Surgically Shortened Vagina Lengthened by Laparoscopic Davydov Procedure

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Background: The laparoscopic Davydov procedure is a neovagina surgical technique most commonly used in patients with vaginal agenesis. We present a unique case of vaginal length restoration using this procedure in a patient with vaginal shortening after multiple vaginal surgeries.
Case: A 62-year-old patient presented to our office after multiple vaginal surgeries with symptoms suggestive of cystocele, rectocele, vaginal vault prolapse, and dyspareunia. Excessive vaginal shortening and a painful vaginal apex were also noted upon initial examination. A laparoscopic Davydov procedure was performed to lengthen the vagina and to eliminate the apical pain.
Conclusion: The laparoscopic Davydov procedure is a surgical option for patients with surgically shortened vaginas and dyspareunia.

Key Words: Laparoscopic, Davydov, vaginal agenesis, neovagina, vaginal shortening

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Vaginal shortening with resulting dyspareunia is a potential complication of pelvic surgery. In sexually active patients, this outcome can be devastating. Whereas a small number of procedures are currently available for restoration of functional vaginal length in these patients,[1] surgical options are still limited.

Neovagina surgical procedures such as the Vecchietti, McIndoe, and Davydov are most commonly used in patients with vaginal agenesis.[2,3] The Davydov procedure is a technique that uses the pelvic peritoneum to create a neovagina and has been described using both a laparotomic and a laparoscopic approach.[3,4] The laparoscopic Davydov procedure has been reported to be highly successful in the treatment of patients with vaginal agenesis[5]; however, there are currently no reports in the literature touting the successful treatment of surgically shortened symptomatic vaginas by this method. We report on the successful use of the laparoscopic Davydov procedure in the treatment of a woman who had dyspareunia as a result of vaginal shortening from surgical intervention.

CASE REPORT

The patient is a 62-year-old postmenopausal woman who presented to our office with a history of dyspareunia and vaginal shortening due to multiple vaginal procedures. These procedures were a bilateral tubal ligation in 1983, a total vaginal hysterectomy in 1986, an anterior and posterior repair in 1997, a posterior repair with an allogeneic dermal graft in 2002; a left paravaginal repair, bilateral uterosacral ligament attachment, and an enterocele repair in 2004. Upon initial examination, the vaginal length as measured from the hymen was found to be 4 to 5 cm, with the apex slightly deeper on the right side than on the left. Palpation of the apex of the vagina resulted in pain consistent with her dyspareunia, strongly suggesting that scarring/contracture of the levator ani musculature secondary to a shortened vagina was the etiology of her pain. She was also noted to have a stage IV Ba cystocele, stage IV Bo rectocele, and a stage IV C vaginal vault prolapse. We recommended vaginal lengthening using the laparoscopic Davydov procedure. We explained that although she may later require a subsequent operation for vaginal support, vaginal lengthening must first be undertaken to prevent further shortening. An informed consent was attained before surgical intervention.

Under general anesthesia, a Foley catheter was placed, and the laparoscopic portion of the procedure was begun. Two 10-mm ports were placed, one at the inferior edge of the umbilicus to accommodate the laparoscope and another in the left paramedian area. Five-millimeter ports were also placed in the right paramedian area and in the suprapubic region. Several areas of bowel adhesive disease were encountered. However, they could be taken down without complication to the point at which we were able to identify the scarred vaginal apex. Minimal trauma or bleeding was encountered within the pelvic peritoneum. Both ureters were identified.

An end-to-end anastomosis sizer was passed into the vagina and was used to elevate the vaginal apex during the laparoscopic procedure. The bladder was retrograde filled with 250 mL of sterile water to aid in identification of the vesicovaginal reflection and dissection of the bladder off the vaginal apex and pubocervical fascia. A horizontal incision using a J-hook was then made through the peritoneum and the vaginal apex abutting the head of the end-to-end anastomosis sizer, creating a communication between the peritoneal cavity and the patient's vaginal opening (Fig. 1). The peritoneum was then approximated to the edge of the vaginal epithelium with 10 interrupted, figure-of-eight 2-0 polyglactin 910 sutures placed circumferentially.

The false vaginal apex was then created by bringing the peritoneum together in a purse-string fashion by first using poliglecaprone 25 and then reinforcing it with 0 polydioxanone. To make sure that a vaginal cuff of adequate length was created, the purse-string sutures were placed at a distance of 10 cm from the hymenal ring into the abdominal cavity as measured with a ruler (Fig. 2). The suture bites were taken as follows: through the peritoneum over the bladder approximately 4 cm anterior to the vaginal cuff, vertically down the sidewall (taking peritoneal bites anterior and posterior to the ureter), into the peritoneum laterally to the rectosigmoid junction, through the tinea coli of the descending colon, and then vertically up the contralateral pelvic sidewall. Before removing all port sites, the patient was given one ampule of indigo carmine and cystoscopy was performed to ensure bilateral ureteral patency. Vaginal packing with estrogen cream was placed. Upon removal of the packing 48 hours after surgery, the patient was able to pass dilators to maintain patency immediately.

