

Postoperative complications after bowel endometriosis surgery by shaving, disc excision, or segmental resection: a three-arm comparative analysis of 364 consecutive cases

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Objective: To assess the postoperative complications related to three surgical procedures used in colorectal endometriosis: rectal shaving, disc excision, and segmental resection.

Design: Retrospective comparative study using data prospectively recorded in the North-West Inter Regional Female Cohort for Patients with Endometriosis (CIRENDO) database.

Setting: University tertiary referral center.

Patient(s): A total of 364 consecutive patients with deep endometriosis infiltrating the rectosigmoid, were stratified into three arms according to the technique used.

Intervention(s): All patients had a laparoscopic surgical procedure to treat bowel endometriosis: rectal shaving (145 patients), disc excision (80 patients), or segmental colorectal resection (139 patients).

Main Outcome Measure(s): Postoperative complication rate was assessed using Clavien–Dindo classification.

Result(s): Clavien 3b postoperative complications were recorded in 43 patients (11.8%), two thirds of whom were managed by segmental colorectal resection ($P < .001$). Fourteen cases of rectovaginal fistula (3.8%) were reported: three in the shaving arm (2.1%), three in the disc excision arm (3.7%), and eight in the segmental colorectal resection arm (5.8%) ($P = .13$). Twenty-four cases (6.6%) of pelvic abscess were recorded in patients free of fistula or leakage. One year after the surgery pregnancy rate (PRs) and delivery rate were comparable between patients with or without severe complications who intended to get pregnant. Three years postoperatively, the PR in infertile patients was 66.7%, with spontaneous conception in 50% of cases.

Conclusion(s): Our data suggest that using a strategy prioritizing shaving, whenever it is possible, could be related to a reduction in severe complication rates. However, prudence is required before concluding that extensive disease should not be treated by segmental resection because of the risk of complications. (Fertil Steril® 2018;109:172–8. ©2017 by American Society for Reproductive Medicine.)

Key Words: Rectal shaving, disc excision, colorectal resection, colorectal endometriosis, postoperative complication

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The incidence of bowel endometriosis is estimated to affect 5%–12% of women with deep endometriosis. The rectum and rectosigmoid junction are the preferential localizations of all intestinal endometriotic sites in 70%–93% of patients (1, 2). Medical therapies do not provide disease control in the long term when treatment is discontinued and may fail to stop disease progression (3). Colorectal surgery, with a laparoscopic approach is considered to be efficient

to treat bowel endometriosis (4). The surgical management of bowel endometriosis is complex and may be responsible for severe postoperative complications such as rectovaginal fistula, pelvic abscess, hemoperitoneum, or peritonitis (5). At present, several surgical procedures are performed: nodule excision without opening the rectum (shaving), resection of the nodule with excision of the anterior rectal wall (disc excision), and segmental colorectal resection (6). This latter procedure is often preferred because of a belief that this approach greatly reduces the risk of recurrence and can remove larger colorectal nodules. However, the risk of unfavorable outcomes seems to be higher when segmental colorectal resection is performed (7).

Hence, choosing the optimal surgical procedure is complex and based on many factors related to a patient's characteristics (e.g., age, desire to preserve fertility, nodule localization) and a surgeon's practices. The aim of this present study was to assess, in a large series, the postoperative complications related to these three laparoscopic surgical procedures used to treat bowel endometriosis: rectal shaving, disc excision, and segmental colorectal resection.

MATERIALS AND METHODS

We conducted a retrospective comparative cohort study from June 2009 to December 2015 in the Department of Obstetrics and Gynecology at Rouen University Hospital, Rouen, France. We enrolled consecutive patients managed for colorectal endometriosis. Patients were allocated to one of three arms based on their surgical management: the rectal shaving arm, the disc excision arm, or the segmental colorectal resection arm. Patients managed by both rectal disc excision and sigmoid colon resection were excluded.

During the study period, patients' data and follow-up were prospectively recorded in the North-West Inter Regional Female Cohort for Patients with Endometriosis (CIRENDO) database (NCT02294825) by a clinical research technician. This study has been approved by the French authority CCTIRS (Advisory Committee on information processing in healthcare research) (8). A detailed preoperative questionnaire was used to complete patients' symptom history. Standardized gastrointestinal questionnaires were routinely used to assess preoperative and postoperative digestive function: the Gastrointestinal Quality of Life Index (9), the Knowles-Eccersley-Scott-Symptom Questionnaire (10), the Fecal Incontinence Quality of Life index, and the Bristol stool scale (11). Patients also completed the Medical Outcome Study, a 36-item short-form health survey, used in the evaluation of quality of life and health status. Prospective recording of data concerning medical history, clinical symptoms, findings of clinical and imagery examinations, surgical procedures, and postoperative outcomes was performed in the North-West Inter Regional Female Cohort for Patients with Endometriosis (CIRENDO), which is a prospective cohort, financed by the G4 Group (the university hospitals of Rouen, Lille, Amiens, and Caen) and coordinated by one of the authors (H.R.).

All women referred to our department for deep endometriosis had a clinical examination performed by a surgeon

experienced in endometriosis and a magnetic resonance imaging (MRI) examination. When deep endometriosis was confirmed, endorectal ultrasound was performed to check whether the rectum was involved and to estimate the depth of rectal wall infiltration. Computed tomography (CT)-based virtual colonoscopy was often used to check for digestive tract stenosis and associated digestive tract localizations. Complementary examinations, such as cystoscopy and unenhanced helical CT, were performed in women with associated involvement of the urinary tract.

The operative strategy was first discussed with the patient and the digestive surgeon before a decision was made concerning the surgical procedure to be used (i.e., rectal shaving, disc excision, or segmental colorectal resection). The choice of procedure was decided preoperatively in most cases, on the basis of multiple arguments, such as endometriosis nodule features, symptoms, age, pregnancy intention, as discussed in our previous reports (12–14). The principles and goals of the surgical approach were discussed before surgery, and patients were informed of the main postoperative complications.

Allocation to the three arms was based on the surgical procedure performed: rectal shaving, disc excision, or segmental resection. Patients with multiple colorectal nodules requiring several associated procedures were allocated as follows: patients with both rectal shaving and colorectal segmental resection or disc excision were allocated to the segmental resection group or to the disc excision group, respectively. Patients who had both rectal disc excision and segmental resection of the sigmoid colon were excluded from the study, because the attribution of complications to either one or the other procedure would have been disputable. The techniques used on the bowel have been presented extensively in our previous original studies and video articles (12–16). One senior gynecologic surgeon exclusively dedicated to endometriosis (H.R.) performed most surgical procedures, assisted by five digestive surgeons, if required. Our team also includes five experienced gynecologic surgeons who performed the other procedures included in the study.

In patients with no further pregnancy intention and adenomyosis, hysterectomy was proposed to improve postoperative outcomes (17). The decision to perform primary stoma (ileostomy or colostomy) was based on intraoperative findings after discussion between gynecologic and digestive surgeons. Postoperative continuous hormone therapy (HT) was recommended in patients with no pregnancy intention, with the aim of reducing the risk of postoperative recurrences. Surgical procedures were not experimental and analysis of data was retrospective, thus our study was exempt from approval by the institutional review board.

Statistical analysis was performed using Stata 11.0 software (Stat Corporation). We present the number of patients and percentages (qualitative variables), as well as median values and range (continuous variables). Comparison was performed using Fisher's exact test (qualitative variables), and continuous variables were assessed by one-way analysis of variance (ANOVA) between groups. $P < .05$ was considered statistically significant.

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