Single-port laparoscopic bilateral uterine arteries pre-ligation, cesarean scar pregnancy resection, and lower uterine segment repair plastic surgery

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Abstract: A 29-year-old female patient had menopause for 42 days and a β-HCG blood test of 22,874.00 mIU/mL. Three-dimensional (3D) color ultrasonography indicated an approximately 3.5 cm × 1.2 cm × 1.2 cm gestational sac in the middle and lower uterine segment. The lower edge of this gestational sac was at the left antetheca incision at the lower uterine segment, and it rose toward the serosal surface. There were rich successive blood flow signals between the gestational sac and the left antetheca incision at the lower uterine segment. The thinnest part of the left antetheca incision was about 0.2 cm. We performed bilateral uterine artery pre-ligation, cesarean scar pregnancy resection, and lower uterine segment repair plastic surgery under single-port laparoscopy. Three days after the operation, blood reexamination of β-HCG was 1,968.00 mU/mL, and 1 week after discharge, it was 100.00 mU/mL.

Keywords: Single-port laparoscopy; cesarean scar pregnancy; pre-ligation of bilateral uterine artery

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Introduction

Single-port laparoscopy is an operation mode that uses the natural channels of the human body as the entrance and conceals surgical incision with skin wrinkles, leaving almost no incision scar (1). Single-port laparoscopy relieves patient pain, preserves therapeutic effect, and has good cosmetic results which are satisfying particularly for younger patients. Single-port laparoscopy has been widely applied in minimally invasive gynecological operations, including oophorocystectomy, hysterectomy, myomectomy, and even pelvic lymph node dissection (2,3). However, the application of single-port laparoscopy in the treatment of cesarean scar pregnancy has not been widely reported. In our patients, we performed bilateral uterine artery pre-ligation, cesarean scar pregnancy resection, and lower uterine segment repair plastic surgery under single-port laparoscopy (*Figure 1*).

Surgical technique

The patient was given a tracheal cannula and put under general anesthesia. The patient was then asked to take a position with the head low and the hips high or in a horizontal position. The longitudinal incision at the middle of navel was about 1.5–2 cm long, the single-port access platform was inserted into the abdomen under direct view, and CO_2 was injected. Pneumoperitoneum pressure was maintained at 10–12 mmHg. A broad ligament was opened in the triangular region consisting of the adnexa, iliac vessel, and round ligament (*Figure 2*). An elastic separating plier was inserted slowly. The space from the anterior and posterior lobes of the broad ligament to the base was opened gradually to search the uterine artery, and the ureter was searched and confirmed upon observing arteriopalmus (*Figure 3*). The uterine artery was dissociated at 0.5–1 cm outside of the bilateral ureter, and a #7 wire was applied for pre-ligation of the bilateral uterine artery (slip knot) (*Figure 4*). Hypophysin 3U was injected into the uterine to perform the uterine curettage. Next, the vesico-uterine peritoneal reflection was opened, and the bladder was pushed downward in order to expose and cut the

Figure 1 This video describes the technique of single-port laparoscopy, including bilateral uterine artery pre-ligation, cesarean scar pregnancy resection, and lower uterine segment repair plastic surgery (4).
Available online: http://www.asvide.com/watch/33035

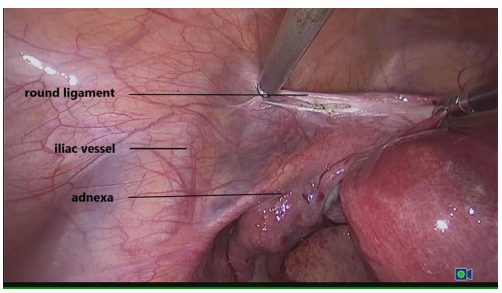

Figure 2 Opening the broad ligament in the triangular region.

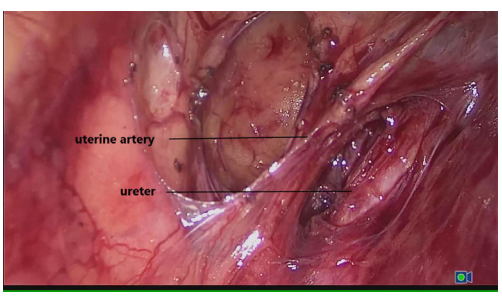

Figure 3 Dissociating the uterine artery.

incisional pregnancy mass (*Figures 5*,*6*). The uterine incision edges were trimmed (*Figure 7*), and this was followed by continuous suture of 2 layers of the uterine incision and bladder reflected peritoneum (*Figure 8*). Finally, the slip knot at the bilateral uterine artery was untied, and the wire was taken out (*Figure 9*). The pelvic cavity was rinsed, and the umbilical region was stitched (*Figure 10*).

