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Laparoscopic cholecystectomy in the treatment of acute lithiasic cholecystitis: About 159 cases

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Abstract:
Background*:Report the results of laparoscopic cholecystectomy for acute cholecystitis in our exercise context, determine its feasibility, its risks, its benefits, and the optimal operating time.*
Materials and Methods*: From October 2018 to September 2019, 159 patients with 0.4 sex ratio (113 women and 46 men aged 48 +/-14.53 years) were operated on for a cholecystectomy with an immediate laparoscopic approach for acute cholecystitis confirmed by ultrasound, as part of the emergency.*
Results*: The average duration of the intervention was 73.49+/-25.11min (range: 30-150). The overall conversion rate was 8%. Mortality was zero. The postoperative complication rate was 0.62% and the average hospital stay was 4.19+/-3.55 days(range 02-28).*
Conclusion:*The management of acute cholecystitis is well codified, the results that we obtained during this study confirm the feasibility of laparoscopic cholecystectomy for acute cholecystitis in our exercise conditions and this should be done as soon as the diagnosis is made and if possible within 3 days of the onset of symptoms Early surgical intervention reduces the conversion rate and the total length of hospital stay, which is a medical and economic advantage.*
Key Word*: acute cholecystitis - early cholecystectomy - laparoscopic surgery.*

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I. Introduction

Acute cholecystitis is the most common complication of vesicular lithiasis (20%). Most often (90%) secondary to a calculous isolation in the level of the collar of the gall bladder or the Cystic and alithiasic channel in 10% of the cases [1,2].

Laparoscopic cholecystectomy has become the standard surgical treatment for symptomatic vesicular lithiasis [3]. The laparoscopic approach allows the reduction of post-operative pain, the reduction of the hospital stay accompanied by an earlier resumption of active life, and an aesthetic and parietal advantage [4,5].

The laparoscopic approach was considered difficult or even a contraindication for acute cholecystitis [3, 6]. Laparotomy cholecystectomy was burdened with significant morbidity and mortality with a long hospital stay

This is why, we wanted to conduct this study which aimed to determine the feasibility of laparoscopic cholecystectomy for acute lithiasic cholecystitis in our exercise context, and to evaluate the results.

II. Material And Methods

It was a prospective observational monocentric study conducted over 12months period from October 2018 to September 2019.

This study, which was conducted in the department of the EPH DjillaliBelkhanchir ex-Birtraria (Algiers,ALGERIA), included all patients with acute lithiasic cholecystitis confirmed on imaging (abdominal ultrasound), and who underwent d right away a laparoscopic cholecystectomy.

This study included 159 patients, it was 113 women and 46 men with an average age of 48.74+/-14.53 years (range: 20-80)

All patients had abdominal pain in the right hypochondrium in 35% (n = 56) and the epigastrium 65% n = 103; associated with vomiting (n = 83; 52%), fever greater than 38.5 ° (n = 105; 66%) and hyperleukocytosis greater than 10000elt / mm for a normal value <10000elt / mm (n = 78; 49%).Fig1

GB	effectif	%
< 10000	81	51%
10000 _ 15000	61	38%
15000 _ 18000	12	7,5%
> 18000	5	3,5%

Figure 01: Distribution of patients according to the Hemogram

All the patients benefited from a hepatobiliary ultrasound which confirms the diagnosis with ultrasound signs of acute cholecystitis of which 71% presented a distended lithiasic vesicle with thickened wall ≥4mm, 24.5% with laminated wall and 24.5% with thin wall, an ultrasound Murphy sign was found in 32% of the cases and a peri-vesicular effusion in 7.5%.

2.5% (n = 4) of the patients benefited from a BILI-MRI before a dilation of the main bile ducts which confirms the vacuity of the latter, LVBP was detected in a patient or an endoscopic sphincterotomy was performed in him with success

After clinical, biological and radiological confirmation, 78% were classified grade 1; n = 124 of the TOKYO classification, grade 2 : 22%; n= 34, grade 3: 0.62% ; n = 1.

Grade		Criteria
1	Mild	Acute cholecystitis that does not meet the criteria for a more severe grade
		Mild gallbladder inflammation, no organ dysfunction
2	Moderate	The presence of one or more of the following:
		Elevated white blood cell count (>18,000 cells/mm^3)
		Palpable, tender mass in the right upper quadrant
		Duration >72 h
		Marked local inflammation including biliary peritonitis, pericholecystic abscess, hepatic abscess, gangrenous cholecystitis, emphysematous cholecystitis
3	Severe	The presence of one or more of the following:
		Cardiovascular dysfunction (hypotension requiring treatment with dopamine at ≥5 μg/kg body weight per minute or any dose of dobutamine)
		Neurologic dysfunction (decreased level of consciousness)

Fig 02: TOKYO classification of acute cholecystitis

***Surgical method**: The initial management was identical in all patients, medical treatment was initiated including a diet, analgesics and antibiotics (a 3rd generation cephalosporin + imidazoles) intravenously combined with antispasmodics. Followed by cholecystectomy by laparoscopic approach under general anesthesia. No interaoperative cholangiography was performed.

Pre, per, and post-operative data are collected prospectively and standardized. The operating time compared to the onset of symptoms, operating time, conversion time, mortality, post-operative complications, early re-interventions, length of hospital stay were analyzed.

