

First Totally Transumbilical Laparoscopic Cholecystectomy in the Middle East with Alokhdood's Technique

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Citation

A Al-Dowais. *First Totally Transumbilical Laparoscopic Cholecystectomy in the Middle East with Alokhdood's Technique*. The Internet Journal of Surgery. 2009 Volume 22 Number 1.

Abstract

Introduction: Laparoscopic cholecystectomy has become the gold standard for symptomatic cholelithiasis. The procedure is carried out through four ports; three- and two-port surgeries have been described. There is, as yet, no standard published technique for single-port access to the peritoneal cavity for single-site laparoscopic cholecystectomy. A new technique for laparoscopic cholecystectomy was used called Alokhdood's technique. Utilizing two laparoscopic ports placed through the umbilicus and 3 percutaneous stitches for retraction.

Materials and methods: A prospective study of 92 patients in King Khalid Hospital - Najran - Saudi Arabia. All patients were subjected to Totally Transumbilical Laparoscopic Cholecystectomy (TTLC) using two ports (10mm and 5mm) inserted through the umbilicus. **Results:** Single-site laparoscopic cholecystectomy was accomplished in 88 of the 92 patients. In 4 patients an additional port was used. Median operative time was 43 minutes. A subphrenic collection as a postoperative complication in one of the patients was treated conservatively. **CONCLUSION:** Totally Transumbilical Laparoscopic Cholecystectomy with Alkhlood's technique is a safe and effective alternative to standard laparoscopic cholecystectomy. It can be undertaken without the expense of added operative time and provides patients with minimal, if any, apparent scarring.

INTRODUCTION

Laparoscopic cholecystectomy is now accepted as the gold standard for the treatment of symptomatic cholelithiasis [1]. Traditionally, laparoscopic cholecystectomy has been performed with four ports either using the American or the French technique [2-3].

There has been a trend toward minimizing the number of incisions and ports required and this has led to the description of three- and two-port techniques of laparoscopic cholecystectomy.[4-5]

Laparoendoscopic single-site surgery (LESS) offers improved cosmetic results and aims for less pain and improved recovery.

This study was undertaken to evaluate our experience with TTLC with Alkhlood's technique .

MATERIAL AND METHODS

This prospective study included 92 patients, 70 females and 22 males (mean age: 37 years, ranging from 21 to 80 years).

All the patients were referred for cholecystectomy during a

7-month period (Dec. 2008 – Jun. 2009) carried out by TTLC by a single surgeon in King Khalid Hospital - Najran - Saudi Arabia.

Eighty-seven patients were operated as elective and five as acute cholecystitis.

All patients underwent TTLC with Alokhdood's technique. A pneumoperitoneum was established (Fig.1). Two ports of 5mm and 10mm, parallel to each other with a bridge of skin between them, were introduced through the umbilicus, one port for the 5-mm 30° laparoscope and the other one as working trocar. (Fig.2)

Figure 1

Fig. 1: Pneumoperitoneum created by Veres needle.

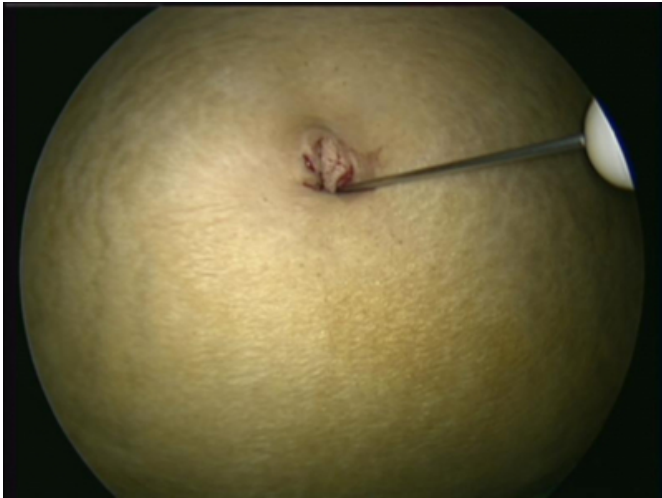


Figure 2

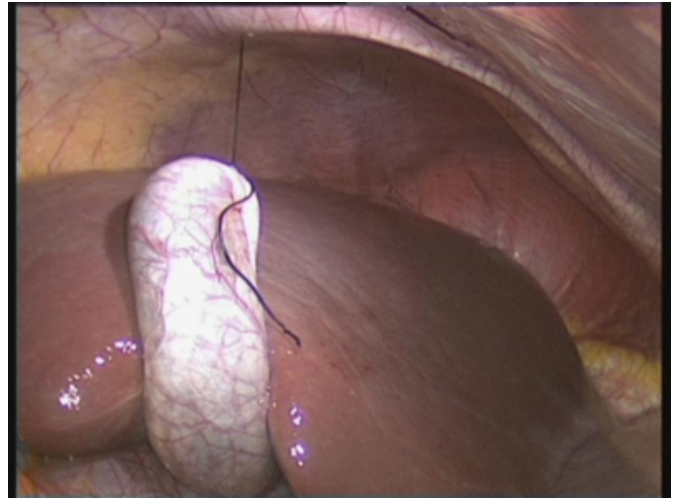
Fig. 2: Ports in place.



