

MASTER CLASS

Rectal Endometriosis



CHARLES E. MILLER, M.D.

Deep endometriosis compromising the rectum continues to be a diagnostic and therapeutic challenge. The resultant pelvic pain, dyspareunia, dysmenorrhea, and infertility risk are well documented in literature. Despite the fact that there are numerous studies to evaluate

deep endometriosis, including colonoscopy, MRI, vaginal and rectal ultrasound, and barium enema, there continues to be no standard road map for evaluation. In addition, there continues to be debate in the literature when patients should undergo shaving of the endometrioma, discoid resection of the endometrioma, or complete bowel resection.

Since the inception of the Master Class in Gynecologic Surgery, as Editor, I have used only experts who practice

within the confines of the United States. However, given the internationally recognized expertise in both the diagnosis and treatment of deep and extensive endometriosis, I believed it was imperative to invite Dr. Mauricio S. Abrão to discuss the diagnosis and treatment of deep endometriosis compromising the rectum.

Dr. Abrão was born in São Paulo, Brazil in 1962, where he went on to complete medical school, and in 1988, his residency in obstetrics and gynecology. In 1989, Dr. Abrão founded the endometriosis division within the department of the teaching hospital of the University of São Paulo School of Medicine, where he currently is Docent Professor.

Since 2007, Dr. Abrão has been president of the Brazilian Society of Endometriosis and Minimally Invasive Endoscopy, and has been a board member of the World Endometriosis Society since 1998. He currently is on the board of trustees of the AAGL and is the chairman of the society's special interest group on endometriosis. Dr.

Abrão is leading the AAGL initiative on producing a new classification on endometriosis. A prolific author, Dr. Abrão has nearly 100 papers published in peer-reviewed journals, the majority dealing with endometriosis.

It is with great admiration and respect that I introduce my friend, Dr. Abrão, to this edition of the Master Class in gynecologic surgery. ■

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Current Diagnosis and Treatment

A disease that affects 10%-15% of women of reproductive age, endometriosis is quite prevalent. In 1990, investigators in Belgium first described deep endometriosis to highlight the diagnostic and therapeutic aspects of the disease (*Fertil. Steril.* 1990;53:978-83). In contrast to superficial disease, deep endometriosis constitutes the most severe form of endometriosis and includes nodules affecting the pouch of Douglas, retrocervical area, bladder, ureter, or the intestinal wall. Less frequently, the rectovaginal septum is involved (*Arq. Gastroenterol.* 2003;40:192-7). The treatment of bowel endometriosis is challenging, as it is a benign disease that may infiltrate the bowel, requiring a surgical treatment with increased risks.

Preoperative Diagnosis Using Imaging

The definitive diagnosis of deep endometriosis with bowel involvement is reached principally at the time of surgery. However, some clinical characteristics identified by history and physical examination, laboratory tests, and diagnostic imaging may raise suspicion for this form of endometriosis. A surgical approach is still recommended for confirmation and treatment.

Transvaginal ultrasonography (TVUS) still appears to be the superior imaging technique, providing the best cost-benefit ratio for cases of ovarian or deep endometriosis. The presence of a hypoechoic lesion located in the posterior pelvic compartment (see Figure 1) is suggestive of endometriosis, with diagnostic sensitivity greater than 95% for retrocervical lesions and greater than 98% for rectal lesions (*Hum. Reprod.* 2007;22:3092-7).

When performed after complete bowel preparation and during the

perimenstrual phase, TVUS carried out by a trained professional provides useful information for therapeutic management.

MRI can be performed to identify deep lesions. (See Figure 2.) It provides a good map of the pelvis, but with lower accuracy than TVUS offers in predicting the depth of involvement of a bowel compromised by endometriosis. Similarly, opaque barium enema does not have a high degree of accuracy; its sensitivity is only 54%. Rectosigmoidoscopy or colonoscopy may be necessary to investigate the involvement of the intestinal lumen and to check other concomitant pathologies; however, this procedure has an estimated sensitivity of 51% and is frequently negative even in the presence of extensive intramuscular deposits of endometriosis.

Excretory urography or uro-MRI also is useful for evaluating whether the ureters are involved. When urinary tract involvement is suspected, one of these types of imaging should be performed to fully document the state of the urinary tract before surgery.

