

# Observation on the Curative Effect of Laparoscopic Hysterectomy Plus Vaginal Stump Suspension in the Treatment of Uterine Prolapse

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**Abstract:** *Objective to explore the clinical value of laparoscopic assisted vaginal hysterectomy plus vaginal stump suspension in the treatment of uterine prolapse. Statistics of cases of uterine prolapse admitted in the gynecological ward of Yunfu People's Hospital from January 2021 to December 2022, Among them, 49 cases were treated as the study group with transvaginal hysterectomy+vaginal anterior and posterior wall repair+laparoscopic vaginal stump suspension through abdominal wall, 28 cases were treated as control group with traditional transvaginal hysterectomy and vaginal anterior and posterior wall repair. Record the operation time, intraoperative bleeding, hospital stay, etc. of the patient, and follow up after the operation, Measure the vaginal stump (POP - Q stage point C) and observe the position of vaginal stump (point C) after operation. Observe the position of vaginal stump (point C) after operation. Results The 49 patients were judged to be effective after operation, and the effective rate was 100%. They were able to have normal sexual life. During the follow - up, the patients had no vaginal stump prolapse, no vaginal anterior and posterior wall bulge, a small amount of bleeding at the vaginal stump, and the abdominal wall pulling sensation were corrected, without serious complications. Conclusion Laparoscopic assisted vaginal hysterectomy combined with vaginal stump suspension can effectively prevent vaginal stump prolapse and improve the postoperative quality of life of patients with uterine prolapse. The effect is satisfactory and worthy of clinical promotion.*

**Keywords:** Uterine prolapse; Vaginal stump suspension; point C; laparoscope

## 1. Introduction

Uterine prolapse refers to the inability to provide sufficient support for the uterus due to the relaxation and weakness of the pelvic fascia, ligaments, and muscles. The uterus descends from its normal position along the vagina, with the outer opening of the cervix reaching below the level of the ischial spine, and even the uterus completely protrudes beyond the vaginal opening. The anterior and posterior walls of the vagina are adjacent to the bladder and rectum, so uterine prolapse is often accompanied by multiple cavities and multi - level defects, and almost all of them are accompanied by more or less cystourethral and rectocele. Our hospital adopts laparoscopic vaginal stump suspension surgery, using surgical knot free suture to suture and fix the vaginal stump round ligament to the lower abdominal muscles and tunica vaginalis, to strengthen the postoperative pelvic floor tissue, prevent the vaginal stump and surrounding tissue from prolapse again, improve the patient's quality of life, and achieve good results. The method and efficacy are reported below.

## 2. Information and methods

### 2.1 Clinical data

Statistics were made on the cases of uterine prolapse admitted to the gynecological ward of Yunfu People's Hospital from January 2021 to December 2022. Among them, 49 cases were treated as the study group with laparoscopic hysterectomy+anterior and posterior vaginal wall repair+vaginal stump suspension through abdominal

wall, while 28 cases were treated as the control group with traditional vaginal hysterectomy+anterior and posterior vaginal wall repair. The surgical time, intraoperative bleeding, length of stay, and hospitalization expenses of the patients were recorded. Postoperative follow - up was conducted to measure the vaginal stump (POP - Q stage point C) and compare the position of the vaginal stump (point C) between the two groups of patients.

**Inclusion and Exclusion Criteria** Inclusion criteria: (1) Comply with the diagnostic criteria in Obstetrics and Gynecology; (2) Perform surgical treatment in our hospital; (3) The patient has no surgical contraindications; (4) Complete clinical follow - up data; (5) Patients and their families have informed consent, and all surgical patients have signed informed consent and surgical consent forms. Exclusion criteria: (1) Complication with malignant lesions and other diseases; (2) The patient has contraindications for surgery; (3) The patient and their family members do not agree to the surgical treatment plan.

### 2.2 Statistical methods

SPSS 19.0 statistical software was used to analyze the data. The measurement data were expressed as mean  $\pm$  standard deviation ( $\bar{x} \pm s$ ). The comparison between groups was conducted using t - test, and  $P \leq 0.05$  was a statistically significant difference.

### 2.3 Surgical methods

2.3.1 Vaginal surgery group (control group) Perform

traditional vaginal hysterectomy+anterior and posterior vaginal wall repair+repair of old perineal laceration.

