

Videolaparoscopic Cholecystectomy with Two Ports: Preliminary Report

ELTON FRANCISCO NUNES BATISTA¹, CARLOS ALBERTO DE CASTRO FAGUNDES²,
CRISTIANO DE SOUZA PINTO³, GUSTAVO ADOLFO PAVAN BATISTA⁴

¹. Member of Sobracil. TCBC. Adjunct Professor of the Department of Clinical Surgery – Center of Health Science of the Federal University of Espírito Santo – Discipline of Operative Technique and Experimental Surgery; ². General Surgeon and Proctologist – Hospital Dr. Dório Silva e Coordinator of the ATLS Program of Espírito Santo; ^{1, 2 e 3}. CIAS Surgeons – Centro Integrado de Atenção a Saúde (Unimed Vitória); ⁴. Physician

ABSTRACT

With unquestionable benefits the laparoscopic surgery begins a phase of reduction of accesses. After minilaparoscopy, now emerges the unique umbilical access and NOTES. These novelties are restricted to some Centers due to the high cost, difficulty to sterilize instruments, and necessity of new and intensive training. As these procedures are still in an experimental phase they are not surely for all professionals. Following the same line of study to reduce accesses, we are developing laparoscopic cholecystectomy with only two trocars (umbilical and subxiphoid) in which the surgery is almost scarless. This method is extremely simple and available to surgeons in any institution and it does not require another type of training besides the one that has been already obtained for laparoscopy. Moreover the same optical and surgical instruments are used, and at first it should only be performed in selected cases. The exposition of the gallbladder is simple and it can be accomplished using alternatives that are available in any surgical center. We were able to perform the proposed procedure with the same safety used with multiple ports access. With only six patients who were selected following the criterion of low weight for the initial selection of patients. The last patient did not follow our initial criterion of selection as the patient was a bit overweight. The operative time was between 30 and 50 minutes, basically the same mean time spend with multiple port accesses.

Key words: cholecystectomy, laparoscopic surgery, surgical technique and method, minimally invasive surgery.

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INTRODUCTION

Videolaparoscopic surgery has brought unquestionable benefits to patients as well as to surgeons. Benefits to patients because it offers with a small access the same possible operative techniques of the conventional surgery with considerable reduction of trauma and less organic repercussion mainly pain and infection. Avoiding large incisions have also brought cosmetics gain, reduced complication of the wall, better metabolic response to the surgical trauma and earlier return to work. To the surgeon the benefits elapse from less work with the patient due to reduce operative time, low incidence of postoperative interurrences, in spite of the possibility of earlier hospital discharge, which will give the surgeon more time for other activities.

As surgeons become more skilled and expert their horizons are enlarged and the innovations appear. Every day new facilitator methods, access alternatives

and forms of approaches that have never been imagined appear seeking to offer something new whose benefits are debatable. The innovation of the laparoscopic technique established in substitution to the conventional surgery was only satisfactory during the necessary time to break the barriers of contraindications and of restrictions of indication for certain diseases. Nowadays, the indications have multiplied new approaches alternatives are being introduced and discussed worldwide and the restrictions almost disappeared. When everything seemed to be already consolidated with time the surgeon started to worry again about incisions and forms of approaches and these aspects are on the agenda in every medical event. Once again the surgeon searching for artifices to improve what it has already been demonstrated to be very good.

So, to reduce incisions emerges minilaparoscopy that reduce the diameter of the instruments, the needlescopic cholecystectomy with

2mm instruments, the single port access that enables simultaneous passage of several instruments and NOTES, basically still experimental and that technically seeks to avoid abdominal incision. However, such innovations are restricted to certain institutions due to costs, instruments fragility, difficulty to sterilize instruments, and necessity of new and intensive training. Thus, it can be inferred that these recent novelties are available to few professionals.

To be available to a greater number of professionals, we are now developing the laparoscopic cholecystectomy technique with only two trocars (umbilical and subxiphoid) aided with the exposition of the gallbladder by external traction without incision. The surgical procedure with this method is almost scarless as well as extremely simple and accessible to any surgeon in addition this procedure does not demand training besides the one that has already been obtained for laparoscopy and the instruments used are the same habitual, either the optical or the work instruments. The exposition of the gallbladder is simple using alternatives that are available in any surgical center and the technique does not differ in anything from what it is already known and habitually practiced. At first it should be used only in selected cases.

