Case Report

A Case of Total Proctocolectomy by Reduced Port Surgery for Refractory Ulcerative Colitis

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Abstract: We report the case of a 40-year-old woman with refractory ulcerative colitis (UC) whose condition did not improve despite aggressive medical therapy with a corticosteroid and an immunosuppressor. The patient underwent a total proctocolectomy by reduced port surgery (RPS). A vertical incision of 30 mm was made through the umbilicus, and a laparoscope port and two working or assistant laparoscopic ports were inserted through the fascia. A 5 mm port was used as the terminal ileostomy site and another 5 mm port was used as a drain site (marked preoperatively). The operator used a standard laparoscopic 5 mm atraumatic grasper for the left hand and a standard laparoscopic dissector or an Enseal energy device for the right hand. An ileal J-pouch was created extra-corporeally from the terminal ileum and then an ileal pouch–anal anastomosis (IPAA) was created by hand suturing. The diverting loop ileostomy was brought out through the right iliac fossa, and there was 30 cm of ileum between the diverting loop ileostomy and the IPAA. The surgical procedures were very similar to those normally used in laparoscopic colectomy. The duration of the surgery was 465 min, and blood loss was estimated at 240 ml. No intraoperative complications occurred, and conversion to conventional laparoscopic or open surgery was not needed. Laparoscopic total proctocolectomy using RPS (compared with standard laparoscopic surgery) may be preferred for young women because it reduces the wound size, minimizes postoperative pain, and enhances cosmesis.

Key words: total proctocolectomy, reduced port surgery, ulcerative colitis

Introduction

Severe colitis is a well defined condition that can develop in patients with ulcerative colitis (UC) and typically responds to various medical therapies. Surgical intervention is warranted when massive hemorrhage, perforation, or peritonitis complicates the clinical scenario or when medical therapy fails to control the disease. Since subtotal and total colectomy with ileostomy were first advocated, these operations have become the procedures of choice for most patients requiring surgery for severe UC¹⁾. We report the case of a patient with refractory UC who underwent total proctocolectomy by reduced port surgery (RPS).

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Fig. 1. Colonoscopy
Colonoscopy images showing severe mucosal edema (A), and a tight stricture and longitudinal ulcers (B) in the rectum and sigmoid colon.

Case report

A 40-year-old woman with severe UC was given aggressive medical therapy — a corticosteroid and an immunosuppressor — but her condition did not improve. She had been diagnosed with UC at age 38 years and had been hospitalized several times because of UC exacerbations. She had daily bouts of severe cramping and abdominal pain and frequent episodes of melena. She also had poor oral intake secondary to chronic abdominal pain. She had no history of surgery. On physical examination, her body mass index (BMI) was 17.9 kg/m² and her abdomen was minimally tender to palpation. The only notable laboratory results were a hemoglobin level of 11.4 g/dl (reference range, 14–18 g/dl) and a platelet count of 484,000/μl (reference range, 150,000–300,000/μl). A colonoscopy revealed severe mucosal edema, and a tight stricture and longitudinal ulcers in the rectum and sigmoid colon, which could not be traversed by colonoscopy (Fig. 1). A computed tomography (CT) scan showed severe mucosal edema presenting as acute severe colitis in the rectum and sigmoid colon (Fig. 2).

The patient underwent a total proctocolectomy by reduced port surgery (RPS). A vertical incision of 30 mm was made through the umbilicus, and a 5 mm laparoscopic port and two working or assistant laparoscopic ports were inserted through the fascia. A 5 mm port was placed at the right lower abdomen for the terminal ileostomy site. Another 5 mm port was placed at the left lower abdomen for the marked drain site (Fig. 3). A 5 mm rigid scope with a 30 degree angle was inserted through the umbilicus. The operator used a standard laparoscopic 5 mm atraumatic grasper for the left hand and a standard laparoscopic dissector or an Enseal energy device (Ethicon Endo-Surgery Inc., Tokyo, Japan) for the right hand. The dissection proceeded via the peritoneal incision from the medial to lateral aspect to identify the left ureter and left gonadal vessels with the white line of Toldt. The left colon and mesocolon were dissected from Gerota's fascia through the posterior avascular embryonic plane up to the splenic flexure. The left colon was dissected from the lateral peritoneal attachments. The operation was performed through all ports of the umbilicus, the terminal ileostomy site and the marked drain

Fig. 2. Computed tomography
Computed tomography scan showing severe mucosal edema (arrow) presenting as acute severe colitis in the rectum and sigmoid colon.