If we have doubts about the bowel involvement even after TVUS with bow-

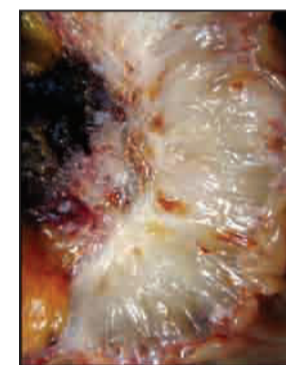
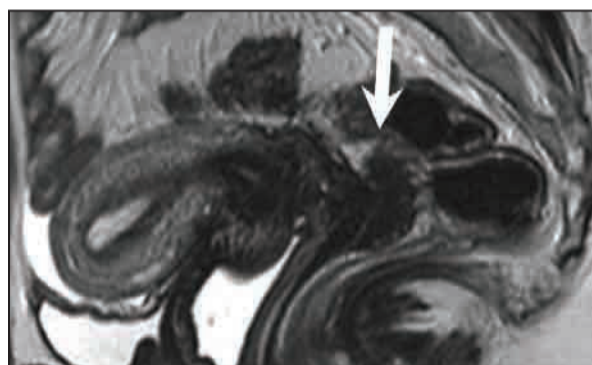


Figure 2. The MRI on the right shows a hypoechoic lesion that is suggestive of an endometrioma compromising the rectum. On the left is the surgical specimen.

el preparation, we recommend rectal echoendoscopy. (See Figure 3 on the next page.) This was initially used for staging cases of rectal neoplasia prior to surgical treatment. Dr. T. Ohba and his associates in Japan were the first to use this tool to evaluate patients with endometriosis of the rectovaginal septum, using a linear transducer (*Hum. Reprod.* 1996;11:2014-7). They described how the presence of irregular images, when associated with clinical symptoms, was suggestive of endometriosis.

Rectal echoendoscopy also permits identification of the distance between the lesion and the rectal lumen, as well as identification of extrinsic compression and lesions of the rectal submucosa. This information can be critical in the preoperative planning of the type

of surgery required and the need to have the help of a colorectal surgeon. The chart on page 19 shows the algorithm for preoperative work-up depending on clinical and TVUS findings.

Treatment: Clinical or Surgical?

Medical treatment of deep endometriosis, as opposed to surgical treatment, remains controversial. Dr. Luigi Fedele and his associates in Italy reported a substantial improvement in pain during 6 months of treatment with GnRH analogs (*Am. J. Obstet. Gynecol.* 2000;183:1462-7). Similar improvements in pain were also observed by our group with both an intrauterine device medicated with levonorgestrel and with a GnRH analog (*Hum. Reprod.* 2005;20:1993-8). In Dr. Fedele's study, however, an early relapse occurred following discontinuation of treatment. In addition, the endometriotic lesions underwent a discrete but significant reduction in size as detected by TVUS during treatment, but returned to their original size 6 months after suspension of GnRH treatment.

In cases of intractable pain (measured by scores *Continued on following page*



Figure 1. The TVUS at left shows a hypoechoic lesion that is suggestive of endometriosis compromising the inner muscularis of the rectum. At right is the respective surgical finding.

Continued from previous page

greater than 7 in the visual analog scale) and/or two previously failed IVF cycles, surgical treatment is required. Access for surgical treatment may be by laparotomy or laparoscopy, depending on the surgeon's experience; however, laparoscopy can provide a better visualization of the lesions, allowing a more precise excision.

Surgical Preparation and Technique

Whenever there is clinical suspicion of deep endometriosis, adequate pre-

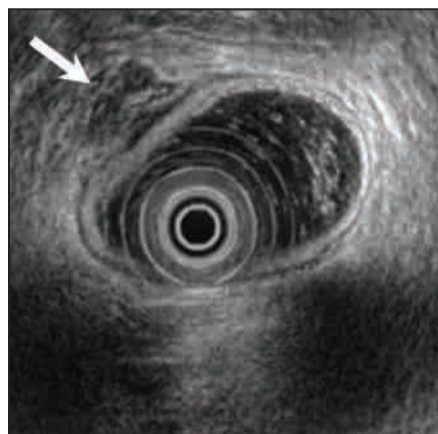


Figure 3. The rectal endoscopic ultrasound in a case of rectal endometriosis is on top, with the surgical finding on the bottom.

surgical bowel preparation is indicated. We recommend the use of 3-4 liters of an oral solution of polyethylene glycol (PEG) the day before surgery, followed by one or two Fleet enemas or a mannitol preparation.

