectomy offers a better quality of life for elderly patients. Despite a longer operative time laparoscopic procedures are followed by faster postoperative recovery. Time to resume the normal diet is shortened after the laparoscopic approach. LC group received less postoperative antibiotics.

Conclusions

The laparoscopic approach in acute cholecystitis of elderly patients is safe. It is followed by a lower morbidity rate, a shorter length of hospital stay and by a more rapid return to normal activities.

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