



TRANSUMBILICAL LAPAROSCOPIC CHOLECYSTECTOMY IN ACUTE CHOLECYSTITIS

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ABSTRACT

Background: Since the introduction of laparoscopic cholecystectomy as the gold standard procedure to remove the gallbladder, many surgeons have attempted to reduce the number and size of ports in laparoscopic cholecystectomy to decrease parietal trauma and improve cosmetic results. Transumbilical laparoscopic cholecystectomy in chronic gallbladder disease is becoming increasingly accepted worldwide. But so far, no reports exist about the challenging TLC in acute inflamed gallbladder /AIG/.

AIM: The objective of this study is to investigate the safety and feasibility of our modification of transumbilical laparoscopic cholecystectomy (TLC) for acute inflamed gallbladder (AIG).

Patients and methods: between April'2009 and December'2011, 160 patients underwent of TLC. 105 was with chronic cholecystitis and 55 with acute inflamed gallbladder - 30 with chronic exacerbated cholecystitis and 25 with acute cholecystitis – 18 with phlegmonous cholecystitis and 7 with gangrenous cholecystitis.

Results: TLC was performed in 51 unselected consecutive patients with acute cholecystitis. The mean age of the patients was 58yrs, 63% of the patients were females. According to the diagnosis 30 (54.5%) patients had chronic exacerbated cholecystitis, 18 (32.7%) patients had phlegmonous cholecystitis and 7 (12.7%) had gangrenous cholecystitis. There were 2 (3.9%) conversions to standard LC and 2 conversions to laparotomy (3.9%). The mean operating time was 78 min.

Conclusion: Our modification of TLC technique was adequately safe and feasible for the treatment of acute cholecystitis.

Key words: transumbilical laparoscopic cholecystectomy (TLC), acute inflamed gallbladder (AIG)

INTRODUCTION

Laparoscopic cholecystectomy (LC) has been the gold standard for removal of the gallbladder since the early 1990s. [1] The first ever LC has been performed by Erich Mhe on 12.09.1985 [2]. As technology has progressed, surgeons have begun to develop less invasive methods for this commonly performed procedure. In 1992 Pelosi performed a single-puncture laparoscopic appendectomy [3]. In 1997, Navarra and colleagues performed a laparoscopic cholecystectomy via two transumbilical trocars and three transabdominal gallbladder stay sutures. [4]. This technique with some modifications,

shifting more and more standard laparoscopic cholecystectomy and is becoming the standard in the treatment of chronic cholecystitis.

We aimed to study the results from applying the our own-modified TLC in cases with acute inflamed gallbladder.

PATIENTS AND METHODS

Patient

Between April 2009 and December 2011, 160 patients underwent of TLC. 105 was with chronic cholecystitis. The group with acute inflamed gallbladder contains 55 patients - 30 (54.5%) was with chronic exacerbated cholecystitis and 25 (45.4%) with acute cholecystitis – 18 with phlegmonous cholecystitis and 7 with gangrenous cholecystitis. Average age of 35 women (64%) and 20 men (36%) was 58 years (range: 21-81), average ASA status 2.5 (range: 1-4).

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Surgical technique

The our own modified version of SILC technique have been described in another study [5]. In brief we use a single continuous incision within the umbilical folds, 2 ports placed trough the incision (one 10 mm and one 5 mm) and a single 10-mm 30° camera. The concept of retracting sutures through the abdominal wall was applied to achieve a good exposure of the gallbladder and triangulation. We transfix the infundibulum of the gallbladder with 2 or 3 bites in a figureof-eight fashion, with one end of the suture passed through the abdominal wall at the midline and the other at the anterior axillary line. This allows retracting the gallbladder in desired lateral direction by maneuvering different ends of the suture, thus greatly facilitating the exposure. When necessary, more retracting sutures can be passed in a similar way. This technique helps overcoming difficulties in exposure when adhesions or inflammation are present. The other steps of the procedure are similar to standard LC. In cases of large stones, we cut the fascial bridge between ports to remove the gallbladder and always close the fascia with sutures.



Fig. 1. Ports in place.

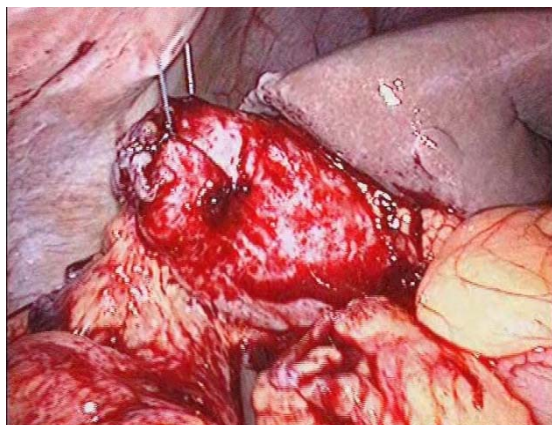


Fig. 2. Fundal retraction by stitch.



