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Medicine

THE RIGHT TIME TO CONVERT IN LAPAROSCOPIC CHOLECYSTECTOMY

Ana-Maria PREDOI[1]
Vlad BALEANU[2]
Gabriel Razvan Florin MOGOS[3]

ABSTRACT
THE PURPOSE OF THIS PAPER IS TO HIGHLIGHT THE ROLE AND PLACE OF CONVERSION IN LAPAROSCOPIC CHOLECYSTECTOMY. WITHOUT FIXING DOGMA, WE WANT TO MAKE A MODEST CONTRIBUTION TO THE INDICATIONS AND BENEFITS OF A CONVERSION MADE AT AN OPPORTUNE MOMENT, OUTLINING IT AS A PRUDENT SOLUTION THAT AVOIDS IATROGENIC LESIONS, BUT ALSO AN EFFECTIVE WAY TO REPAIR THEM WHEN THESE HAVE OCCURRED. CONVERSION IS THE WAY IN WHICH THE LIMITS OF LAPAROSCOPIC SURGERY ARE FILLED. WE ALSO WANT TO DRAW ATTENTION TO HOW THE INCIDENCE OF THE METHOD HAS EVOLVED AND WHAT EFFORTS ARE BEING MADE TO REDUCE THE CONVERSION RATE INTO LAPAROSCOPIC CHOLECYSTECTOMY.
THE LAPAROSCOPIC CHOLECYSTECTOMY CONVERSION REPRESENTS A VALUABLE DECISION WHITCH COMPLETES THE LIMITS OF LAPAROSCOPIC SURGERY IN SOLVING INTRAOPERATORY INCIDENTS AND ACCIDENTS.
THIS DECISION MUST BELONGS EXCLUSIVELY TO SURGEON WHO NEEDS TO EVALUATE IN AN APPLIED RIGHT, PRUDENT AND WITHOUT AMPLIFIED PRIDE WAY, HIS SURGICAL POTENTIAL, HIS TEAM POTENTIAL AND THE AVAILABLE TECHNICAL CONDITIONS
WE STUDIED A GROUP OF 135 PATIENTS WHO UNDERWENT A CLASICAL CHOLECYSTECTOMY CONVERTED FROM A LAPAROSCOPIC ONE, PERFORMED IN THE IV TH SURGERY CLINIC OF CRAIOVA IN THE PERIOD 2001-2015.

KEYWORDS: LAPAROSCOPIC CHOLECYSTECTOMY, CONVERSION, BILE DUCT INJURY, CRITICAL VIEW OF SAFETY

INTRODUCTION

The fist laparoscopic cholecystectomy on a human body was performed by Phillippe Mouret in 1987 in France, and nowadays this procedure has become the gold standard for

[1] MD, Department of Surgery, University of Medicine and Pharmacy of Craiova, Romania, predoi.anamaria@yahoo.com
[2] MD, Department of Surgery, University of Medicine and Pharmacy of Craiova, Romania
[3] University assistant, phD, Department of Surgery, University of Medicine and Pharmacy of Craiova, Romania

gallbladder surgery.(3), whether it's acute or chronic suffering. Conversion is not generally viewed as a complication and therefore most surgeons do not persist laparoscopically when the procedure is difficult(1). However, these cases are often just as difficult as in open surgery (2), especially in those with acute or chronic cholecystitis with dense pericholecystic adhesions, uncontrollable bleeding from a main source or abberant artery in the gallbladder bed, obscure anatomy of the Calot's triangle, fibrosis, thickening of gallbladder walls and loss of elasticity, . (4,5)

MATERIALS AND METHODS

We studied a group of 3595 patients proposed for a laparoscopic cholecystectomy performed in the 4th Surgery Clinic of Craiova in the period 2001-2015, the only criterion for inclusion being the performing or attempting of laparoscopic cholecystectomy. The study excluded 204 cases in which the first choice of cholecystectomy was the classic one.

Of the 3595 cases laparoscopic cholecystectomy in its anterograde, retrograde or bipolar variants, 135 resulted in the conversion into a classical, deliberate or necessity surgery. Criterions requiring conversion were represented by anatomopathological changes of the region cholecisto-choledochial features characteristic of the stage of the disease, iatrogenic lesions or coexisting lesions but which could not be resolved laparoscopically.

