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Case Report

Minilaparatomy is avoidable during laparoscopic sigmoid vaginoplasty: first experience

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Summary

Laparoscopic sigmoid vaginoplasty is a minimally invasive procedure performed in selected Mayer–Rokitansky–Kuster–Hauser syndrome patients and in other conditions when creation of a vagina is indicated. Creation of a colorectal anastomosis is one of the Laparoscopic sigmoid vaginoplasty steps. The biggest disadvantage of it is the enlargement of the portal incision resulting in minilaparotomy to retract the descending colon through the abdominal wall which could lead to postoperative complications. In this report we present a novel perineal approach technique to retract the descending colon for the suture of an anvil in Laparoscopic sigmoid vaginoplasty. Unnecessary enlargement of the port incision or minilaparatomy can be avoided if using this particular technique. A perineal approach technique can be one of the options in Laparoscopic sigmoid vaginoplasty. However, larger numbers of cases are necessary to confirm its benefits.

Key words: Laparoscopic sigmoid vaginoplasty; Perineal approach technique; Mayer–Rokitansky–Kuster–Hauser syndrome.

Introduction

Mayer-Rokitansky-Kuster-Hauser (MRKH) syndrome is a rare congenital disorder which affects approximately 1 in 4,500 newborn girls [1]. This syndrome is characterized by the absence of a uterus and vagina. Clinically, the MRKH can be subdivided into two subtypes: an isolated genital malformation or type I form can be delineated from a type II form, which is characterized by extragenital malformations [2]. Women with MRKH syndrome present with primary amenorrhoea and are unable to have vaginal intercourse.

Vaginal aplasia can be treated by non-surgical dilation methods or by different surgical techniques. Laparoscopic sigmoid vaginoplasty (LSV) is a minimally invasive procedure, performed in selected patients with congenital syndromes including MRKH syndrome, cloacal anomalies, vaginal atresia, gonadal dysgenesis and in other acquired conditions such as pelvic exenteration, extensive vaginal trauma or radiation-induced vaginal stenosis. One of the disadvantages of LSV is enlargement of the portal incision or minilaparotomy performed to retract the descending colon through the abdominal wall for the suture of an anvil of the circular stapler before restoration of the continuity of the intestinal tract. Abdominal wall incisions are associated with a risk of infection, herniation, pain and scar formation [3, 4]. To avoid this, we describe a novel perineal approach technique.

Materials and Methods

Presented are 3 cases of LSV in two 17-year-old females and one 16-year-old female, with MRKH syndrome type 1. All patients had normal female external genitalia and karyotype (46, XX). None of them had prior abdominal surgeries. The depth of the distal vagina was 1-2 cm. Abdominal ultrasound and pelvic MRI revealed normal ovaries, but absent uterus and vagina; no other congenital anomalies were found. Prior to the surgery the patients were informed about the nonsurgical Frank method and the available surgical techniques (progressive perineal dilation method, Davydov's method, Vecchietti's method and other modifications). After informed consent, the 3 patients all preferred LSV.

Mechanical bowel preparation with oral magnesium sulfate was started one day before surgery with no limitation of clear fluid intake. Antibiotic prophylaxis with intravenous Metronidazole 500 mg and Gentamycin 240 mg was given one hour pre-operatively.

Initial steps of LSV were standard as described previously by other authors [3]. We used 4 ports for laparoscopic instruments: a 10 mm one (umbilical), a 12 mm one (right lower quadrant) and two 5 mm ones (left lower quadrant and hypogastric). A 12 cm length segment of sigmoid colon

was isolated, sealed and resected while preserving the vascular pedicle with main sigmoid colon artery utilizing 2 linear endostaplers (Figure 1). To restore the continuity of the bowel, an anvil of the circular stapler was sutured to the descending colon. Our novel perineal approach technique was applied for this exact purpose. We proceeded in the following manner: the hymenal region of the vaginal dimple was incised and the perineal tissues between the bladder and rectum bluntly dissected by a finger up to the peritoneal cavity. The descending colon was then laparoscopically mobilized (Figure 2) and pulled out to the perineal opening through the created 2-finger wide tunnel. The descending colon was opened, a circular suture was placed for the anvil (Figure 3) and the colon was then returned to the peritoneal cavity. In order to restore the pneumoperitoneum, the perineal tunnel was packed with a vaginal occluder. An end-to-end colorectal anastomosis was created using a transrectally introduced circular stapler. The isolated sigmoid graft was rotated 180º on its vascular pedicle under laparoscopic guidance and pulled out without tension through the earlier created perineal tunnel. Finally, the sigmoid-perineal anastomosis was created with interrupted 2-0 absorbable sutures.

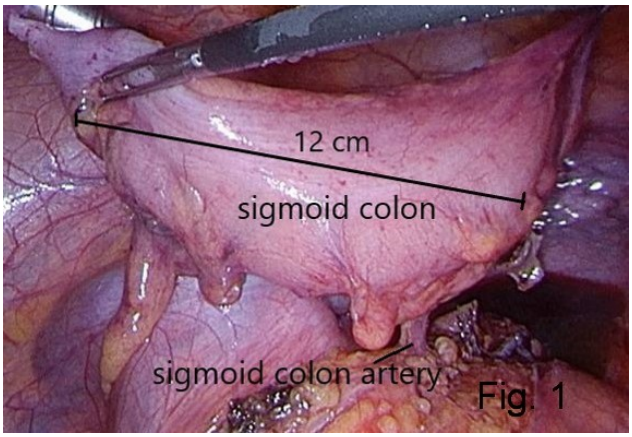

Figure 1. — Resected segment of sigmoid colon with preserved main sigmoid colon artery.

