

EARLY LAPAROSCOPIC CHOLECYSTECTOMY FOR ACUTE CHOLECYSTITIS

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REZUMAT

Obiective: Colecistita acută este astăzi tratată din ce în ce mai mult prin laparoscopie cu rezultate bune, rata de conversie și morbiditatea fiind totuși ceva mai crescută decât pentru tratamentul electiv al litiazei veziculare. Majoritatea studiilor arată un avantaj în favoarea colecistectomiei laparoscopice precoce la mai puțin de 72 de ore de la debutul simptomelor. Scopul acestui studiu este de a evalua rezultatele colecistectomiei laparoscopice atunci când aceasta este realizată precoce (sub 72 de ore de la debutul simptomelor) și tardiv (după 72 de ore de la debutul simptomelor).

Material și metodă: Am realizat un studiu retrospectiv pentru 72 de pacienți diagnosticați cu colecistită acută pe baza criteriilor clinice, biologice și imagistice și confirmat histopatologic, propuși pentru colecistectomie laparoscopică. Acești pacienți au fost împărțiți în două grupuri: grupul I – 46 de pacienți tratați precoce (sub 72 de ore de la debutul simptomelor) și grupul II – 26 de pacienți tratați tardiv (după 72 de ore de la debutul simptomelor).

Rezultate: Rata de conversie a fost de 26,38%, mai mare pentru grupul II decât pentru grupul I – 50% vs. 13,04% ($p < 0,0001$). Zece pacienți au prezentat complicații, 15% din grupul I și 30,76% din grupul II ($p < 0,005$). Leziunile căii biliare principale au fost prezente în 3,77% din cazuri (2 pacienți). Durata intervenției a fost cu 30 de min în medie mai lungă pentru grupul II decât pentru grupul I (98 ± 34 min. vs. 75 ± 28 min.). Durata spitalizării a fost în medie de 3,8 zile pentru grupul I și 7,2 zile pentru grupul II ($p = 0,003$).

Concluzii: Comparând rezultatele pe cele două loturi de pacienți luate în studiu, reiese superioritatea abordului precoce (sub 72 de ore de la debutul simptomelor) în ceea ce privește rata conversiei, morbiditatea și durata spitalizării și implică a costurilor.

Cuvinte cheie: colecistită acută, laparoscopie precoce

ABSTRACT

Objective: Acute cholecystitis (AC) is today more and more treated through laparoscopy with good outcomes, the conversion rate and the morbidity being a little higher than the elective treatment of gallbladder stones though. The majority of studies show an advantage in favor of early laparoscopic cholecystectomy (LC) (under 72 hours). The aim of this study was to evaluate the results of LC for AC when laparoscopy is carried out early (under 72 hours from the onset of the symptoms) and late (after 72 hours from the onset of the symptoms).

Material and Methods: We performed a retrospective study on 72 patients which have been diagnosed with AC through clinical (pain and guarding), biological (leucocytosis) and imagistic (the gallbladder wall 5mm thick) criteria, and confirmed by histopathologic examination, all patients being proposed for a LC. These 72 patients were divided into two groups: group I of 46 patients who received early LC and group II of 26 patients with delayed LC.

Results: The average conversion rate was 26.38%, higher in group II than in the first one – 50% vs. 13.04% ($p < 0.0001$). Ten patients developed complications 15% percent in group I and 30.76% percent in group II ($p < 0.005$). Common bile duct injuries occurred in 3.77% percent of cases (2 patients). The operative time was longer for the second group – 98 ± 34 minutes vs. 75 ± 28 minutes in the first group ($p = 0.003$). The average hospital stay was 3.8 days for the first group and 7.2 days for the second group.

Conclusions: The outcomes from the two studied groups of patients show the superiority of early approach (under 72 hours), regarding the conversion rate, complications and hospital stay.

Key Words: acute cholecystitis, early laparoscopy.

INTRODUCTION

If there is no doubt that for non acute cases of gallstones laparoscopic cholecystectomy (LC) is today the standard of care, for acute cholecystitis (AC) the

laparoscopic approach still remains controversial.¹ In the first years of the laparoscopic era, AC was considered a contraindication. Once with the growth of the experience, more and more authors preferred LC for AC with good results and an acceptable rate of conversion and complication.² For classic open surgery, the best moment to operate on AC is the earliest one. In LC the optimal timing of the surgical treatment of AC still remains under debate, although some recent reports suggest the advantages of the early approach.³ The aim of this study is to evaluate the results from LC for AC on 2 groups of patients, the first group being operated on in the first 72

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hours from the onset of the symptoms, the second group being operated after 72 hours from the onset of symptoms.