SURGICAL TECHNIQUE AND METHODS

The patient is positioned in dorsal decubitus position, and fastened at the basis of the thigh to allow safe movement of the operative table during surgery. The operative fields are placed as usual. The umbilical port is performed using the open method to insert an 11 mm trocar and pneumoperitoneum is created with

an intrabdominal pressure limit of 12 mmHg. A 30 degree 10mm telescope is inserted to inspect the abdominal cavity and a second 6mm subxiphoid trocar is inserted under laparoscopic vision. All instruments necessary to the surgery are going to be used through this port as well as external ligatures as clips are not used. (Figure 1)

The following alternative methods were used to expose the gallbladder pedicle:

1) First a 2-0 thread with a 3 cm needle previously curved as a hook is inserted into the serosa at the fundus of the gallbladder. The next step is to insert a 40/12 needle in the first intercostal space above the right costal margin with a 0-looped nylon thread from where the extremity of the 2-0 thread will be retrieved. This port elevates the right lobe of the liver by the traction of the gallbladder fundus substituting the right flank forceps. The previous surgical maneuver is repeated and the other extremity of the thread is retrieved at the level of the right flank at the umbilicus. The hooked need is fixed in the infundibulo substituting the subcostal forceps. The extremities of both threads are maintained with clamping close to the skin. (Figures 2 and 3).

2) the other alternative is the introduction of a 2-0 thread directly to the wall, in the sites mentioned above. After the visualization of the needle, it is retrieved and exteriorized by the subxiphoid port to gain the shape of a hook and then the needle once again is inserted in the abdominal cavity repair the fundus and the infundibulo, respectively. This method is much simpler and quick; (Figure 4)

Whichever method is adopted to expose the gallbladder pedicle, the surgical procedure is traditionally performed using dissecting forceps,

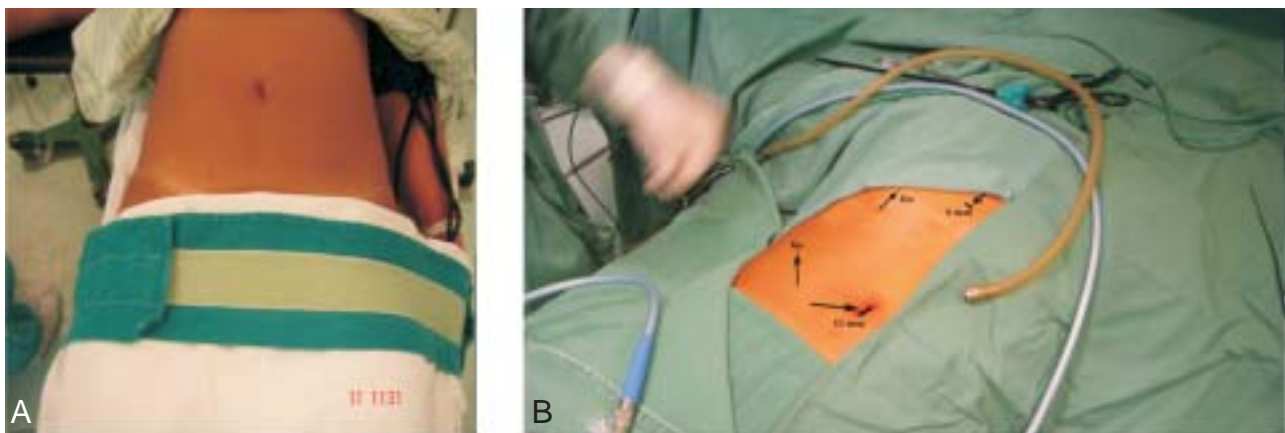


Figure 1 – a) Position on the table; b) Preparation of the operative field and references of the ports.



Figure 2 – Insertion of 40/12 needle with a thread loop to retrieve the 2-0 nylon thread.

scissors, hook and external knots pusher. The thread of needle that pulls the infundibulo is manipulated externally by the surgeon and the needle may be repositioned at any moment of the surgery in different parts of the gallbladder, while it has been removed from the liver bed (Figure 5).

Traction of the gallbladder fundus and infundibulo allows its pedicle to be well exposed which considerably facilitates the sequence of the dissection and hemostasis (Figure 6).

Our case series is still very little expressive because the method was only adopted in 6 patients. The criterion used for the initial selection of patients was low weight and in five patients the procedure was easily performed with the same safety used with multiple port access. The last patient was a bit overweight; therefore, we did not follow our initial



Figure 3 – a) Repair of fundus; b) Traction of the fundus and elevation of the hepatic lobe; c e d) Repair of the infundibulo.