RESULTS

Of the 135 cases, 98 were women aged 21-79 (the mean age being 53 years) and 37 men aged 31-91 (with an average age of 60). In all 135 cases the trocars were placed in the classic manner: umbilical for the optical trocar (10mm) - inserted after the pneumoperitoneum (97 cases) or by the open laparoscopy technique (38 cases); in the epigastrum at the 1/3 upper union with 2/3 lower of the xifoombilical median line for the working trocar (10mm); a trocar (5mm) in the right hypochondrium on the medioclavicular line at 3-4 cm below the coastal rib; a trocar (5mm) in the right flank, on the anterior axillary line. No small accessories were used. The telescope used was 30 °. In 32 cases, after insertion of the optic and epigastric trocars, it was found that the lesion could not be resolved laparoscopically and the conversion was decided immediately or within the first 10 minutes. The conditions that imposed this approach were: intensive pericholecystic adherent process involving the duodenum, the transverse colon and whose extremely difficult dissections would have resulted in lesions: 18 cases (56%); acute gangrenous cholecystitis with pericholecystic abscess and intense hepatic pediculitis: 4 cases (12,5%);

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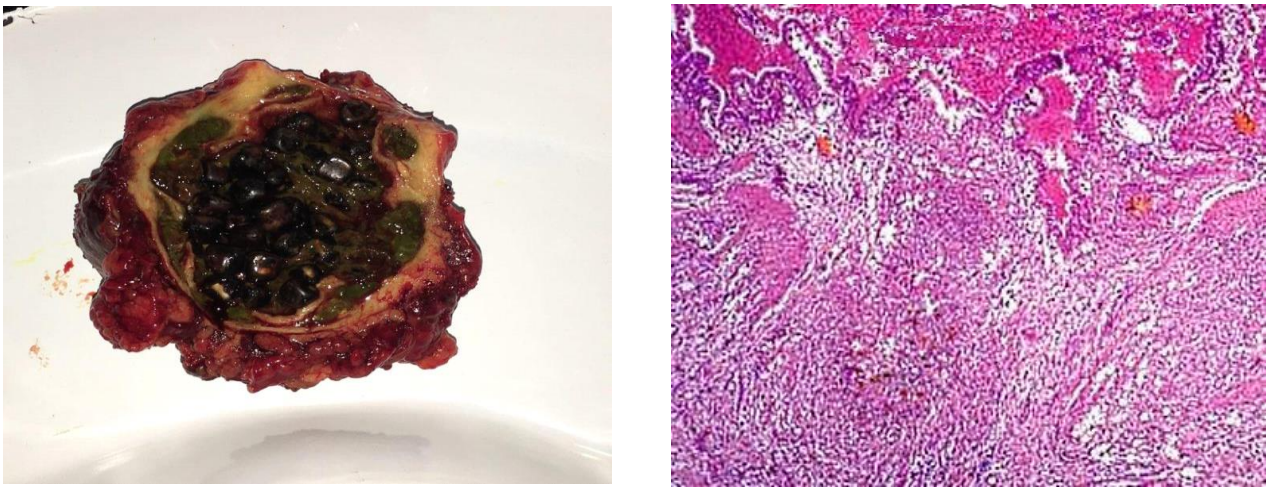

Figure 1. Ulceronechrotic cholecystitis

chronic sclerotrophic cholecystitis with hepatic pediculitis: 3 cases (9,3%); equivalence of bilio-biliary fistula or biliary-digestive fistula undiagnosed prior to surgery: 4 cases (12,5%); bleeding wound in the diaphragmatic face of the right hepatic lobe produced at the introduction of the epigastric trocar: 1 case (3,1%); hepatic tumor VIII segment unknown prior to surgery: 1 case (3,1%); left iliac vessels lesion (incomplete section) at the insertion of the optic trocar: 1 case (3,1%).

