

Case Study of a Closed Loop Small Bowel Obstruction by Two Different Sites with Two Different Etiologies

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BACKGROUND

Small bowel obstruction is a common emergency in general surgery. SBO's can be broken down into intrinsic, extrinsic and intraluminal causes. The most common extrinsic causes of SBO are peritoneal adhesions (50-80%) and hernia (10%).

Closed loop SBO (CL SBO) occurs when there is obstruction of inflow and outflow of a bowel segment via one aberrant mechanism i.e. an adhesive band, hernia, or intestinal volvulus. CL SBO from two different etiologies at two different sites along the bowel is extremely rare and there are no known statistics for its occurrence.

Parastomal hernia is vaguely defined and so its prevalence is difficult to trend. For this case report, we define parastomal hernia as an incisional hernia related to intestinal stoma on the abdominal wall.

Parastomal hernia and intraabdominal adhesions are common complications for intra-abdominal surgeries such as stoma creations where stool flow is diverted to protect an anastomotic site or bowel decompression.

CASE PRESENTATION

HPI: 69-year-old male 10 years status post total abdominal colectomy and end ileostomy for refractory ulcerative colitis presented to the emergency department for acute abdominal pain under the ileostomy site and progressively worsening abdominal distention, nausea and vomiting over a period of 12 hours. The patient also noted protrusion of dusky bowel at his ostomy site.

PMH: Multiple small bowel obstructions 8 years prior. Most recent SBO one month prior requiring laparoscopic adhesiolysis. Marfan's syndrome, ascending aortic aneurysm, sinoatrial dysfunction with pacemaker and nephrolithiasis.

Physical Exam:

Vitals: HR 72, BP 125/83, Temperature 96.0 F, RR 18, SpO2 96% Room Air

Abdominal Exam: Diffuse tenderness, non reducible parastomal hernia with black necrotic stoma

Labs:

WBC	13.8
HCT	44.9%
Glucose	149 mg/dL
Total Lipase	4 U/L
Lactate	1.3 mmol/L

IMAGING

CT ABD/Pelvis: significant for high-grade SBO, free fluid in the pelvis, bowel distention with gas and air within the ileostomy.

