ORIGINAL RESEARCH—SURGERY

Rectosigmoid Vaginoplasty: Clinical Experience and Outcomes in 86 Cases

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ABSTRACT

Introduction. There are several techniques for creation of a neovagina. However, rectosigmoid segment presents the most natural substitute for vaginal tissue.

Aim. To evaluate the anatomical and functional results of sigmoid vaginoplasty and long-term sexual and psychological outcomes in 86 patients with vaginal absence.

Methods. Between April 2000 and February 2009, 86 patients, aged 18 to 57 years (mean 22) underwent rectosigmoid vaginoplasty. Indications were vaginal agenesis (54), female transgenderism (27), and genital trauma (5). Rectosigmoid segments ranging from 8 cm to 11 cm were isolated, to avoid excessive mucus production. Preferably, it should be dissected distally first in order to check its mobility and determine the correct site for its proximal dissection. Stapling device was used for the colorectal anastomosis as the safest procedure. Creation of perineal cavity for vaginal replacement was performed using a simultaneous approach through the abdomen and perineum. Perineal skin flaps were designed for anastomosis with rectosigmoid vagina for the prevention of postoperative introital stenosis.

Main Outcome Measures. Sexual and psychosocial outcomes assessment was based on the Female Sexual Function Index, Beck Depression Inventory, and standardized questionnaires.

Results. Follow-up ranged from 8 to 114 months (mean 47 months). Good aesthetic result was achieved in 77 cases. Neovaginal prolapse (7) and deformity of the introitus (9) were repaired by minor surgery. There was no excessive mucus production, vaginal pain, or diversion colitis. Satisfactory sexual and psychosocial outcome was achieved in 69 patients (80.23%).

Conclusions. Rectosigmoid colon presents a good choice for vaginoplasty. According to our results, sexual function and psychosocial status of patients who underwent rectosigmoid vaginoplasty were not affected in general, and patients attained complete recovery. **Djordjevic ML, Stanojevic DS, and Bizic MR. Rectosigmoid vaginoplasty: Clinical experience and outcomes in 86 cases. J Sex Med 2011;8:3487–3494.**

Key Words. Vaginal Agenesis; Transsexualism; Rectosigmoid Colon; Vaginal Reconstruction

Introduction

Reconstruction of the vagina is indicated in congenital vaginal agenesis (Mayer–Rokitansky–Kuster–Hauser syndrome), sexual development disorder, and transgenderism, as well as following pelvic tumors or trauma. There are numerous procedures described in the literature, with inherent advantages or disadvantages [1–10]. A variety of tissues have been used for vaginoplasty, including the split-thickness skin graft, full-thickness skin graft, labial flaps, peritoneum, myocutaneous flaps, bladder mucosa, buccal mucosa grafts, intestinal segments, surgical modification of Frank's dilation method (Vecchietti), and penile/scrotal skin in transsexual patients [2,3]. The principal objective of each method is to create a vaginal cavity of adequate diameter and length and appropriate axis to accommodate sexual intercourse. Traditionally, the most common method of vaginal reconstruction has been the split-thickness skin graft, first described by McIndoe [1]. Despite a positive functional result,

this procedure requires lubrication and periodic dilation to keep the neovagina patent. Some of these problems occur with penile/skin flaps in transsexual patients as well.

There are several reports of using rectosigmoid colon for vaginal agenesis [10–14]. The use of isolated bowel segments was introduced in 1907 by Baldwin, who used an isolated ileum but suggested that sigmoid colon could be used as well [6]. Historically, this procedure has not been used as a first-line treatment due to associated morbidity. Nevertheless, this one-step procedure provides excellent results without the need for prolonged stenting and dilation. In addition, this procedure was reported in male-to-female surgery, wherein it was concluded that sigmoid neovagina presented the best choice for these patients, yielding favorable anatomic and functional results [15].

We reviewed 86 patients who underwent sigmoid vaginoplasty with the aim of describing surgical technique, postoperative results, and complications, as well as estimating the impact of this procedure on psychological and psychosocial patients' satisfaction.

Materials and Methods

Between April 2000 and February 2009, 86 patients, aged 18 to 57 years (mean 22) underwent rectosigmoid vaginoplasty. Among the 86 patients, 54 had vaginal agenesis (mean age 20.4 years, range 18–26), 27 were male-to-female transgender patients after failed penile inverted skin flap vaginoplasty (mean age 31.2 years, range 18–57), and five patients (mean age 27, range 19–39) had to undergo surgery due to genital trauma. Genital trauma included sexual abuse (in two cases), severe sports injury of the perineum (one case), iatrogenic trauma following failed vesicovaginal fistula repair (one case), and chemical damage of vulva and vagina in psychotic patient (one case). All procedures were performed by two surgeons, urologist (M.L.D.) and gynecologist (D.S.S.), at our institution. In patients with vaginal agenesis, preoperative examination included ultrasonography, magnetic resonance imaging, hormonal analysis, and chromosomal study. For transsexual patients, psychiatric reports were reviewed and surgery was planned following substitutional hormonal therapy, lasting over a year, according to Standards of Care of the World Professional Association for Transgender Health [16]. Preoperative assessment of all patients included sigmoidoscopy, a barium enema, and full hormonal profile. Patients were admitted to the hospital the day before the surgery for mechanical bowel preparation using a 2-L polyethylene glycol solution. Ceftriaxone 1 g and metronidazole 500 mg were administrated intravenously with induction of anesthesia.

Surgical Technique

The patient is placed in an extended lithotomy position as for a synchronous combined abdominoperineal approach. Through a Pfannenstiel incision, the sigmoid colon is mobilized from its lateral retroperitoneal attachment, as far as possible. Before making the final selection of the sigmoid colon segment, the length of the sigmoid and its mesentery should be assessed to determine whether it can reach the perineum easily. If the lowest point of the sigmoid can be pulled down to reach the pubic symphysis, a tension-free rectosigmoid vagina can be anticipated. Isolated segment of the rectosigmoid ranged from 8 cm to 11 cm in length to avoid excessive postoperative mucus production. Rectosigmoid is harvested with its blood supply originating from sigmoidal arteries and/or superior hemorrhoidal vessels. Preferably, it should be divided distally first in order to check its mobility and determine the correct site for its proximal division. The proximal portion of the sigmoid is closed in two layers with absorbable sutures (Figures 1–3). Bowel continuity is achieved using an intraluminal stapling device, followed by overstitching with polydioxanone suture (PDS) sutures (Figure 4). The mesenteric defect is closed with the neovagina and its mesentery at the left side of the field. Perineal cavity for vaginal replacement is created using a simultaneous approach through the abdomen and perineum. Dissection is performed very precisely to avoid injury to the rectum, bladder, and urethra. In female transsexuals, scarred and nonfunctional vagina is completely excised to provide adequate space to position the sigmoid loop. Isolated sigmoid is brought down to the perineal canal without tension to create a tension-free coloperineal anastomosis. To prevent purse-string scarring, introital or perineal skin flaps are formed and approximated to sigmoid vagina. Typically, a "U"-shaped incision posterior to the urethra is made and completed with two lateral vascularized introital flaps. Vascularized flaps are completely mobilized to push the neo-introital opening as high as possible to prevent mucosal prolapse and to yield better aesthetic results with the anastomosis deeply hidden (Figure 5).

The neovagina was packed for 7 days, and an indwelling Foley catheter was left in place for 4 days. Cephalosporins were administered for