

Instruments and Techniques

Double Circular Stapler Technique for Bowel Resection in Rectosigmoid Endometriosis

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ABSTRACT To reduce bladder function impairment and avert the serious complications of anastomotic leakage after segmental rectosigmoidectomy and to minimize the persistence of endometriotic lesions associated with discoid resection, we used the double circular stapling (DCS) technique. This technique enables excision of bowel endometriosis nodules larger than those that can be removed with the single-load technique of the circular stapler. Of 120 patients who underwent surgery to treat bowel endometriosis, intestinal shaving was performed in 24, discoid resection with single circular stapling in 40, and rectosigmoidectomy in 55. Eleven patients (9.2%) underwent the DCS technique. In the DCS group, the size of the rectosigmoid lesion ranged from 2.2 cm to 4.2 cm. Median operative time for the DCS technique was 100 minutes, compared with 150 minutes for rectosigmoidectomy ($p = .04$). Only 1 of 11 patients (9%) had urinary retention, compared with postoperative urinary retention in 14 of 55 patients (25%) who had undergone rectosigmoidectomy (difference not significant). Only 1 patient, with a 4.2-cm nodule, had a positive margin in the specimen obtained at the second stapling. DCS is a promising technique and may avert rectosigmoidectomy in selected patients. *Journal of Minimally Invasive Gynecology* (2014) 21, 136–141 © 2014 AAGL. All rights reserved.

Keywords: Bowel; Circular stapler; Deep infiltrative; Endometriosis; Rectosigmoidectomy; Resection

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Deep infiltrative endometriosis is a severe form of the disease and usually requires surgical treatment [1]. Resection of visible foci, if possible, at first surgery is recommended for a satisfactory result and to minimize recurrence [2]. This reasoning also applies to the intestinal lesions, although there is currently no consensus on the most appropriate technique for resection of these lesions. The choice of intestinal shaving, discoid resection, or segmental resection with anastomosis depends on the extent and depth of intestinal infiltration and the preference and skills of the surgeon [3]. Rectosig-

moidectomy is disadvantageous in the short and medium to long term with regard to bladder atony, alterations in bowel function, and the quality of the patient's sex life [4].

Compared with the classic technique, the use of nerve-sparing methods in patients undergoing laparoscopic resection of bowel endometriosis lesions minimizes bladder dysfunction and results in greater patient satisfaction [5]. Even with proper use of this technique, urinary retention requiring self-catheterization still occurs in as many as 30% of patients [6]. A comparative study of discoid and segmental resection techniques found that segmental resection was associated with longer mean operative time and a significantly greater probability of urinary retention, fever, and need for a temporary ileostomy [7].

To reduce bladder function impairment, prevent the serious complications of anastomotic leakage after segmental rectosigmoidectomy, and minimize persistence of endometriotic lesions after single circular stapler discoid resection,

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we used the double circular stapling (DCS) technique. This technique enables, with less morbidity, excision of bowel endometriosis nodules larger than can be removed via the single-load technique using the circular stapler. Herein we describe the technique and our initial experience.

Materials and Methods

This retrospective study included patients with deep infiltrative endometriosis of the rectosigmoid colon who underwent the DCS technique between December 2010 and March 2012 for resection of the lesions. We included all consecutive laparoscopic surgical procedures performed for treatment of endometriosis infiltrating the rectosigmoid colon at the teaching hospital of the State University of Rio de Janeiro and in a private clinic specializing in treatment of endometriosis. All patients had symptomatic disease, and drug therapy had failed in most. Patients were followed up for up to 60 days after surgery. Rectosigmoidoscopy was performed between 45 and 60 days postoperatively in the DCS group to evaluate the bowel lumen and the staple line. In all patients, the Foley catheter was routinely removed at 48 hours after the procedure. All patients were evaluated clinically and via ultrasonography for urinary retention [8]. In case of urinary retention, defined as post-voiding residual urine >150 mL, either the Foley catheter was reinserted or the patient began self-catheterization.