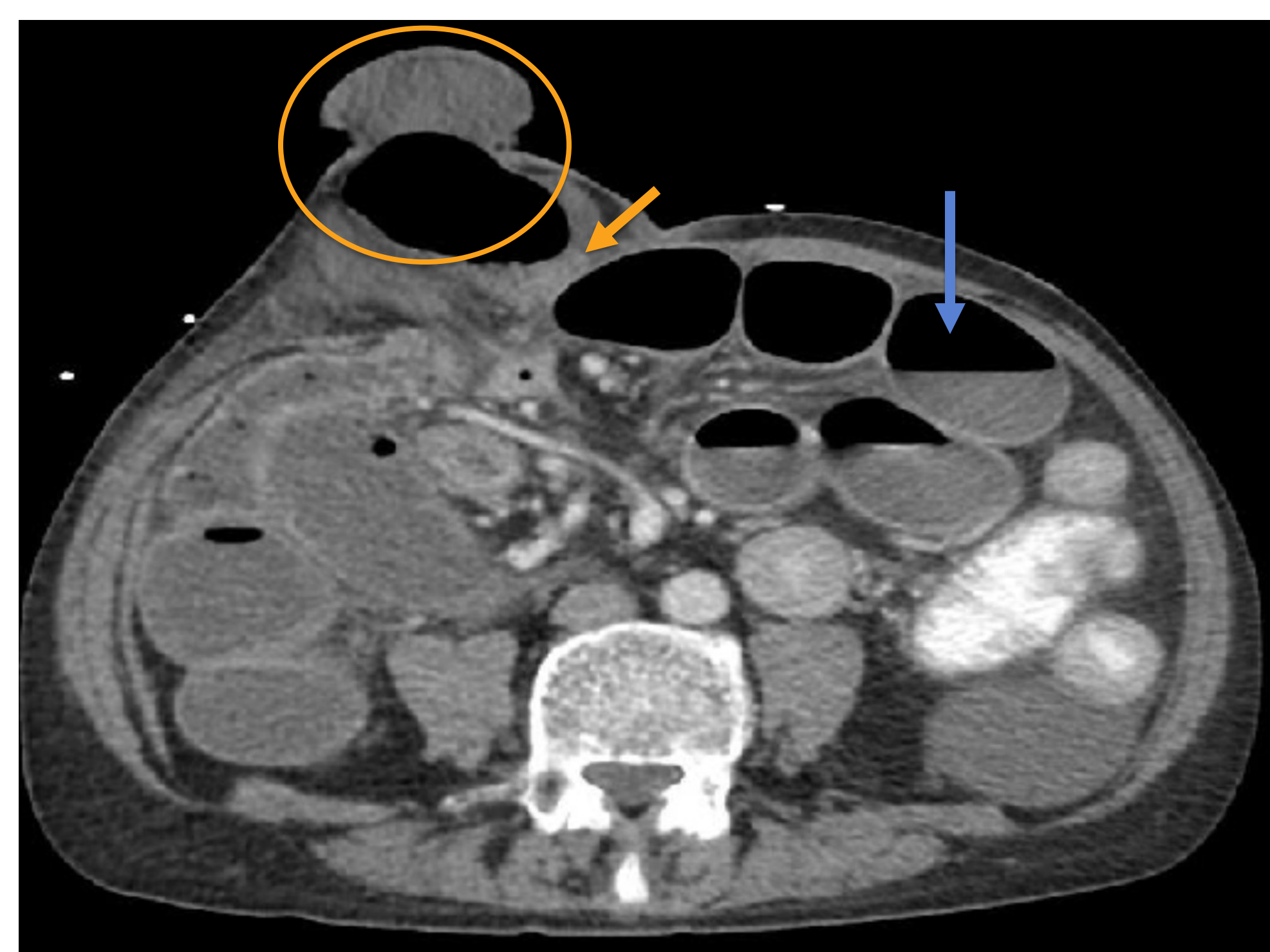


Figure 1. Axial view: Circle indicates small bowel obstruction in parastomal hernia. Orange Arrow indicates transition point. Blue arrow indicates intraabdominal small bowel obstruction with dilated bowel and air fluid levels.