2.3.2 Laparoscopic group (study group): Laparoscopic hysterectomy using energy instruments, After hysterectomy, the patient underwent vaginal surgery, vaginal suture of the stump, repair of the anterior and posterior vaginal walls, and repair of old perineal lacerations (the same as vaginal surgery). And then transferred to laparoscopic surgery, Under laparoscopy, absorbable knot free surgical sutures were used to ligate vaginal stumps (without penetrating the vaginal mucosa) and bilateral sacral ligament stumps,

Suspended retroperitoneal along the right round ligament to

the rectus abdominis aponeurosis. After tightening the suture and tying the knot, it can be clearly observed that the vaginal stump is 1 - 3 cm higher than before suspension. The skin of the right abdomen exhibits "dimples" due to traction.

### 3. Result

There was no significant difference in operative time and intraoperative bleeding between the two groups. The hospital stay and postoperative C - point position in the study group were both shorter than those in the control group, with a statistically significant difference ( $p < 0.05$ ), as shown in Table 1 and Table 2.

**Table 1:** Comparison of hospital stay, intraoperative bleeding between the two groups

Group	No. of cases	Hospital Stay (days)	Intra- operative bleeding
Control Group	28	15.82 ± 4.93	29.64± 18.56
Study Group	49	2.86 ± 2.04	29.56± 20.71
<i>p</i> - value		0.000	0.862

**Table 2:** Comparison of surgical time, cost and postoperative C - point position between the two groups

Group	Operation time (min)	Cost (yuan)	C-point position (cm)
Control Group	126.21±32.26	18532.21±4473.87	-5.11±0.76
Study Group	150.55±28.19	26720.27±2395.53	-6.05±0.99
<i>p</i> - value	0.644	0.017	0.031

The average operative time in the 49 study groups was 150.55 ± 28.19 minutes, and the intraoperative bleeding volume was 29.56 ± 20.71 mL. About 35 patients experienced chest pain and shoulder discomfort caused by residual gas after laparoscopic pneumoperitoneum. This is a common complication of laparoscopic surgery, which can be alleviated by chest and knee position, oxygen inhalation, and psychological counseling. Eight patients experienced a small amount of vaginal bleeding after surgery, which could be stopped after hemostasis treatment and removal of vaginal stump sutures. 22 patients felt uncomfortable during abdominal traction, and the symptoms gradually disappeared within 3 months after surgery. No serious complications occurred in all cases in the study group. In the control group, the average operation time was 126.21 ± 32.26 minutes, and the intraoperative bleeding volume was 29.64 ± 18.56 mL. Three patients experienced minor vaginal bleeding after surgery. Hemostasis treatment and removal of vaginal stump sutures were also performed to stop the bleeding. No serious complications occurred in all cases. The cost of hospitalization in the study group was significantly higher than that in the control group, which was considered to be related to the use of laparoscopic instruments, surgical procedures, and anesthetic methods. In the study group, 46 patients underwent bilateral appendectomy or double salpingectomy, of which 13 patients were pathologically diagnosed with hydrosalpinx, ovarian cysts, and other lesions. In the control group, no double appendectomy or salpingectomy was performed. In the control group, 10 patients received combined spinal and epidural anesthesia. All patients were followed up for 2 to 18 months on the location of point C, vaginal stump prolapse, and quality of life. During the follow - up, one patient in the study group

complained that she could significantly feel the rupture of the traction suture in the right lower abdomen, with the increase of point C less than 1 cm. The position of point C remained unchanged for the longest observation period of about 1 to 2 years. No patient experienced postoperative vaginal stump prolapse, and all patients were judged to be effective after surgery, with no treatment ineffective.

### 4. Discussion

Pelvic organ prolapse (POP) is caused by abnormal position and dysfunction of the pelvic organs caused by abnormalities in pelvic floor muscles and fascia tissue. The pathogenesis may be the gradual weakening of support tissue functions, resulting in gradual displacement and decline of pelvic organs, leading to abnormal organ position and function. The main clinical symptoms are prolapse of a mass at the vaginal orifice, which can be accompanied by urination, defecation, and sexual dysfunction, which can affect the quality of the patient to varying degrees. They worsen after prolonged standing, toileting, and heavy physical activity, and are related to age, infant birth weight at delivery, body mass index, number of vaginal deliveries, physical labor intensity, history of pelvic inflammatory disease, and ovarian function decline. As people age and their roles change, most patients with uterine prolapse experience a sense of loss of control caused by physical changes and vulva protrusions. Patients often exhibit inferiority complex, self - confidence, and fear of sexual intercourse causing pain or bleeding<sup>[2]</sup>. In addition, patients with uterine prolapse may suffer from cervical erosion or even bleeding due to long - term friction, which is usually accompanied by dysuria, stress urinary incontinence, and

even urinary retention, acute renal failure, etc., bringing double pain to patients physically and mentally, and seriously affecting women's health and quality of life<sup>[3]</sup>.