MATERIALS AND METHODS

This is a retrospective study covering on a 28 month period (2001-2003). Only patients with AC and an intention of laparoscopic approach were included in this study. The patients have been divided into 2 groups the main criteria being the time past between the onset of symptoms and the operation: group I under 72 hours, group II over 72 hours.

The following data have been analyzed: demographic information, the onset of symptoms, the clinical features, laboratory tests and ultrasonography, details of the operative procedure and outcome (morbidity and mortality). The results from the pathologic examination and the hospital stay have also been taken into consideration.

AC diagnosis has been established on clinical data, intraoperative findings and confirmed through pathologic examination. Based on pathology AC was divided in sever cases – gangrenous AC and gallbladder empyema and not so severe ones – uncomplicated AC and vesicular hydrops.

The main criteria of diagnostic for AC were pain with local tenderness or contraction of the abdominal wall in right upper quadrant, fever, leucocytosis over 10.000/mmc and a gallbladder wall more than 5mm thick at echografic examination with or without liquid around the gallbladder. LC has been performed using the standard American technique with 4 trocars in most of the cases.

Statistical analyses were assessed using the Student *t* test and chi-square test and a probability of 0.05 or less was accepted as statistically significant.

RESULTS

Seventy two patients admitted in the Department of Surgery of the Emergency Hospital of Iasi, with AC and proposed initially for LC were analyzed in a retrospective manner. These patients have been divided into two groups: group I – 46 patients with the interval onset-operation less than 72 hours and group II-26 patients with the interval onset-operation over 72 hours.

There were 49 women (68.05%) and 23 men (31.94%) with an average age of 51 years (range 20 to 81years). No demographic statistical differences could be established between group I and II. Also, in terms of diagnostic data there were no significant differences between the two groups (Table 1).

Pathologic examination confirmed the AC diagnosis in all patients, 23 patients (31.94%) being diagnosed with a severe form of AC (17 gangrenous AC and 6 gallbladder empyema) and 49 patients (68.05%) have been diagnosed with non severe forms of AC (41 uncomplicated AC and 8 AC with vesicular hydrops).

Table 1. Comparative demographic and diagnostic data between group I and II

	Group I (46 patients)	Group II (26 patients)
Sex B/F (ratio)	15/31 (1:2.06)	8/18 (1:2.25)
Mean age (years)	49.3	51.8
Leucocytosis	37 patients (80.43%)	20 patients (76.92%)
Ultrasonography		
- wall > 5 mm	46 patients (100%)	24 patients (92.30%)
- liquid around gallbladder	8 patients (17.39%)	6 patients (23.07%)
- gallstones	39 patients (84.78%)	18 patients (69.23%)

Conversion to an open procedure was necessary in 19 cases (26.38%), 6 patients from group I (13.04%) and 13 patients (50%) from group II ($p < 0.0001$). The main reasons for conversion were difficulties in recognizing the anatomy of the area due to fibrous adhesions (63.15% - 12 patients), bleeding problems (21% - 4 patients) and suspected injury of the common bile duct (15% - 3 patients). The average time for conversion was 60 minutes due to the lack of progression of the dissection.

Technically, the handling of the gallbladder proved to be extremely difficult, in 29 patients from group I (63%) and 18 patients (69.23%) from group II, in all these cases the puncture and evacuation of the gallbladder were performed. Intraoperative cholangiography has not been performed in either group of patients because there were no elements to sustain this. Subtotal cholecystectomy has been chosen in 6 patients - 3 from group I (6.52%) and 3 from the second group (11.53%), 4 of these patients had gangrenous AC and 2 gallbladder empyema.

The overall complication rate for the 53 patients operated by laparoscopic approach was 18.86% (10 patients), 15% from the group I (6 patients) and 30.76% from the group II (4 patients) ($p < 0.005$). Eight patients suffered minor complications (15.09%) and 2 patients have suffered injury of the common bile duct (3.77%). The two patients with major complication belong one to each group, and open surgery was necessary to solve these complications.