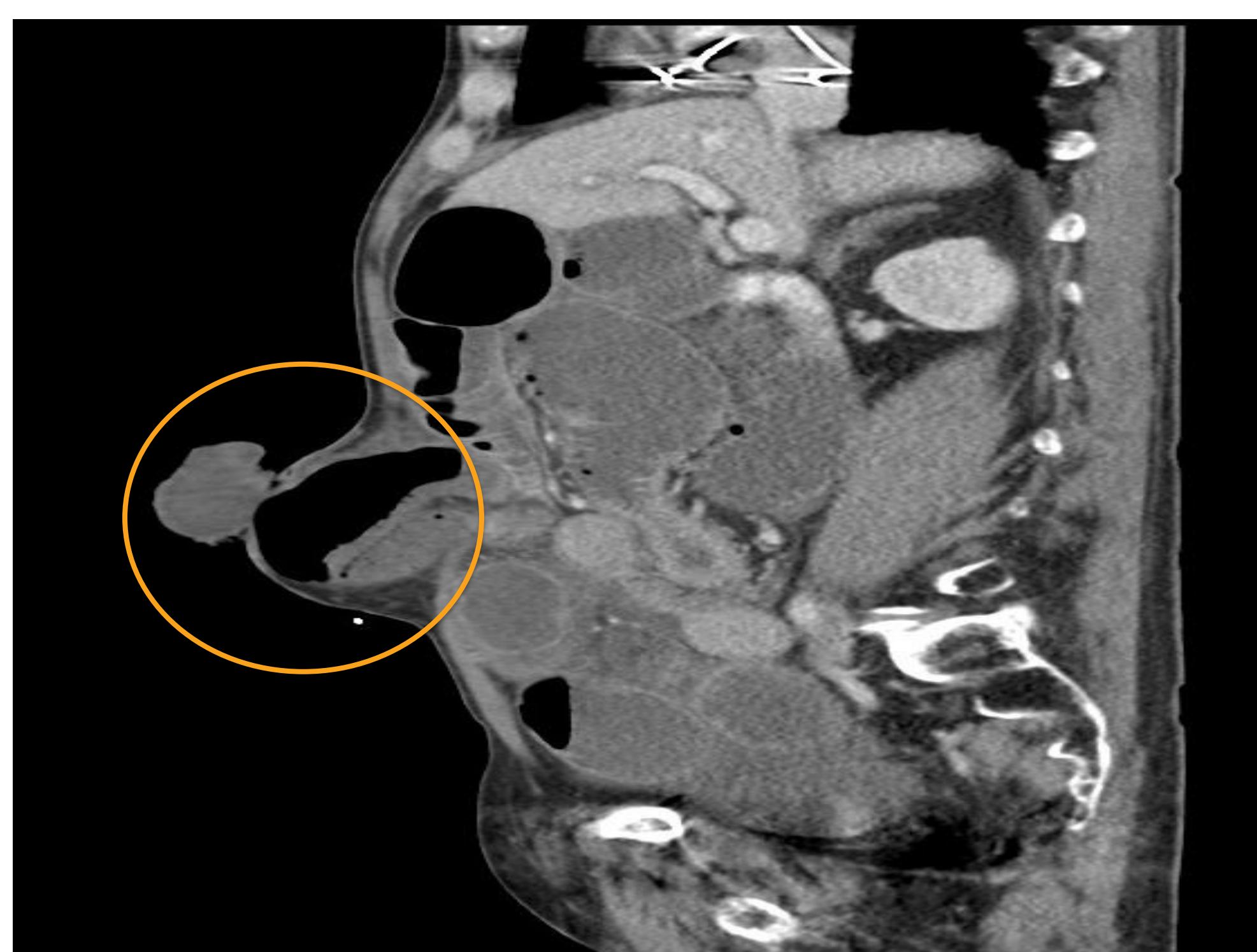


Figure 2. Sagittal view: Circle indicates small bowel obstruction in parastomal hernia.

INTRAOPERATIVE FINDINGS

- Extensive small bowel adhesions along the midline and interloop were noted
- A clear thick band was found mid jejunum, tethering distended small bowel loops to the LLQ
- At the parastomal hernia, a loop of strangulated necrotic bowel was protruding through

MANAGEMENT

PREOPERATIVELY

- Nasogastric decompression, IV fluid hydration, IV antibiotics

INTRAOPERATIVELY

- Resection of ischemic, necrotic stoma
- Lysis of adhesions, resection of gangrenous bowel, parastomal hernia repair, and recreation of ileostomy

POSTOPERATIVELY

- Resolution of obstructive symptoms
- Gastrointestinal function returned by post-op day 3
- Patient was discharged with fiber restricted diet and oral antibiotics on post-op day 4

DISCUSSION

SBO prevalence has increased with increasing intraabdominal surgical interventions. Adhesions, the leading cause of SBO, form in 95% of patients who have surgery involving entry of the peritoneal cavity. Hernias are the second most common cause of SBO. Ostomies develop parastomal hernia at a rate of 20%. A tunnel of bowel through the abdominal wall is a non-physiologic fistula, possessing an inherent trend to enlarge at the aperture over time thus leading to the formation of a parastomal hernia. Because of the nature of care for stomas, providers may erroneously bypass examination of a stoma. It is imperative that patients with stomas who present with abdominal pain and history of abdominal surgery or IBD are thoroughly examined and that complications of stomas including hernia strangulations, adhesions, and SBO are high on the differential.

CL SBO can quickly progress to strangulation, ischemia and necrosis and is thus an emergent cause for surgical intervention. CT imaging and specificity for diagnosis of closed-loop SBO is 53% and 83% respectively, often necessitating exploratory surgery for appropriate diagnosis and treatment. This patient recovered quickly with minimal days of hospitalization because of prompt surgical intervention, illustrating the importance of swift surgical intervention in minimizing morbidity and mortality of SBO.

CL SBO by two etiologies is extremely rare, with no known statistics found in our literature search. This patient had multiple risk factors independently increasing his risk for 1) development of intra-abdominal adhesions and 2) strangulated parastomal hernia including total abdominal colectomy (1) with end ileostomy (2), prior SBO's requiring laparoscopic adhesiolysis (1), IBD (2), advanced age (2), and malnutrition (2).

CONCLUSION:

This case is interesting because of the rare occurrence of closed-loop SBO with two different etiologies. Typical etiology involves obstruction of inflow and outflow of a bowel segment by one aberrant mechanism such as an adhesive band, hernia, or intestinal volvulus. Peritoneal adhesions account for 50-80% of all SBO's, while hernias account for 10%. Closed-loop obstruction caused by two different etiologies is extremely rare and there are no known statistics for its occurrence.

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