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Endometriosis Lesions That Compromise the Rectum Deeper Than the Inner Muscularis Layer Have More Than 40% of the Circumference of the Rectum Affected by the Disease

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ABSTRACT **Study Objective:** To estimate the relationship between the depth of lesions of rectal endometriosis and the percentage of the circumference of the bowel segment affected by the disease.

Design: A prospective pathologic analysis of 45 surgical specimens of bowel endometriosis obtained by laparoscopic segmental resection of the rectosigmoid (Canadian Task Force classification II-1).

Setting: Tertiary referral hospital.

Patients: forty-five patients were submitted to a segmental resection of the rectum due to endometriosis between July 2004 and September 2006.

Interventions: Morphometric aspects of endometriotic lesions were analyzed, such as size and thickness of the lesion, deepest layer of bowel affected by lesion, and percentage of circumference of bowel affected by endometriosis.

Measurements and Main Results: Results showed that in lesions that reached the submucous layer of the bowel, the circumference affected was 31.6% greater than in lesions that reached only the outer muscular layer, whereas in lesions that reached the mucous layer, the circumference affected was 52.5% greater than in those that reached the outer muscular layer of the bowel. In addition, 89.3% of lesions with an affected circumference greater than 40% were those affecting the submucous or mucous layers of the bowel. These results suggest that when a lesion reaches these 2 deepest layers of the rectosigmoid, risk increases that the circumference affected will be greater than 40% (relative risk = 1.5; 95% CI: 1.0–2.3; p = .03).

Conclusion: In endometriotic lesions affecting the rectosigmoid beyond the inner muscular layer of the bowel wall, more than 40% of the circumference of the rectosigmoid is affected by the disease, confirming the recommendation of segmental resection of the bowel for this form of the disease. Journal of Minimally Invasive Gynecology (2008) 15, 280–285 © 2008 AAGL. All rights reserved.

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In the 1990s, the study of endometriosis underwent strategic modifications because of the complexity involved in the diagnosis and treatment of this disease. Following the classification of endometriosis according to its depth, as described in 1990 [1], and the publication of the study in which it was suggested that endometriosis affecting the ovary, peritoneum, and rectovaginal septum may be considered 3 separate conditions [2], specific attention was paid to the diagnostic and therapeutic aspects of the disease when it affects each of these 3 sites.

Endometriosis may affect the bowel in 3% to 37% of all cases of the disease and in 90% of these cases the rectum, sigmoid, or both are affected. This particular site represents one of the most complex problems in the management of this disease; however, other segments of the bowel such as the cecum, appendix, and terminal ileum may also be affected, albeit less frequently [3].

Patients with endometriosis affecting the rectum may present symptoms of abdominal pain, bowel obstruction, bloody feces, diarrhea, and infertility [4]. In such cases, the

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decision regarding how to treat these patients is of utmost importance, bearing in mind that endometriosis is a benign disease and the complications arising from surgical treatment of bowel endometriosis may be difficult to manage. A preoperative critical analysis of clinical data using all possible clinical and imaging methods available is essential to avoid a situation that the surgical team would be unable to resolve satisfactorily [5,6].

Currently, preoperative diagnostic resources permit earlier confirmation of bowel involvement with an accuracy of 99% when transvaginal sonography is used in cases of endometriosis affecting the rectum and sigmoid [5].

The objective of this study was to estimate the relationship between the depth of rectal endometriosis and the percentage of the circumference of the bowel segment affected by the disease to emphasize the importance of establishing preoperative criteria for the indication of the optimal surgical management of this disease.

Patients and Methods

Histologic analysis was carried out in 45 consecutive surgical specimens of bowel endometriosis obtained by segmental resection of the rectum performed by laparoscopy between July 2004 and September 2006 because of endometriosis. The study was approved by the internal review board of the institution and all patients signed informed consent forms.