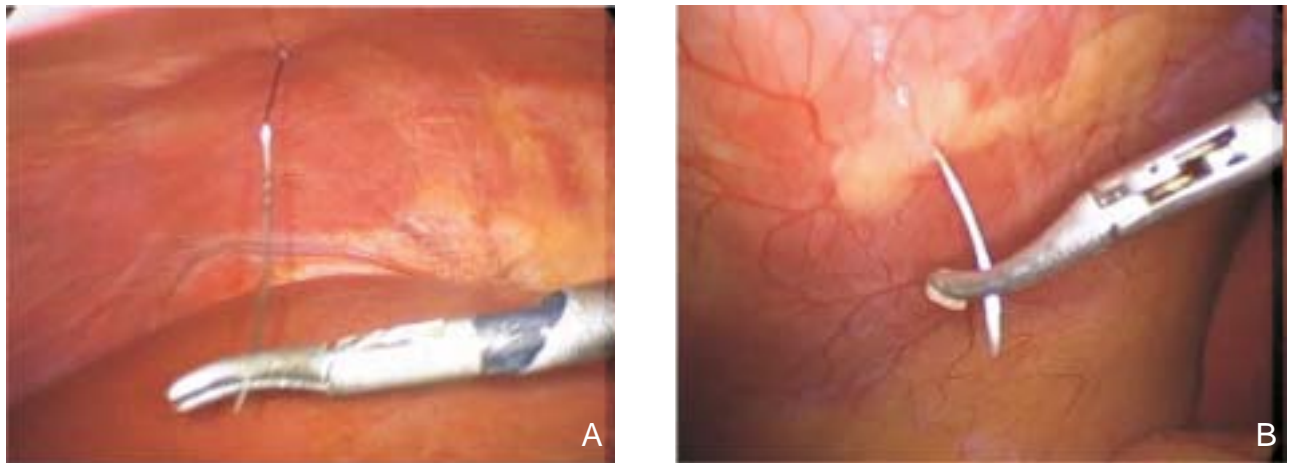


Figure 4 – a) Direct passage of the needle through the intercostal space; b) Passage of the needle through the flank.

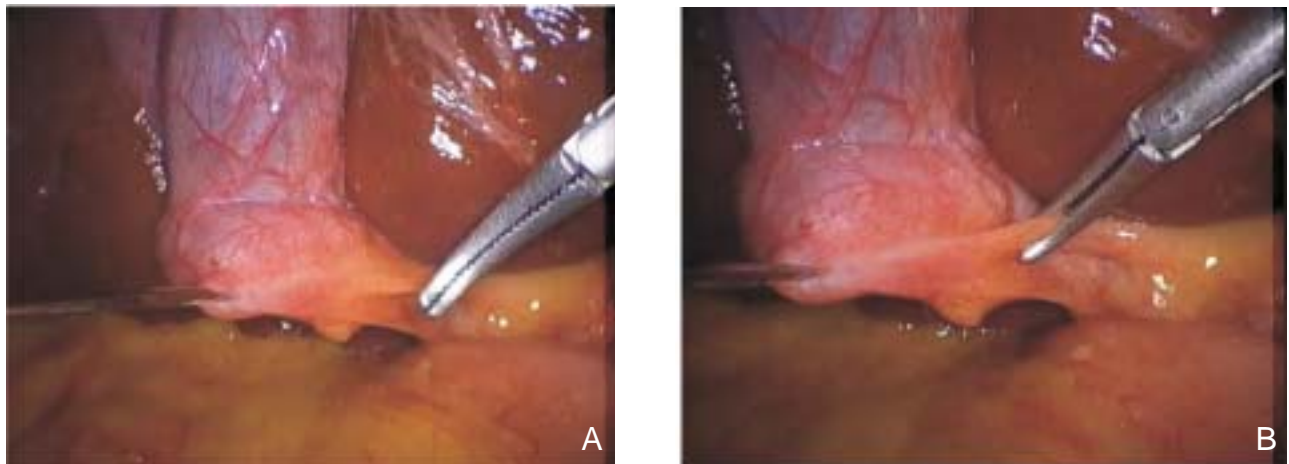


Figure 5 – a) Gallbladder tractioned by threads; b) Beginning of the dissection. Traction of the gallbladder fundus and infundibulo allows its pedicle to be well exposed which considerably facilitates the sequence of the dissection and hemostasis.

