



Mesenteric Resection in Upper Abdominal Surgery

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Indications for Surgery

The mesenteric resection in upper abdominal surgery is directed toward the primary pathology of the accompanying organ. The most surgical common procedure that includes resection of the mesentery is small bowel resection. Mesenteric resection is performed in these cases as an extension of treatment for ischemia, trauma, cancer, ulceration, bleeding, obstruction, or Crohn's disease (Table 35.1).

In acute mesenteric ischemia, the mesentery may show signs of edema, hemorrhage, and venous congestion. The presence of these findings is an indication for exploration and possible resection of the mesentery. Trauma with suspected bowel injury includes a thorough intraoperative exploration and a "running" of the small bowel and the mesentery. Full thickness or multi segment small bowel injuries are resected and repaired primarily. A mesenteric injury may be seen without an accompanying small bowel injury. In this case, bowel viability dictates whether the bleeding vessel in the mesentery is suture ligated or if bowel and mesenteric resection is needed. Small, non-expanding mesenteric hematomas are not generally explored.

Tumors of the small bowel require resection of the adjacent lymph nodes that are embedded within the mesentery. In this setting, resection of the mesentery is required for adequate oncologic staging. Patients with Crohn's disease often develop stricturing disease of the small bowel, segments of which may eventually require resection. The mesentery in these patients is often thickened leading to difficulties with traditional resection and ligation techniques. Also see Chaps. 39 and 40, Crohn's Disease). Another common reason for resection of the mesentery is for the creation of the roux limb in gastric bypass, gastrectomy, or pancreaticoduodenectomy operations. The roux limb is the middle portion of the jejunum,

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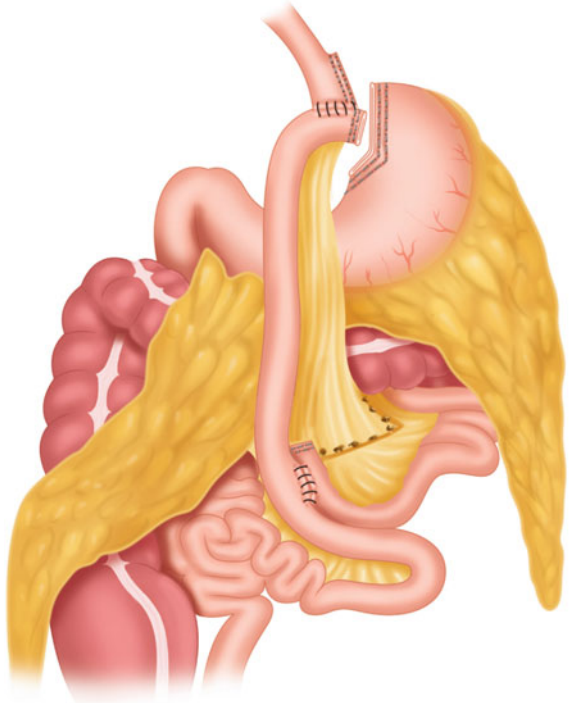
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Table 35.1 Indications for mesenteric resection

1. **Removing adjacent small bowel:** obstruction, ischemia, trauma, bleeding, cancer, etc.
2. **Removing a primary mesenteric neoplasm** (associated small bowel must be resected due to loss of blood supply): Lymphoma, desmoid, GIST, etc.
3. **Dividing the mesentery for creation of a roux limb:** gastric bypass, gastrectomy, whipple, etc.

usually 40–75 cm from the ligament of Trietz, that is used to reestablish small intestinal continuity after resection. This portion of the intestine is used due to the long length of the associated mesentery which allows the limb to be proximally attached without significant tension (Fig. 35.1a, b). Resection of the mesentery is also required for the removal of mesenteric cysts and tumors. A full review of mesenteric cysts and tumors can be found in earlier chapters of this book.

Fig. 35.1 Roux limb demonstrating resected mesentery to allow release of the limb for anastomosis



Contraindications

Contraindications to mesenteric resection relate to contraindications for small bowel resection. Absolute contraindications include poor blood supply to the ends of the bowel for the anastomosis or unclear bowel viability after attempted revascularization. Relative contraindications include peritoneal sepsis and hemodynamic instability.

