Taiwanese Journal of Obstetrics & Gynecology 56 (2017) 467–471

Contents lists available at ScienceDirect

Taiwanese Journal of Obstetrics & Gynecology

journal homepage: www.tjog-online.com

Original Article

Laparoendoscopic single-site myomectomy using conventional laparoscopic instruments and glove port technique: Four years experience in 109 cases

Szu-Yu Chen [a], Bor-Ching Sheu [b], Su-Cheng Huang [c], Wen-Chun Chang [b, *]

[a] From Dianthus MFM Clinic, Taiwan
[b] From Department of Obstetrics and Gynecology, National Taiwan University Hospital, National Taiwan University College of Medicine, Taipei, Taiwan
[c] From Department of Obstetrics and Gynecology, Buddhist Tzu Chi General Hospital, Taipei, Taiwan

ARTICLE INFO

Article history:
Accepted 28 July 2016

Keywords:
Laparoendoscopic single-site
Myomectomy
Glove port
Pregnancy

ABSTRACT

Objective: To report a single surgeon's experience with 109 laparoendoscopic single-site myomectomy (LESS-M) using conventional laparoscopic instruments and a homemade glove port system.
Materials and methods: A total of 109 consecutive women who underwent LESS-M between March 2011 and April 2015 were reviewed.
Results: The mean age and body mass index were 38.3 ± 6.5 years and 22.1 ± 3.0 kg/m^2. The mean diameter of the largest myoma and the mean number of myomas were 8.1 ± 2.4 cm and 1.6 ± 0.7. The mean weight of the myomas was 223.2 ± 159.7 g. The most common type of myoma was intramural (61%), followed by subserosal (23%), submucosal (9%), and intraligamental (7%). The most common site of the myomas was anterior (39%), followed by posterior (38%), lateral (15%), and fundal (9%). The mean operative time and estimated blood loss were 138.5 ± 43.8 min and 104.9 ± 270.1 mL. Two patients (1.8%) required intraoperative transfusion. The mean hospital stay was 2.5 ± 0.6days. There were no conversions to laparotomy, but three patients(2.8%) were converted to two-port laparoscopic myomectomy. No patient experienced any major complication, including bowel, ureter, bladder injuries, or incisional hernia. Six women became pregnant after the operation, and five of these patients delivered their babies at full term by cesarean section. One patient delivered her baby at a gestational age at 32 weeks due to idiopathic polyhydramnios by cesarean section. One patient had the second pregnancy and delivery after LESS-M. Fourteen patients (12.8%) had small recurrent myomas that did not require treatment.
Conclusion: LESS-M is a feasible alternative for patients with symptomatic myomas, and this technique can provide cosmetic advantages compared to conventional laparoscopic surgery.

Introduction

With technical improvements and increasing experience, surgeons are decreasing the number of abdominal incisions and visible scars. Laparoendoscopic single-site surgery (LESS) is a new technique for hysterectomy, adnexal surgery, and myomectomy with a small amount of scarring and good cosmetic results. Decreased postoperative pain and analgesia requirements have also been reported in patients receiving LESS compared to conventional laparoscopic surgery [1,2]. However, LESS is not widely available because of the technical difficulty of the procedure, including reduced visualization, loss of triangulation and instrument interference [3,4]. Laparoendoscopic single-site myomectomy (LESS-M) is more difficult than other surgical techniques because it requires extensive suturing and knot tying, as well as extraction of relatively large tissue specimens through the umbilicus. A homemade glove port laparoscopic system has been reported to decrease trocar collisions with no additional cost to the use of conventional laparoscopic instruments [5,6].

A few articles describing the LESS-M technique were published in the late 2010s [7,8]. The small number of published studies seems to be related to the technical difficulty of suturing and tying while performing LESS-M, thereby limiting its wide application [9–14]. However, these studies showed the feasibility and safety of LESS-M with small case series. In addition, there is a lack of data on

* Corresponding author. Department of Obstetrics and Gynecology, National Taiwan University Hospital, 7 Chung-Shan South Road, Taipei, Taiwan.
E-mail addresses: p91421014@ntu.edu.tw, yayafish@gmail.com (W.-C. Chang).

http://dx.doi.org/10.1016/j.tjog.2016.07.016

obstetric outcomes. In this study, we evaluated the operative outcomes of 109 cases of LESS-M using a homemade glove port laparoscopic system to decrease trocar collisions, and to suture the myometrial wound by extracorporeal tying with a knot pusher to overcome the difficulty of intracorporeal suture tying. In addition, we report the pregnancy and obstetric outcomes of six patients.

Materials and methods

Subjects

Between September 2011 and April 2015, we recruited 109 consecutive patients with uterine myomas who were initially scheduled to undergo LESS-M, performed by a single surgeon (SYC) with 10 years of experience in multiport laparoscopic surgery, at Cathy General Hospital in Taiwan. Before the procedure, all patients were fully informed of the characteristics of the operation and the possibility of requiring conversion to an open procedure or conventional laparoscopic surgery. All patients signed written consent form. The IRB approval was obtained from the Cathy General Hospital. Exclusion criteria for the minimally invasive approach were the same as for traditional laparoscopic surgery. Women with a history of severe adhesions or suspected gynecologic malignancy underwent laparotomy.

