

1994 June

Laparoscopic disk excision and primary repair of the anterior rectal wall for the treatment of full-thickness bowel endometriosis

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Received: 14 June 1993/Accepted: 3 August 1993

Abstract. We used a new laparoscopic technique to treat infiltrative symptomatic intestinal endometriosis. Eight women, ages 29–38, with extensive symptomatic pelvic endometriosis were included in this series. All were diagnosed as having severe pelvic endometriosis and had not responded to previous conservative surgical and hormonal therapy. In a 5–18-month postoperative followup, six women have reported complete relief of the symptoms. Two have right lower quadrant pain and menstrual cramping. Second-look laparoscopy was offered to all patients and so far, two have accepted. These procedures were performed 6 weeks postoperatively. At that surgery, we found that the anastomotic site had healed completely with filmy adhesions between the posterior aspect of the uterus and the rectosigmoid colon in one patient. The second woman had undergone extensive adhesiolysis at the first surgery, and these adhesions recurred; however, the anastomotic site had healed completely. One of the two infertility patients has achieved pregnancy. The only complication was one patient with ecchymosis of the anterior abdominal wall. Sigmoidoscopy was performed 6 weeks postoperatively, and has been or will be performed at 6 months postoperatively. To date, all anastomotic sites have healed well with no sign of stricture. Our results with this technique in a small series were positive, and it appears that, in the hands of experienced laparoscopists, it may prove useful in treating symptomatic infiltrative endometriosis.

Key words: Operative laparoscopy – Bowel endometriosis – Pelvic pain

Intestinal endometriosis has been reported to affect between 3 and 36% of women with endometriosis [1, 3, 4, 10, 12]. In a series of 1,573 women treated consecutively for endometriosis, 5.4% had gastrointestinal involvement; of these, 65% had endometriosis of the rectum and rectosigmoid colon [10]. Bowel resection with or without castration has been suggested to treat symptomatic patients [4, 10]. Coronado et al. [2] have reported satisfactory pain relief and pregnancy rates following anterior wall resection of the colon by laparotomy for deeply infiltrating endometriosis. Several methods of laparoscopic and laparoscopically assisted bowel resection have been reported [5–7]. We are presenting a new technique, which eliminates stapling devices and much of the complex and time-consuming dissection, to treat certain infiltrative symptomatic intestinal endometriosis. The following describes total laparoscopic resection of part of the colon wall and repair of the defect.

Methods and materials

Eight women, ages 29–38, with extensive symptomatic lower colon endometriosis associated with gastrointestinal symptoms (Table 1) were included in this series. All were diagnosed as having severe bowel endometriosis and had not responded to previous conservative surgical and hormonal therapy (Table 1). None had oophorectomy or hysterectomy; they wished to preserve their reproductive organs. The subjects were evaluated preoperatively and intraoperatively by a colorectal surgeon; barium enema and sigmoidoscopy were performed. In addition, a rectovaginal examination confirmed severe lower colon endometriosis in all patients. Mucosal erythema was noted in one patient, but biopsy did not confirm the presence of endometriosis. Intravenous pyelograms (IVP) were normal in all but one, who had ureteral compression on the right side. No patients had ureteral obstruction. All reported pain and severe cramping of the bowel and diarrhea or constipation during menstruation; two had rectal bleeding during their menstrual cycle. All had dyspareunia, rectal pain, or both, and two were infertile (Table 1). All patients except one were on hormonal suppressive therapy preoperatively (danazol or GnRH analog). All had previous surgical intervention during which bowel endometriosis was diagnosed.

