Ischial spinous fascia fixation in the laparoscopic radical hysterectomy: a new surgical method to prevent pelvic organ prolapse

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Abstract: Radical hysterectomy has a profound effect on pelvic floor function and the quality of life of patients with cervical cancer. How to maximize the retention of sexual function and prevent pelvic floor dysfunction remains an issue worth discussing. Currently, the main prophylactic surgical treatment usually refers to the hysterosacral ligament suspension during benign hysterectomy, but there is a lack of research on how to prevent pelvic organ prolapse during radical hysterectomy. Peking Union Medical College Hospital performed the first such preservation surgery by applying an ischial spinous fascia fixation suture technique to suspend the vagina arch on the ischial spinous fascia. We present a surgical technique for ischial spinous fascia fixation in the laparoscopic radical hysterectomy. This surgery can reduce the incidence of vaginal wall prolapse as it is safe and feasible to suspend the vagina stump because the ischial spine fascia is dense and devoid of important blood vessels and nerves. The use of tissue-autografting helps to relieve prolapse symptoms and restore pelvic anatomy, hence maintaining the patient's sexual function. The prognosis of early cervical cancer is generally good. It is helpful to understand the incidence of pelvic floor dysfunction after cervical cancer surgery and to take targeted surgical preventive measures during the operation to improve the quality of life of patients. The prognosis of early cervical cancer is generally good. Understanding the incidence of pelvic floor dysfunction after cervical cancer surgery and taking targeted surgical preventive measures during surgery are helpful to improve the quality of life of patients. Ischial spinous fascia fixation is worthy of further promotion and validation.

Keywords: Ischial spinous fascia fixation; laparoscopic; radical hysterectomy

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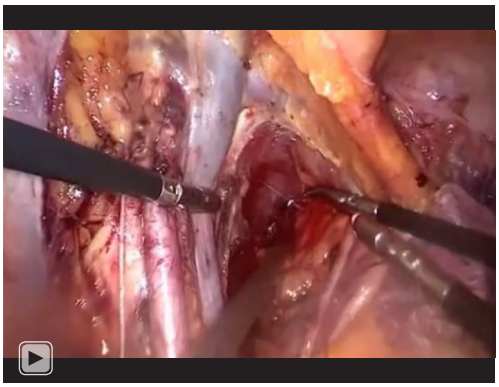
Introduction

The probability of requiring surgery for the pelvic organ prolapse following the extensive hysterectomy can be as high as 20–40.8%, and there has registered a low-ageing trend in recent years. Furthermore, the tendency of the prolapse in younger patients increases the demand for such preservation, highlighting the worth of surgical prevention of pelvic floor dysfunction and sexual function impairment (1). Peking Union Medical College Hospital pioneered this type of preservation surgery by applying an ischial spinous fascia fixation suture technique to suspend the vagina arch on ischial spinous fascia (2). As an impact fascia tissue free of important blood vessels and nerves, the ischial spinous fascia locates 1cm to the outer side of the most prominent point of the ischial spinous, an area featuring the converged point of the obturator internus, superior fascia of the pelvic diaphragm, the origin of the coccygeus, iliococcygeus, sacrospinous ligament, and the tendinous arch of levator ani, hence it becoming an ideal attach point for vagina arch. We present a surgical technique for ischial spinous fascia fixation in the laparoscopic radical hysterectomy. A total of



Video 1 Ischial spinous fascia fixation in the laparoscopic radical hysterectomy.

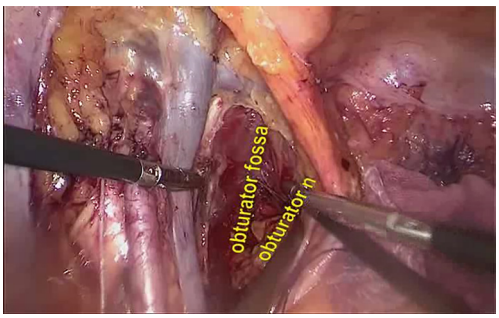


Figure 1 Exploring the anatomical structure of the obturator fossa.