Fig. 3. Dissection in Calot's triangle.

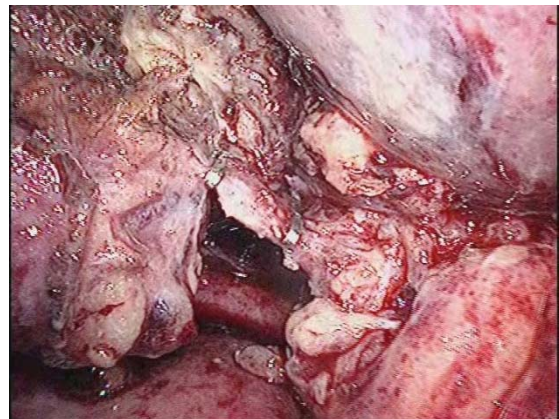


Fig. 4. Cystic duct is dissected, isolated and doubly clipped

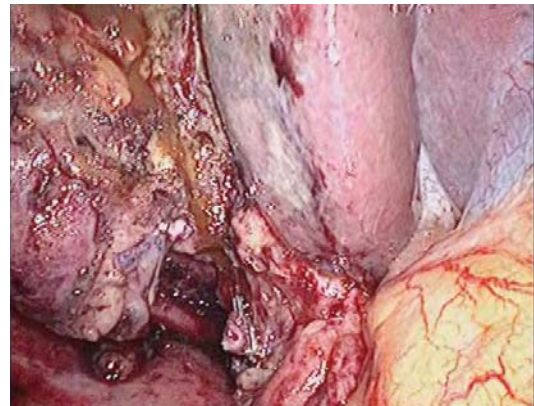


Fig. 5. Cystic duct is divided.



Fig. 6. Cosmetic results

RESULTS

Single-incision surgery was successfully performed in 51 (93%) patients with acute inflamed gallbladder. Two patients (3.9%) required conversion to a standard laparoscopic cholecystectomy and two patients (3.9%) to an open procedure. Mean operative time was 78 minutes (range: 50-130). There was wound infection in 2 (3.6%) patients and one laparoscopic reoperation on the occasion of subhepatic and Douglas' abscess. There was no mortality.

DISCUSSION

Recently published literature[6-10] about single-port or single-incision cholecystectomy includes in most cases only patients with chronic gallbladder disease. Up to now, a large series of more than 100 patients in a single-center does not exist. In spite of the rapidly-growing development and application of single-incision surgery, this technique is still not the new standard. This might be the reason why surgeons do not operate on patients with acute cholecystitis via a single incision. Experience is lacking. We introduced the single-port technique as the new standard in October 2008 and because of our rapidly-growing knowledge and number of cases, we were not afraid of operating on the first patients with acute inflammation of the gallbladder. In most cases, the limited view is acceptable without risk for the patient.

The results of this study suggest that TLC can be safely performed in cases with AIC. Our technique permits performing TC with conventional instruments without adding additional cost to the procedure. In contrast several different multichannel ports and/or specially designed instruments are used in most of the currently proposed techniques for TC. The latter ultimately add additional cost to the procedure. On the other hand our technique spares two ports and graspers used in standard LC, thus is more cost-effective compared with standard technique.

There were 2 conversions to SLC and 2 conversions to laparotomy. The two conversions to a SLC are at the beginning of the period under review, in the first patients with phlegmonous cholecystitis, empyema and pericholecystitis and are part of a learning curve. The conversions to a laparotomy are in cases with gangrenous cholecystitis. The conversion rate to an additional port or the

multi-port technique was between 0% and 33% in former studies and 3.9% in our population.[9, 10, 11] The conversion rate to an open procedure for single-port surgery is quite low in the literature, at 0 to 2%.[9, 10, 11, 12] Some researchers have suggested that the conversion rates are higher in diabetics. [15, 16] One of our patients with conversion to open cholecystectomy was diabetic. A review of the complication rates after single-site surgery in the literature shows percentages between 0 and 5%.[6, 11, 13, 14] Most complications are hematomas or seromas and can be treated conservatively. Major complications such as bile duct or vessel injuries are very rare and below 1%. In our study there was wound infection in 2 (3.6%) patients and one laparoscopic reoperation on the occasion of subhepatic and Douglas' abscess.

The cosmetic result was excellent in all of the cases as there were no scars left out the umbilicus.

CONCLUSION

Our modification of TLC technique was adequately safe and feasible for the treatment of acute cholecystitis. The longer operating time of TC was related with learning curve as in any other surgical procedure. The operation is simple and cost-effective when compared with standard LC. The main advantage of the TC remains the excellent cosmetic result leaving almost invisible scar within the umbilicus.

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