The patients ranged in age from 26 to 48 years (mean 35.5 $\pm$ 3.1). A total of 62.2% (28 of 45) of patients were nullipara, 26.6% (12 of 45) were primipara, 8.8% (4 of 45) had 2 pregnancies, and 2.2% (1 of 45) had 3 pregnancies. The indication for bowel resection was based on the symptoms, clinical examination, results of imaging tests, colonoscopy, and intraoperative findings. No indication for hysterectomy existed, as no patient had uterine abnormalities that justified this procedure. Also, bilateral salpingo-oophorectomy was not performed, even in the 3 patients who were older than 40 years because these patients did not want to have their ovaries removed. The clinical symptoms comprised severe dysmenorrhea, deep dyspareunia, acyclic pelvic pain, cyclic bowel symptoms, or a combination of these. In the clinical examination, nodules, pain, or both in the posterior cul-de-sac occurred. Imaging methods included transvaginal sonography with earlier bowel preparation, pelvic magnetic resonance imaging, rectal endoscopic sonography, and colonoscopy. These diagnostic examinations permitted the lesion to be measured and were able to predict the rectal layers affected by endometriosis. Surgical procedure was only indicated when the patient was symptomatic, when at least 2 of the imaging examinations showed endometriosis affecting the rectum beyond the inner muscular layer, or when colonoscopy revealed a reduction in the rectal lumen.

All surgeries were carried out by the same surgical team (M. S. A., M. A., and S. P.). The pathologic analysis was performed by the same pathologist in all cases (F. M. d. C.), who evaluated the following aspects of the endometriotic lesions: number of lesions in surgical specimens, gross longitudinal measure and thickness of lesions (in millimeters), deepest layer of rectum affected by the lesion, and percentage of circumference of rectum affected by endometriosis. The correlation between these criteria and the other pelvic sites affected by endometriosis was also evaluated, as was the presence of the disease in mesocolon lymph nodes. After grossly identifying the lesion or lesions in the intestine, each of the involved segments containing the lesion was submitted to histologic examination after serial longitudinal sections numbered in sequence. The percentage of the circumference involvement was obtained by the relation between number of longitudinal sections histologically involved by endometriotic tissue and total number of sections of that segment (Fig. 1). In the histologic examination we evaluated the deepest layer involved from the serosa. In the pericolic adipose tissue, we dissected and included all lymph nodes trying to diagnose endometriosis.

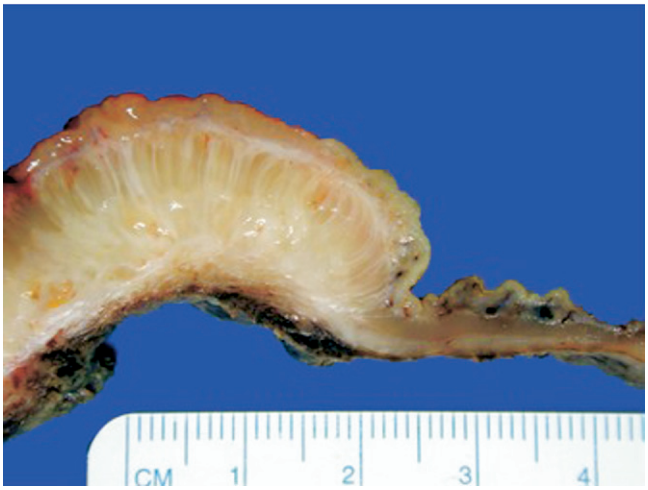

Fig 1. Rectal segment compromised by deep endometriosis.

Statistical Analysis

A descriptive evaluation of the data was performed using means and SD and 95% confidence intervals in the case of the quantitative variables (circumference of the area affected) and proportions for the qualitative variables (presence of lymph nodes, deepest layer of bowel wall affected by endometriosis, and presence of >1 focus of endometriosis). The percentage of the circumference affected was classified into 2 levels: less than or equal to 40% and greater than 40%. Comparison was made between the distribution of the frequency of the percentage of the circumference affected according to the deepest bowel layer affected using the Kruskal-Wallis test followed by multiple pairwise testing procedure.

To study the association between the explicative variables (deepest layer affected, presence of lymph nodes, and