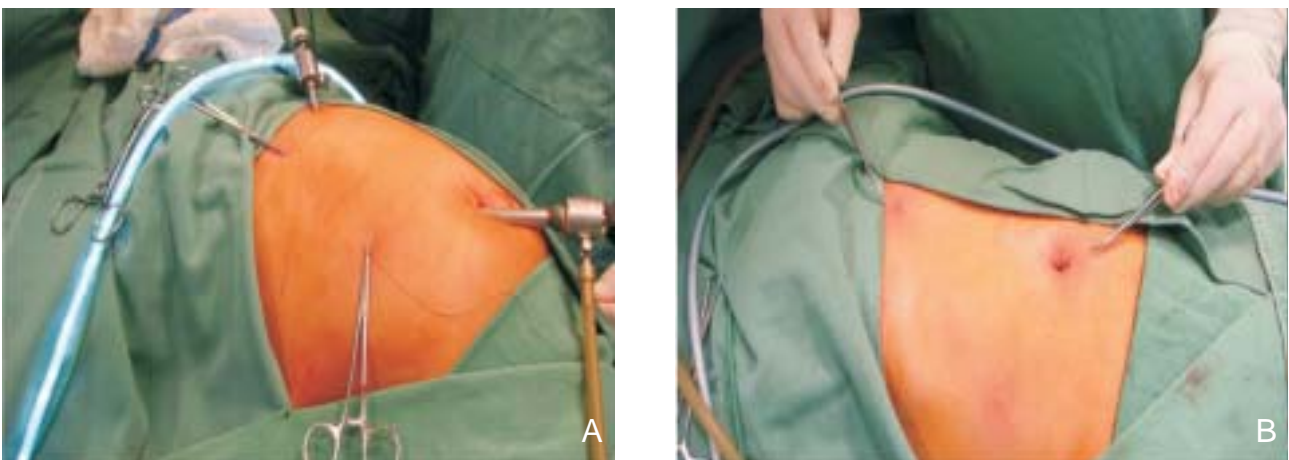


Figure 6 – a) External aspect of the trocars and traction threads; b) Final result: two small incisions.

criterion, there was not observed as well any technical difficulty. The operative time was between 30 and 50 minutes, basically the same mean time spend with multiple port accesses.

DISCUSSION

It is a fact that the benefits of videoendoscopic surgery are unquestionable. With small ports, it offers the same technical possibilities of the conventional surgery, minimizing the trauma of the wall and with less organic repercussion. Avoiding big incisions brought cosmetics gain, the complications of the abdominal wall almost disappear and it still allows an early return to work for the patient. Even with all these advantages the surgeon still search for ways to improve what it has been shown to be already very good. In order to reduce even more the incisions, it has emerged minilaparoscopy³ that uses instruments with small diameter (3mm), needlescopic cholecystectomy with 2mm instruments, the single port access⁵ which enable the passage of several instruments and NOTES⁴ that is still an experimental procedure that technically tries to avoid abdominal incisions. However, such novelties due to the elevated cost, the difficulty to sterilize instruments and the necessity of new and intensive are restricted to some institutions. So, it is evident that these innovations will only be available for few professionals.

The classical laparoscopic cholecystectomy uses the four ports technique. Some surgeons use only three trocars. In our routine, we have already been using in the majority of the cholecystectomies only three trocars (umbilical, subxiphoid and right subcostal) sometimes with the help of a small traction of the gallbladder fundus to elevate the lobe of the liver. Nowadays, we are developing laparoscopic cholecystectomy with only two trocars with external traction of the threads. It was not observed any major technical difficult regarding the sources of exposition. The difficulties have been the same when compared to the multiple accesses previously adopted. Our experience is with only six surgeries with no complications and the fact that not every patient was thin.

The external control of the thread has already been suggested to expose the pedicle in other surgeries. Batista¹ and cols have demonstrated the versatility of the external control of threads and the simplicity that this resource offers to splenectomy

which was considered a surgery with a high degree of difficulty. For cholecystectomy, the method presented is initially suggested for selected cases, and certainly it can be used by the majority of the surgeons that intend to reduce the number of incisions in this surgical procedure. The cholecystectomy performed with only two trocars is extremely simple and available to surgeons of any institution because it does not requires another type of training besides the one that has been already acquired for laparoscopy². The resources used for this technique are also simple and there has neither modification nor adaptation to the instruments habitually used. The exposition of the gallbladder may be done with simple alternative using the resources that are available in any surgical center. Besides, the technique does not differ from what is already known and habitually practiced in cholecystectomies with three or four trocars.

CONCLUSION

Laparoscopic cholecystectomy with only two ports accesses with incisions of 1.2cm in the umbilicus and 0.6cm subxiphoid easily allowed the surgery to be performed in the first six patients that the procedure was suggested. The criterion to select only thin patients (60 to 70kg of weight) was not observed in the sixth patient who was considerably overweight (over 85 kg) for the proposed method. There was not any complication and the duration of the operative time varied from 30 minutes to 50 minutes (mean time 44 minutes). Even so, we consider fundamental an adequate selection of patients and in case of difficulty we suggest the addition of more trocars.

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Correspondence address:

ELTON FRANCISCO NUNES BATISTA
Rua Dr. Antônio Honório, 75 – Bento Ferreira
29050-770 – VITÓRIA – ES
E-mail: eltonmed@yahoo.com.br
Home: www.elton.med.br