Posterior Intravaginal Slingplasty for Vaginal Prolapse

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Abstract

Objective: Urogynecologists are constantly looking for simple, safe and effective ways to cure vaginal apex prolapse. The aim of this study was to evaluate the results of posterior intravaginal slingplasty (PIVS).

Materials and methods: A total of 38 patients with advanced vaginal apical prolapse underwent posterior intravaginal slingplasty in Vali-e-Asr hospital in Tehran. In this clinical trial (before-after study), demographic, pre-operative, operative details and post-operative follow-up data were collected for all patients. The data were analyzed using SPSS software and Mac Nemar test. $P<0.05$ was considered for statistical significance.

Results: The mean for patients' age was 67 (50-81) years, for operation time was 35 (25-45) minutes and for blood loss was 125 (70-300) ml. No intraoperative rectal perforation was observed and there was a significant difference in patients' symptoms such as pelvic pain, nocturia, urgency and urinary tract infection before and after the surgery ($p < 0.001$).

Conclusion: PIVS had similar efficacy with other studies in the treatment of vaginal vault prolapse. The procedure reduces the complication rate and shortens the rehabilitation period with a satisfying result.

Keywords: Intravaginal slingplasty, Vaginal vault prolapse, Pop- Q

Introduction

Pelvic organ prolapse (POP) is very common and to some degree normal, especially among older women. Yet, some women suffer from pelvic floor relaxation to a level that has a negative impact on their quality of life. Affected women frequently require manual assistance to urinate and report frequency, urgency and urge incontinence as well as sex and bowel function-related symptoms.

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The lifetime risk of surgery for pelvic organ prolapse (POP) in a woman is estimated to be 11%, with 29% receiving a second operation within 2 years (1). This percentage is expected to rise with the increase in life expectancy. Historically, post hysterectomy vaginal vault prolapse has been treated vaginally (sacrospinous fixation), abdominally (sacrocolpopexy), or by combined abdominopelvic procedures. The vaginal approach for POP reconstructive operation is associated with fewer complications and results in a shorter rehabilitation period than the abdominal route. Recently, surgeons focused on less invasive laparoscopic approaches, but they require a high degree of skill. In 1997, petros introduced a novel surgical technique. Posterior intra-vaginal slingplasty (PIVS) or infracoccygeal sacropexy was reported by petros

Table 1: Patients' symptoms before and after surgery

Symptom	Before surgery n (%)	After surgery n (%)	Mc Nemar test
Pelvic pain	28 (73.7)	6 (15.8)	P<0.001 OR=14.93 (CI 4.81-46.32)
Nocturia	22 (57.9)	6 (15.8)	P<0.001 OR=7.33 (CI 2.48- 21.68)
Urgency	27 (71.1)	6 (15.8)	P<0.001 OR=13.09 (CI 4.27- 40.07)
Urinary tract infection	2 (5.3%)	_	P<0.001 OR=2.05 (CI 1.62-2.59)

to include both a high therapeutic rate and a low complication rate (2).

This new and minimally invasive procedure is used to place a mesh in the rectovaginal fascia and to reinforce the uterosacral ligament by placing a poly-propylene tape between perineum and the vaginal vault.

In 2002 one of the first prospective observational studies of IVS efficacy and safety was performed by Fransworth. In his study the symptomatic cure rates for prolapse were 91%, urgency 79%, nocturia 82% and pelvic pain 78 %(3).

The aim of this study was to report our early experience of this novel surgical technique.

Materials and methods

Between March 2003 and March 2004 a clinical trial (before-after or one sample study) was performed in urogynecology department of Vali-e-Asr hospital. The study was approved by the ethical and research committee of Tehran university of medical sciences.

Patients suffering from advanced vaginal apical supportive defects, diagnosed clinically according to the international continence society (ICS) pelvic organ prolapse quantification (POP- Q) standard scoring system were referred for PIVS. This procedure was selected by the attending surgeon based on the clinical evaluation and after informed consent forms were signed. The mesh (Tyco health care, USA) was inserted via a transgluteal skin incision lateral and posterior to the anus. The tunneler was advanced up to the levator plate through the pararectal space, and then was retrieved contra laterally and symmetrically. The posterior vaginal apex was sewn to the tape at the midline, so it was elevated to the appropriate original location within the pelvis (2).

