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นิพนธ์ต้นฉบับ **Original Article**

Single-incision Laparoscopic Cholecystectomy: Results in Nakhonpathom Hospital

การผ่าตัด ตัดถุงน้ำดี โดยการส่องกล้องแบบแผลเดียว ในโรงพยาบาลนครปฐม

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ABSTRACT

Laparoscopic cholecystectomy is now standard treatment of gallstone disease and has traditionally been performed using multiple small sites. Single incision laparoscopic surgery has emerged as an alternative technique to improve cosmesis and minimize complications associated with multiple incisions like pain and longer hospital stay. From January 2010 to December 2012, twenty patients were operated by SILS-C technique. Surgical indication, operative time, length of stay and surgical complications were recorded.

In conclusion, the Single Incision Laparoscopic Cholecystectomy (SILS-C) resulted in less surgical scars, good cosmesis and less pain. The SILS-C can be used as a standard procedure

Keywords : Laparoscopic cholecystectomy, Single Incision Laparoscopic Cholecystectomy (SILS-C)

บทคัดย่อ

ในปัจจุบันการรักษาโรคนิ่วในถุงน้ำดีโดยการผ่าตัดส่องกล้องถือเป็นมาตรฐานโดยผ่านการเจาะรูที่ช่องท้องจำนวน 3-4 รู การผ่าตัดส่องกล้องเพื่อตัดถุงน้ำดี โดยผ่านแผลหน้าท้องขนาดเล็กเพียงหนึ่งแผลได้ถูกพัฒนาขึ้นเพื่อลดภาวะแทรกซ้อนที่เกิดจากการมีแผลผ่าตัดหลายแผล เช่น ความเจ็บปวดที่บริเวณแผลผ่าตัด การศึกษานี้เป็นการศึกษาผลของการผ่าตัดตัดถุงน้ำดีโดยการส่องกล้องแบบแผลเดียว ในช่วงเดือนมกราคม พ.ศ. 2553 ถึง เดือนธันวาคม พ.ศ. 2554 โดยเปรียบเทียบข้อบ่งชี้ในการผ่าตัด ระยะเวลาในการทำผ่าตัด จำนวนวันนอนโรงพยาบาลและภาวะแทรกซ้อนที่เกิดขึ้นระหว่างการผ่าตัดทั้งสองชนิด

โดยสรุป การผ่าตัดส่องกล้องเพื่อตัดถุงน้ำดีโดยผ่านแผลหน้าท้องขนาดเล็กเพียงหนึ่งแผล มีแผลเป็นเกิดน้อยกว่า มีความสวยงามของบาดแผลดีกว่าและผู้ป่วยมีการเจ็บปวดแผลหลังผ่าตัดน้อยกว่าการผ่าตัดส่องกล้องตัดถุงน้ำดีแบบมาตรฐาน

คำสำคัญ: การผ่าตัด ตัดถุงน้ำดี โดยการส่องกล้องแบบแผลเดียว

Introduction

Laparoscopic cholecystectomy has been performed since 1985, and throughout the next two decades this procedure became the standard of care for gallbladder disease.[1] Laparoscopic cholecystectomy has traditionally been performed using multiple small incisions/port sites. Single incision, or single-site, laparoscopic surgery has emerged as an alternative technique to improve cosmesis and minimize postoperative pain that associated with multiple incisions. The first published report of a single skin incision laparoscopic cholecystectomy was by Navarra in 1997.[2] Several studies have shown the safety and feasibility of SILS cholecystectomy (SILS-C).[1-9] We planned and carried out this study to assess the safety and feasibility of SILS-C using SILS instruments and compare the early morbidity parameters between SILS-C and conventional laparoscopic chollecystectomy (CLC). Primary endpoints were length of stay, operative time and postoperative pain score.

Materials and methods

From January 2010 to December 2012, twenty patients were operated by SILS-C technique performed by a single surgeon. All patients were informed about the surgery in detail and a written informed consent was obtained. The inclusion criteria were (a) symptomatic cholelithiasis and (b) American Society of Anesthesiology grade I or II. The exclusion criteria were (a) American Society of Anesthesiology grade > II and (b) a lack of written consent. History or presence of symptoms or signs of acute cholecystitis or pancreatitis or excess body mass index (BMI) were not included as exclusion criteria for categorizing patients into either of the groups.

