Bowel endometriosis

Endometriosis can be defined as a chronic, estrogen-dependent inflammatory condition caused by the presence of endometrial-like glands and stroma outside of the uterine cavity. It affects approximately 10% of all reproductive-aged women and approximately 35%–50% of women with pelvic pain, infertility and/or organ dysfunction. (1). However, according to our research and experience, endometriosis is vastly underdiagnosed by clinicians and commonly underrecognized (2). As a result, it is undertreated at the time of surgical interventions. We have come to realize that this is especially true among patients with asymptomatic unexplained infertility (3).

Endometriosis can be classified as genital or extragenital, with the bowel being the most common site for extragenital endometriosis and diagnosed in 3.8%–37% of patients with known endometriosis (1). The majority of patients with bowel endometriosis have evidence of disease at other sites, although isolated bowel involvement can also be found. It can be found as deeply infiltrative lesions of the muscularis or mucosa or as superficial disease that lines the bowel serosa or subserosal area. These lesions are most commonly found on the rectosigmoid colon, followed by the rectum, ileum, appendix, and cecum (1).

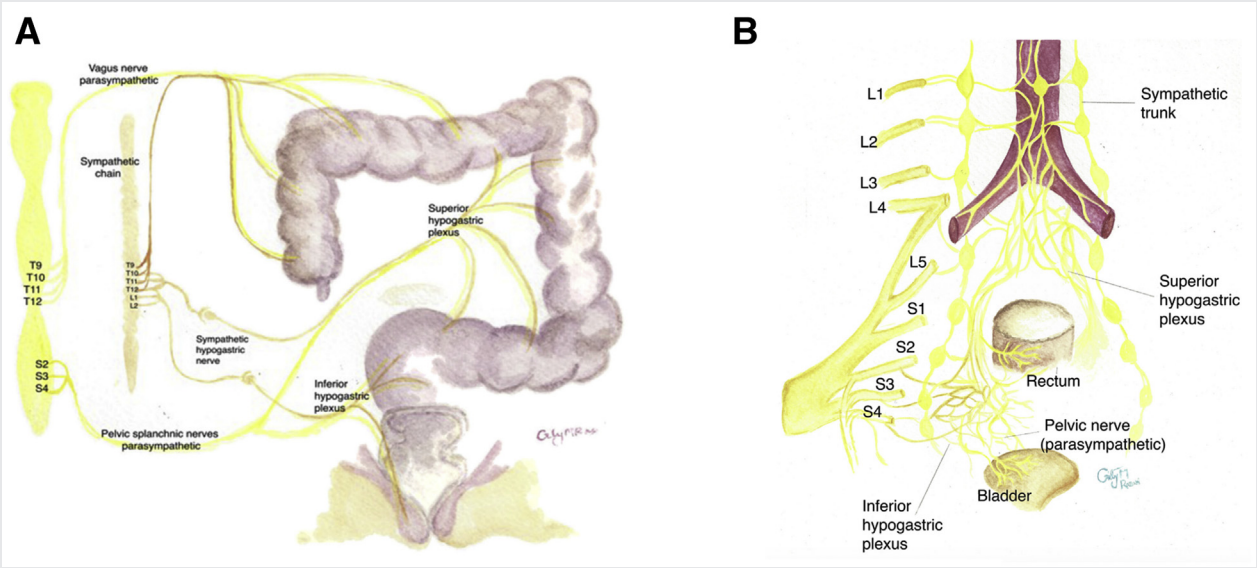
The pathogenesis of endometriosis has multiple theories, making the disease complex and most likely multifactorial. An inflammatory process due to deposits of retrograde menstruation can result in an increased risk of adhesion formation and, ultimately, cul-de-sac obliteration (1). One theory has suggested that an Allen-Masters peritoneal defect acts as a potential pathway to deep infiltrative endometriosis (DIE) in patients with rectovaginal endometriosis (1). Endometriosis is also associated with the risk of neoplasms, which can increase up to 1%, with a quarter of these cases involving extraovarian tissue (1). Half of endometriosis-related gastrointestinal tumors involve primary adenocarcinomas of the rectosigmoid colon. Thus, an excisional surgery allows not only for pain relief and a potential increase in fertility but also potential cancer prophylaxis (1). Conservative approaches, such as shaving excision and disc resection, have been developed to potentially decrease postoperative morbidity compared with segmental bowel resection (1).

Deep infiltrative endometriosis (DIE) and bowel endometriosis should be suspected in women who report chronic pain, deep dyspareunia, dysmenorrhea, and/or dyschezia. Some women may also complain of radiation of pain to the perineum, catamenial diarrhea, constipation, bloating, and pain while sitting (1). These symptoms are often similar to those of irritable bowel syndrome because there may be an autonomic component associated with this complex and multifactorial disease. Medical management can be a viable option for symptomatic patients with bowel endometriosis, but they may still require a subsequent future surgery. Long-term hormonal suppression with either low-dose progestins or combined oral contraceptives is the first-line medical treatment because of its efficacy, patient compliance, low side effect profile, and cost effectiveness (1).

A physical examination, including a rectovaginal examination, when performed at the time of menstruation, may help diagnose endometriosis because the lesions may be more inflamed, tender, and palpable (1). An experienced clinician might be able to palpate a nodule or a thickened area along the uterosacral ligaments, uterus, vagina, or rectovaginal septum. A speculum examination might reveal a laterally displaced cervix or a blackish-blue lesion (1). Imaging can be used in conjunction with a physical examination because transvaginal ultrasound has an overall high sensitivity and specificity in providing details regarding the size, location, and quantification of nodules; depth of infiltration; and presence of bowel lumen stenosis (1).

