ELSEVIER

THE JOURNAL OF
MINIMALLY INVASIVE
GYNECOLOGY

Instruments and Techniques

# Laparoscopically Assisted Vulvocolpohysterectomy and Abdominoperineal Resection with Sigmoid Vaginal Replacement

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**ABSTRACT** **Background:** In this report, we discuss the feasibility of laparoscopy for the resection of recurrent invasive vulvar cancer involving the vagina and anus (stage IVA), requiring radical surgical treatment.
**Methods:** Successive steps of surgery are discussed: laparoscopic mobilization of the uterus, colon, and rectum for a posterior compartment exenteration (radical vulvectomy, colpohysterectomy, and abdominoperineal resection) and primary neovaginal reconstruction with sigmoid vaginal replacement.
**Results:** Duration of surgery was 240 minutes. There was no postoperative complication except for a small dehiscence of the perineal wound that healed completely without intervention. The patient was discharged 10 days after surgery. One month after surgery, coloplasty showed a good perineal opening and a depth of 12 cm. Minimal prolapse of the mucous of the coloplasty and abundant secretion could be observed. Adjuvant radiotherapy was indicated.
**Conclusions:** This combination of laparoscopic techniques is a potential alternative for exenteration or abdominoperineal resection requiring vaginal reconstruction. Journal of Minimally Invasive Gynecology (2010) 17, 379–382 © 2010 AAGL. All rights reserved.

*Keywords:* Vulvar cancer; Abdominoperineal resection; Laparoscopy; Neovagina

Exenteration is indicated primarily as locoregional treatment for advanced or recurrent cervical cancer, recurrent endometrial cancer, vulvar cancer with vaginal, urethral, or rectal invasion, ovarian cancer, vaginal cancer, and advanced bladder or rectal cancer. The operation may be primary or secondary treatment intended for curative or palliative surgery in carefully selected patients [1].

In the care of women with malignancies requiring exenteration, important aspects of treatment include both improved survival and complete physical and psychological rehabilitation. Vaginal reconstruction after pelvic exenteration is an important aspect of this rehabilitation. In addition to sexual rehabilitation, vaginal reconstruction provides support for the hollow pelvic floor after pelvic exenteration, reducing the risk of perineal herniation and fistula [2].

There are many techniques available to the gynecologic oncologist for reconstruction of the vagina after pelvic exenteration, including myocutaneous flaps, partial and full-thickness skin grafts, or the use of peritoneum, intestine, amnion, bladder mucosa, and oxidized regenerated cellulose fabric. The choice of techniques is vast, and proper patient and surgical selection is important for obtaining satisfactory functional and aesthetic results [3,4].

Among techniques with intestinal segments used for neovaginal reconstruction, the method proposed by Baldwin [5] and subsequently reintroduced by Pratt [6] is the most popular. The sigmoid colon, because of its close proximity to the operative site, seems to be the most appropriate choice for reconstruction.

The first case of laparoscopically assisted sigmoid colon vaginoplasty was reported in 1996 by Ohashi et al. [7]. Since then, the viability of the laparoscopic approach has been demonstrated in several case series [8-12] . Recently the first case of robotically assisted surgery was published [13]. In all of these cases, vaginal reconstruction was performed only for patients with congenital vaginal agenesis (Mayer-Rokitansky-Kuster-Hauser syndrome). To our knowledge, this is the first report in the literature of a primary laparoscopically assisted colon vaginoplasty after exenteration or abdominoperineal resection.

The author has no commerical, proprietary or financial interest in the products or compaines described in this article.
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Submitted November 18, 2009. Accepted for publication February 19, 2010.
Available at www.sciencedirect.com and www.jmig.org

1553-4650/$ - see front matter © 2010 AAGL. All rights reserved.
doi:10.1016/j.jmig.2010.02.006

## Case Report

The patient was a 43-year-old woman with a history of chronic HIV infection treated with antiretroviral drugs since 1997. Four years before, a simple vulvectomy was performed to treat bowenoid-type microinvasive squamous cell carcinoma arising from vulvar intraepithelial neoplasia with severe dysplasia. Surgical margins were free.

