

Single incision laparoscopic surgery (SILS) cholecystectomy. A novel technique

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Rezumat

Colecistectomia laparoscopică prin incizie unică. O tehnică nouă

Prezentare: De la începutul anilor nouăzeci, colecistectomia laparoscopică a devenit standardul de aur pentru colecistectomie. De asemenea, tendința de de minimizare a traumatismului chirurgical încurajează utilizarea unor abordări noi în chirurgia laparoscopică. O abordare inovatoare, cum ar fi colecistectomia laparoscopică prin incizie unică (Sils) a fost descrisă.

Raport de caz: Raportăm cazul unei femei de 33 de ani programată pentru colecistectomie laparoscopică electivă, datorită litiazei biliare simptomatice confirmată ecografic. O singură incizie de 2.5 cm infraumbilicală a fost folosită. Pneumoperitoneul a fost stabilit după introducerea trocarului în prealabil. Colecistectomia retrogradă a fost efectuată fără a suspenda fundul colecistului. Evoluția postoperatorie a fost lipsită de complicații.

Discuții: Acest articol exemplifică metoda autorilor de efectuare a colecistectomiei laparoscopice prin incizie unică. Abordarea Sils este fezabilă cu noi dispozitive standard din industrie care oferă instrumente ușor modificate față de cele utilizate în colecistectomia laparoscopică standard.

Concluzii: Chirurgia laparoscopică prin incizie unică este o

modalitate fezabilă pentru a efectua colecistectomia. O curbă de învățare și studii clinice randomizate controlate sunt necesare pentru a investiga avantajele acestei tehnici noi.

Cuvinte cheie: colecistectomie laparoscopică, incizie unică

Abstract

Introduction: Since early nineties, laparoscopic cholecystectomy has become gold standard for cholecystectomy. Also, a high tendency of minimizing surgical trauma encourages the use of new approaches in laparoscopic surgery. A novel approach such as Single incision laparoscopic surgery (SILS) cholecystectomy has been describes.

Case report: We report on a case of a 33-year-old female patient scheduled for elective laparoscopic cholecystectomy due to symptomatic ultrasonography verified cholelithiasis. A single 2.5-cm long semicircular infraumbilical skin incision was used. Pneumoperitoneum was established after introduction of the predesigned trocar. Antegrade cholecystectomy was performed without stay suture placement. Postoperative course was uneventful.

Discussion: This article reports the authors' method of performing SILS cholecystectomy. SILS approach is feasible with new standard devices from the industry that offers slightly modified instruments for standard laparoscopic cholecystectomy.

Conclusion: Single-incision laparoscopic surgery is a feasible way to perform cholecystectomy. A learning-curve is required and further work in the form of randomized controlled trials is needed to investigate the advantages of this new technique.

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Introduction

Improvements of the laparoscopic techniques have allowed surgeons to perform complicated abdominal surgery with minimal trauma. Many operations have already been standardized, even for treating cancer. A new era has been opened with recent innovations that have pioneered the use of single-incision laparoscopic surgery (SILS). This novel technique may be located between the pure NOTES surgery, the hybrid NOTES surgery and the standard laparoscopic surgery (1). It seems to reduce the trauma of surgical access with its improvement of the postoperative pain and patient cosmetics.

Case Report

We do describe a 33 years old patient without any medical data of interest, with cholelithiasis. The patient was diagnosed as a result of acute repeated abdominal pain. We performed an ultrasound that showed cholelithiasis with mild inflammation of the gallbladder wall. The biliary tract did not present any increase of its calibre. The patient underwent elective SILS cholecystectomy. The patient was under general anesthesia and placed supine. The surgeon stands between the legs of the patient and the assistant on the right. Infra-umbilical transverse incision of 2.5 cm was made. Dissection of the subcutaneous tissue and posterior section of the fascia in the midline to enter the abdominal cavity in a length of 2 cm was performed. We used a trocar currently manufactured for this purpose (Triport®, Advanced Surgical Concepts, Wicklow, Ireland). Pneumoperitoneum is performed to 12-13 mmHg. We used a 10 mm lens, 30° for the completion of the intervention. Chronic cholecystitis was found with a hydropic gallbladder. It was decided to partially empty the gallbladder by puncture and aspiration for a better mobilization. With an articulated grasper (Roticulator EndoGrasp W / Lock, Covidien, Autosuture®) in the right hand, the Hartmann's pouch was pulled to open the triangle of Calot. With his left hand we were working with the straight monopolar hook and articulated dissector (Roticulator EndoDissect, Covidien, Autosuture®) for identification of the cystic duct and cystic artery. He made the dissection of Calot's triangle, with clipping of the cystic duct and artery. The cholecystectomy was performed also aided by a 1,5 mm grasper introduced in the right upper quadrant, which facilitated of the suspension of the gallbladder. The gallbladder was removed in a plastic bag. Monopolar coagulation was performed in the vesicular area. Umbilical orifice was closed with individual sutures. The surgical time was 100 minutes. There were no postoperative complications. The aesthetic result was correct.

Discussion

Laparoscopic cholecystectomy has been recognized since 1992

as the gold standard procedure for gallbladder surgery. Also, many surgical research groups have developed new surgical technique called Natural Orifice Translumenal Endoscopic Surgery (NOTES) (2). Although numerous problems are now analysed regarding this method, several articles about the human application have been published, such as the first cholecystectomy (3). In order to find solutions of a certain extent, new techniques have been developed (hybrid NOTES, NOTUS, SPS, SLIS, etc). Transvaginal-assisted cholecystectomy has also been described (4). Although these could not eliminate difficulties completely, they do provide some solutions in many cases. It seems reasonable to think that the benefits of transition from standard laparoscopic approach to SILS will not be as obvious as was the transition from open to laparoscopic cholecystectomy.

However, many authors have described a single-incision laparoscopic (SILS) cholecystectomy as a step toward less invasive surgical procedures (5).

Some authors have recently published their experience in which the dissection is performed as a normal retrograde cholecystectomy using an Endoshear roticulator in the left trocar and an Endograsp roticulator in the right hand, such in our patient (6). However, straight monopolar may be used to dissect the Calot's triangle even with the right hand. Postoperative management is similar to standard laparoscopic cholecystectomy. In terms of complications, a biliary leak from an accessory duct of Lushka has already been reported (7). All authors have found SILS cholecystectomy to be feasible, safe, and effective (5-8).

Many authors have found a decrease of the operating time, from more than even 3 hours to 50 minutes and other authors have an average operative time of 162 minutes (8).

SILS approach has also been used in other elective procedures such as hernia repairs (9) or even in paediatric urology (10). It has also been described its utility in emergency surgery for the treatment of the acute appendicitis (11).

Some authors have tried to encourage the use of these minimally invasive techniques according to the risk of bleeding, organ damage and incisional hernia of the trocar placement. However, it cannot be overstated that every additional incision and trocar placement such risks.

SILS approach is feasible with standard and slightly modified instruments for standard laparoscopic cholecystectomy, thus posing minimal additional challenge to the laparoscopic surgeon. Accordingly, we believe that the use of this approach for cholecystectomy is worthwhile.

Recent technologic development has enabled the wider acceptance of new approaches in laparoscopic surgery such as SILS cholecystectomy. All recent data show that the technique is feasible, safe, but will require new randomized studies in order to clarify its indications.

Conclusion

Single-incision laparoscopic surgery is a feasible way to perform cholecystectomy. Many authors have reported their previous

experience. Further work in the form of randomized controlled trials is needed to investigate the advantages of this new technique.

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