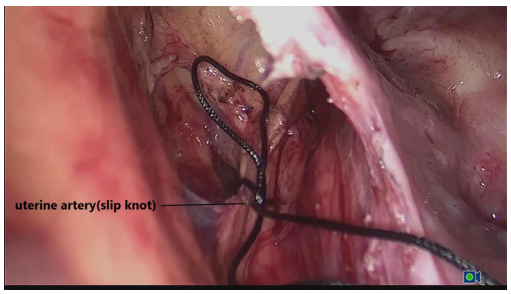

Figure 4 Pre-ligation of the uterine artery.

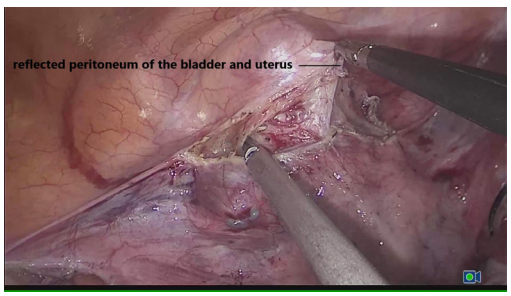

Figure 5 Opening the reflected peritoneum of the bladder and uterus.

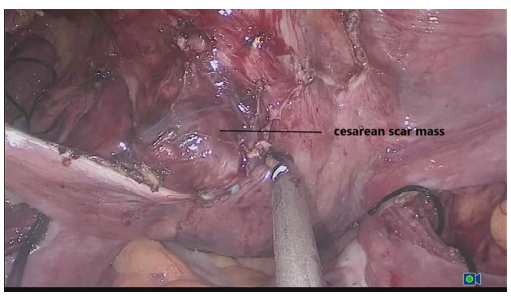

Figure 6 Cutting the incisional pregnancy mass.

Comments

This was a type II cesarean scar pregnancy, and the operation involved cutting the uterine scar tissue while eliminating pregnancy residues. Meanwhile, a repair of the anterior wall of the inferior uterine segment was performed, and the normal anatomical structure was recovered. During the operation, pre-ligation of the uterine artery was performed to reduce bleeding in a short period. Moreover, laparoscopic surgery is conducive to relieving the operative wound. Research has demonstrated that single-port laparoscopy has many advantages compared with traditional laparoscopy, including the relief of post-operation pain, a

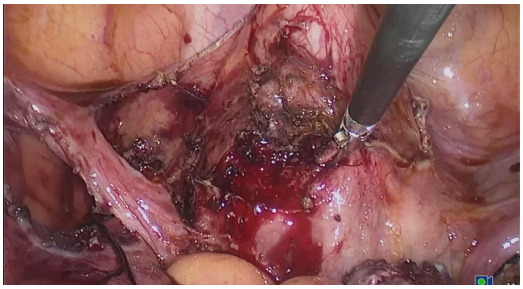

Figure 7 Trimming the edges of the uterine incision.

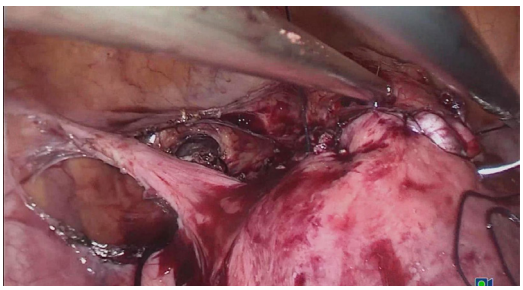

Figure 8 Suturing the uterine incision.

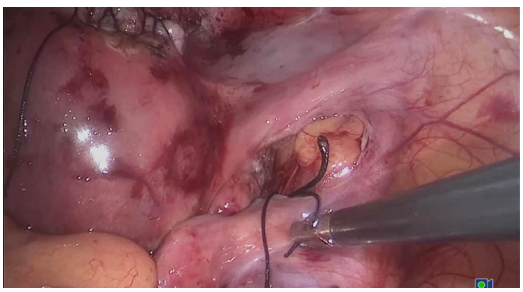

Figure 9 Untying the slip knot.

smaller risk of incision infection, and the better cosmetic effect of a minimally invasive surgery (5).

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee(s) and with the Helsinki Declaration (as revised in 2013). Written informed consent was obtained from the patient for publication of this manuscript and any accompanying images.

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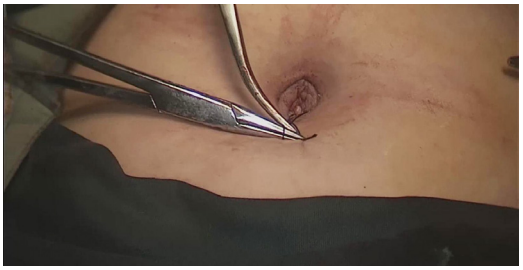

Figure 10 Stitching the navel for good cosmetic outcome.

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