During follow-up, recurrent squamous cell carcinoma of the vulva was detected. Examination revealed a 3.5-cm tumor located in the perineal region with external infiltration of the anus and posterior wall of the vagina associated with extensive perianal condylomatosis, vaginal intraepithelial neoplasia, and high-grade intraepithelial cervical neoplasia. Abdominal scanning was performed to rule out spread to the abdominal cavity; rectosigmoidoscopy confirmed external infiltration of the anterior anus that did not reach the pectineal line (FIGO stage IVA).

Primary radical surgical treatment was indicated, consisting of vulvectomy, complete colpectomy, hysterectomy, and laparoscopic abdominoperineal resection. Given the age of the patient, different options for primary vaginal reconstruction were considered. On the basis of consultation with a colorectal surgeon, we opted for the use of a colonic graft.

## Surgical Technique

Preoperative preparation consisted of a thorough bowel clearing program consisting of a low-fiber diet and colonic enema the day before surgery. Antibacterial chemoprophylaxis (intravenous cefazolin 2 g) was given at the beginning of the operation.

### *Laparoscopic Procedure*

The laparoscopic procedure was performed with the patient in the modified dorsolithotomy position under endotracheal general anesthesia. The uterus was mobilized via a metallic cannula attached to the neck by a Pozzi clamp. A Veres needle was inserted through the left subcostal Palmer point, and the abdomen was insufflated. After pneumoperitoneum and insertion of the laparoscope through the umbilicus, 3 suprapubic trocars were introduced for ancillary instruments.

*Preparation of the Hysterectomy*

The operation began with incision of the round ligaments and a wide opening of the retroperitoneal space. Both ureters were identified and mobilized from the broad ligament. The pararectal fossas were opened to the level of the levator ani muscle and the presacral and retrorectal space exposed. The uteroovaric ligaments were resected, preserving the ovaries. A descending incision of the uterine arteries and parametrium with a 5-mm LigaSure (Valleylab, Boulder, CO) was performed conventionally for extrafascial laparoscopic hysterectomy. The uterus was kept in an anteflexed position during the remainder of the laparoscopic procedure.

*Preparation of the Colon*

An incision of the peritoneum was made between the sigmoid colon and the psoas major muscle from the proximal rectum cephalid, and the sigmoid was released in the classical manner. The mesocolon was opened, and vascular control of the inferior mesenteric artery and the left colic sigmoid artery was performed, preserving the marginal sigmoid artery. Total mesorectum excision was performed to the level of the levator ani muscle (endopelvic fascia). The sigmoid plasty (neovagina) was prepared by sectioning at the level of the rectosigmoid junction with Endoguia 60 mm blue load (Autosuture; Tyco Healthcare ECE, Princeton, NJ). Thus a distal sigmoid of 15 cm was freed and remained vascularized by the marginal artery.

### *Perineal Procedure*

A vulvar incision extending to the anus including the perianal condylomatosis was performed. The vulvar adipose tissue was mobilized and resected to the osteomuscular level. The urethra and bladder were then liberated. Next, the vaginal walls were mobilized, and the ischiorectal fossas were opened. The paravaginal connective tissue was resected, allowing completion of the hysterectomy and total colpectomy. Sectioning of anococcygeal ligaments allowed complete liberation of the anus and rectum. Exterioration of the sigmoid and sectioning at the level of the rectosigmoid junction was then complete (Fig. 1). Vascularization of the isolated distal sigmoid segment was maintained. The en bloc resection consisted of the vulva, vagina, uterus, anus, rectum, and sigmoid. Closure of the vulvectomy and anastomosis of the sigmoid segment (neovagina) to the perineum was then performed.

### *Laparoscopic Revision*

The abdomen was reinsufflated to ensure correct location and vascularization of the coloplasty and the hemostasis. A stitch was inserted to hold the coloplasty to the bladder peritoneum to avoid prolapse. Finally, the proximal segment of the colon was exteriorized to the left iliac fossa for a permanent colostomy.

## Results

The duration of the surgical procedure, from insertion of the Veres needle until the colostomy, was 240 minutes. No blood transfusion was required.There was no postoperative complication except for a small dehiscence of the perineal wound that healed completely without additional treatment. A urinary catheter was left in place for 5 days to facilitate healing of the surgical wound. The patient was discharged 10 days after the operation.

Histologic examination revealed invasive squamous cell carcinoma, keratinizing and well differentiated, with a tumor size of 3.7 cm. The tumor involved the perineum, posterior vaginal edge, and anterior face of anus up to the pectineal