III. Result

159 patients were operated with 0.4 sex ratio ; the average duration of the intervention was 73.49+/-25.11 min with extremes of 30 and 150 min. The average age of our patients was 48.74+/-14.53 years with extremes from 20 to 80 years. The duration of hospitalization was 4.19+/-3.55 days with extremes of 2 and 28 days.. The laparotomy conversion rate was 8% (n = 13)

	N	rate
Difficult dissection	**12**	**7,54 %**
bleeding	**1**	**0 ,62%**
Inflammation ofthepedicle	**52**	**32,70%**
Enclave calculation	**67**	**41,13%**
Duodenalcholecystectomyfistula	**2**	**1 ,25%**

Fig03: Intra-operative Difficulties

147 patients were operated on within 48 hours of the onset of symptoms; 11 were operated on in a period ranging from 3 days of cholecystitis evolution, in 6.75%. 2 patients were operated on the 8th day. The immediate operative suites were simple in 99% of the cases. We deplored a wound of the main bile duct having required a suture on a kehr drain after a laparoconversion the post-operative suites were simple

Cause of conversion	N / Conversion	rate
Difficult dissection	2	1,2%
bleeding	0	0%
Duodenalcholecystectomyfistula	2	1,2%
Inflammation ofthepedicle	1	0,6%
Difficult dissection + Inflammation ofthepedicle	7	4,4%
Difficult dissection + Inflammation ofthe pedicle + bleeding	1	0,6%

Fig 04: the reasons for conversion

We have not recorded any deaths. As part of the postoperative follow-up, all the patients were seen 15 days after the procedure.

IV. Discussion

In our study, cholecystectomy mainly concerned young adults aged 30 to 40 (34.2% of patients) with an average age of onset which was 48.74+/-14.53 years. Our results can be superimposed on those of AT Diallo et al. In whom, the average age of the patients was 43 years with the age group 31 to 40 years who was the most concerned (32.43%) [7]. The clear predominance of the female sex reported by certain authors was also found in our series where 71% consisted of women [8,9].

The average intervention time was 73.49+/-25.11 minutes with extremes30-150 minutes. Gourgiotis and al. Reported an average duration of 66 minutes [10]. The lack of difference was due to the fact that our series included in a very large proportion of patients operated on within 24-48 h of progression of cholecystitis as in its series. In the acute phase of inflammation, there is peri-vesicular edema which facilitates dissection of the vesicular bed [11]. After this time, a fibrous tissue is organized with the appearance of adhesions making dissection difficult and particularly that of the Callot triangle [1]. No mortality was observed in our series. Our result is similar to that of Pessaux et al. [1]. It is however lower than that of Ludwig and al. who reported a mortality rate of 9% [12]. In Dakar, in a study on cholecystectomies, PS Diop et al. reported a post-operative mortality of 2.38% [13]. In Dakar, in a study on cholecystectomies, PS Diop et al. reported a post-operative mortality of 2.38% [13].

The results of this study confirm the feasibility of laparoscopic cholecystectomy for acute cholecystitis, without mortality and with a postoperative complication rate of 2.5%, lower than the rates reported by laparotomy between 17.4% and 39.9% [14 , 15, 16,17]. Several papers have been published looking for the conversion rate in the cholecystitis and this rate fluctuate between 5% and 25%.

The main reason for conversion was the difficulty of identifying the anatomical structures and particularly that of the Calot triangle (84.6% of conversions in our study). When a conversion decision is made, it should not be considered a failure but a wise decision to minimize biliary complications. This decision must be taken quickly in the event of non-progression because a delayed conversion beyond 50 minutes aggravates post-operative and in particular respiratory morbidity [22]. We deplored a main bile duct wound that required a Kehr drain suture after laparo-conversion; the operating suites were simple.

Various studies have attempted to define the predictive factors for the conversion of laparoscopic cholecystectomy. The results of these studies are contradictory. Lo and al [22] found three factors: the high age of the patients, the size of the stones, and the presence of intraperitoneal adhesions. Some authors claim that the male sex is also a factor [22, 23, 24], while for other authors there is no correlation between sex and the conversion rate [21, 22, 23, 24, 25]. On the other hand, the existence of acute cholecystitis increases the risk of conversion [20, 21, 26, 27]. In our study, the predictors of conversion are linked to advanced age, diabetes, a time to onset more than 06 days and a correlation with the grades of the TOKYO classification.

This study confirms that early intervention (within the first 3 days) is associated with a reduction in the conversion rate. Laparotomy studies [31, 32] had demonstrated the interest in terms of morbidity and length of hospitalization of early surgery within 7 days of the onset of symptoms. The conversion rate in this study was significantly lower in the case of early surgery. Other studies have reached the same conclusions [18, 28,33]. The main advantage of early surgery is the reduction in hospital stay, with the hope of an earlier return to work. This last parameter was not studied in this work, but two recent prospective randomized studies [29, 30] showed that an early intervention did not reduce the conversion or complication rate but reduced the duration of hospitalization and the duration of sick leave which represented a socio-economic advantage. Early surgery offers definitive treatment during a single hospital stay and avoids medical treatment failures.

V. Conclusion

The management of acute cholecystitis in emergency with laparoscopy seems to us a safe and feasible technique without increasing morbidity

No risk factor for conversion does not contraindicate laparoscopic surgery, but knowing these factors makes it possible to anticipate operating difficulties to help the surgeon properly inform the patient of a possible conversion and to implement specific strategies to minimize the latter

For TOKYO grade 1 and 2 cholecystitis, early laparoscopic cholecystectomy is recommended as first-line treatment

The conversion should not be seen as a technical failure, but rather as a guarantee of safety for the patient and wisdom for the surgeon.0 mg on every other regimen had equal effect when compared to daily dose regimen of atorvastatin 40 mg &rosuvastatin 20mg.

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