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Transverse Retubularized Ileal Vaginoplasty: A New Application of the Monti Principle—Preliminary Report

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Abstract

Objective: The surgical management of the absence of the vagina is a complex problem and constitutes a significant technical challenge. Herein we present our successful experience with vaginal reconstruction by the use of a modified ileal segment according to the Monti principle.

Methods: Six patients aged from 23 to 41 years (mean 33 years) were referred to our institution for vaginal stenosis. In our series, ileum has been used to create the neovagina: the isolated segment has been longitudinally detubularized and transversally retubularized in order to configure the roof of the neovagina.

Results: The mean operating time was 220 min. No intra-operative complication occurred. The mean follow-up of this series was 16 months. At the latest follow-up, all patients had patent moist neovaginas, but excessive vaginal mucous was not a problem in any patient in our series.

Conclusions: Neovaginal creation using isolated ileal segments according to the Monti channel principle provide excellent tissue for vaginal replacement, providing excellent patient satisfaction and relatively low morbidity. Cosmetic, functional and anatomical results were encouraging. In our opinion our technique may be indicated for all cases of vaginal absence: congenital abnormalities in the pediatric population, vaginal stenosis after treatment of pelvic tumors, severe vaginal scarring secondary to chronic inflammatory disease or in case of secondary correction after failure gender surgery.

Keywords: Vaginal stenosis; Vaginoplasty; Surgery; Bowel

1. Introduction

The surgical management of the absence of the vagina is a complex problem and constitutes a significant technical challenge for the surgeon and for the patient: outcomes are measured not only by cosmetic and functional results but also by the patient's psychosexual development.

Absence of the vagina in the pediatric population most commonly results from a congenital abnormality, but may also be seen in the adults after complete stenosis for chronic inflammatory disease, extensive resection of pelvic tumors or in case of gender reassignment.

There is no consensus on the best option for surgical correction of the vaginal agenesis: construction of an artificial vagina has undergone a long evolution and many techniques have been described for vaginal reconstruction, but a standardized treatment does not yet exist [1].

These techniques include not surgical methods, such as progressive dilatation [2], or surgical options, such as skin transplants [3,4], intestinal transplants [5,6], myo-cutaneous transplants [7] or epithelialization from the outer skin layer (the Vecchietti method) [8].

The use of bowel has been revisited in the last few decades because of concerns about complications asso-

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ciated with grafting and flap techniques: today the majority of surgeons favour a technique using a pediculated isolated sigmoid colon segment [1,6]. The advantages of intestinal transplant methods include adequate vaginal length, natural lubrication, early coitus and a lack of shrinkage [9].

Sigmoid colon has been popular because of proximity and its easily mobilized vascular pedicle [10].

Herein we present our successful experience with vaginal reconstruction by the use of a modified ileal segment according to the Monti principle.

2. Materials and methods

Between December 2000 and April 2004, 6 consecutive patients aged from 23 to 41 years (mean 33 years) were referred to our institution for vaginal stenosis: one patient had an advanced vaginal scarring secondary to an erosive lichen planus and 5 patients were male-to-female transsexuals who required vaginal replacement for complete neovaginal stenosis after previous gender surgery.

Many therapeutic options in all positive and negative aspects were discussed with the patients and they chose ileal vaginoplasty modified according to the Monti principle.

Pre-operative preparation included full mechanical preparation of the colon and prophylactic administration of heparin. Under general anesthesia, the patient was positioned in supine lithotomic position in order to achieve a good intra-abdominal exposure as well as wide access to the perineum and introitus.

A simultaneous abdominal perineal approach was used. Through a midline or Pfannestil approach, after inspection of the abdomen and pelvis, the pouch of Douglas was accessed. A Hager sound was inserted in the distal vaginal segment and the peritoneal reflection was opened while pushing the sound as a marker. The vaginal vault was then isolated and completely mobilized. This step of the operation is generally very difficult after previous surgery because scars and fibrosis obliterates the natural tissue planes. In this way, by blunt dissection, a surgical plane was developed between the urethra and rectum. Careful attention must be paid to prevent damages to the surface of the rectum and of the urethra. It is important to create a space large enough for the bowel segment to fit easily and enable to mobilize the vaginal vault to allow a capacious well vascularized and tension-free anastomosis.

The ileum was extracted and an ileal loop that more easily reached the pelvis was chosen, at about 20 cm from the ileocecal valve. Vascularization of the loop was preserved using the standard transillumination technique.

In most patients there is a normal distal vaginal segment that can be used for anastomosis to the bowel segment: in these cases a 12 cm segment was isolated and intestinal transit was re-established. The isolated segment was detubularized and transversally retubularized in order to configure the roof of the neovagina. The proximal end of the conduit was closed with two layers of absorbable suture material (Fig. 1).

In patients with an inadequate distal vagina, the bowel segment must be longer in order to be anastomosed directly to the perineum. In these cases, two adjacent segments of 12 cm long ileum were isolated. Each segment was detubularized and the resulting flaps were attached and retubularized transversally; a tube 10–12 cm in length with two long branches separated by two insertion of mesentery was obtained (Fig. 2).

The ileal segment was brought to the perineum with as little tension as possible in order to allow a tension free anastomosis.

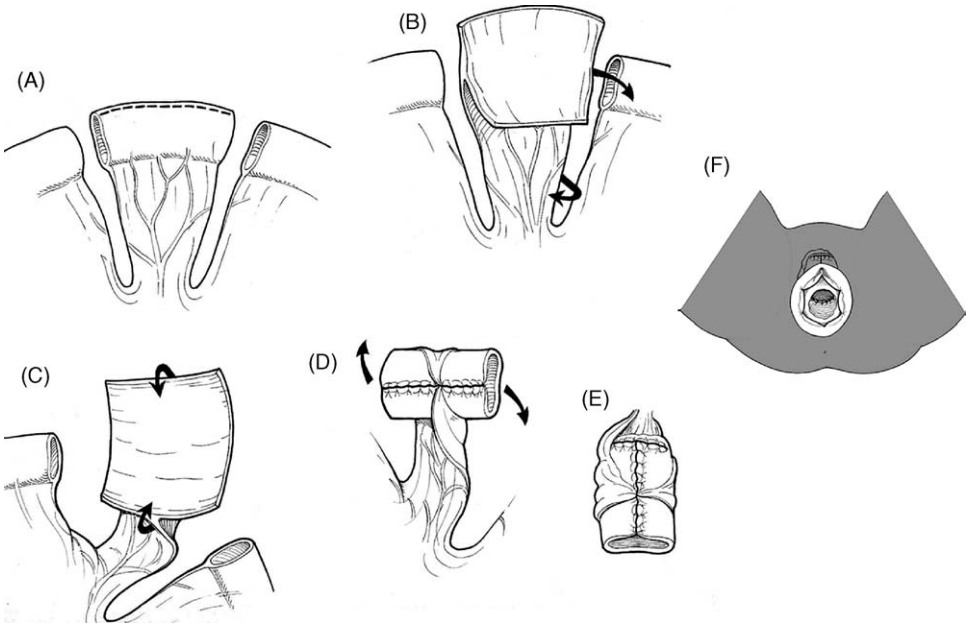

Fig. 1. (A) A 12 cm ileal segment is isolated, (B) detubularized through longitudinal incision halfway on the anterior side. (C) The flap is then rotated and (D) transversally retubularized with total running suture. (E) The vault of the neovagina is then configured and prepared for the anastomosis with the distal part of the normal vagina. (F) A tension free anastomosis is performed among the new created vaginal conduit and the distal vaginal segment with interrupted absorbable sutures (Monocryl 3-0).