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Original Article

Is Ileostomy Always Necessary Following Rectal Resection for Deep Infiltrating Endometriosis?

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ABSTRACT **Objective:** To verify the hypothesis that in most patients bowel segmental resection to treat endometriosis can be safely performed without creation of a stoma and to discuss the limitations of this statement.
Design: Retrospective study (Canadian Task Force classification III).
Setting: Tertiary referral center.
Patients: Forty-one women with sigmoid and rectal endometriotic lesions who underwent segmental resection.
Intervention: Segmental resection procedures performed between 2004 and 2011. Patient demographic, operative, and postoperative data were compared.
Measurements and Main Results: Sigmoid resection was performed in 6 patients (15%), and rectal anterior resection in 35 patients (high in 21 patients [51%], and low, i.e., <10 cm from the anal verge, in 14 [34%]). In 4 patients a temporary ileostomy was created. There was 1 anastomotic leak (2.4%), in a patient with an unprotected anastomosis, which was treated via laparoscopic surgery and creation of a temporary ileostomy. Other postoperative complications included hemoperitoneum, pelvic abscess, pelvic collection, and a ureteral vaginal fistula, in 1 patient each (all 2.4%).
Conclusion: A protective stoma may be averted in low anastomosis if it is >5 cm from the anal verge and there are no adverse intraoperative events. Journal of Minimally Invasive Gynecology (2015) 22, 103–109 © 2015 AAGL. All rights reserved.

Keywords: Anastomotic leak; Bowel endometriosis; Colorectal resection; Ileostomy

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Endometriosis is a benign condition characterized by the presence of ectopic endometrial tissue outside of the uterine cavity. It affects 6% to 10% of all women of childbearing age [1]. Deep infiltrating endometriosis is characterized by invasive implants that penetrate >5 mm below the peritoneal surface of affected tissue [2]. The prevalence of bowel endometriosis ranges between 5.3% and 12%, with preferential localization to the rectum or rectosigmoid junction in 70% to 93% of patients [3,4]. Surgery is considered the optimum therapeutic option for bowel endometriosis, with laparoscopy as the preferred approach [5]. Various surgical procedures have been adopted, such as superficial thickness excision (shaving/mucosal skinning), resection of the nodule with excision of the anterior wall of the rectum (discoid resection), and segmental bowel resection.

Insofar as segmental resection, some authors suggest a more economical approach, respecting the vascularization of the bowel, resulting in less frequent need of a defunctioning stoma [6–8], whereas others prefer a more aggressive surgical approach with total mesorectal excision and/or inferior mesenteric artery ligation and systematic use of a stoma [9–11].

It is well accepted that a stoma should be created when risk factors for anastomotic leak are present; however, limited data exist to clearly determine the indications for

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routine fecal diversion in patients undergoing segmental rectosigmoid resection to treat endometriosis.

The objectives of the present study were to assess the safety of laparoscopic rectosigmoid segmental resection and anastomosis to treat deep infiltrating endometriosis without stoma formation and to validate its feasibility in most patients.

Material and Methods

This retrospective study included all patients who underwent laparoscopic rectosigmoid resection to treat bowel endometriosis between January 2007 and December 2011 at the Department of Gynecology at Strasbourg University Hospital. Patients underwent either minilaparotomy for extraction of the specimen and connection of the anastomosis, defined as the classic technique, or the natural orifice specimen extraction (NOSE) technique, which have been incorporated into our practice since February 2009. In all patients bowel preparation consisted of a low-fiber diet for 5 days and a high-volume rectal enema on the day before surgery. Antibiotic prophylaxis (2 g cephazolin and/or 1 g metronidazole) was administered 15 minutes before the first incision was made. All NOSE procedures were performed by a specialist team consisting of a gynecologist (A.W.) and a colorectal surgeon (J.L.). The patient was placed in a lithotomy position with the arms alongside her body. An indwelling catheter was placed to empty the bladder and to measure urine output. A uterine manipulator (Tintara; Karl Storz GmbH & Co, Tüttlingen, Germany) was used. Trocar setup included a 10-mm, 0-degree umbilical laparoscope; 3 additional 5-mm ports were placed, in the suprapubic midline and the left and right iliac fossa, respectively. Segmental bowel resection was reserved for stenotic lesions and lesions >3 cm and/or affecting multiple sites of the bowel after initial unsuccessful conservative (shaving) surgery. In all cases the decision for resection was made during the procedure, after systematic intraoperative evaluation of the lesion. The level of rectal anastomosis was defined according to the distance from the anal verge: high anterior (>10 cm) and low anterior (<10 cm).

Surgical Technique

After a thorough evaluation of the disease, the procedure is begun by releasing the physiologic attachments of the sigmoid colon. All adhesions are divided, and both ovaries are suspended to the lateral abdominal wall to improve exposure. Both ureters are identified, and the pararectal fossa is developed bilaterally between the ureter and the uterosacral ligaments.

The procedure continues with dissection of the rectovaginal septum. The objective is to leave most of the nodule attached to the cervix and the vagina, releasing the rectum. The lesions is then re-evaluated via rectovaginal examination and a rectal probe, at which point a decision regarding resection is made according to the previously defined criteria. Our surgical technique consists of dividing the mesentery close to the digestive tract to preserve the vasculature and lymphatic vessels and the surrounding sympathetic and parasympathetic nerves. The need for ligation of the inferior mesenteric artery is thereby averted. The mesentery is dissected using a LigaSure device (Covidien, Mansfield, MA). In the case of sigmoid lesions, only the sigmoid branches are divided. For rectal lesions, the objective is to preserve the superior rectal vessels.

Once the desired length of sigmoid colon for resection is dissected, the colon is temporarily closed using 2 grasping forceps, and a rectal washout using >500 mL povidone-iodine solution (Betadine) is performed. A linear endoscopic stapler is used to resect the bowel, leaving a free margin of 1 to 2 cm from the nodule [5]. The nodule is then removed with or without opening the vagina, and the bowel resection is performed either using the classic approach or the NOSE technique, as described by Akladios et al [12]. In all cases, the integrity of the anastomosis is systematically checked using an air leak and methylene blue test [12]. Completeness of the 2 doughnut rings of tissue is also checked to confirm an adequate anastomosis. The absence of tension or twists and the vascularization of the anastomosis is systematically controlled at the end of the procedure. When bowel and vaginal sutures are at the same level, an omental flap is placed to separate the 2 suture lines. A protective ileostomy is performed in patients in whom an ultra-low colorectal anastomosis (<5 cm from the anal margin) was required.

Data Collection

Medical records were analyzed retrospectively. The following items were reviewed: age, body mass index, and parity; history of previous surgery to treat endometriosis; size of the nodule at magnetic resonance imaging; surgery including conversion rate, operative time calculated from skin incision to the last cutaneous suture, operative complications, associated surgical procedures, and the length of resected bowel segment; and postoperative progress including the length of hospital stay and postoperative complications. Intraoperative and postoperative complications were recorded according to the Dindo-Clavien classification [13]. Grades I and II were considered minor complications, whereas grades III and IV were considered major complications. Insofar as specific complications, anastomotic leak was defined as the presence of bowel content leaking from a defect in the anastomosis, identified at repeat operation. A pelvic collection was defined as the presence of a sterile collection in the pelvis visible on computed tomography scans in a patient with symptoms. If the patient was febrile, the complication was classified as a pelvic abscess. Recurrence of bowel endometriosis was defined as the presence of endometriosis involving the bowel in a patient who had previously undergone bowel surgery. Recurrence of pelvic endometriosis