Table 1. Summary of patient information

Pt. no.	Age	G/P	Presenting symptoms	Previous surgical therapy	Previous medical therapy	Distance between lesion and anus (cm)	Average diameter of lesion (cm)	Length of hospital stay	Follow-up (months)
1	36	1/1	<ul style="list-style-type: none"> • Rectal pain • Rectal spasms • Diarrhea beginning 2 days after period, lasting 10 days 	1 laparotomy	Danazol GnRH	15	4	3	6
2	41	2/0	<ul style="list-style-type: none"> • Rectal pain • Rectal bleeding during menstruation 	1 laparotomy	Oral contraceptives Danazol	25	6	4	4
3	26	0/0	<ul style="list-style-type: none"> • Dyspareunia • Pain with bowel movements • Alternating diarrhea and constipation 	2 operative laparoscopies 1 laparotomy	GNRH analog Oral contraceptives	12	4	3	3
4	38	0/0	<ul style="list-style-type: none"> • Pelvic pain • Severe diarrhea and rectal bleeding with periods • Dyspareunia • Infertility 	1 diagnostic laparoscopy 2 laser laparoscopies	Danazol	18	6	4	6
5	27	0/0	<ul style="list-style-type: none"> • Pelvic pain • Constipation, diarrhea, and rectal bleeding with period • Infertility 	1 operative laparoscopy 1 laparotomy	Oral contraceptives GnRH analog Danazol	10	4	4	12
6	35	1/0	<ul style="list-style-type: none"> • Pain with bowel movement • Pain with intercourse 	2 diagnostic laparoscopies 1 operative laparoscopy 1 laparotomy	Danazol GnRH analog Oral contraceptives	11	5	3	9
7	30	1/1	<ul style="list-style-type: none"> • Generalized pelvic pain • Pain with bowel movements • Constipation 	1 diagnostic laparoscopy 1 laparotomy	Progesterone GnRH analog	12	4	2	7
8	25	0/0	<ul style="list-style-type: none"> • Pelvic pain • Dyspareunia • Pain with bowel movements • Rectal bleeding 	1 operative laparoscopy 1 laparotomy	Oral contraceptives Danazol	20	4	4	15

Following thorough consultation, appropriate consent was obtained. All patients had preoperative mechanical and antibiotic bowel preparation as previously described [8].

Technique. Diagnostic and therapeutic laparoscopy were performed under general endotracheal anesthesia. The operating room setup and anterior abdominal wall incisions have been described in detail before [8]. In summary, a 10 mm incision was placed infraumbilically and three 5 mm incisions were made in the lower abdomen. Along with the video laparoscope, the CO₂ laser was used via the operative channel of the laparoscope for dissection and vaporization of endometriosis and fibrosis. Grasping forceps, a suction-irrigator, and a needle holder were placed via the three suprapubic incisions. Bipolar electrocoagulation was used to achieve hemostasis [8].

First, the severity of the pelvic pathology was evaluated and any gynecologic procedure, such as salpingo-ovariolysis, ovarian cystectomy, and vaporization or excision of endometriosis were performed. Five patients had posterior cul-de-sac obliteration and fixation of the rectum to the cervix requiring dissection [9]. Next, the extent of bowel involvement was evaluated. The severity of pathology necessitated full thickness disk excision [2] in all women. We did not include cases of superficial involvement in which the disease was able to be resected or vaporized completely without full thickness disk excision [9].

We then used a sigmoidoscope to completely clean the rectum, to further delineate the lesion, and to guide the surgeon. If the lesion is low enough, an assistant can identify it by performing a rectal examination. The ureters were identified in each side. The lower colon had to be mobilized [9]. This was not necessary in patients 2

and 8. In these two cases, the lesion was at a height which did not require further bowel mobilization. Depending on the location of the lesion, the right pararectal area, left pararectal area, or both were entered using the CO₂ laser and hydrodissection, and the colon was separated from adjacent organs. Any bleeding which was not controlled by the CO₂ laser was managed with bipolar electrocoagulation.

