

# Laparoscopic-assisted Vecchietti Procedure for Creation of Neovagina in Mayer-Rokitansky-Küster-Hauser Syndrome: Analysis of Two Cases

Gökhan BOYRAZ<sup>1</sup>, İlker SELÇUK<sup>1</sup>, Ashhan YAZICIOĞLU<sup>1</sup>, İbrahim ESİNLER<sup>1</sup>

Ankara, Turkey

The aim of this study was to review the application of Vecchietti's principles to laparoscopy for the creation of neovagina in patients diagnosed with Rokitansky syndrome, the functional and psychological outcomes. A functioning neovagina was performed in both of the subjects. The subjects which are sexually active noted satisfactory intercourse with significant improvements in self-confidence, self-esteem and general well-being in first 6 months follow-up.

**Key Words:** Vecchietti procedure, Mayer-Rokitansky-Küster-Hauser syndrome, Vajinal agenesis

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## Introduction

Mayer-Rokitansky-Küster-Hauser syndrome, also known as Müllerian agenesis is a rare congenital abnormality with a prevalence of one case per 4000 to 10000 live female births, and involves congenital absence of the vagina with either rudimentary or no uterine and tubal structures, normal ovaries, and normal secondary sexual characteristics.<sup>1</sup> Women affected by this disorder often have accompanying renal, skeletal, and other anomalies.<sup>1</sup>

Numerous invasive and non-invasive techniques have been described for the creation of neovagina in these patients. The non-invasive ones which are based on progressive dilation therapy using dilators and either intermittent pressure applied by the patient (Frank method), or passive pressure applied by a bicycle seat beneath the perineum (Ingram method).<sup>1</sup> With the invasive techniques, the aim is the creation of neovagina. Invasive techniques include interposition of intestinal segments, such as ileum or sigmoid, myocutaneous flaps, grafts of skin peritoneum, amnion or synthetic absorbable membranes.<sup>1</sup> When invasive and non-invasive techniques are compared, the non-invasive ones require great deal of patient motivation and participation, for many months of effort for functional success whereas the invasive ones are faster but requiring hospitalization perioperative complications, such as infection and graft rejection.

<sup>1</sup>Departments of Obstetrics and Gynecology Hacettepe University Faculty of Medicine, Ankara

Address of Correspondence: Gökhan Boyraz  
Department of Obstetrics and  
Gynecology, Hacettepe University  
Faculty of Medicine Sıhhiye, Ankara

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A combination of non-invasive and invasive techniques is Vecchietti procedure, first described by Giuseppe Vecchietti in 1965.<sup>2</sup> The initial description was of an open abdominal procedure involving a Pfannenstiel incision, dissection of the vesico-rectal space and placement transabdominally of two sutures passing from the anterior abdominal wall through the vaginal groove and into an external 'dilation olive'.<sup>3</sup>

Later, modified laparoscopic approach was described in 1992.<sup>4,5</sup> It involves continuous upward traction on a bead placed in the vaginal dimple that is attached to sutures that pass through the vesicorectal space into the abdominal cavity, through the extraperitoneal space, and later traverse the anterior abdominal wall with attachment to a traction device. Continuous upward pressure on the vaginal vestibule stretches the mucosa, leading to elongation of the cavity to a more normal depth, typically 7 cm to 10 cm, after several weeks.<sup>1</sup> It has been shown to have similar anatomical and functional outcomes to the open procedure with shorter operation time.<sup>6</sup>

We describe our experience using the laparoscopic Vecchietti's procedure in 2 patients with 6 months follow-up for creation of a functional, copulatory vagina.

## Subject And Method

Patients with complete absence of uterus and vagina were referred to our hospital because of primary amenorrhea. Development of the secondary sex characteristics was normal, both had 46, XX karyotype and routine ultrasonography showed absence of uterus and normal ovaries, so Mayer-Rokitansky-Küster-Hauser syndrome was diagnosed. The intravenous pyelography showed normal kidney, ureter, and bladder in both of the patients.

The procedure was carefully explained and informed consent was obtained in both of the patients.

Informations about the operative procedure, intra-operative complications and duration of the procedure were obtained from operation notes. The outcome of the sexual function was measured with a standard questionnaire with patients' subjective assessments 6 months after operation. The length and width of the neovagina measured with a disposable plastic hysterometer.

Both of the procedures were first-line treatment with both of the patients were operated by the same surgeon. Under general anesthetic, after the bladder is emptied by catheterisation, routine laparoscopy is performed. 10 mm trocar is inserted intra-umbilically, pneumoperitoneum produced and two 5 mm ports inserted under direct vision suprapubically, lateral to the inferior epigastric arteries. Exploration of the pelvic and abdominal organs is performed.