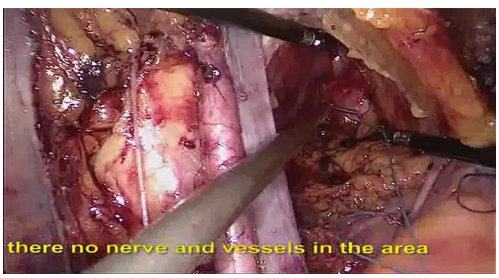


Figure 2 Exploring the anatomical structure of the ischial spinous fascia.

20 surgeries follow-up 3 yeas which had no uterine prolapse before operation have been completed successfully, with good postoperative recovery and no cases of relapse. This surgery video (*Video 1*) depicts a 38-year-old patient with IB1 adenocarcinoma of the cervix who underwent laparoscopic radical hysterectomy + bilateral salpingectomy + pelvic lymphadenectomy + bilateral ovarian transposition + ischial spinous fascia fixation. All procedures performed in this study 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 article and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

Surgical technique

Radical hysterectomy and pelvic lymph node dissection were routinely performed, Pull the lymphoid tissue above the internal iliac artery outward and downward to expose the internal iliac artery, separate and clean the internal iliac lymph group from the upper and outer sides, pull the external iliac vessels outward, and push the internal iliac vessels inward to expose the obturator fossa, and the focus of suspension was to expose the obturator fossa for the ischial spine fascia. Tissue is removed from the obturator fossa (*Figure 1*). The cranial border is the caudal wall of the external iliac vein. The dorsal border is the level of bifurcation of the common iliac vessels, medial to the paravesical space, formed by the lateral wall of the urinary bladder. The ventral border is the pubic bone together with the levator ani and obturator muscles, where the obturator nerve leaves the pelvis through the obturator canal. The lateral border is formed by the obturator internal muscle.

In detail, the Ischial spinous was exposed by cutting downward along the obturator fossa and the ischial spinous fascia was accurately located by palpating inside the anus in conjunction with the in-laparoscope pliers to facilitate full exposure of the fascia 1 cm to the outer side of the ischial spinous in the horizontal direction (*Figure 2*).

There are no nerves and vessels in the ischial spinous fascia that within 1 cm horizontally lateral to the most prominent point of ischial spine. The ischial spinous fascia was sutured with the No. 0 polyester non-absorbable (*Figure 3*), and the stitches were pulled to ensure tension as two knots were stitched (*Figure 4*). The needle was pulled out below the ureter (*Figure 5*), and the sutures were placed in the left corner of the vagina stump and the sacral ligament (*Figure 6*). The left corner of the vagina stump is suspended on the fascia of the left Ischial spinous. These steps outlined above are also performed on the right side (*Figure 7*).

All procedures performed in this study were in accordance with the Helsinki Declaration (as revised in

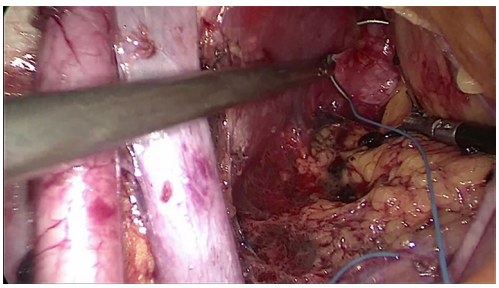


Figure 3 Suturing with one needle on the ischial spinous fascia.

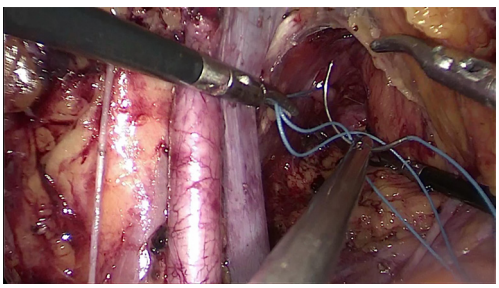


Figure 4 Pulling the stitches to ensure tension and stitching two knots.

