

# Optimizing the modified laparoscopic Vecchietti procedure

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## Summary

**Objective:** To enhance the modified laparoscopic Vecchietti procedure. **Materials and Methods:** A case series of five women with Mayer-Rokitansky-Küster-Hauser syndrome at the Department of Obstetrics and Gynecology, King Abdulaziz University Hospital, Jeddah, Saudi Arabia underwent the modified laparoscopic Vecchietti procedure with intraperitoneal placement of sutures. This involved perforation of the vaginal dimple by a straight thread guide with two threads attached to the olive followed by pulling the two threads intra-peritoneally and through the abdominal wall to the traction device by grasping instruments under laparoscopic control. **Results:** Intraperitoneal placement of the sutures was easily done without complications in all five women. The operative time was  $50 \pm 10$  (mean  $\pm$  SD) minutes. After five postoperative days, the average vaginal length was seven to 7.5 cm. Two women were able to have vaginal intercourse without problems. After six months to one year of follow up, the vaginal length was at least ten cm and no postoperative complications occurred. **Conclusions:** Intraperitoneal placement of sutures makes the modified laparoscopic Vecchietti procedure easy and appealing. Furthermore, it avoids potential damage to the vital structures at the pelvic side walls.

**Key words:** Vaginal agenesis; Vecchietti procedure; Intraperitoneal suture approach.

## Introduction

Vaginal agenesis occurs between one in 4,000 to one in 10,000 live female births [1]. Its differential diagnosis includes Mayer-Rokitansky-Küster-Hauser syndrome, androgen insensitivity syndrome, and intersex conditions [2]. Mayer-Rokitansky-Küster-Hauser is the most common form of vaginal agenesis and the second most frequent cause of primary amenorrhea. It is associated with normal ovarian function, normal female karyotype, and the presence of secondary sexual characteristics. It is due to congenital aplasia of the Müllerian ducts. Congenital anomalies of the upper urinary tract may occur in 30-40% of cases. Structural anomalies of the vagina and urogenital system are often challenging to diagnose and treat [3]. Treatment of vaginal agenesis is considered controversial. The modified laparoscopic Vecchietti procedure is gaining popularity especially in Europe [4]. Brucker *et al.*, in 2008, reported improvements in the technique to make it safer, shorter, more effective, and less traumatic [5]. This involves using a new traction device and a modified laparoscopic procedure. The most time-consuming step of the procedure is the threading of the sutures through the eye of the suture carrier [6]. Furthermore, the bilateral retroperitoneal tunneling of the sutures over the lateral pelvic side walls needs experience and is potentially dangerous. The objective of this study was to report an enhancement of the modified laparoscopic Vecchietti procedure by avoiding the threading of the sutures through the eye of the suture carrier and the bilateral retroperitoneal tunneling with the intraperitoneal placement of sutures.

## Materials and Methods

Approval by the Institutional Review Board (IRB) was obtained. Between November 2011 and February 2012, five women with Mayer-Rokitansky-Küster-Hauser syndrome at King Abdulaziz University Hospital, Jeddah, Saudi Arabia gave informed consent after proper counseling for the use of intraperitoneal approach in the placement of sutures during the modified laparoscopic Vecchietti procedure. The vaginal dimple (Figure 1) was perforated from outside by a straight thread guide with the two threads (Terylene 3+4) attached to the olive as reported by Brucker *et al.* [5]. The two threads were laparoscopically detached from the straight thread guide (Figure 2) and the thread guide was removed. The integrity of the urinary bladder and rectum were checked by cystoscopy and rectal examination. The threads were pulled intraperitoneally and through the abdominal wall (Figure 3) to the traction device by laparoscopic grasping instruments. This step avoids the bilateral retroperitoneal passages of the curved thread guide, the threading into the guide, and the subperitoneal pulling of the threads as reported before [5]. The traction device was placed at the level of the umbilicus and not suprapubically to allow normal axis and potential more length of the neovagina. Similarly, urethral catheterization and not suprapubic was done until removal of the traction device. This is because the olive only (without the segmented dummy) was used. Pain relief postoperatively was achieved by epidural anesthesia. This allowed daily tightening of the traction threads. After discharge from the hospital, vaginal dilators were used by the patients and they were followed regularly in the outpatient clinics.