The surgical procedure lasted longer for the patients in group II, 30 minutes in average, and also the hospital stay was different for the two groups – 3.8 days for the first one and 7.2 for the second one ($p = 0.003$). (Table 2)

Table 2. Comparative outcomes between group I and II operated successfully by laparoscopy

	Group I (40 patients)	Group II (13 patients)
Conversion	13.04% (6 of 46)	50% (13 of 26)
Complications	15%	30.76%
Operative time (min)	75±28	98±34
Hospital stay (days)	5±2 (3.8)	8±3 (7.2)

There were two deaths in this series (3.77%), one for each group but neither one being directly related to LC.

DISCUSSIONS

Once the LC has been accepted as a safe and feasible method for AC, it raised the question about the appropriate moment for the intervention. There are at least three randomized studies who have tried to find out the best moment for LC in AC.⁴⁻⁶ These, as well as other non randomized studies, have reached the conclusion in favor of the early approach because the dissection is not so difficult, the conversion rate is lower, the operating time is shorter, the expenses drop consequently and last but not least hospital stay is shorter.

Having these things in mind we tried an early approach for AC. The 26 cases from group II have been made from cases of patients who did not come to hospital in time (12 cases) and cases in which organization problems or physician decisions were the main reasons for choosing a late intervention moment.

The conversion rate was 26.38% which falls well in the interval described in many other studies (20%-30%).^{7,8} The main reason for conversion is still a difficult dissection (12 out of 19 patients) this being more frequently noticed in group II (8 cases). The conversion rate is related to the selection of the patients as well as with the surgeons' experience.⁹ The laparoscopic approach has been used in all patients, with complicated and simple forms of AC, the conversion rate for complicated forms of AC being 43.47% (10 out of 23). In group II the complications were more frequently noticed 42.30% than 26.08% in group I. The conversion for group I was smaller than for group II (13.04% vs. 50%). (Table 3) The conversion rate in different series is around 20%, 13 % for early LC and 29% for late LC.⁴ The data from our study backs this point of view up (15% vs. 30.76%).

Most of the complications are minor but in 0-2% cases injuries of common bile duct can occur and this is the most feared complication.⁵ The almost double presence of common bile duct injury (3.77% vs. 2% in other studies) is maybe due to the lack of experience, a

selection not always perfect of the patients, and not recognizing the appropriate moment of conversion. (Table 3)

Table 3. Outcomes in early vs. delayed laparoscopic cholecystectomy

	Less than 72 hours (Literature/Emergency Hospital)	Over 72 hours (Literature/Emergency Hospital)
Conversion	11% / 13.04%	23% / 50%
Complications	13% / 15%	29% / 30.76%
Hospital stay (days)	7.5 / 3.8	11.5 / 7.2

From the technical point of view, we always started the dissection from Hartmann's pouch and not directly in the Calot triangle. We tried every time an opening of Calot triangle as large as possible along the gallbladder hepatic side and visualization as good as possible of the cystic duct and its origin from the gallbladder. Only after these elements had been correctly identified, the cystic duct was clipped and cut as a unique tubular structure.

Biliary fistulae, classified as minor complications (3.7-4.5% in literature), occurred in our series in 3 cases (5.6%), two of which sealed spontaneously and in one case endoscopic sfincterotomy has been performed. The exact cause in this latter case only was due to the fact that the clip had slipped from the cystic duct.

The length of the surgical intervention differed from the first to second group, in favor of the first (30 minute in average) which underlines the technical difficulties encountered in the patients with delay LC.

Our data agrees with the ones from literature regarding the hospital stay, 7-8 days for early LC and 11-12 days for late LC.⁵

The mortality rate in LC for AC is smaller, being comparable with the one in elective cholecystectomy 1-3%.^{7,9} This mortality seems to be raised for the cases with high risk (advanced age, sever forms of AC) reaching almost 16%.³ The two deaths from our series cannot be connected directly with LC, and they give a rate of 3.77%, which is higher than the one from literature, with no difference between the two studied groups.

CONCLUSIONS

The outcomes of this study suggest the advantages of early LC (under 72 hours from the onset of the symptoms) over delayed LC for AC regarding conversion rate, complications rate, hospital stay and operative time. For a further improvement of the results a better and more precise selection of the patients and the accumulation of more experience by the surgeon are necessary. Early LC represents the optimal timing

for AC treatment, the delays in AC treatment being unjustified, and generating lesser results.

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