The intra-operative and post–operative complications were recorded. The patients were followed at 1, 3, 6, 18 and 24 months interval. For each visit, the patient had to fill-in a standardized questionnaire to determine the presence of recurrent prolapse as accurately as possible and the data were entered into data base. If a patient did not attend a follow-up session, she was asked by phone or mail. Subjective data were pros-pectively recorded regarding urgency, frequency, urinary stress and urge incontinence and pelvic pain. The objective findings regarding physical pelvic examination to assess prolapse recurrence were also prospectively collected according to POP-Q system. When the reduction in the frequency and severity of a symptom was found to be greater than 50%, the symptom was considered to be cured. All statistical analysis was performed via spss 11.5. Mc Nemar test was used and statistical significance was defined as $P<0.05$.

Results

A total of 38 patients with clinical evidence of vaginal vault prolapse (grade 3 or 4, POP-Q system) were collected. Their mean age was 67 (range 50-81) years. These patients presented with symptoms such as vaginal prolapse, pelvic pain, nocturia, urgency and urinary tract infection (UTI).

All patients underwent PIVS procedure. Mean operative time was 35 (25-45) minutes and mean intraoperative blood loss was 125 (70-300) ml. No

patient required blood transfusion. There was no evidence of rectum perforation and erosion. All patients were discharged within 24 hours of surgery. There was no urinary tract infection and no episode of postoperative pyrexia. There was a significant difference in patient's pelvic pain, nocturia, urgency and urinary tract infection before and after surgery ($p<0.001$). Patients' symptoms are shown in table 1.

According to the POP-Q measurements of the post-operative exam, 32 patients were completely cured. Four cases had moderately improvement and one patient had tape rejection (6 months after the surgery). Success rate was 84.2%.

Discussion

Pelvic organ prolapse may occur in up to 50% of parous women. It may cause a variety of urinary, bowel and sexual symptoms (4-6) and is reported to necessitate surgical correction in 11% of the female population (7). Petros initially described the PIVS procedure for vault prolapse. He described Infra-coccygeal sacropexy as a promising alternative to conventional methods. It has built-in safety, as it avoids pudendal nerves and vessels and surface rectal veins. Petros was encouraged to develop the novel PIVS, entailing minimal invasiveness via a vaginal approach together with anatomical restoration of the uterosacral ligament suspension of the vaginal apex, performed in a daycare set-up(8). Previously reported surgical modalities such as colporrhaphy, plication of the uterosacral ligaments and sacrospinous and sacral colpopexies are associated with a recurrence rate of up to 58% in terms of objective POPQ scoring and prolapse-related subjective symptoms(9). Magnetic resonance imaging showed that significant improvements in the restoration of the vaginal configuration were achieved in patients who underwent PIVS (12).

The explanation of the improvement of unstable bladder symptoms, is unclear, as such symptoms are generally considered to be incurable. It has been previously explained that lax ligaments cannot support the bladder base stretch receptors, so they fire off prematurely. The PIVS restores the posterior ligamen-tous supports, hence contributing to the neural stability of the bladder and avoiding bladder over-activity symptoms (13,14).

In this study, we utilized the PIVS procedure for the treatment of vault prolapse. Postoperatively, a patient had tape rejection and long term follow up showed 84.2% cure rate. The operative results in this study are in agreement with previously reported data regarding the safety and efficacy of the PIVS method for vaginal apex support (8,10,11). The PIVS tends to erode the vagina in up to 17% of the cases which might be prevented by replacement of the tape (8).

Although this procedure seems easier and faster to perform and might be less related to intra- and post-operative complications, evaluating the long term success of this procedure is strongly recommended. This operation, for either post-hysterectomy vaginal vault prolapse or for advanced uterine prolapse – with or without uterine preservation – should be proven in the long run (2,8)

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