



Transvaginal uterus sling: the easier way to treat apical pelvic organ prolapse in elderly women (#468)

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INTRODUCTION

The Pelvic organ prolapse (POP) is a life-quality-impaired dysfunctions in women. There will be about 5 million women in U.S. affected by POP by 2050(1). The prolapse of vaginal apex is defined as the descent of uterus or cervix when they are in existence or prolapse of vaginal cuff after hysterectomy(2). In the past, hysterectomy was a common procedure for the treatment of POP, however, studies have shown that the hysterectomy was related to recurrence and various complications compared to the uterus-sparing procedure which was associated with improved post-operation sexual function and higher satisfaction (3,4). In addition, more patients preferred to accept uterine preservation rather than hysterectomy, because of femininity, sexuality, personality, and self-esteem (5). There are now several options for reconstruction with either synthetic or autologous prosthesis. However, FDA has banned the use of commercial transvaginal mesh kits for the treatment of POP in 2019, due to potential risks, including erosion and mesh exposure. Although sacrocolpopexy were recommended as the gold standard for treating apical vaginal prolapse, the potential risk of complications should not be neglected. And it is also not novice-friendly for the steep learning curve. Thus, the aim of this study was to introduce a new uterus-sparing surgery, Transvaginal Uterus Sling (TVUS), and report our preliminary results.

METHODS

This is a prospective interventional study. The study was started in September 2021, and the enrollment is ongoing. The objective cure was defined as the nadir of prolapse not exceeding the level of hymen.

Inclusion criteria

- Age > 65 years
- Patients with atrophic postmenopausal uterus
- Patients with apical pelvic organ prolapse (POP-Q > II stage)

Exclusion criteria

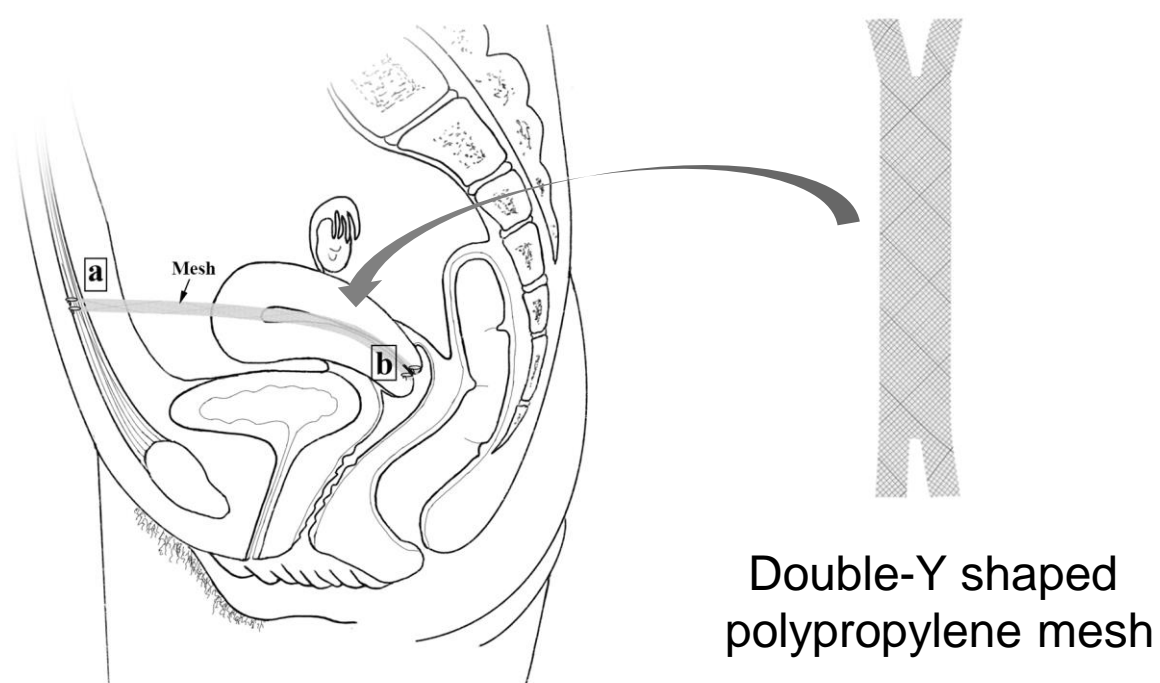
- Patients with a previous total or partial hysterectomy
- Patients with uterine diseases (e.g. fibroids, abnormal uterine bleeding and abnormal cervical cytology)
- Patients with previous surgical POP treatment or pelvic radiotherapy

Outcomes

- Objective cure rate, POP-Q score
- Improvement of quality of life: PFIQ-7, PFDI-20
- Surgical parameters and complications

