

In this section we will feature outstanding photographs of clinical materials. These will be selected for their educational value, message, or possibly rarity. The images will be accompanied by brief case reports (limit 2 typed pages, 3 references). Our readers are invited to submit items for consideration.

## Small bowel necrosis in association with early postoperative enteral feeding after pancreatic resection

Rosa Jorba, MD, Joan Fabregat, MD, Francisco Garcia Borobia, MD, Jaume Torras, MD, Ignasi Poves, MD, and Eduardo Jaurieta, MD, *Barcelona, Spain*

Accepted for publication October 16, 1999.

Reprint requests: Rosa Jorba, MD, Department of General Surgery, Hospital Princeps d'Espanya, CSUB, Feixa Llarga s/n, 08907-L'Hospitalet del Llobregat, Barcelona, Spain.

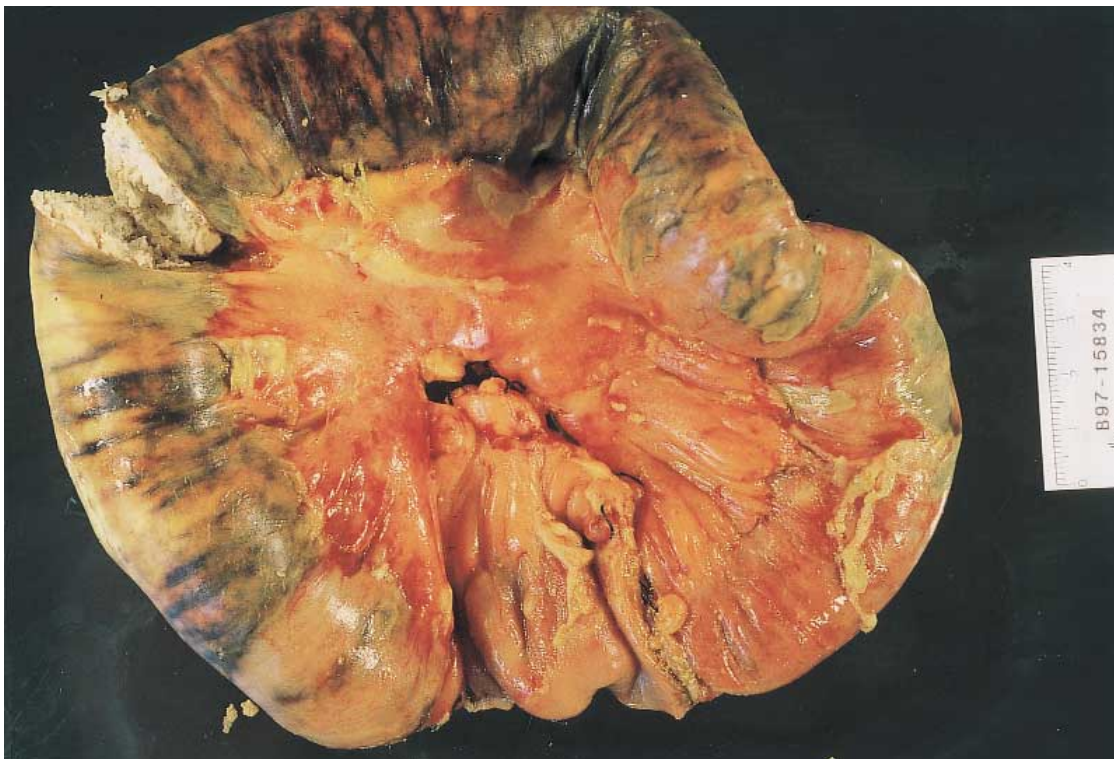
Copyright © 2000 by Mosby, Inc.

Surgery 2000;128:111-2.

0039-6060/2000/\$12.00 + 0 11/60/104119

doi:10.1067/msy.2000.104119

A 70-year-old man underwent a pancreatoduodenectomy for carcinoma of the distal common bile duct. A needle catheter jejunostomy was inserted as an adjunctive procedure, and enteral feeding was begun on the first postoperative day. On the seventh postoperative day, the patient had crampy abdominal pain, progressive distension, and tenderness with metabolic acidosis and



**Figure.** Resected segment of jejunum. Note the full thickness necrosis and impacted enteral nutrition at the jejunal section.

leukocytosis. During an emergency laparotomy, intestinal full thickness necrosis was found involving the small bowel beginning at the jejunostomy tube insertion site and continuing for approximately 50 cm distally. There was no evidence of intestinal strangulation or mesenteric arterial occlusion. The necrotic bowel was resected and the pathologic specimen showed transmural necrosis and enteral nutrition impacted in the lumen (Figure). He died shortly after surgery.

## **DISCUSSION**

Recent literature has addressed some of the ischemic complications associated with feeding jejunostomy. The cause of this problem is unclear, but there are many similarities between it and necrotizing enterocolitis, in which there have been many factors implicated, including systemic and luminal features.<sup>1</sup>

Hyperosmolarity of feedings, invasive bacteria, or toxic products from bacterial overgrowth have

been implicated as causes for direct mucosal injury and probably as causes of intense local vasospasm and resulting ischemic necrosis.<sup>2</sup> Hyperosmolar enteral diets expose the intestinal mucosa to unphysiologic osmolar loads that may be compensated by normal propulsive peristalsis. In the setting of disordered peristalsis (eg, ileus in the immediate postoperative period) this hyperosmolar load may cause rapid fluid shifts into the bowel lumen with resulting bowel distension, capillary slugging, and decreased perfusion. In our patient, there was evidence of a bolus of impacted enteral nutrition into the jejunal lumen that was probably the pathogenic mechanism for intestinal necrosis.

## **REFERENCES**

1. Schunn CDG, Daly JM. Small bowel necrosis associated with postoperative jejunal tube feeding. *J Am Coll Surg* 1995;180:410-6.
2. Smith-Choban P, Martin M. Feeding jejunostomy: a small bowel stress test?. *Am J Surg* 1988;155:112-7.