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## Challenging Cases of Laparoscopic Enterectomy for Benign and Malignant Diseases of the Small Intestine

*The videos associated with this chapter are listed in the Video Contents and can be found on the accompanying DVDs and on Expertconsult.com.*

Laparoscopic surgery for benign and malignant diseases of the small intestine has been well established. Resection of a small segment of bowel in an abdomen free of inflammation, bowel dilation, or adhesions is relatively straightforward, especially if laparoscopy-assisted techniques are used and part of the procedure is performed extracorporeally. We present two difficult scenarios in laparoscopic surgery as an update to our previous chapter, “Minimally Invasive Procedures on the Small Intestine,” in the *Atlas of Minimally Invasive Surgery*, 2009 (see Suggested Readings at the end of this chapter). The first case involves the presence of inflammation, abscess, and a shortened mesentery due to Crohn’s disease. A thickened and shortened mesentery creates a difficult and challenging scenario to safely dissect, mobilize, and resect the diseased part of the intestine. In addition, it precludes the use of laparoscopy-assisted techniques because the bowel segments cannot be exteriorized. Therefore, an intracorporeal anastomosis is required to avoid conversion to a laparotomy. The second scenario involves localization of small carcinoid tumors of the intestine. Localization of these lesions was aided by preoperative imaging; however, the ability to laparoscopically examine the small intestine is crucial. The application of laparoscopic surgery in these difficult cases should only be undertaken by surgeons with the appropriate experience and technical skills. We hope that the suggestions and techniques shown in this chapter and videos will help surgeons address these challenging cases laparoscopically.

### OPERATIVE INDICATIONS

In general, the indications for laparoscopic enterectomy are the same as for open surgery. The initial management of Crohn’s disease is medical and has evolved greatly in the past decade. Despite the development of new pharmaceuticals and immunomodulators, most patients with Crohn’s disease require surgical intervention to treat the complications of a disease that currently has no cure. The common indications for surgery are complications of Crohn’s disease (e.g., fistula, stenosis or obstruction, abscess), failure to improve with medical management, or the inability to tolerate long-term medical therapy. Inflammatory masses and abscesses with or without obstruction are infrequent complications of Crohn’s disease but often require surgical intervention. Antibiotic therapy should be started, and large abscesses should be drained percutaneously (if safely accessible using CT or ultrasound).

The presence of masses in the small bowel is an indication for resection unless there is evidence of widespread metastatic disease. Imaging characteristics of benign versus malignant lesions are helpful, but the definitive diagnosis can only be made upon resection. Use of laparoscopic surgery to treat malignant lesions of the small bowel is based on an extrapolation of studies showing, from an oncologic standpoint, that laparoscopic surgery is as effective as open surgery.

### PREOPERATIVE EVALUATION, TESTING, AND PREPARATION

Patients diagnosed with Crohn’s disease should undergo evaluation of the entire gastrointestinal tract with small bowel series and endoscopies. Computed tomography (CT) is often used in lieu of small bowel series in the emergent setting to determine the presence of an abscess or a phlegmon. The patient’s medical status should be optimized by correcting anemia, coagulopathy, dehydration, electrolyte imbalance, and malnutrition. In the absence of an obstruction, a mechanical bowel preparation should be performed to minimize the risk for peritonitis in the event of inadvertent perforation. Patients taking steroids should have a preoperative dose that is tapered postoperatively. Other immunosuppressive drugs can be discontinued before surgery, and their postoperative use is controversial. Postoperative use of infliximab is associated with an increase in morbidity.

Incidentally identified carcinoid tumors can be found during endoscopic or radiographic imaging performed for other purposes. When small bowel lesions suspicious for carcinoid tumors are seen on CT, the patient should be questioned for the presence of abdominal pain, nausea or vomiting, diarrhea, flushing, melena, or weight loss. Urinary 5-hydroxyindoleacetic acid and plasma chromogranin A levels are elevated in patients with carcinoid tumors but can also be elevated with certain foods, drugs, or other medical conditions. After diagnosis of a carcinoid tumor, indium-111 octreotide imaging (OctreoScan) can complement the CT scan in localizing other lesions but is not commonly used. CT scans should be reviewed with an experienced radiologist to assist in estimating the location of the small bowel mass. Capsule endoscopy can be used to complement CT findings to confirm the presence of small bowel masses. For small lesions, capsule endoscopy has a higher diagnostic yield than small bowel series and push enteroscopy. Until recently, small bowel endoscopy was