Fig. 3. Port placements

3-0 vicryl stay sutures were placed at the fascia to first port through a straight 30 mm umbilical incision. After insufflation, a 30 degree scope was used to confirm the intraperitoneal entrance. Two 5 mm trocars were introduced from the direct fascia. A 5 mm port was placed in the right right lower abdomen for the ileostomy site. Another 5 mm port was placed in the left right lower abdomen for the marked drain site.

site, while the position of operator's forceps was changed according to each situation. The right colon was also dissected from the medial to lateral aspect from the peritoneal incision at the root of the mesentery. All dissections were performed with electrocautery, whereas an Enseal energy device was used at the splenic flexure, hepatic flexure, and both lateral aspects of the rectum. The resected specimen was delivered through the anus, and an ileal J-pouch was created extra-corporeally from the terminal ileum (15 cm) using a linear cutter stapler. Relaxing incisions were made on both sides of the mesoileum to diminish tension on the anastomosis. After the relaxing incisions were made, the tip of the pouch easily reached 3 cm beyond the lower

Fig. 4. Final scar, diverting loop ileostomy, and drain. Photograph showing the final scar of the procedure. The diverting loop ileostomy was brought out through the right iliac fossa. The pelvic drain was brought out through the left iliac fossa port.

Fig. 5. Resected specimen. Photograph of the resected specimen, showing strictures, inflammation, and edema from the left-sided transverse colon to the rectum.

margin of the symphysis pubis. The IPAA was created by hand suturing. The diverting loop ileostomy was brought out through the right iliac fossa, and there was 30 cm of ileum between the diverting loop ileostomy and the IPAA. The pelvic drain was brought out through the left iliac fossa port (Fig. 4). The duration of the surgery was 465 min, and blood loss was estimated at 240 ml. No intraoperative complications occurred and conversion to conventional laparoscopy or open surgery was not needed. The final scar from the procedure is shown in Fig. 4.

The resected specimen had marked strictures and was inflamed and swollen from the left-sided transverse colon to the rectum (Fig. 5). The final pathology report described colonic polyps and edema, a longitudinal ulcer, and the previously identified strictures. The patient had an uneventful postoperative recovery and was started on a liquid diet 3 days after surgery. The drain tube was removed 5 days after surgery and the patient was discharged from hospital 28 days after surgery. She noted a significant improvement in her condition postoperatively, but she required a few months of medical management to prevent diarrhea. Three months after the surgery, her BMI had increased to 18.4 kg/m².

Discussion

In cases of severe UC, massive hemorrhage, perforation and peritonitis are absolute indications for surgical intervention, but lack of response to medical therapy is the most common indication and the most difficult to objectively define.

After laparoscopic colectomy, nearly 85% of patients who undergo restoration of intestinal continuity with the creation of an ileorectal anastomosis or an IPAA can be managed through reoperative laparoscopy or elective incision at the site of previous stoma^{2,3)}. In an analysis of pooled data, taken from articles published between 1975 and 2007, the 30-day all-cause mortality rate after colectomy for colitis was 9.0%⁴⁾. The most common surgical complications were small

bowel obstruction/ileus (20.0%), wound infection/dehiscence (18.6%), intra-abdominal abscess (17.8%), rectal stump dehiscence (6.7%), and ileostomy-related problems (6.3%), and the most common medical complication was septicemia (9.1%). In the subgroup of patients for whom a laparoscopic approach was used, the conversion rate was 3.4% and the main complications were stoma-related problems (10.3%), small bowel obstruction (8.9%), and surgical site infection (6.3%). Urgent surgery is associated with its own morbidity and mortality risks. In a review of recently published articles, the all-cause morbidity and mortality rates associated with surgery for severe colitis were 40.1% and 1.8%, respectively⁴⁾.

The earliest reports of a laparoscopic approach to treat UC were published in 1992; Peters described laparoscopic proctocolectomy for two UC patients⁵⁾ and Wexner and colleagues reported the first case-control series on outcomes of laparoscopically assisted proctocolectomy with IPAA, showing a longer duration of surgery than the open procedure, and comparable rates of postoperative ileus and lengths of hospital stay, with no short-term benefits favoring laparoscopy⁶⁾. Since then, several series have been reported, for both adult and pediatric patient populations⁷⁻⁹⁾, but only from single institutions and with short periods of follow-up^{10,11)}. Restorative proctocolectomy by single-incision laparoscopic surgery (SILS) is safe and associated with good early functional outcomes when performed by an experienced laparoscopic surgeon¹²⁾. SILS is useful for optical assistance, colon dissection, and specimen retrieval¹³⁻¹⁵⁾. In our experience, first we have tried to reduce the cost without access platforms for RPS. Second we have tried to obtain a more advantaged distance between ports to avoid interference with the working area of the operator's hands.

The major advantage of RPS, and SILS, is improved cosmetic outcomes. Disadvantages of RPS include conflict between the operative instruments, and the scope and the smaller degree of instrument triangulation compared to those of conventional laparoscopic surgery. However, SILS and robotic surgery techniques have been reported as having positive effects on patient satisfaction, cosmesis and body image¹⁶⁻¹⁸⁾.

Our patient noted significant improvement in her condition after the surgery. Laparoscopic total proctocolectomy using RPS (compared with standard laparoscopic surgery) may be preferred for young women because it reduces the wound size, minimizes postoperative pain, and enhances cosmesis.

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