The gall bladder was retracted by passing 3 percutaneous stitches (fundus and body of Hartmann's pouch) using straight-needle 0-silk passing the first stitch in the last right intercostal space through the fundus. The stitch was secured with a knot by using a single needle holder to retract the gall bladder (Fig. 3).

Figure 3

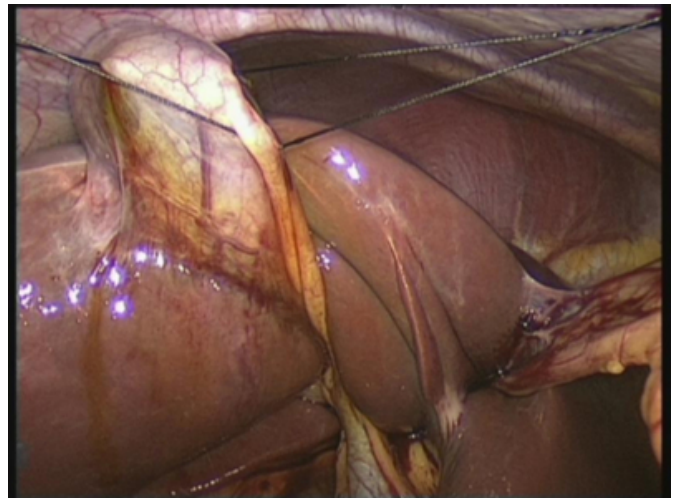
Fig. 3: Fundal retraction by stitch.



Calot's triangle was exposed by pulling the body and Hartmann's pouch using two stitches, one in the mid-clavicular line and the other one in the midline of the anterior abdominal wall (Fig. 4).

Figure 4

Fig. 4: Gall bladder retracted by 3 stitches



The two ends of each stitch were tied together over the anterior abdominal wall and pulled by an assistant controlling gall bladder retraction to the right or left side (Fig. 5).

Figure 5

Fig. 5: Stitches held by an assistant.



Dissection in Calot's triangle was carried out. Cystic duct and artery were dissected, isolated, doubly clipped and then divided separately (Fig. 6, Fig. 7).

The gall bladder was dropped into an endo-bag and removed through the umbilicus.

Figure 6

Fig. 6: Dissection in Calot's triangle.

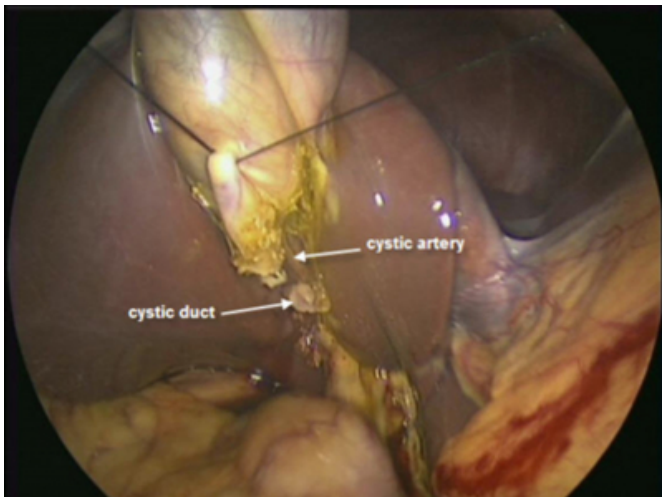
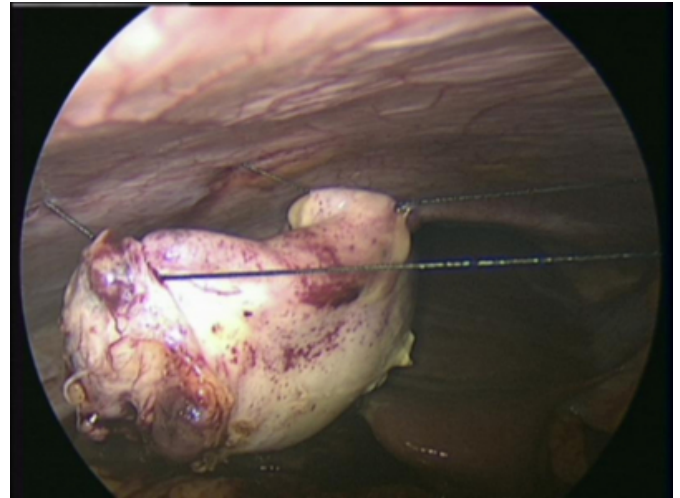


Figure 7

Fig. 7: Gall bladder completely separated and stitches still in place.