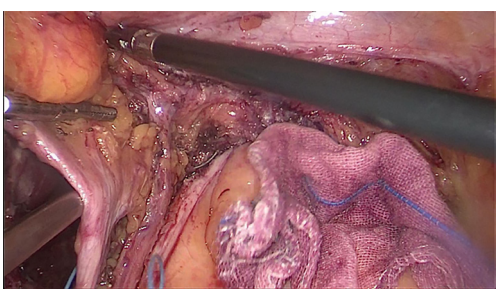


Figure 5 Pulling out the needle below the ureter.

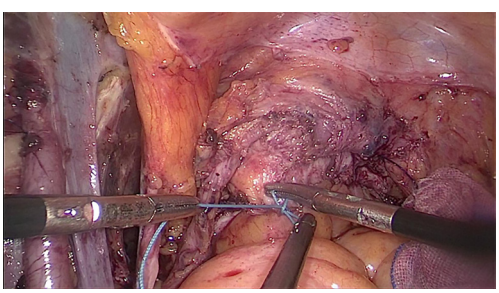


Figure 6 Suspending the vagina stump on the ischial spinous fascia.

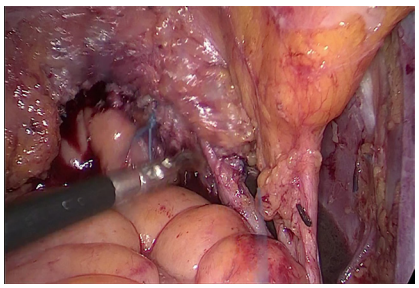


Figure 7 Repeating these steps above on the right side.

2013) and written informed consent was obtained from the patient.

Postoperative management

After the surgery, the vagina arch was suspended steadily and the elasticity of vaginal tissue is good. Three years later, the patient was able to resume a normal sexual life with the full sensation of vulvar straining feeling Meanwhile, gynecological examination revealed no prolapses of vaginal top and fornix, the result of Pelvic Organ Prolapse Quantification (POP-Q) staging was stage 0.

Comments

Ischial spinous fascia fixation has been shown to be a safe and effective alternative to sacrospinous ligament fixation for women with symptomatic stage 2 and 3 POP, and this surgery type is cited in international guidelines (3). Although vaginal surgery is the traditional approach, we recently have found that the ischial spine fascia could be easily exposed by laparoscopy combined with the vaginal examination. We should not only focus on the survival of early cervical cancer but also pay attention to those cancer patients' quality of life. As there are an increasing number of younger people are getting cervical cancer, it is incumbent upon us to address the problem of pelvic floor dysfunction caused by radical hysterectomy. We should make full use of the minimally invasive advantages of laparoscopy based on the new concept of pelvic floor anatomical structure and pelvic floor suspension, to prevent the occurrence of pelvic floor dysfunction following hysterectomy. The video shows clearly how to expose the ischial spine fascia and how to suture to ensure its tension.

Altogether, without the use of special surgical instruments, the surgical strategy substantially ameliorates the symptoms and improves the life quality significantly at low expenses, with a short operation time and minimal invasion. Meanwhile, it also avoids adverse reactions caused by human substitute implants. These advantages brought by this surgical strategy shed new light on improving life quality in patients with pelvic organ prolapse, and this kind of patient-friendly surgery can still be performed under inadequate facilities in the primary hospital.

Acknowledgments

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Footnote

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Conflicts of Interest: All authors have completed the ICMJE uniform disclosure form (available at https://gpm.amegroups.com/article/view/10.21037/gpm-22-8/coif). The authors have no conflicts of interest to declare.

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 this study 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 article and accompanying images. A copy of the written consent is available for review by the editorial office of this journal.

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