Administration of antibiotics should be carried out during anesthetic induc-

tion, preferably using a second-generation cephalosporin (2 g intravenously).

When the preoperative rectal ultrasound permits identification of the depth of the lesion, this information can be used to define the type of surgery that will be performed. In the case of unifocal lesions less than 3 cm in size (major diameter) and affecting the serous and external muscular layers of the rectum or sigmoid, resection of the nodule alone may be indicated. This procedure may be done manually or with the help of a circular stapler. (Figure 4.)

Our technique approached laparoscopically is as follows:

- ▶ The lesion on the rectosigmoid is delineated, and adhesions are lysed from contiguous organs such as adnexae, the uterus, or other loops of bowel. We prefer to use scissors or a hook.

- ▶ To resect the lesion manually (without the use of a disposable stapler), the endometriotic nodule is excised, taking care not to leave any residual disease behind. The defect is then repaired in a double-layer fashion. On the mucosal layer, 3-0 absorbable suture is used in a running and transverse manner to avoid bowel constriction. On the seromuscular layer, 3-0 permanent suture is used in a running manner to imbricate over the first layer.

- ▶ If a circular stapler is used, the following steps are followed: A stitch is placed in the lesion in order to invaginate it into the stapler. (See Figure 5.) With the stapler inserted into the patient's rectum, it is opened and the lesion is invaginated into the stapler. The stapler is then closed and fired.

- ▶ The anastomosis is tested by gently injecting air and/or methylene blue through the rectum (with an Asepto, or large bulb syringe) while the surgeon occludes the proximal sigmoid with an atraumatic instrument. Absence of air bubbles and/or methylene blue while the anastomotic site is submerged in sterile water in the pelvis confirms a tight anastomosis.

If, on the other hand, the lesion is deeper, affecting the deep muscle or the submucosal or mucosal layers, then segmental resection of the bowel is recommended. Complete surgical resection of endometrial foci has been shown to result in improved quality of

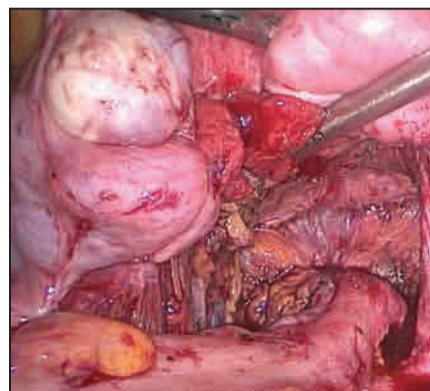


Figure 4. Nodule resection of an endometriotic lesion compromising the rectum is shown here.

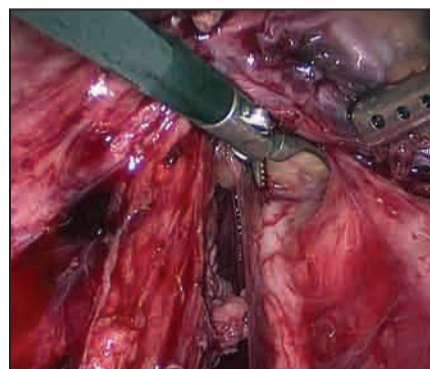


Figure 6. Here a ureter is identified before complete mobilization of the rectum.

life and decreased rates of recurrence (Fertil. Steril. 2004;82:878-84).

Segmental resection of the rectosigmoid can be performed laparoscopically (J. Minim. Invasive Gynecol. 2008;15:280-5). Our technique involves the following steps:

- ▶ Both ureters are identified (see Figure 6) before complete mobilization of the rectum and sigmoid 1 cm proximal and distal to the endometriotic lesion.

- ▶ The mesosigmoid is divided with an ultrasonic device.

- ▶ A linear stapler is utilized on the rectosigmoid distal to the lesion.

- ▶ After excision of all endometriotic implants, the right-lower trocar site is extended to 4 cm in order to remove the surgical specimen(s) and to prepare the proximal stump. (See Figure 7.)