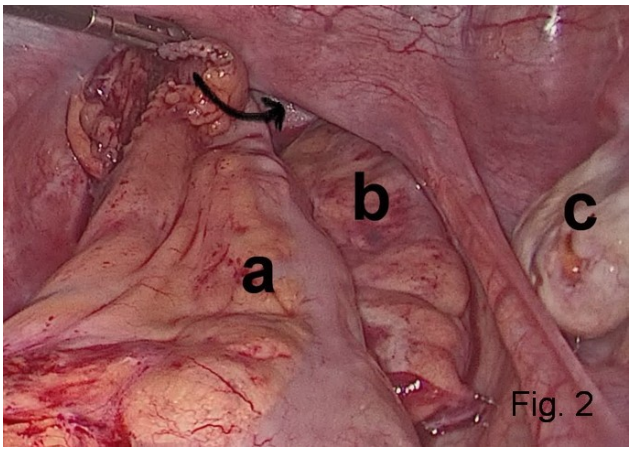

Figure 2. — Laparoscopic view: descending colon (a), resected and prepared for vagina creation sigmoid colon (b), right ovary (c).

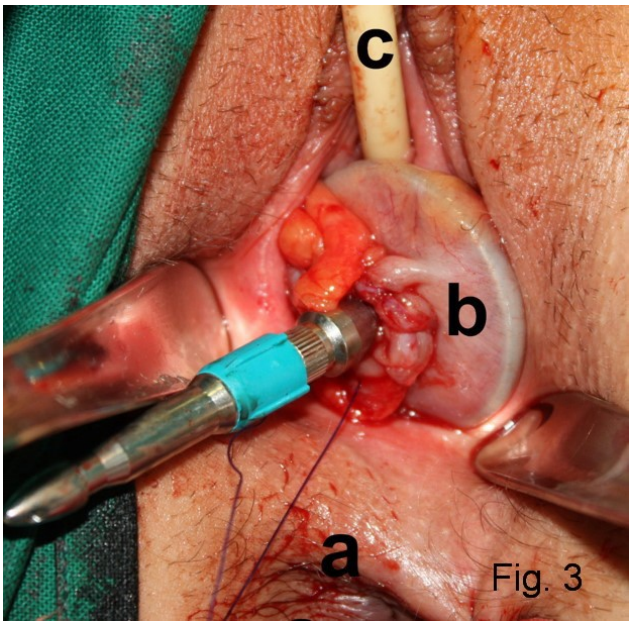

Figure 3. — Perineal view: anus (a), descending colon pulled out through the created perineal tunnel, an anvil sutured into the descending colon (b), urethral catheter (c).

Results

The perineal phase of the surgery took 40 ± 10 minutes with average total surgery duration of 200 ± 20 minutes.

Clear liquids were started orally at first with solid diet offered at the third postoperative day. Postoperative stay was 4-5 days. There were no intraoperative or early postoperative complications within 30 days. One-year follow-up showed no introital stenosis and all women experienced successful vaginal intercourse.

Discussion

MRKH syndrome patients are not able to have vaginal intercourse secondary to an absent vagina.

For creation of a vagina, the nonsurgical technique or the least invasive method of vaginal elongation, such as progressive perineal dilatation, a modified Abbé-McIndoe technique using in vitro cultured autologous vaginal mucosa or autologous buccal mucosa graft is preferable [5, 6].

In a carefully selected group of patients, LSV can be preferred because as it has the following advantages: descending colon is self-lubricating, it can be easily mobilized on its vascular pedicle and compared to small bowel graft, mucus production is less of a problem. There is a minimal risk of stenosis and dilation is not required [7, 8].

LSV can be associated with uncommon severe complications such as leakage, colitis, inflammatory bowel dis-

ease, cancer of the neovagina, stenosis and bowel prolapse [7-10]. Grafting the sigmoid colon and performing colorectal anastomosis are steps in LSV. For the restoration of intestinal tract continuity, circular mechanical suture through the rectum can be used and the placement of anvil in the descending colon should be performed [11].

Previous reports of LSV showed that to retract the descending colon either enlargement of the port incision, minilaparatomy, including gasless laparoscopy, or one port technique be performed [3, 11-13]. Abdominal wall incisions are associated with a risk of infection, herniation, pain and scarring [3, 4]. Since vaginoplasty requires creation of a perineal tunnel we used it to retract the descending colon and avoid an unnecessary additional incision to the abdominal wall.

Potential difficulties may be associated with this perineal approach technique. If the mesocolon of the descending colon is too short to pull the colon through the perineal tunnel, it can either be dissected (while avoiding injuries to the arcuate arteries), or the traditional technique of minilaparotomy can be used. When utilizing this approach, the restoration of pneumoperitoneum can be problematic. For this purpose, we packed the perineal tunnel using a vaginal occluder. In the 3 cases presented, the LSV with novel perineal approach technique was successful in restoring the patient's ability to have vaginal intercourse.

Conclusions

The perineal approach technique is a simple step to avoid minilaparatomy. We recommend our perineal approach technique to retract the descending colon for the suture of an anvil of the circular stapler whenever laparoscopic sigmoid vaginoplasty is chosen. Larger numbers of cases are necessary to confirm the benefits of the perineal approach technique in LSV.

Ethics Approval and Consent to Participate

All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Lithuanian University of Health Sciences (approval number: BEC-MF-238).

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Conflict of Interest

The authors declare no conflict of interest.

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