

Original Article

Role of Protective Defunctioning Stoma in Colorectal Resection for Endometriosis

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ABSTRACT **Study Objective:** To evaluate the role of protective defunctioning stoma (PDS) on the occurrence of digestive tract complications after colorectal resection to treat endometriosis.

Design: Prospective cohort study (Canadian Task Force classification II-2).

Setting: University hospital.

Patients: All patients undergoing segmental colorectal resection to treat colorectal endometriosis with and without PDS between 2003 and 2011 at Tenon University Hospital, Paris, France.

Measurements and Main Results: Patients were assessed at 1, 6, and 12 months postoperatively and each year thereafter. Median follow-up was 60 months. Of 198 patients included for analysis, 53 (27%) had PDS. Overall, 15 (7.5%) digestive tract complications occurred: 9 (4.5%) rectovaginal fistulas and 6 (3%) anastomotic leakages. All rectovaginal fistulas occurred in patients with a low colorectal anastomosis ($p < .001$) and 88% (8 of 9) in patients with a partial colectomy ($p < .001$). PDS was associated with a decrease in the number of rectovaginal fistulas in women undergoing partial colectomy and low colorectal resection from 27% to 15%, without reaching significance ($p = .4$). No anastomotic leakage occurred in patients with PDS.

Conclusion: Our results support that PDS can be omitted in patients with mid-colorectal anastomosis without partial colectomy. In patients requiring partial colectomy or partial colectomy plus low colorectal anastomosis, PDS remains questionable. Journal of Minimally Invasive Gynecology (2014) 21, 472–479 © 2014 AAGL. All rights reserved.

Keywords: Colorectal endometriosis; Digestive complication; Protective defunctioning stoma; Rectovaginal fistula

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Endometriosis is defined by the presence of endometrial tissue outside the uterus, and affects 10% to 15% of women of childbearing age [1]. Colorectal endometriosis is one of the most severe forms of the disorder and is a well-known

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cause of altered quality of life and a source of infertility. Although the exact incidence of colorectal endometriosis is unknown, it is thought to affect 5% to 12% of patients with endometriosis and up to 35% of patients with deep infiltrating endometriosis (DIE) [2].

After failure of medical treatment, colorectal resection in patients with symptomatic endometriosis is a good option to relieve symptoms [3,4] and enhance fertility [5–11]. Moreover, since the first cases of laparoscopic colorectal resection to treat endometriosis [3,12,13], its use has been widely reported, which suggests that this major operation can be considered a standard option. However, some

authors have discussed the relevance of performing colorectal resection because of the risk of severe morbidity including rectovaginal fistula, raising the issue of less extensive surgery such as rectal shaving or discoid resection [14–17]. Indeed, these less extensive surgical procedures, when feasible, are a good alternative to segmental resection [14–17]. Moreover, a recent meta-analysis has highlighted a lack of data concerning long-term results and fertility outcomes after a procedure that exposes patients to severe complications including risk of neurogenic bladder and digestive tract complications. Digestive tract complications have been observed in 2% to 10% of series, with a mean incidence of 2.7% [11]. In a meta-analysis of low anterior rectal resection to treat cancer, Tan et al [18] showed that a protective defunctioning stoma (PDS) decreased clinical anastomotic leakage and the rate of repeat operation to treat anastomotic leakage. In contrast to colorectal resection to treat cancer, few data are available on the relevance of PDS in preventing digestive tract complications in patients with endometriosis. Indeed, some authors recommend that a PDS be constructed systematically, imposing a second surgery [19], whereas other authors do not [11,20–23].

The objective of the present study was to evaluate the role of PDS on the occurrence of postoperative digestive tract complications in patients requiring colorectal resection to treat DIE and thereby potentially clarifying its indications.

Materials and Methods

From March 2003 to December 2011, we performed a prospective cohort study that included all patients with symptomatic DIE with colorectal involvement who underwent colorectal resection at Tenon University Hospital, Paris, France. All patients gave informed consent before inclusion, and the study was approved by the Ethics Committee of the College National des Gynécologues et Obstétriciens Français.

Preoperative Assessment of DIE

DIE was diagnosed clinically by 2 experienced surgeons (E.D. and M.B.) on the basis of the following criteria: visible dark blue nodules on the posterior vaginal fornix at speculum examination or infiltration associated with palpable induration at vaginal and rectal digit examination. Patients were then referred to the Department of Radiology for confirmation of the diagnosis. All patients underwent transvaginal ultrasonography followed by magnetic resonance imaging to assess the presence of colorectal lesions, unifocality or multifocality of bowel endometriosis, and location of associated DIE lesions [2,24]. Anatomical locations of endometriosis and extent of colorectal endometriosis were also recorded.

Surgical Procedure

All laparoscopically assisted and open colorectal resections were performed with the objective of complete

resection, as previously described [25]. Procedures included adnexal surgery (ovarian cystectomy or salpingo-oophorectomy); uterosacral ligament, torus uterinum, parametrium, or vaginal resection; ureterolysis; and ureteral reimplantation when required. The preferred surgical route was laparoscopy except from January 2006 to December 2008, when 52 patients were included in a randomized controlled trial comparing laparoscopy with open surgery [4]. Laparoscopy was converted to open surgery for reasons of patient safety or because of technical difficulties. The creation of a PDS was recommended in all patients requiring partial colectomy or multiple bowel resections after our preliminary study of laparoscopic colorectal resection, which showed that partial colectomy was associated with risk of rectovaginal fistula [25]. Moreover, for patients requiring en bloc resection including colorectal resection and hysterectomy, omentoplasty was performed when feasible and consisted of interposing omentum between the vaginal suture and rectal staple line. Omentoplasty was not performed in patients wishing to preserve their childbearing potential, to avert adhesions. Colorectal endometriosis was histologically confirmed in all patients. Patients were assessed at 1-, 6-, and 12-month postoperative follow-up and then each year thereafter.

Study Variables

Data including epidemiologic characteristics and radiologic and surgical findings were prospectively recorded from patient medical records. The American Society for Reproductive Medicine score was systematically calculated. A low colorectal anastomosis was defined as an anastomosis <7 cm from the anal margin. Digestive tract complications including anastomotic leakage and rectovaginal fistula were recorded.

Statistical Analysis

Univariate analysis was performed using the Wilcoxon test for continuous variables and the Fisher exact test for categorical variables. All reported p values were 2-sided. Significant difference was accepted as $p < .05$. All statistical analysis was performed using commercially available software (STATA version 11; StataCorp LP, College Station, TX).

Results

Epidemiologic and Surgical Characteristics

During the study, 212 patients underwent colorectal resection to treat symptomatic endometriosis (Table 1). Of these, 14 were excluded from the analysis for the following reasons: rectal shaving ($n = 2$), discoid rectal resection ($n = 6$), lost to follow-up ($n = 6$) (Fig. 1). The study population thus consisted of 198 patients with a median age of 34 years (range, 23–53 years) and a body mass index of 22

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