## Results

The age of the women was  $26 \pm 3$  years (mean  $\pm$  SD). Four women had a diagnosis of Mayer-Rokitansky-Küster-Hauser syndrome and one woman had the diagnosis of androgen in-



Figure 1. — Absent vagina.

sensitivity syndrome. Four women presented with sexual problems. For two of these women, these problems led to divorce. One unmarried woman was not in a sexual relationship and presented with primary amenorrhea. For the woman with testicular feminization syndrome, the testes had been removed in a prior procedure. Intraperitoneal placement of sutures was easily done without complications in all five women. The operative time was  $40 \pm$  ten minutes. After five postoperative days, the average vaginal length was determined to be six to seven cm. Two married women were able to have vaginal intercourse without problems and three unmarried women did not yet have sexual relationship after the procedure.

## Discussion

There is a lack of consensus regarding the best treatment for vaginal agenesis. In Mayer-Rokitansky-Küster-Hauser syndrome, it is thought that dilatation should be the first step, followed by surgery if necessary. Vaginal dilatation was first reported by Frank in 1938 [7]. It involves the use of graduated vaginal dilators placed at the introital dimple for 20 to 30 minutes three times daily for several months. For many reasons, including the lack of compliance, fatigue of the patients, and awkwardness of the various positions used [8], and in the present society due to refusal based on cultural attitudes, the surgical approach is favored. There are many reported surgical procedures which indicate that there is no agreement on what is the best option and that there is no single technique that is ideal for all deviations of vaginal anatomy [9]. The most frequently used technique by gynecologists in the United States is the McIndoe procedure [10]. In contrast, in Europe the modified laparoscopic Vecchietti procedure has been more popular [4]. The original Vecchietti procedure reported in 1965 involved laparotomy and dissection of the space between the urinary bladder and the rectum to pass a needle with two threads from the inside to the outside to attach them to the olive [11]. The threads were then

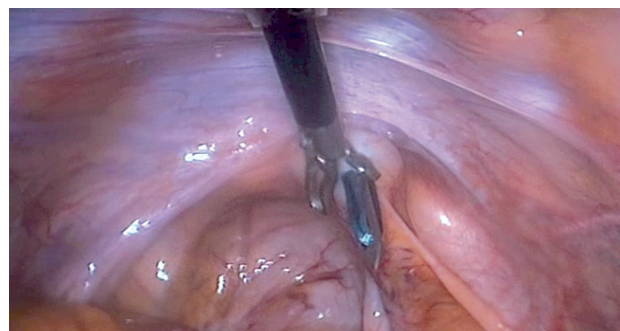


Figure 2. — The threads are freed from the straight thread guide.

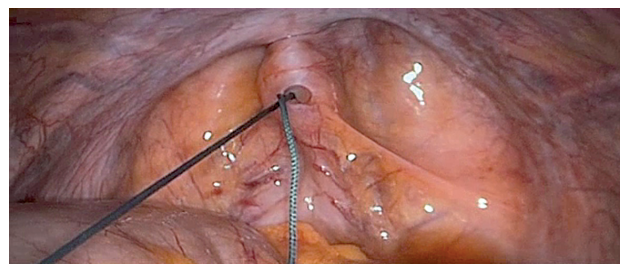


Figure 3. — The thread on the left side is pulled intraperitoneally to the traction device.

passed extraperitoneally lateral to the rectus muscles to the traction device. Fedele *et al.*, in 1994, published the laparoscopic version of the Vecchietti procedure [12]. Another larger study was published in 2008 [4]. Here, the space between the bladder and the rectum was dissected laparoscopically and the Vecchietti's thread-bearing needle was passed from inside to the outside by piercing the pseudohymen to bring the threads (which were attached to the olive) to the peritoneal cavity and then outward by passing them extraperitoneally through the abdominal wall. Brucker *et al.*, in 2008, reported a modification in the technique [5]. The procedure was done without dissection of the space between the bladder and rectum "vesicorectal tunneling." The vaginal dimple was pierced from the outside to the inside with a straight thread guide with the two threads attached to the olive. The threads were laparoscopically detached from the thread guide and the thread guide was retracted. Then the curved thread guide was advanced retroperitoneally, down to the upper pole of the vagina. Each thread was threaded into the guide and drawn back subperitoneally through the abdominal wall. This most time-consuming step of the procedure requires experience and is potentially dangerous. The present study avoids the threading into the eye of the suture carrier and the retroperitoneal passage of the threads over the important structures in the pelvic side walls. Intraperitoneal placement of the sutures makes the modified laparoscopic Vecchietti procedure simple, rapid, and appealing.

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