Description of Surgery

Small Bowel Resection with Adjacent Mesentery (Open Approach, Hand Sewn Anastomosis)

The abdomen is entered through a standard midline incision. The abdomen is explored in all four quadrants, and lysis of adhesions is performed in the area of pathology only. The margins of resection are determined. The mesentery is scored using electrocautery at the planned margins. A surgeon must ensure that the mesentery encompasses only the vessels and lymph nodes (for oncologic staging if required) related to the section of bowel that is to be removed (Fig. 35.2). A window is then made in the mesentery next the bowel at the margins. This can be done with a right angle. A GIA stapler is then passed through the windows on either side of the bowel. A blue (3.8 mm) load is typically used to divide the bowel. The mesentery is then divided using electrocautery, suture ligation, or a harmonic scalpel along the score lines. Division of mesentery in patients with Crohn's disease can be difficult due to its thickening from chronic inflammation. Vessel sealing devices may not adequately provide hemostasis; therefore, overlapping clamps with suture ligations should be used (Fig. 35.3). For a handsewn anastomosis, a 3-0 silk is then used in an interrupted fashion to close the posterior layer (Lembert stitch). The staple line is excised. The inner layer is then closed starting in the middle using a 3-0 absorbable, double arm suture. Each arm closes the posterior inner layer in a continuous fashion. After the corner, a transition stitch is performed from suturing inside to outside to allow closure of the anterior layer. The outer anterior layer is closed with a Lembert stitch. The mesentery is closed with 3-0 interrupted or continuous silk to prevent internal herniation. The patency of the anastomosis is confirmed by manual exploration. The anastomosis and mesentery is observed for hemostasis. The abdomen is closed in a standard fashion.

Fig. 35.2 Margins of small bowel resection with adjacent mesentery and accompanying vasculature

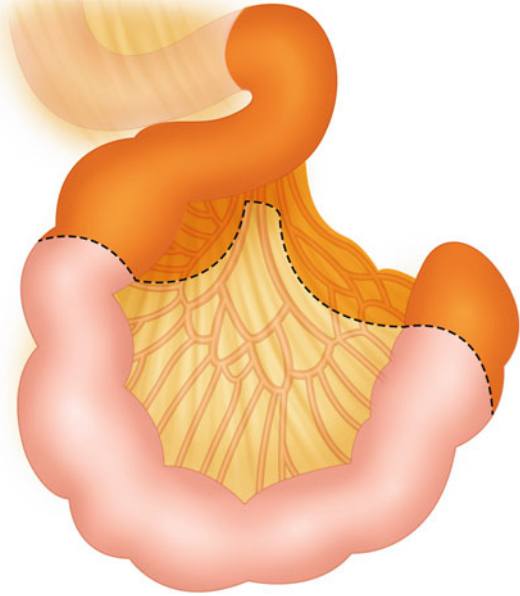
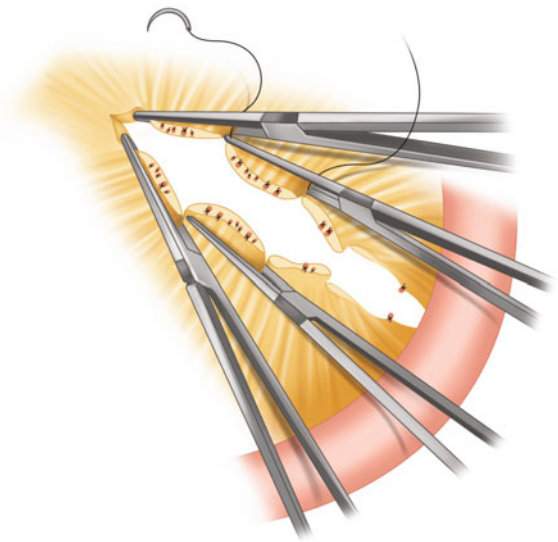


Fig. 35.3 Small bowel resection with thickened mesentery performed with suture ligation



Complications

Early complications include mesenteric hematoma and anastomotic bleeding. Late complications include bowel ischemia, prolonged ileus, anastomotic leak, mechanical obstruction, wound infections, and enterocutaneous fistula.

Summary

Margins of a small bowel resection and mesentery must encompass relevant vasculature and lymph nodes. Status of the mesentery dictates bowel viability. It is critical to ensure mesenteric hemostasis.

Suggested Reading

1. Minter RM, Doherty GM, editors. *Current procedures: surgery*. New York, NY: McGraw-Hill.
2. Cameron JL, Cameron AM, editors. *Current surgical therapy*. Philadelphia, PA: Elsevier.
3. Mulholland MW, Lillemoe KD, Doherty GM, Maier RV, Simeone DM, Upchurch GR, editors. *Greenfield's surgery*. Philadelphia, PA: Lippincott Williams & Wilkins.