

Laparoscopic Repair of Colonic Anastomotic Leak in an Elderly Patient

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ABSTRACT

Background: Laparoscopy to repair iatrogenic colonic perforation of the colon has proven to be a safe, effective, and reproducible means to treat these potentially devastating emergencies. The use of the laparoscope provides exceptional diagnostic yield, and under the hand of a trained surgeon, produces excellent therapeutic results while minimizing recovery time for the patient.

Methods: We report the case of an 86-year-old man who underwent emergent laparoscopic repair of a postoperative anastomotic leak following sigmoid colectomy.

Results: The patient underwent laparoscopic oversewing of a colonic anastomotic leak, omental patch, and diverting loop ileostomy. The patient recovered fully from his emergency procedure without any further complications.

Conclusion: Laparoscopic surgery can be extended to a wider variety of colorectal emergencies in a carefully selected group of patients, including the elderly.

Key Words: Anastomotic leak, Colonic perforation, Laparoscopy, Laparoscopic surgery.

INTRODUCTION

Free perforation of the colon is one of the most serious abdominal emergencies, often warranting prompt exploratory laparotomy. We report a case of laparoscopic repair of a postoperative colorectal anastomotic leak. Laparoscopic repair of colonic perforations associated with colonoscopy has been well reported in the literature. We propose, however, that this practice is also a safe and appealing choice for the correction of a wider range of anomalies in carefully selected patients with colonic perforation.

CASE REPORT

An 86-year-old man with a history of hypertension and idiopathic thrombocytopenia purpura (ITP) presented to the emergency department with approximately 12 hours of lower abdominal discomfort and bloating. The patient denied nausea or vomiting, fever, or chills, but had a loose nonbloody bowel movement earlier that day. On examination, his abdomen was distended, tympanic, and nontender with hypoactive bowel sounds. Hemocult was negative. He had reported similar complaints a month earlier from a sigmoid volvulus that had been decompressed colonoscopically without surgical intervention.

CT examination revealed a dilated colon and small bowel with a transition point in the area of the mid-sigmoid colon consistent with recurrent sigmoid volvulus. Intraoperative findings during laparoscopic sigmoid colectomy were notable for a large dilated redundant sigmoid colon. Given this redundancy, minimal mobilization was required. Once this was completed, the sigmoid colon was delivered through a small LLQ incision and was resected in the usual fashion. A colorectal anastomosis was made with a laparoscopic circular stapler in an end-to-end fashion. Pathology revealed a benign colon with neuromuscular hypertrophy. The patient was doing well postoperatively and tolerating a regular diet by postoperative day 3. On the following postoperative day, however, he complained of labored breathing. His abdomen was distended, but nontender; his incisions were clean and intact. An obstruction series revealed markedly dilated loops of small bowel with elevated hemidiaphragms. CT of the

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abdomen and pelvis with Gastrografin revealed large amounts of free intraperitoneal air without contrast extravasation (**Figure 1**).

Two hours after initial decompensation, the patient continued to deteriorate clinically, with increased abdominal distension and labored breathing requiring intubation. During an emergent diagnostic laparoscopy, a small hole was found at his colorectal anastomosis with a small to moderate amount of seropurulent fluid. No inflammatory changes were detected elsewhere in the abdomen. The anastomotic leak was oversewn laparoscopically, protected with an omental patch, and a diverting loop ileostomy was created through a separate right lower quadrant incision. Preoperative stoma siting was not performed, given the emergent nature of the procedure.

The patient did well postoperatively and was discharged to a skilled nursing facility, tolerating a regular diet on postoperative day 7. The patient was instructed to resume his home medications, continue oral antibiotics for the next 7 days, and follow-up in our office 3 weeks after discharge. He continues to follow-up at regular 6-month intervals. The patient has done well in his postoperative follow-up without any further complications of his initial or subsequent procedures.



Figure 1. Scan of abdomen/pelvis showing diffuse free intraperitoneal air 3 days following a laparoscopic sigmoid colectomy consistent with hollow viscus rupture.

DISCUSSION

Over the past 15 years, laparoscopy has become increasingly popular in the management of abdominal emergencies. It offers high diagnostic yields, equal outcomes, and more aesthetically pleasing results compared with open approaches, culminating in high patient satisfaction. The vast majority of these procedures involve operative treatment of peritonitis secondary to biliary, appendiceal, and pelvic disease.^{1,2}

In the data supporting laparoscopic repair of colon perforations, most reports describe its use in diverticular disease and iatrogenic injury secondary to colonoscopy. In 2 large retrospective case control studies, Agresta et al describe 21 of 36 cases of colonoscopic perforations that were repaired laparoscopically, 16 of which were secondary to diverticular, and 3 to iatrogenic, perforations.^{1,2} Its use in these conditions has increased secondary to the minimal abdominal soilage (from contained abscesses in diverticular disease, and bowel preparation in colonoscopy), as well as early recognition of disease (from direct visualization of the peritoneal cavity by colonoscopy and early availability of CT scan).³

In the case described herein, a compromised anastomotic staple line was oversewn laparoscopically and reinforced with an omental patch. The patient's injury was identified 3 days after the initial operation, but the defect was small and only minimal fecal soilage of the abdomen had occurred. Patient disease, size of perforation, medical comorbidities, as well as delay to diagnosis are all factors that contributed to the ability to care for these patients with a minimally invasive approach.³ Although rapid diagnosis is essential to avoid resection and colostomy,⁴ if the presumed injury (or the injury observed during diagnostic laparoscopy) is small, and intraabdominal contamination is minimal, this technique can be expanded to abdominal emergencies where immediate recognition of injury or pathology did not occur.

The advantages of laparoscopy are well described. It allows for smaller wound sizes that are less likely to develop hernias or infection, which effectively eliminate the risk of dehiscence or evisceration. Minimal manipulation of abdominal contents allows for faster return of bowel function. Reduced postoperative pain also decreases the interval to ambulation, overall hospital stay, and reduces the number of restrictions imposed on the patient at discharge.⁵ The diagnostic yield of the laparoscope is also invaluable at very little risk to the patient, always leaving the option of conversion to laparotomy,^{1,2} especially in

cases of extensive peritoneal irritation, massive fecal soilage, or complex colonic injury.⁶

In an increasingly aging population, the draw towards minimally invasive techniques as an alternative to classic open procedures is apparent. In a recent retrospective study at our institution, all colectomies in patients over 80 years old in a 5-year period were examined. Of the 289 nonemergent operations included in the study, 150 were done laparoscopically. This group had an overall lower mortality (8.4% vs. 2%, $p=.0132$), lower incidence of postoperative ileus (22% vs. 10%, $p=0.0112$), shorter hospital stay (11.15 days vs. 7.11 days, $p=.0001$), and lower incidence of nursing home discharge (49% vs. 22%, $p<.0001$).⁷ The advantages outlined above could play a decisive role when formulating a treatment plan for an elderly patient with potentially devastating intraabdominal pathology.

CONCLUSION

Our case demonstrates that diagnostic and therapeutic laparoscopy is a safe and appealing choice for not only the correction of postcolonoscopic perforation, but also for a carefully selected group of other patients with free colonic perforation, even if these patients present later in the course of their disease. It also suggests a minimally invasive approach may be advantageous in the care of an

increasingly aging population, as in our case of an 86-year-old individual.

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