Operative Technique

All operations were carried out under general anesthesia in reverse Trendelenberg position with the right side tilted upwards.

Single Incision Laparoscopic Surgery-Cholecystectomy (SILS-C)

The umbilical curvilinear incision was made then Single Incision Laparoscopic Surgery (SILS) port was introduced by open technique through Alexis wound retractor. Three 5 mm. SILS ports and curvable grasper, dissectors were used. The Hartmann pouch was then retracted laterally with a grasper and the cystic duct and the cystic artery were dissected after establishing the critical view of safety. The cystic duct and artery were clipped and transected. The gallbladder was dissected from

the liver bed and bleeding was stopped until satisfied then the gallbladder was extracted along with SILS port.

Results

From January 2010 to December 2012, 20 patients underwent SILS-C. Results are summarized in Table 1. The average age of the patients was 46.65 ± 10.29 years. Indications for the operation were shown in the Table 2. None of the SILS-C surgeries required conversion to a traditional technique, nor did any patient require conversion to an open technique.

The average length of stay was 2.60 ± 0.88 days after SILS-C. Operative time was 65 minutes in average to complete a SILS-C (range 35-141). When comparing surgeries performed at a teaching institution, there was no trend in increasing operative time. No operative complications were noted in any patient. The patient who had undergone SILS-C was re-admitted 17 days postoperatively with midepigastric pain, nausea and vomiting. She was diagnosed with a urinary tract infection but was not found to have any biliary complications. Follow up was

Table 1 Results for patients undergoing single incision laparoscopic cholecystectomy

Variable	Single incision (n = 20)
Age (years)	46.65 ± 10.29
Length of stay (days, range)	2.60 ± 0.88
Operative time (minutes, range)	65 (35-141)
Readmissions (n)	1
Analgesic injection (pethidine:mg)	81 ± 36.55
Postoperative Pain score	1.71 ± 1.8

Table 2 Indications for cholecystectomy in patients undergoing a transumbilical single incision laparoscopic procedure

Indication	Single incision (n = 20)
Acute cholecystitis	1
Chronic cholecystitis	5
Symptomatic cholelithiasis	14
Biliary pancreatitis	0

limited to one to two postoperative office visits. No complications were noted in this period.

Discussion

The length of hospital stay was 2.60 ± 0.88 days inaverage. These results are not similar to those of Joseph et al.[5] who noted that the mean postoperative hospital stay for SILS-C patients was 12.7 hours shorter than that of 4PLC patients.[5] These result may from all of our patients were admitted. Although we did not study the time to normal activity, others reported that patients undergoing SILS-C tended to return to normal activity earlier than those undergoing CLC.[6]

Similar to other studies, operative time was significantly longer in the SILS-C group than in the CLC group. The mean operative time for SILS-C was 65 (35-141) minutes longer. According to Greaves and Nicholson, the average difference in operative times among other studies is 12 minutes.[7] Longer operative times are likely related to technical difficulties and a learning curve inherent in a new technique.[3] In this study, operative times that significantly deviated from the mean were often due to difficulties such as placing the gallbladder in the retrieval bag, performing a cholangiogram, dealing with severe inflammation of the gallbladder. SILC is technically difficult due to poor ergonomics, theorized decreased visualization and inadequate retraction due to limitation of movement.[8] However, much of this difficulty is overcome with experience of both the surgeon and the assistants.

In this study, we found no difference in pain score and complications from literatures but used less analgesic. A recent systematic review showed no statistically significant difference in complication rates or postoperative pain scores for those undergoing SILS-C versus CLC.[10] However, Phillips MS, et al.[11] published a study that showed higher pain scores for those undergoing SILS-C, but no difference in analgesic use between SILS-C and CLC patients. They also reported higher rates of superficial wound complications after SILS-C. With larger incisions in the fascia and a longer skin incision, there is a theoretical increased risk of incisional hernias. In a series of 125 patients with follow up as long as 22 months, Cui reported that no patient had presented with an incisional hernia.[12] Follow up in our study was limited to 6 weeks; however, we noted no incidence of incisional hernia or wound complications.

In conclusion, the Single Incision Laparoscopic Cholecystectomy (SILS-C) resulted in less surgical scars, good cosmesis and less pain. The SILS-C can be used as a standard procedure

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