Time until conversion	Number of cases	Percentage
Conversion within 15 minutes	32 cases	23,7%
Conversion within 30 minutes	18 cases	13,3%
Conversion within 60 minutes	70 cases	51,9%
Conversion within 90 minutes	15 cases	11,1%

In the first years, the conversion rate was higher, this being inversely proportional to the level of surgeon training at the beginning of laparoscopic surgery, as this new technique was introduced to our clinic in 2000, with the acquisition of the first laparoscopy kit. Subsequently, surgeons' performance grew, and they succeeded in solving difficult cases of laparoscopic cholecystectomy without recording incidents and intraoperative injuries or postoperative complications.

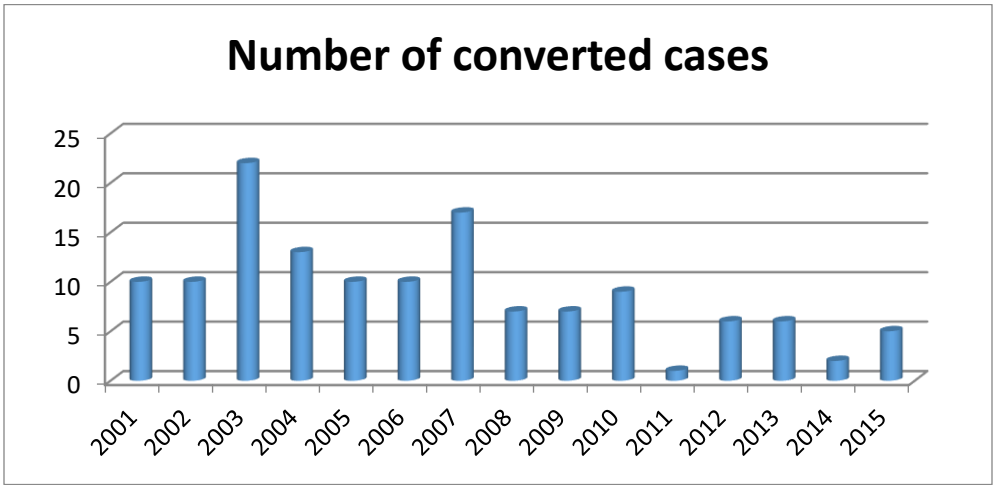

Figure 2. Number of converted case included in our study

The causes that led to the conversion of laparoscopic surgery into a classical one: 88 of the cases (65%) that entered into the study group had an severe pericholecystic fibrosis involving the liver, the gallbladder, the duodenum, the transverse colon and the great omentum, in varying proportions, and 85% of them had an associated hepatic pediculitis process that made it difficult to highlight vascular-biliary elements; 21 of the cases (15%) that were studied showed scleroatrophic changes of the gallbladder and for most of them the surgeon decided to convert in the first 15 minutes, cholecystectomy being practiced with great difficulty even in the classic version. In the case of 11 patients from the previous patients (52%), total cholecystectomy was not possible, part of the gallbladder wall remaining in the hepatic bed (incomplete cholecystectomy); 3 cases (2,2%) were diagnosed intraoperatively with the cholecysto-duodenal fistula and resolved by cholecystectomy and the surgeon used the duodenal lesion to achieve the directed duodenal fistula. Another case, equivalence of bilio-biliary fistula, was solved by cholecystectomy and transcystic drainage of the main bile duct after intraoperative exploration and the determination of its complete permeability; most cases of bleeding (14 cases – 10%) that caused the conversion of laparoscopic surgery into a classical one had as a source the vessels of the gallbladder hepatic bed that remained crumbly, most of them requiring hemostasis by suture or peritonization, compressible mesh or hemostatic sponges (Gelaspon, Tachocomb); another 2 cases (1,48%) resulted from the injury of the cystic artery, which, once retracted, was impossible to be identified by laparoscopic route. A plague in the liver produced during epigastric trocar insertion was another cause of conversion, which was solved by a compressible mesh. The worst case of bleeding was produced at the insertion of the optical trocar, cutting laterally the left iliac vessels and requiring median laparotomy for emergency with suture of the vessels; cases of main bile duct lesions were: 1 case (0,74%) with complete cross-section of the common bile duct (by confusing it with the cystic duct) solved by a hepaticojejunoanastomosis with Roux en Y loop; 1 case (0,74%) with the same complete cross-section of the common bile duct but rezoved by an choledococholedoco end-to-end anastomosis with a T tube placed through the anastomosis; 1 punctual lesion (0,74%) of the right hepatic duct solved by a main bile duct drainage with a Kehr tube whose cranial arm was inserted into the injured canal; 1 principal bile duct injury at the cystic duct implantation (0,74%) resolved by suture.

