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Original Article

Laparoscopic Modified Sacral Hysteropexy: Initial Experience With an Original Surgical Approach to Uterovaginal Prolapse

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ABSTRACT **Study Objective:** To evaluate the feasibility of a modified laparoscopic approach to correct uterovaginal prolapse using cervical cerclage tape to attach the uterine isthmus to the sacral promontory.
Design: Retrospective study (Canadian Task Force classification III).
Setting: Tertiary referral center.
Patients: From January 2011 to February 2013, 33 patients underwent laparoscopic modified sacral hysteropexy with use of cervical cerclage tape at West China Second University Hospital. All patients had stage 2 to 4 uterovaginal prolapse according to the Pelvic Organ Prolapse Quantification System.
Measurements and Main Results: The outcome was assessed via preoperative and postoperative pelvic examinations, and the surgical results were evaluated. The mean operative time was 90.0 minutes, and blood loss was 80.5 mL. No intraoperative or postoperative complications occurred. At the minimum 6-month follow up, all patients had prolapse of stage I or lower.
Conclusions: After larger trials are performed to assess the safety and efficacy of this modified laparoscopic sacral hysteropexy, this novel approach might be considered as an alternative treatment option in patients with uterovaginal prolapse. Journal of Minimally Invasive Gynecology (2014) 21, 431–435 © 2014 AAGL. All rights reserved.

Keywords: Laparoscopy; Sacral hysteropexy; Uterovaginal prolapse

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Uterovaginal prolapse is a worldwide health issue for women, with an 11% lifetime risk of a woman undergoing surgery to treat pelvic organ prolapse [1]. Although prolapse is not a life-threatening condition, it causes serious discomfort and diminishes the quality of life. Uterovaginal prolapse results from a level 1 pelvic floor defect and is hypothesized to be a defect in the integrity of the uterosacral–cardinal complex [2].

The predominant surgical options for treatment of level 1 pelvic floor defects include sacral hysteropexy, sacrocolpopexy, sacrospinous ligament fixation, and high uterosacral ligament suspension. Sacral hysteropexy attaches the cervix to the sacral promontory using artificial materials. It is a feasible and effective procedure for correcting uterine prolapse without recourse to hysterectomy [3]. The procedure repairs the entire uterosacral ligament from the cervix to the sacral promontory. The vaginal axis remains unchanged, and the uterus is restored to an acceptable anatomical position. Sacral hysteropexy is considered by many pelvic reconstructive surgeons to be the optimal standard for treatment of uterovaginal prolapse.

A modified method of sacral hysteropexy is described herein. We attached the uterine isthmus to the sacral promontory using Mersilene tape (Ethicon, Inc., Somerville, NJ), which is typically used to perform cervical cerclage. We used the tape to perform uterine isthmus cerclage. Mersilene tape has a preloaded needle that enables a circumferential attached hysteropexy and provides markedly easier suturing, which decreases operative time. Mersilene tape is an inexpensive artificial material that decreases the cost of surgery cost. Herein we report our initial experience with

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laparoscopic modified sacral hysteropexy with short-term follow-up.

Materials and Methods

Patients

This retrospective study was approved by our institutional review board. From January 2011 to February 2013, 33 patients underwent laparoscopic modified sacral hysteropexy using Mersilene tape at West China Second University Hospital. Patient selection for the procedure was made on the basis of the following inclusion criteria: stage 2 to 4 uterovaginal prolapse and anterior or posterior prolapse less than stage 2, according to the Pelvic Organ Prolapse Quantification System (POP-Q); no cervical or uterine lesions; no urinary stress incontinence; desire for uterine preservation; no desire for future fertility; no previous prolapse surgery; and no contraindications to laparoscopic surgery. Surgical and all other available medical records for these patients were evaluated. A standardized preoperative pelvic examination was performed by an experienced gynecologic surgeon. The pelvic organ prolapse stage of each patient was quantified according to the POP-Q system [4]. POP-Q data were recorded preoperatively and postoperatively.

Surgical Procedure

All patients completed bowel preparation before surgery. Patients were placed in the Trendelenburg position. A Foley catheter was placed in the bladder after a uterine manipulator was fixed on the cervix. The first 12-mm port was placed at the inferior margin of the umbilicus to introduce the 10-mm laparoscope. Two 5-mm ports were inserted on each side of the McBurney point under direct laparoscopic observation.

Step 1

The uterovesical fold of the peritoneum was opened using an ultrasonic scalpel. The vesicocervical space was identified, and the bladder was mobilized from the anterior cervix. A 5-mm Mersilene tape was introduced through the 5-mm port, and the needle was grasped using a laparoscopic suture carrier. The needle was passed through the left broad ligament medial to the uterine artery and then through the anterior uterine isthmus, with the bladder mobilized inferiorly (Fig. 1A). Any bleeding from the uterine isthmus was controlled using bipolar electrocoagulation. The tape was then passed through the broad ligament medial to the uterine artery on the other side. Then the other needle on the tape was passed through the posterior uterine isthmus. The tape completely encircled the uterine isthmus. The needles were cut, and the tape ends were tied on the right side of the posterior uterine isthmus (Fig. 1B). Of note, the tape ends were tensioned to fit moderately but not tightly around the uterine isthmus. The uterovesical fold of the peritoneum was closed using an absorbable suture (PDS II–0; Ethicon).

Step 2

An ultrasonic scalpel was used to incise the presacral peritoneum, starting from the promontory up to the right uterosacral ligament, to create a tunnel to the site of tape insertion. Sacral dissection exposed the anterior longitudinal ligament and the middle sacral vessels. The tail of the tape was modified for length and attached using a nonabsorbable suture (Ti-Cron 2–0; Ethicon) to the anterior longitudinal ligament below the promontory of the sacrum. It should be noted that a gap of 1 cm must be left between the promontory and uterine isthmus so that the tape is only moderately stressed. Then the posterior peritoneum was closed over the tape using an absorbable suture (PDS 2–0) (Fig. 1B).

Results

Thirty-three patients underwent laparoscopic modified sacral hysteropexy using Mersilene tape. Patient baseline demographic and preoperative clinical characteristics are given in Table 1. Mean patient age was 57.2 years, and the median number of vaginal deliveries was 2; mean body mass index was 24.3; and 72.7% of the women were postmenopausal. Two patients (6.1%) were smokers. Diabetes mellitus was present in 21.2% of patients, and hypertension in 24.2%.

Fig. 1

(A) Preloaded needle on Mersilene tape is passed. **(B)** Surgery is completed through the anterior uterine isthmus.