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Duodenocolostomy as Treatment of Ileus in Short Bowel Syndrome: A Case Report

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Statistical Analysis C
Data Interpretation D
Manuscript Preparation E
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Conflict of interest: None declared

Patient: Male, 68
Final Diagnosis: Short bowel syndrome • small bowel obstruction
Symptoms: Inablility to sustain oral nutrition
Medication: —
Clinical Procedure: Duodenocolostomy
Specialty: Surgery

Objective: Unusual setting of medical care

Background: Short bowel syndrome (SBS) is a malabsorption syndrome that results from an extensive intestinal resection or repeated small bowel resections. Postoperative small bowel obstruction is a well-known complication of abdominal surgeries requiring readmission and reoperation after failed conservative management. A combination of the above factors poses a clinical challenge for surgeons due to lack of applicable treatment options.

Case Report: A 68-year-old man underwent repetitive laparotomies and multiple small bowel resections for an incarcerated inguinal hernia, resulting in SBS. Postoperative small bowel obstruction resulting from an anastomotic stricture near the ligament of Treitz made the patient unable to sustain oral nutrition. During reoperation, insufficient jejunum length and extensive intraabdominal adhesions led us to perform a primary side-to-side duodenocolonic anastomosis, which is an unusual treatment option. After a long but uncomplicated postoperative course, the patient was able to ingest solid foods and was discharged in healthy condition with parental nutritional support.

Conclusions: Duodenocolostomy can be a treatment of last resort in patients with limited surgical treatment options and can lead to a significant improvement of their quality of life.

MeSH Keywords: Duodenostomy • Ileus • Intestinal Obstruction • Quality of Life • Short Bowel Syndrome

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Background

Increased life expectancy along with technological and medical developments has resulted in an increasing number of patients undergoing multiple abdominal surgeries during their lifetime. Adhesiolysis and intraoperative bowel injury during reoperations result in increased operative time, longer hospitalization, and higher postoperative morbidity [1]. A frozen abdomen due to extensive adhesions from previous abdominal surgeries can limit future surgical treatment options. In addition, loss of bowel or enterocyte mass from surgical resection can potentially lead to short bowel syndrome (SBS). Patients with intestinal failure, which is a subset of SBS, require parenteral nutrition because they are unable to meet their nutritional needs via enteral supplementation [2]. Sustained surgical treatments intended to improve patient quality of life are challenging because repetitive bowel resections can lead to a combination of the above factors.

Case Report

A 68-year-old man with a medical history including arterial hypertension, diverticulosis of the sigmoid colon, and small bowel resection for an incarcerated inguinal hernia underwent 2 repetitive laparotomies for small bowel ileus and small bowel perforation. The patient was referred to our surgical department after formation of a proximal end jejunostomy near the ligament of Treitz, which resulted in the patient requiring total parenteral nutrition. After initial nutritional support for 6 months through a port venous system, the patient underwent reoperation with jejunoileal side-to-side anastomosis 10 cm from the ligament of Treitz. Percutaneous endoscopic gastrostomy (PEG) decompression was performed to treat anastomosis malfunction with stenosis that was further complicated by small bowel perforation. After resuscitation, the patient underwent 2 re-laparotomies with anastomosis resection and construction of a new jejunoileal end-to-end anastomosis. The estimated bowel length at rest was 40 cm.

Despite vigorous efforts to restore intestinal continuity, the patient was unable to sustain oral nutrition. Postoperative endoscopy revealed an anastomotic stricture near the ligament of Treitz and an intraoperative contrast study with Gastrografin further demonstrated the inability of the contrast agent to pass through the duodenojejunostomy (Figure 1). During reoperation, a duodenocolostomy, rather than a duodenojejunostomy, was performed since it was impossible to mobilize sufficient jejunum length. After thorough mobilization of the duodenum and right colon, a side-to-side duodeno-ascending colon anastomosis was created (Figure 2). Prophylactic cholecystectomy was additionally performed. The patient was subsequently transferred to the intensive care unit, and nutritional support was administered via a subclavian line. On postoperative day 7, a contrast study with Gastrografin demonstrated good patency of the anastomosis, with no signs of leakage. Starting on day 18, the patient was switched to normal solid food. The patient developed early complications, including hypoproteinemia, hypokalemia, and diarrhea, particularly after an initial attempt to conclude parenteral nutrition.