SURGICAL TECHNIQUE

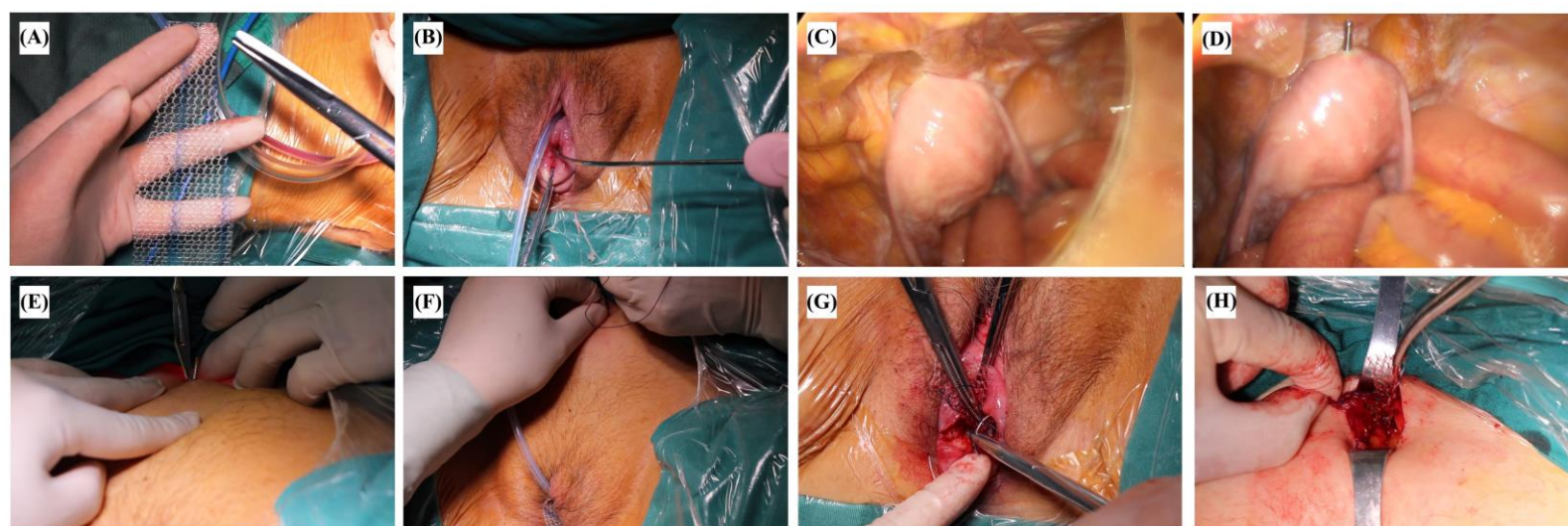
The aim of this procedure is to “push back” and “sling” the prolapsed uterus in pelvic cavity. The diagram illustrated the principle of this procedure: uterus is slinged in the pelvic cavity by a Double-Y shaped polypropylene mesh, with one end of the mesh fixed to the rectus abdominis sheath (a) and the other end fixed and embedded in the cervix (b).



SURGICAL TECHNIQUE

Key steps of the procedure

- A 10 x 15cm of polypropylene mesh was cut into a 10 x 2 cm Double-Y shape along the long axis (Figure-A).
- A customized needle was inserted into the uterine cavity through the cervix (Figure-B).
- The uterus was “pushed back” to pelvic cavity under laparoscopic surveillance (Figure-C).
- The needle was used to pierce through the myometrium (under laparoscopic surveillance), peritoneum, fascia, and skin at the level of Hunter's line (Figure-E).
- The self-cut mesh was placed in the created passage with the guide of the withdrawal needle (Figure-F).
- A transverse incision was made at the cervix and one end of the mesh was secured and embedded in the cervix with non-absorbable sutures (Figure-G).
- Adjust the height of the cervix and then fix the other end of the mesh to the anterior rectus sheath with non-absorbable sutures (Figure-H).



RESULTS

A total of seven patients were enrolled in this studies. Surgery was performed by an experienced surgeon (Dr. Hong Shen). Mean follow-up period is 3.4 months (range 1-6 months)

Demographics

- Mean age 78.1 ± 6 years
- Mean BMI 22.6 ± 3.3 kg/m²
- Mean value of C point of POP-Q system 4.4 ± 1.1 cm

Outcomes

- Objective cure rate **100%**
- Significant improvements in all POP-Q points ($p < 0.05$), of which the value of C point changed from baseline (4.4 ± 1.1 cm) to -8.9 ± 0.7 cm at visit.
- Significant improvements were observed in PFIQ-7 and PFDI-20 at visit ($p = 0.02$).
- Mean operative time was 56 ± 25.2 minutes (range 41-112 min), and mean blood loss was 10.7 ± 5.3 ml (range 5-20 ml).
- No intraoperative complications were observed. Most patients reported a dragging sensation at the skin puncture point within two weeks postoperatively, no intervention was required.

CONCLUSIONS

Our results showed that the Transvaginal Uterus Sling (TVUS) is effective and safe for the treatment of apical pelvic organ prolapse in elderly patients, which is characterized with high cure rates, minimal trauma, simple surgical procedures and few complications. We believe that the TVUS is a promising procedure to simplify uterus-preserving pelvic reconstruction for elderly female patients. Long-term efficacy and safety of this procedure is being observed.

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