- ▶ An incision is made on the proximal stump in order to insert the anvil of the circular stapler.

- ▶ A purse-string suture holding the anvil in place is performed prior to replacement of the sigmoid into the abdominal cavity.

- ▶ The 4-cm fascial incision is closed in order to finish the procedure laparoscopically.

- ▶ The circular stapler is inserted through the anus in order to complete the end-to-end reanastomosis. The anastomosis is tested by gently injecting air and/or methylene blue through the rectum (with an Asepto, or large bulb syringe) while the surgeon occludes the proximal sigmoid with an atraumatic instrument. Absence of air bubbles and/or methylene blue while the anastomotic site is submerged in sterile water in the pelvis confirms a tight anastomosis.

- ▶ A large drain is left adjacent to the anastomosis prior to closure of trocar sites. The drain is generally removed 4 days postoperatively.

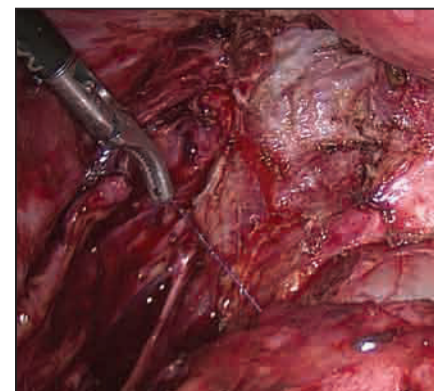


Figure 5. A stitch is placed in the lesion in order to invaginate it into the stapler.

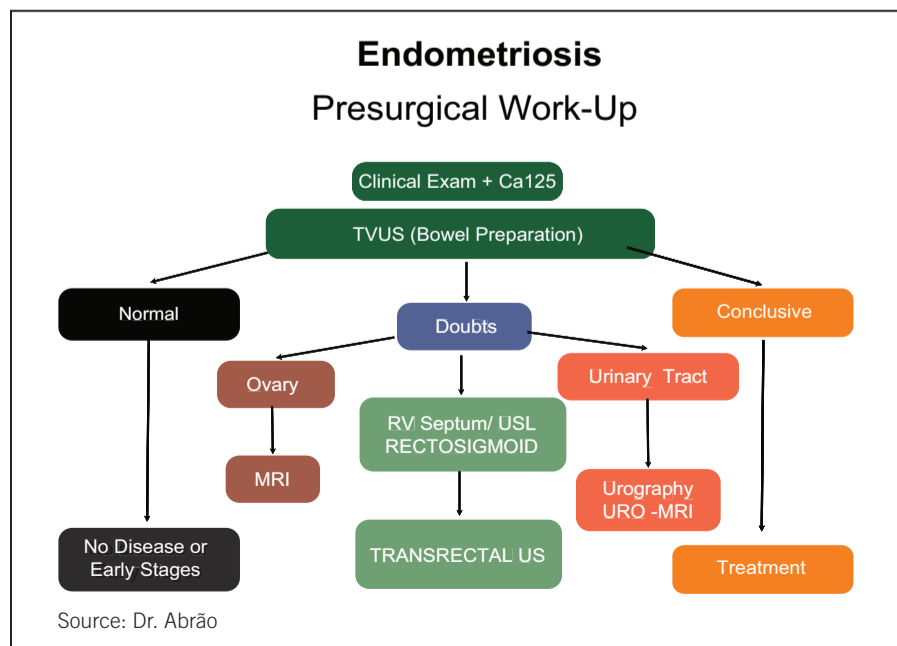


Figure 7. This resected segment of rectosigmoid includes a 5 cm endometriotic nodule compromising the mucosae layer.

Deep endometriosis is associated with more severe pain and significantly greater rates of infertility, compared with superficial endometriosis. Because of the high risks of surgical intervention, preoperative diagnosis using imaging modalities can be helpful in planning surgical strategy. Improved outcomes are achieved with complete surgical resection, which can be performed through minimally invasive techniques.

DR. ABRÃO reported that he has no relevant financial disclosures.

Download a mobile quick response (QR) code reader from your smartphone's app store to view a video by Dr. Abrão, or visit www.aagl.org/obgynnews.



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