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DISCUSSION

Surgeon is the main actor because the decision and the moment of conversion belongs to him. The type of anatomo-pathological lesion of the cholecyst requiring conversion differs depending on the surgeon's experience in laparoscopic approach but also in open biliary tract surgery. Different centers have reported widely varying rates of conversion to open operation (range: 1.5% to 6%). (6,7). Thus, at the beginning of laparoscopic surgery, acute cholecystitis (regardless of the anatomopathological form) was an element that decided to convert, nowadays surgeons have exceeded this criterion.(8) The surgeons' experience in laparoscopic cholecystectomy is reflected in the decrease in the percentage of conversions since the beginning of this type of intervention to date. (9) The "learning curve" seems to have had a special importance during the pioneering period when the surgeons experienced in the classical surgery tried (almost autodidact) to adapt to laparoscopic surgery (after different statistics a variable percentage did not adapt). This fact is also reflected in our statistics. Nowadays, when the new generation "has grown" and formed around surgeons already experienced in this type of surgery, it seems that this curve loses its implication in the genesis of complications, and implicit in the incidence of conversion. Conversion should never be seen as a "defeat," as a failure. On the contrary, this is a proof of prudence, intelligence and dedication to the patient. The surgeon who is converting must be well-experienced in open surgery, because a laparoscopic cholecystectomy will be difficult after conversion; on the other hand sometimes conversion is made for biliary, vasculary and visceraly lesions difficult to solve, whose recognition and repair requires multidisciplinary training and experience. (16) The surgeon is the one who, in laparoscopic exploration, has to notice an associated lesion that "has escaped" preoperative exploration and has to decide whether it can resolve laparoscopically or convert it.

Liu et al., (8) Simopolous et al., (9) and Kanaan et al. (10) reported that patients treated successfully by LC were generally younger than 50-60 years of age; in comparison, patients who required conversion had a mean age of more than 50 years and had a history of recurrent attacks of cholecystitis. The findings of Kanaan et al.(10) Simopolous et al., (9) and Nachnani and Supe (15) are in agreement with our finding that male patients have an increased risk of difficult LC and that being a male increased the risk of unsuccessful LC. There are elderly patients, with many associated diseases, some at the limit of the indication of pneumoperitoneum. A short laparoscopic cholecystectomy is preferable, this assuming minimal anesthetic-surgical trauma; but if the surgeon insists (without a proper assessment of the operating theater) to prolong the laparoscopic intervention (with the risks of intraoperative accidents) 1-2 hours and then to convert, those will be factors that will increase the risk on a terrain. It is the role of the surgeon to anticipate these developments. In other words, an opportune time for conversion is decisive in such situations, reducing the anesthetic-surgical risk. The findings of Kanaan et al.(10) Simopolous et al., (9) and Nachnani and Supe (15) are in agreement with our finding that male patients have an increased risk of difficult LC and that being a male increased the risk of unsuccessful LC. (17)

Sometimes the moment of conversion occurs immediately after visualization of the lesion. There are cases where an experienced surgeon decides immediately after visualizing the lesion that conversion is preferred. Meshikhes et al. (13) and Al-Saigh et al. (14)from Saudi Arabia reported a conversion rate of 11% in their cases, the most common cause of conversion being difficult anatomy, and they converted immediately.

CONCLUSIONS

The laparoscopic cholecystectomy conversion represents a valuable decision which completes the limits of laparoscopic surgery in solving intraoperatory incidents and accidents.

This decision must belongs exclusively to surgeon who needs to evaluate in an applied right, prudent and without amplified pride way, his surgical potential, his team potential and the available technical conditions. We have to admit that what for some of the surgeons , under complete technical conditions, an incident can be solved laparoscopic, for others may require conversion. If the time of conversion is questionable, sometimes it becames an urgency and may require interdisciplinary surgical contribution. The conversion aproach must ensure a wide acces over the lession which needs to be solved. Usually, it is a right subcostal incision, but according to each situation, median laparotomy may represent an ideal solution.

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