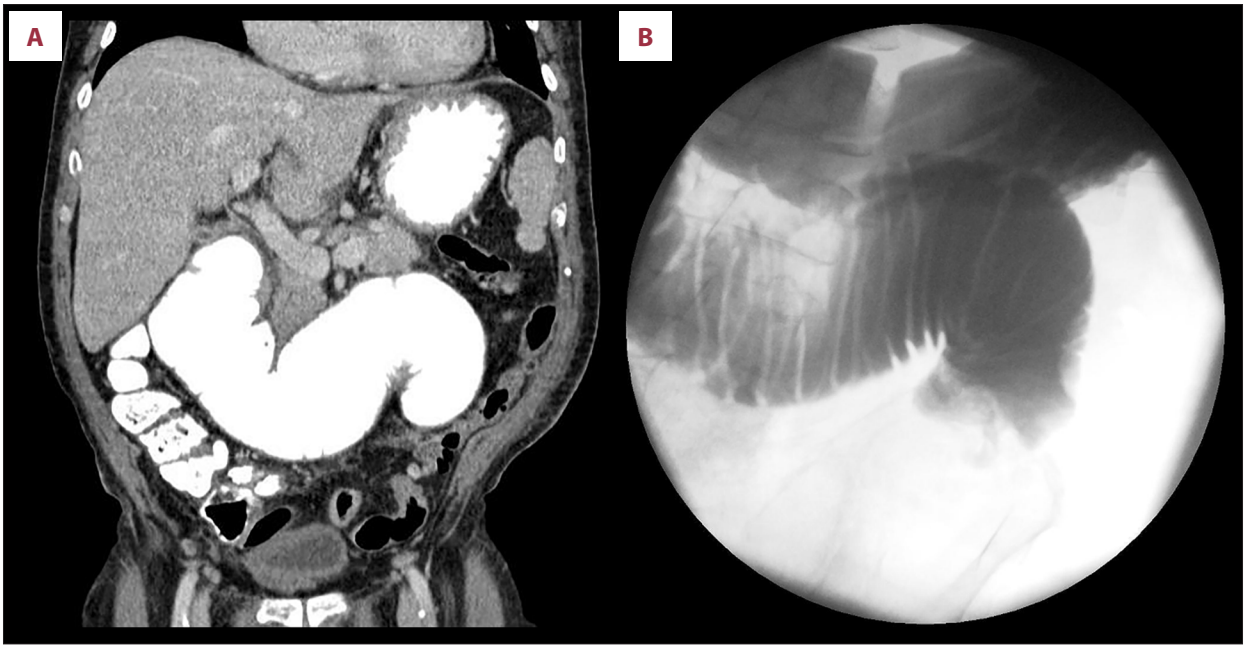

Figure 1. (**A**) Coronal CT scan of the abdomen showing severely dilated duodenum. (**B**) Preoperative fluoroscopic study with Gastrografin® demonstrates anastomotic stricture near the ligament of Treitz.

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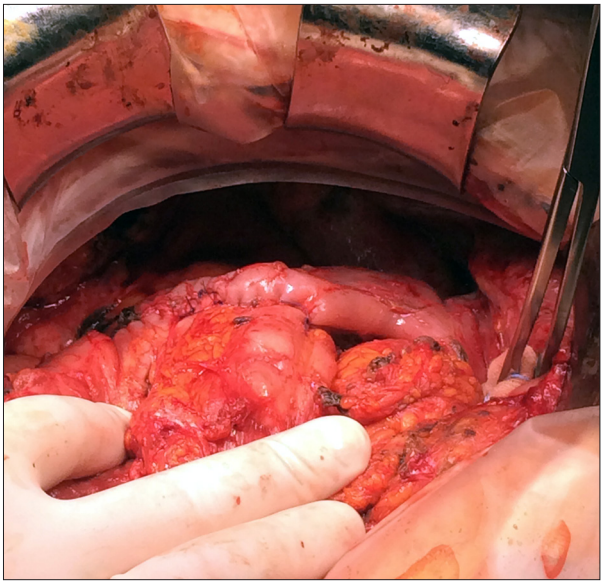

Figure 2. Side-to-side duodeno-ascending colon anastomosis.

Gastric-emptying scintigraphy evaluation with Tc-99m sulfur colloid-labeled meal showed no stricture of the anastomosis and normal gastric half-emptying time. Interestingly, reflux across the duodenocolostomy was noted 24 h after the patient consumed meals, which partially explains the symptoms of intermittent involuntary retching and vomiting not associated with food consumption. The patient was discharged in healthy condition 38 days after duodenocolostomy formation, with parental nutritional support.

Discussion

SBS can result from a single massive intestinal resection or repeated lesser resections. Mesenteric vascular disease, Crohn's disease, and treatment of malignancies are among the most frequent causes of intestinal failure [3]. Unanticipated intestinal resection after surgical procedures is another potential cause of SBS, which results from a loss of blood supply to the intestine or a need for repeated resection to address complications, such as intestinal obstruction. Our patient unexpectedly underwent a series of operations mainly due to postoperative ileus and anastomotic failure after treatment of an incarcerated inguinal hernia. In addition to SBS and a need for parenteral nutrition, failure to restore bowel continuity in the patient resulted in the inability to resume oral nutrition with continuous PEG decompression. This resulted in a dramatic deterioration of the patient's quality of life. Under these circumstances, we decided to attempt an immediate digestive tract reconstruction.

Although formation of a duodenocolic anastomosis is unusual, some reports support its effectiveness in restoring intestinal continuity. A recent review analyzed 28 patients who underwent total small bowel resection in the last 70 years [4]. Establishment of bowel continuity by means of a duodenocolic anastomosis was shown to be a viable option in hemodynamically stable patients. Cruz et al. reported on 13 patients who underwent near total enterectomy [5] and duodenocolostomy was performed in 5 cases. This small case series concluded that reestablishment of GI tract continuity after total enterectomy seems to be the best option for postoperative fluid and electrolyte management. Digestive tract restoration can facilitate electrolyte control and dietary support of the patient and can serve as a bridge to newer drug or surgical treatments [6–8], including small bowel transplantation [9].

Diarrhea is a leading symptom and a significant detrimental factor that affects quality of life in patients with SBS. Fast transit of hyperosmotic fluids into the colon through a duodenocolostomy may worsen this bothersome symptom. Indeed, all patients with SBS experience a degree of diarrhea [4,5,10,11]. Our patient, after resuming consumption of normal food, experienced 3–4 loose bowel movements, which were well tolerated without antidiarrheal medications. The harmful long-term effects of gastric and duodenal fluids on the colic epithelium should also be assessed [12].

Conclusions

This case shows that restoration of intestinal continuity by means of a duodenocolostomy can have a successful outcome in patients for whom options are otherwise limited. Despite failure of parenteral nutrition cessation, the patient experienced an uncomplicated postoperative course, with significantly improved quality of life. Long-term follow-up is needed to evaluate the outcome of this surgery in the clinical management of patients with SBS after multiple abdominal operations.

Conflict of interest

None.

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