Stamey needle with two 1/0 Mersilene sutures are introduced by one lateral trocar and passed intraperitoneally till reaching the presumed vesicorectal space, which is blindly noted by the pressure exerted by the index finger of the assistant, placed between the legs of the patient. The index finger of the other hand is placed in the rectum. The purpose is to guide the needle between both index fingers on its blind way down through the non-existent vesicorectal space till the perforation of the pseudohymen occurs. This is one of the most critical step of the operation, to avoid vesical or rectal perforation. The non-absorbable sutures which are attached to the olive. When the needle is withdrawn, the free ends of the sutures rest intraperitoneally. One of the 5-mm ancillary trocars is removed to introduce a hook-shaped instrument through the retroperitoneal space passing in front of the ureter and the external iliac complex until reaching the fold between the bladder and the uterine rudiment where the suture ends are put in the hook and is retroperitoneally guided until extracted via the ipsilateral trocar hole. This process is repeated on the contralateral side. The two abdominal suture ends are then attached to a tensioning device. Cystoscopy and rectal examination are performed after the procedure to exclude damage and sutures. Tension on each suture increased equally with a rate of 1 cm -1.5 cm/day. The neovagina progresses to achieve a length of 8-10 cm in 10-12 days. The patients remained in hospital for 12 days postoperatively for tightening, when adequate neovagina is formed the sutures are removed under general anesthetic. After discharge, post-operative vaginal dilator use is continued for up to six months with increasing dilator size. Follow-up generally consisted of one, two, 6-month appointments.

The only operative complication was bladder perforation while developing the rectovesical space. The perforation managed expectantly with continuous catheterisation for a week. There was no post-operative complication.

The mean operating time was 60 minutes (range 50-70 minutes). Post-operative recovery was rapid, since patients being discharged home on 12 post-operatively. Both of the patients noted pain related to suture tightening. Oral analgesic tablets containing naproxen hydrocodone with ibuprofen were taken prior to suture tightening.

Both of the patients were back to normal daily activity a couple of weeks following discharge. Both of the patients used dilator appropriately, with satisfactory compliance.

One of the patient had a neovagina 6 cm in length, and the other's neovagina measured 10 cm 4 weeks after operation. Both of the patients followed up for 6 months. At the end of the 6th month the former had a neovagina 10 cm in length, the latter had 12 cm neovagina.

Both of the patients were sexually active, noted satisfactory intercourse despite mild dyspareunia.

Last, both of the patients were satisfied with the operation, the only regret mentioned was that they would have had the operation earlier if they had been aware of this availability.

## Discussion

Creation of neovagina with laparoscopic-assisted Vecchietti's procedure resulted in a functional vagina with sexual satisfaction in our patients. The laparoscopic approach seems both safe, effective and quick technique for creation of neovagina. Bladder and bowel perforations are well known, since one of our patient had an intra-operative bladder injury, treated expectantly with continuous catheterisation for a week. There was no post-operative complication in our patients' follow-up.

The mean operating time was 60 minutes which could be decreased with experience.

The laparoscopic Vecchietti procedure, because of its endoscopic nature, results in rapid return to daily activities. Both of the patients were back to normal activity a couple of weeks following discharge. The Vecchietti procedure can create a functional neovagina in 7 to 10 days. Open and laparoscopic Vecchietti procedures have been shown to have similar functional outcomes. The laparoscopic approach has the benefit of reduced morbidity, excellent results regarding sexual satisfaction with mild dyspareunia.<sup>3</sup>

The patients reported that they have significant improvements in self-confidence, self-esteem and general well-being in first 6 months follow-up.

Since the study involves a small number of cases, for evaluation of operation related complications, long term results, further clinical studies are needed.

The laparoscopic-assisted Vecchietti procedure is an effective, safe and quick technique of creating neovagina in patients with müllerian anomalies. Significant improvement in patients' sexual and psychological status following post-operative 6 months was observed. Further clinical evaluation is needed to confirm the long term benefits of this procedure.

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### **Mayer-Rokitansky-Küster-Hauser Sendromunda Neovajina Oluşumu İçin Laparoskopik Vecchietti Prosedürü: İki Vakanın Analizi**

Çalışanın amacı Rokitansky sendomu tanısı konulan hastalarda neovajina oluşumu için laparoskopik Vecchietti's prosedürünü ve fonksiyonel psikolojik sonuçlarını özetlemektir. Her 2 olguda da fonksiyonel neovajina oluşturuldu. Hastalar 6 aylık takiplerinde cinsel olarak aktif olduklarını, cinsel birleşme için yeterli ve fonksiyonel bir vajina oluşturulduğunu ve genel durumlarının iyi olduklarını belirttiler.

**Anahtar Kelimeler:** Vecchietti prosedürü, Mayer-Rokitansky-Küster-Hauser Syndrome, Vajinal agenesia

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