The patient returned 4 weeks after hospital discharge for follow-up. Vaginal length was measured at 8 cm. Slight scarring at the posterior apex was easily released with digital examination. She was passing dilators and using vaginal estrogen cream daily without problem. The patient was instructed to

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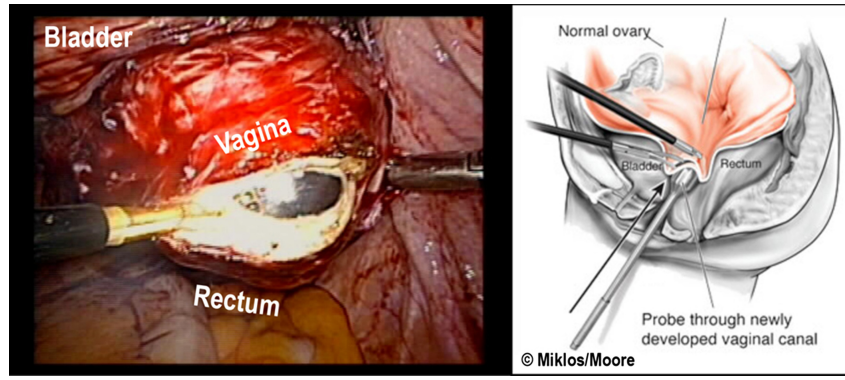

FIGURE 1. Opening of the original vaginal apex into the peritoneum.

continue dilator use and estrogen application for 3 more weeks at which point, barring unforeseen complications, she could begin intercourse.

Nine months after the laparoscopic Davydov procedure, the patient returned and reported being sexually active without dyspareunia and completely satisfied with her surgery. Her vaginal length measured 8 cm and her cystocele and rectocele persisted with mild symptoms of pressure.

DISCUSSION

Vaginal shortening can be an unfortunate complication of vaginal surgery, especially with those procedures used to correct pelvic organ prolapse including hysterectomy and anterior, posterior, and enterocele repairs.[1] This result can be devastating in sexually active patients, as shortening may result in dyspareunia and, if severe, inability to have intercourse altogether. These patients are left with few options for length restoration.

The laparoscopic Davydov is an established technique for neovagina creation in patients with Mayer-Rokitansky-Kuster-Hauser syndrome. The procedure involves using the patient's own pelvic peritoneum to create the vaginal canal and apex. One study demonstrated the presence of stratified squamous epithelium, similar to that found at the vaginal introitus, lining the entire surface of the peritoneal tissue used for the neovagina in as few as 90 days after surgery.[6] The procedure has proven to be highly effective in postsurgical Female Sexual Function Index scores and postoperative measurements. Additionally, relative to other commonly performed neovagina surgeries, the laparoscopic Davydov yields an

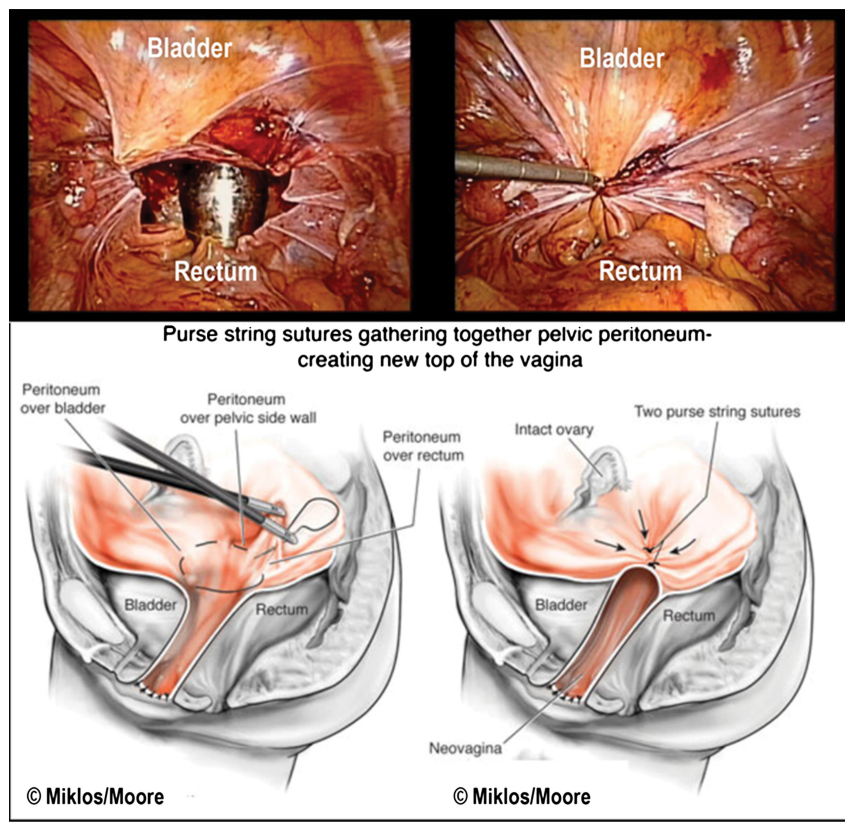

FIGURE 2. Purse-string closure of peritoneum to create the apex of the neovagina.

immediate full-length vagina with less intraoperative and postoperative bleeding.[3]

In the patient described in this report, we were able to increase vaginal length from 4 to 5 cm to 8 cm. Additionally, the patient was able to resume intercourse and reported no dyspareunia after the operation. The laparoscopic Davydov procedure may represent a new option for patients with iatrogenic vaginal shortening. Whereas several articles demonstrating the effectiveness of this operation in patients with vaginal agenesis are currently available,[3,5] this case is the first to demonstrate the applicability of the laparoscopic Davydov to patients with surgically shortened vaginas.

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