Mackendrodt performed the first colonic resection for sigmoid endometriosis in 1909. Research has revealed that approximately 10 percent of menstruating women have endometriosis and up to 34 percent may have intestinal involvement.

As this represents a significant portion of the female population, care must be taken to include intestinal involvement with endometriosis in the differential diagnosis of all women with pelvic pain or gastrointestinal symptoms.

Although it was once felt that intestinal endometriosis was best managed by hormonal manipulation or surgical castration, advances in laparoscopic techniques has changed that recommendation. Modern advanced laparoscopic instruments and technique allows for the endoscopic resection of the endometrioma along with the surrounding bowel. It is now believed that this is the most definitive treatment for this condition.

Please be advised that you must check the Laparoscopic skills of your general surgeon. A large teaching hospital is a good source for referrals.

**Case Report 1**

LM, a 37-Year-G1P1 female, presented with right lower quadrant pain, alternating diarrhea and constipation, small caliber, guaiac positive stools and bloating.

The patient previously had an uncomplicated, term vaginal delivery without complications. She underwent hysterectomy and left salpingo-oophorectomy six years earlier for menometrorrhagia. A benign ovarian mass was present. There was no evidence of endometriosis.

Pelvic examination showed normal estrogen effect. The right adnexa was non-tender and appeared normal size. On the left side there was a palpable fullness approximately three and a half centimeters. Rectal examination was unremarkable except for guaiac positive stools.

Transvaginal ultrasound showed a normal right ovary. In the left adnexa, a cystic lesion measuring 3.5 x 4cm was seen. Colonoscopy revealed benign colonic mucosa. Barium enema demonstrated a mass lesion with colonic narrowing in the rectosigmoid suggesting an extrinsic mass lesion. An abdominal CT scan revealed a right ovarian cyst, but was otherwise a remarkable.

After counseling, the patient was scheduled for diagnostic laparoscopy, with plans for oophorectomy and sigmoid colectomy. A standard pre-operative bowel prep was carried out.

**Technique**

A ten-millimeter open laparoscopy port was placed in the umbilicus and three additional five-millimeter trocars were placed in the right and left lower quadrants, and in the suprapubic area. Dense pelvic adhesions were lysed using a macro bipolar L-hook. After a right to salpingo-oophorectomy was performed, that the sigmoid colon was mobilized, and an obvious lesion of the sigmoid was seen. The decision was made to perform a segmental resection of the sigmoid colon.

Dissection was carried out on both sides of the mesosigmoid. Ureterolysis was carried out to clearly identify and protect the left ureter during this retroperitoneal dissection. The dissection was carried...
down to the level of the rectum to fully mobilize the sigmoid colon. Once mobilized, the affected portion of the colon was delivered out of the peritoneal cavity by removing the open laparoscopy port and extending the incision to 5 cm. Standard linear stapler technique was used to perform a segmental resection of the lesion along with surrounding bowel once the segment was outside the abdomen. The specimen was sent to pathology, and frozen section confirmed the diagnosis of colonic endometrioma. Once malignancy was ruled out, a primary side-to-side, functional end-to-end anastomosis was performed using standard linear stapler technique. The staple holes were closed in a two-layer hand-sewn fashion.

After completion of the anastomosis, the bowel was returned to the peritoneal cavity. The bowel was inspected using the laparoscope. The cul-de-sac was filled with saline and air was placed in the rectum to evaluate the anastomosis. The incisions were then closed.

**Results**
The immediate postoperative recovery was uncomplicated. She received clear liquids the night of surgery. She subsequently did well and was discharged on a regular diet on the postoperative day three. She was discharged a combination of Premarin 0.625 mg daily and Provera 2.5 mg daily. There were no intraoperative or postoperative complications.

At her six-month follow-up visit, LM no longer complains about any pelvic pain or bowel symptoms.

**Case Report 2**
JS, a 30-Year-G0 female, presented with infertility, severe dysmenorrhea, abdominal cramping, bloating and intermittent episodes of diarrhea not related to her menses. She denied dyspareunia or hematochezia.

Physical examination was unremarkable. Pelvic examination revealed an anterior, four-week size uterus and no adnexal masses, pain or nodularity on rectal exam. Transvaginal ultrasound exam demonstrated a corpus luteum in the right ovary, but was otherwise normal.

After counseling, the patient was scheduled for diagnostic hysteroscopy. A standard pre-operative bowel prep was carried out.

**Technique**
Five-millimeter ports were placed in the umbilicus and in the right and left lower quadrants. An additional ten-millimeter trocar was placed in the suprapubic area.

At laparoscopy a 1cm endometrioma was excised from the right ovary. Using a 5mm BiLap macrobipolar-cutting instrument with a power setting of 25 watts, an incision was made lateral to each uterosacral ligament. The peritoneum adjacent to the ureter was incised and the course of the ureter was identified. On the left, the ureter was dissected free from retroperitoneal endometriosis. The incisions were carried medially at the anterior border of the cul-de-sac. Proximal to the lesions, the incisions were again carried medially to the rectum. Using scissors dissection, the serosa and endometriosis were dissected off the rectum. However, a 1 cm nodule of endometriosis could not be separated from the rectal wall and involved the muscularis. A 33mm Ethicon Stealth Stapling device was inserted through the anus to the level of the nodule. The device was opened and the nodule was placed into the jaws of the stapler, which was closed and fired. The stapler was rotated to each side and then removed leaving a clean staple line. The pelvis was filled with saline and air was placed into the rectum. No leaks were noted. Fluid was removed and the adhesion barrier, Interceed was placed covering the excised areas.

**Results**
The immediate postoperative recovery was uncomplicated. She received clear liquids the night of surgery. She subsequently did well and was discharged on a regular diet on the postoperative day three. Pathology confirmed involvement of the muscular layer of the rectum. Patient was placed on GnRH-agonist therapy for three months postoperatively. This patient remains symptom free at six months.

**Discussion**
Though the diagnostic advantages of laparoscopy in patients with intestinal endometriosis have long been established, this report shows that the appropriate treatment can also be accomplished with definite advantages to the patient. The advantages of the laparoscopic approach to the management of endometriosis of the rectosigmoid includes: easy intraoperative access to the rectum and vagina, controlled magnification, enhanced visualization and the ability to perform underwater examination to insure hemostasis. Additional advantages of laparoscopy include: diagnosis and treatment during a single operative procedure, reduced hospital stay, rapid recuperation, smaller incisions, less pain, excellent patient acceptance, and enhanced cost effectiveness.

Endometriosis of the rectum or sigmoid colon may be limited to the serosal surface or may involve the muscular layer and rarely the mucosa. These lesions are most often seen anteriorly at the level of the cul-de-sac where the rectum is fused to the posterior vagina. These lesions are plaque-like and consist of fibromuscular tissue and the characteristic glands and stroma associated with endometriosis.

While traditionally, lesions such as this have been managed with low anterior resection, new endoscopic techniques may simplify the management of these patients.

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