There are various methods for treating vaginal prolapse, including conservative treatment and surgical treatment. Conservative treatment includes pelvic floor muscle function training, physical therapy, traditional Chinese medicine, and placement of uterine pads<sup>[4]</sup>. Surgical treatments include hysterectomy, vaginal closure, total pelvic reconstruction, and uterine suspension. Hysterectomy includes traditional vaginal surgery and minimally invasive mesh suspension surgery, each with its advantages and disadvantages. Mesh was once popular in China, but over time, the erosion, exposure, shrinkage, and sexual discomfort caused by the placement of polypropylene mesh have received increasing attention<sup>[5, 6]</sup>. Vaginal hysterectomy is the main surgical method for treating pelvic floor dysfunction diseases. However, simple and traditional vaginal hysterectomy can cause defects in the supporting structures of the vaginal tip, leading to varying degrees of prolapse of the bladder, rectum, and vaginal tip. In the past, the traditional vaginal anterior and posterior wall repair+vaginal hysterectomy used in our hospital also had limitations such as recurrent prolapse and unsatisfactory sexual life quality after treatment<sup>[7]</sup>.

With the deepening understanding of pelvic floor tissue, new surgical methods and theories have been proposed. The stiffness, strength, and stress of the round ligament are second only to those of the sacral ligament. The anatomical position of the round ligament can maintain the anteversion of the uterus. Therefore, hanging the vaginal stump on the round ligament not only cooperates with the sacral ligament to lift the vaginal stump upward, but also eliminates the rearward tension of the sacral ligament or the sacrospinal ligament, restoring and maintaining the spatial position of the upper vaginal segment<sup>[8]</sup>. Our hospital has carried out laparoscopic vaginal stump suspension surgery, using surgical knot free sutures fixed from under the peritoneum to the patient's own lower abdominal muscles and tunica vaginalis through the round ligament, enhancing the suspension and fixation of the vaginal tip, making the vaginal tip close to the normal vaginal tip, restoring local anatomy and functional anatomy of the vagina, not only reducing the failure rate of the operation and improving durability, but also avoiding possible complications caused by mesh. At the same time, it also greatly reduces the cost of patients, reduces the difficulty and risk of surgery, and is easy to promote. Compared to sacral ligament and sacrospinal ligament suspension, the distance around the round ligament from the ureter and venous plexus is relatively far. Laparoscopic direct vision vaginal stump suspension through the round ligament is simpler and safer, avoiding the risk of injury to the ureter, sciatic nerve, rectum, and surrounding venous plexus caused by separation of sacral ligament and sacrospinal ligament<sup>[9, 10]</sup>. After implantation into human tissue, surgical knot free sutures can be degraded and absorbed by the human body. The degradation and absorption time varies from several months to one year. Compared with vaginal hysterectomy,

laparoscopic hysterectomy has a wide surgical field, combined with uterine cup lifting and energy equipment to reduce bleeding and shorten the time, especially if combined with uterine lesions such as fibroids and adenomyomas. At the same time, laparoscopic hysterectomy is more conducive to detecting accessory lesions, with the advantages of less bleeding and rapid recovery. In addition, for patients with pelvic adhesions, using laparoscopy is more convenient and safe than vaginal hysterectomy when separating adherent tissue around the uterus<sup>[11]</sup>.

In summary, using laparoscopy during hysterectomy is more intuitive than transvaginal surgery, which is beneficial for separating the surrounding tissue of the uterus, and is more beneficial for the treatment of large uterus, uterine fibroids, or ovarian fallopian tube lesions. Laparoscopic vaginal stump suspension is simpler and safer than traditional vaginal surgery and sacrospinal ligament suspension, which can more effectively prevent vaginal stump prolapse and improve the quality of life of patients after surgery.

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