Selection Criteria

The following criteria were used to select patients for the DCS technique: i) single endometriosis lesion measuring a minimum of 2 cm and a maximum of 5 cm in its longest axis (assessed via magnetic resonance imaging [MRI]); ii) intestinal endometriosis lesion 7 to 15 cm from the anal verge (evaluated via colonoscopy or MRI); iii) lesion affecting up to 40% of the circumference (assessed via MRI or transvaginal ultrasonography after bowel preparation); and iv) obstruction of up to 25% of the intestinal lumen (assessed via rectosigmoidoscopy or colonoscopy).

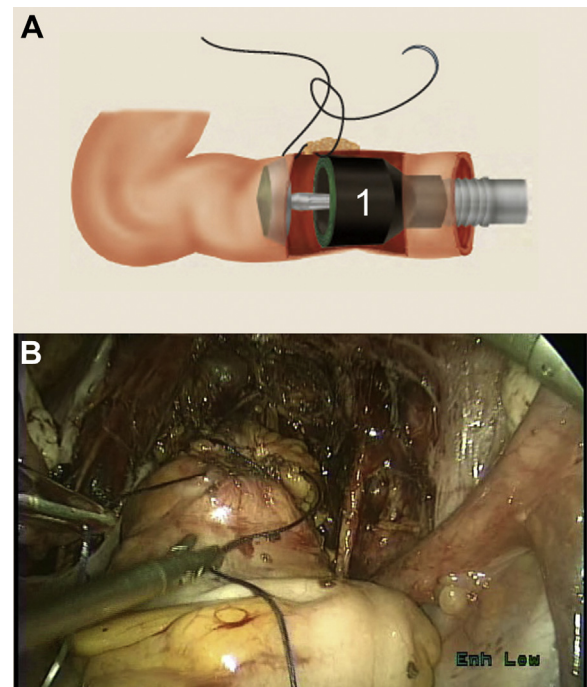
DCS Technique

The first step is a systematic approach to deep infiltrative endometriosis of the posterior compartment and isolation of the nodule; this has been well described elsewhere [9]. In the DCS technique, the first suture is passed from the proximal free edge to the middle of the lesion. First passage of the needle is made and involves all layers of the intestine 0.5 cm proximal to the endometriotic nodule. The second passage of the needle is made deep in the middle of the nodule using 2-0 polyglactin 910 or prolene sutures (Fig. 1).

A large (33 or 34 mm in diameter) circular stapler is inserted transanally and carefully opened to a length of 3 cm. It is advisable to test in advance the opening of the stapler to the maximum aperture that does not cause detach-

Fig. 1

(A and B) Suture passing through the nodule and the lesion-free area proximal to it.



ment of its removable anvil. On occasion, it may be necessary to use a smaller stapler (e.g., 29 mm in diameter) to be able to advance it beyond an occasional stenosis. The area to be excised is laid in the groove created between the anvil and the stapler, caudally orienting the sutures previously threaded into the lesion (Fig. 2). The stapler should be tilted upward to prevent the posterior rectal wall from being included in the stapling. The circular stapler is closed and fired, and then removed through the anus. The result is an anterior discoid resection of a wedge of the rectum containing part of the nodule and the suture (Fig. 3).

The procedure is then repeated, applying the first pass of the needle 0.5 to 1 cm proximal to the stapled free edge and the second pass of the needle at 0.5 to 1 cm from the free distal portion of the endometriotic lesion (Fig. 4), including all remaining disease and the first stapled line in the second circular stapling (Fig. 5). The amount of tissue removed with the 2 staplings is shown in Fig. 6.

All specimens are sent for histopathologic analysis, and margins of the specimen removed at the second stapling are studied to determine whether they are positive for endometriosis.

Statistical Analysis

The χ^2 test was used to analyze proportions, and the non-parametric Wilcoxon rank sum test was used to analyze

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