Surgical management depends on the surgeon's skill and experience as well as on the availability of proper instrumentation. A minimally invasive surgical approach results in lesser blood loss, a shorter length of hospital stay, and few postoperative complications, with an approximately 3% conversion rate to laparotomy (1). A multidisciplinary approach involving a minimally, invasively trained gynecologic surgeon and a gastrointestinal surgeon familiar with endometriosis might be necessary for a successful outcome in cases of a bowel stricture secondary to endometriosis (1). Surgical approaches can be divided into 3 general categories: shaving excision, disc resection, and segmental resection (1). The location of the bowel lesion, depth of infiltration, number of nodules, and presence or absence of a stricture is used to decide on the type of surgery. Extensive dissection of the retrorectal space might be needed during segmental resection, with dissection of areas where extensive vascular as well as sympathetic and parasympathetic nerve bundles are located, including the pelvic splanchnic nerves as well as the superior and inferior hypogastric plexus and their branches (Fig. 1) (1). Bowel stenosis, bowel ischemia resulting in fistula formation, severe constipation, and urinary retention can be seen with damage to these structures, resulting in short- and long-term morbidity. Thus, it is important to evaluate the balance between complete removal of the endometriosis and operative risk to the patient (1). Nerve-sparing techniques, such as the laparoscopic neuro-navigation technique developed by Possover et al., Negrar method developed by Ceccaroni et al., and Tokyo method, can be used to decrease postoperative complications such as voiding dysfunction and pelvic floor dysfunction (1). Furthermore, it has been previously shown that a major gynecologic laparoscopic surgery is safe at a hospital ambulatory surgery site (4). Our study further suggested that with a skilled surgeon, well-equipped operating room, and trained recovery team, free-standing ambulatory surgery centers are a safe and effective fast-track means of performing these major gynecologic surgeries (4). The success of surgeries performed at ambulatory surgery centers depends on careful preoperative

FIGURE 1



Innervation of the bowel. L1–L5 = Lumbar 1-5; S1–S4 = Sacral 1-5.

Nezhat. Reflections. Fertil Steril 2021.

planning, meticulous intraoperative technique, and easy access to additional resources if needed (4). Aggressive postoperative telephone and Zoom calls for 3–5 days or more, if necessary, are a part of our routine.

In 2005, Nezhat et al. (1) reported a cohort of 178 women who underwent laparoscopic treatment for deeply infiltrative bowel endometriosis using shaving excision (n = 93), disc excision (n = 38), and segmental resection (n = 47). The complication rate was significantly higher among the group that underwent segmental resection ($P<.001$; 6/48 [12.5%]). The complications observed were ureterovaginal fistula (1/48, 2%), anastomotic stricture (2/48, 4%), intraoperative bladder perforation (1/48, 2%), rectal bleeding requiring transfusion (1/48, 2%), and anastomotic leak requiring temporary colostomy (1/48, 2%). In contrast, of those who underwent disc excision, only 3 of 39 (7.7%) developed a serious complication, including 2 of 39 (5%) who developed a pelvic abscess and 1 of 39 (3%) who developed a rectovaginal fistula (1). Furthermore, there were no major complications encountered among the patients who underwent shaving excision. In our practice, shaving excision for lesions below the sigmoid colon is performed to avoid extensive lateral mobilization and dissection of the lateral and retrorectal spaces as well as to avoid the compromise of long-term bowel and bladder functions. For lesions above the sigmoid colon, including the small bowel, segmental resection or disc resection remains our preference (1). Although the complication rate with segmental resection is higher, it depends on the location. Segmental resection remains a critical tool for treating bowel endometriosis in certain circumstances, such as in patients with persistent symptoms after shaving or disc excision (1).

We congratulate the investigators of the study titled "Enhanced Recovery After Posterior Deep Infiltrating Endometriosis Surgery: A National Study" by Pivano et al. (5). This study evaluated the impact of the implementation of a national enhanced recovery after surgery program for posterior DIE surgery on the length of hospital stay, the rate of postoperative complications during the initial hospital stay, and readmission for postoperative complications within 30 days (5). It concluded that the length of hospital stay was reduced and postoperative abdominal or pelvic pain were ameliorated, without increasing the rate of postoperative complications or readmission, within 30 days (5). In our practice, patients treated with surgery with shaving excision, appendectomy, disc resection, or ileocecectomy are mainly discharged within 2–4 hours after the surgery, and patients treated with segmental bowel resection are usually discharged within 23 hours after the surgery at ambulatory surgery centers (4). Over the years, because we gained skill and expertise in bowel endometriosis surgeries, our center's operative timing and postoperative recovery timing have significantly decreased. We also noticed that if patients were discharged for home sooner, they were more likely to ambulate, thus decreasing their morbidity and hospitalizations for postoperative complications (4). Our morbidity has further improved, and our rate of postoperative complications and subsequent hospitalizations have decreased even further since our publication in 2014 (4). We believe that bowel endometriosis surgeries should be performed at specialized centers

with a high case volume for optimal outcomes. Nonetheless, this study can be pivotal in helping establish postoperative care organizations to allow safe out-of-hospital care after a major surgery. This would help France and other countries reduce the length of hospital stays, complications, and overall medical expenses by allowing safe major surgeries at ambulatory surgical centers while optimizing patient satisfaction. Congratulations once again.

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