Full-thickness excision was carried out, beginning above the area of visible disease as follows. After identifying the normal tissue, the lesion was held at its proximal end with grasping forceps (inserted via the right-lower-quadrant trocar). An incision was made using the CO₂ laser (50–80-W ultrapulse) through the bowel serosa and muscularis, and the lumen was entered (Fig. 1). The lesion was completely excised from the anterior rectal wall (Fig. 2). The suction-irrigator probe was used as a backstop for the CO₂ laser and to evacuate the laser plume. Following complete excision of the lesion, the pelvic cavity was thoroughly irrigated and suctioned. The removed lesion was extracted from the abdomen through the operative channel of the laparoscope using a long grasping forceps, or from the anus using polyp forceps, and submitted for pathology. The presence of endometriosis in the muscularis was confirmed in all cases.

The bowel was reanastomosed transversely in one layer [9]. Two traction sutures were applied to each side of the bowel defect, transforming it into a transverse opening (Fig. 3). The stay sutures were brought out via the right- and left-lower-quadrant trocar sleeves. The sleeves were removed, then replaced in the peritoneal cavity next to the stay sutures, and the sutures were secured outside the abdomen. The bowel was then repaired by placing several interrupted through-and-through sutures in 0.3–0.6-cm increments until it

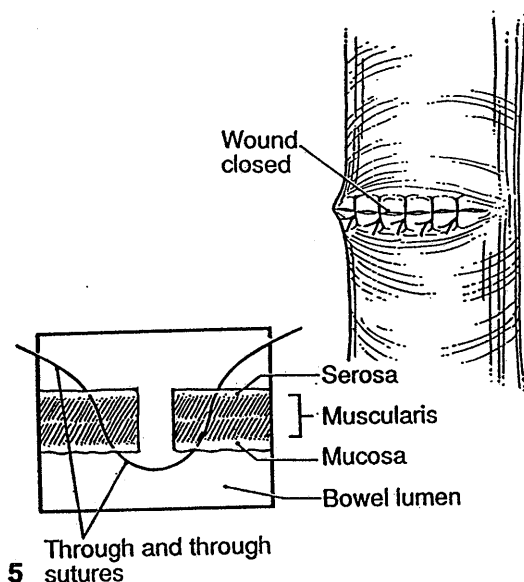


Fig. 5. The sigmoid colon has been repaired. Inset—layers of the bowel and placement of through-and-through sutures.

woman had undergone extensive adhesiolysis during the first surgery, and these adhesions recurred; however, the anastomotic site had healed completely. One woman has achieved pregnancy. The only complication was one patient with ecchymosis of the anterior abdominal wall.

Sigmoidoscopy was performed 6 weeks postoperatively, and has been or will be performed at 6 months postoperatively. To date, all anastomotic sites have healed well with no sign of stricture or fistula.

Discussion

The colon and rectum are sites of numerous pathologic processes which often require surgical intervention. These problems are generally congenital, inflammatory, vascular or neoplastic in nature. Operations to treat colon diseases are among the most frequently performed. [11].

The advantages of performing these interventions by operative laparoscopy have been previously reported [8]. Laparoscopic bowel resection and laparoscopically assisted bowel resection have been described as treatments for severe colon endometriosis [5-9].

Our preliminary results in this small series indicate that operative laparoscopy may be a promising method

with which to treat certain cases of infiltrative colorectal endometriosis requiring resection and reanastomosis. While our primary experience is with colorectal endometriosis, we believe this technique may be applied to treat other diseases involving this area. The laparoscopic procedure was similar to laparotomy, except that in the former, dissection was accomplished using the CO₂ laser and blood vessels were coagulated with a bipolar electrocoagulator. The only drawback to the new procedure is the time necessary for laparoscopic suturing, at which we averaged 2.5 min per suture. The patient benefits include smaller incisions, a faster recovery, and less postoperative morbidity. We have not performed a randomized trial to compare this technique to laparotomy and are cognizant of that. However, our results with this technique in a small series were positive, and it appears that, in the hands of experienced laparoscopists, in carefully selected groups of patients, this technique may prove useful in treating certain disease involving the anterior rectal wall.

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