RESULTS

There were 70 female and 22 male patients. Age ranged from 21 to 80 years.

All the surgeries were uneventful. Laparoendoscopic single-site surgery (LESS), in this case laparoscopic cholecystectomy, was successfully performed in 88 of the 92 patients.

In 4 cases additional ports were necessary. Two ports in one case for retraction to control bleeding from the gall bladder bed and one port in the other cases. Drains were inserted in two cases; in the rest no drains were used.

The operating times ranged from 25 to 120min. for the cholecystectomies with an average of 43min. The times in the first 20 cases were compared to the other cases and decreased reaching 25 minutes after standardization of the technique.

The cystic duct was wide in two cases in which it was successfully double ligated by passing a loop and extracorporeal tying.

Blood loss ranged from 50 to 300cm³. There were no conversions to four-port or open surgery.

Post-operative complications: One patient operated for biliary pancreatitis was readmitted with right subphrenic fluid collection which was treated conservatively by antibiotics with chest physiotherapy and discharge after 3 days; follow-up ultrasound revealed resolution of the fluid.

There was no wound infection .There was no mortality.

The mean postoperative hospital stay was 1.2 (range, 1-2) days. Two cases were discharged on the day of the operation (Table 1).

For local analgesia, Marcain[®] was used. The analgesic requirement in most of the patients was one dose of diclofenac 75mg or pethidine 50mg post procedure; 5 patients did not require any analgesia, which was less than that required in our experience with four-port cholecystectomy, even though this was not a comparative study.

The scar is hidden in the umbilicus (invisible or scarless surgery).

Figure 8

Table 1: Study results

Age (mean)	37 years
Sex Female Male	70 22
Operative time (mean)	43 minutes
Hospital stay (mean)	1.2 days
Complications	1

DISCUSSION

Many important advantages of laparoscopic surgery are produced by preservation of the integrity of abdominal wall, including less operative trauma and complications and better recovery and cosmetics. [6]

The rapid improvement of laparoscopic techniques has evoked a surgical evolution. Scarless surgery is a rapidly

progressing field as it combines cosmetic and minimally invasive advantages. [7]

With the advent of natural-orifice transluminal endoscopic surgery (NOTES), and the acknowledged limitations of the current technology, single-port access (SPA) has emerged as a viable and more widely applicable minimally invasive technique.

Unfortunately, access to a single port that allows for SPA has been limited to small numbers of academic centers.

Entering the instruments through a single port led to clashing. [8] We minimize or avoid that by inserting two trocars through separate incisions.

A literature review showed that no paper was published before for transumbilical laparoscopic cholecystectomy in the Middle East.

As with all new technology, patient selection is paramount during the initial period of one's experience. [9]

The additional needle or a stitch to hold up organs is frequently used in natural orifice transluminal endoscopic surgery (NOTES) and was not considered an additional port. [10]

Traction of the gall bladder by 3 stitches gives more exposure to Calot's triangle, more than in the previously reported transumbilical cholecystectomy technique.

Searching the literature for transumbilical laparoscopic cholecystectomy techniques showed that others use single incision with TriPort or single 2cm incision and insertion of three 5mm trocars or single incision with two trocars of 5mm with the help of traction produced by thin Kirschner wires.

The Alokhdood's technique discussed here is the first of its kind that has been used successfully at our institution and can add to the procedures already published in the literature with advantage of being cosmetically well accepted by all patients.

The quest for scarless surgery has driven endoscopists and surgeons alike to NOTES, but NOTES has its inherent problems. The procedure of single-port cholecystectomy provides the same benefit of scarless surgery as the incision is well hidden in the umbilical cicatrix, which in itself is an

embryological natural orifice making us wonder whether this should be termed as E-NOTES or E-NOS.[8]

We believe transumbilical laparoscopic cholecystectomy will be driven by consumer demand, and therefore, laparoscopic surgeons will need to become proficient with LESS procedures.

CONCLUSION

In total, Transumbilical Laparoscopic Cholecystectomy with Alokhdood's technique is a safe and effective alternative to standard laparoscopic cholecystectomy. It can be undertaken without the expense of added operative time and provides patients with minimal, if any, apparent scarring.

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