Laparoscopic techniques

Laparoscopy was performed under general anesthesia with endotracheal intubation. The participants were placed in the Trendelenburg position for the procedure. A Foley catheter was inserted into the bladder and kept in place for 24 h. A uterine manipulator was fixed to allow for uterine movement in women with sexually active.

The glove port laparoscopic technique was performed as previously reported [5,7]. Briefly, a single 1.7-cm longitudinal umbilical skin incision was made. The entry into the peritoneal cavity and incision in the fascia were extended using small Kelly forceps, enabling 2-cm access to the abdomen without extending the skin incision. To prepare the glove port system, an Alexis wound retractor (Applied Medical, Rancho Santa Margarita, CA) was inserted transumbilically, and the outer rim was draped with a No. 7 surgical rubber glove. Three 5-mm trocars were inserted into three fingers of the glove and sealed with 3M™ tape (Fig. 1A). CO_2 was insufflated through the side hole of a 5-mm trocar to maintain an intra-abdominal pressure of 12 mmHg. The surgical instruments used for the procedure were rigid 5-mm, 0-degree laparoscopes, standard rigid atraumatic forceps, toothed grasper, myoma screw, scissors, laparoscopic needle holder, suction-irrigation system, and electrosurgical Ligasure system (Dolphin Tip 37 cm Laparoscopic Instrument, LS1500) (Covidien,Valleylab, Boulder, CO, USA). The surgeon stood on the left side of the patient, and an assistant surgeon stood on the right side of the patient and manipulated the rigid scope through the 5-mm umbilical port with their left hand.

LESS-M was performed after the injection of 30–50 mL diluted vasopressin (Pitressin, Pfizer, Karlsruhe, Germany) (20 U/mL diluted in 100 mL saline) into the myoma bed. A transverse incision was made in the myometrium using dolphin-nose tip Ligasure (Fig. 1B) and deepened until the myoma surface appeared. Myoma enucleation was performed with traction using a 5-mm myoma screw or claw forceps, and the capsule was separated from the myoma using Ligasure (Fig. 1C).

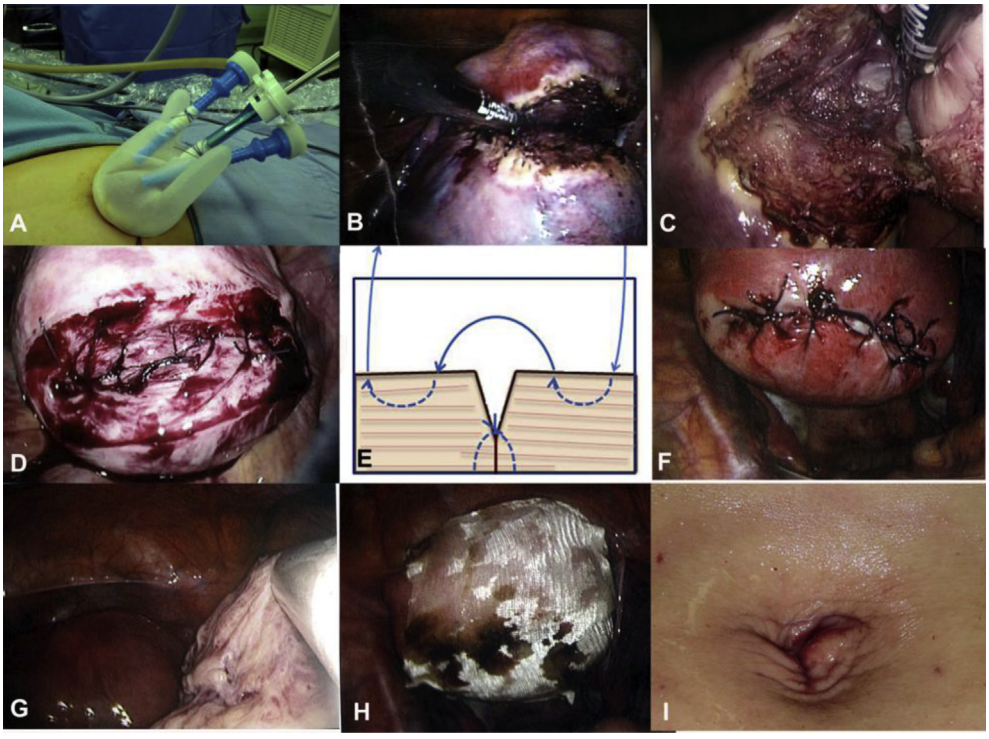

Fig. 1. A. Ports were positioned as shown. The laparoscope was inserted through a 5-mm port with CO_2 insufflated through the side hole of a 5-mm trocar. **B.** A transverse incision was made on the myometrium using a dolphin-nose tip Ligasure and deepened until the myoma surface appeared. **C.** Myoma enucleation was performed by traction with a 5-mm myoma screw or claw forceps, and the capsule was separated from the myoma by Ligasure. **D.** The myometrial wound was repaired with two layers of interrupted extracorporeal sutures using a conventional knot pusher. **E, F.** The outer layer was sutured using the technique proposed by Keckstein. **G.** Enucleated myomas were extracted through the umbilical incision using a 12-mm electromechanical morcellator. **H.** After meticulous hemostasis and thorough wound cleansing, an adhesion barrier was applied. **I.** The skin was sealed with DERMABOND® Mini Topical Skin Adhesive.