

Case Report

Recurrent Internal Hernias Causing Small Bowel Obstruction Following Proctocolectomy with Ileal Pouch-Anal Anastomosis: A Case Report

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Abstract

Internal hernias leading to small bowel obstruction are a well described entity that can result after alimentary tract surgery. Though these hernias can occur following both open and laparoscopic surgery, most commonly they happen following laparoscopic Roux-en-Y gastric bypass and other laparoscopic surgeries that involve significant manipulation of the mesentery. We present a case of a 66-year-old female who developed recurrent, symptomatic internal hernias following an open restorative proctocolectomy with ileal pouch-anal anastomosis (IPAA) for ulcerative colitis. The patient developed three separate small bowel obstructions caused by different types of internal hernias, each requiring surgical reduction with closure of the internal defects.

Keywords: Internal Hernia; Proctocolectomy with Ileoanal Anastomosis; Transomental Hernia; Transmesenteric Hernia

Introduction

An internal hernia is a protrusion of an organ through a natural or iatrogenic defect in an anatomic barrier. Internal hernias are a rare cause of bowel obstruction accounting for 0.2-0.9% of all small bowel obstructions. Several types of internal hernias are defined by both the protruding organ and the orifice/defect involved. These types include, but are not limited to, paraduodenal, pericecal, foramen of Winslow, transmesenteric, transomental, transmesocolic, intersigmoid, and retroanastomotic internal hernias [1]. Transmesenteric hernias are especially rare, constituting only 1-4% of all internal hernias. Transomental hernias are also rare and account for only 4% of internal hernias. Most commonly, transomental hernias are secondary to previous surgery or trauma [2].

Restorative proctocolectomy with ileal pouch-anal anastomosis (IPAA) or "J-pouch" is most commonly performed for patients with ulcerative colitis or familial adenomatous polyposis. In this procedure, the entire colon and rectum are removed and a J-shaped reservoir is created using distal small bowel to restore continence. Significant morbidity can occur postoperatively in up to 50% of patients [3]. While small bowel obstruction is a com-

mon source of post-operative morbidity, internal hernia formation as the cause of small bowel obstruction is not widely reported. Here in, we report a case of a patient with recurrent small bowel obstructions from internal hernia formation following a restorative proctocolectomy with IPAA. Although case reports of similar findings are found in the literature, none to our knowledge document this particular constellation of findings.

Case report

Our patient is a 66-year-old female with a history of ulcerative colitis who underwent a restorative proctocolectomy with IPAA at age 61. Since her reconstruction, she has been hospitalized seven times with small bowel obstructions. Four admissions were for partial small bowel obstructions that resolved with conservative management. Three admissions required exploratory laparotomy for high grade small bowel obstruction seen on CT scan. At her first laparotomy, four months following her IPAA creation, a transmesenteric internal hernia was discovered in which the small bowel herniated through a defect in the mesentery near the closure of her loop ileostomy site. During this operation, the bowel was easily reduced and the defect was primarily closed. At her second laparotomy four years later, a new transmesenteric internal hernia was discovered with the defect located under the small bowel mesentery leading to the ileal pouch. For this procedure, the herniated

small bowel was again easily reduced and the mesenteric defect was closed primarily. An unusual paucity of intra-abdominal adhesions was noted during this operation.

Five years after her restorative proctocolectomy with IPAA and one year following her second transmesenteric internal hernia repair surgery, the patient again presented to the emergency department with nausea, obstipation, and abdominal pain. A CT scan (Figure 1 and 2) showed a high-grade small bowel obstruction with free fluid in the pelvis. At her third exploratory laparotomy, the point of obstruction was found to be a loop of small bowel herniating posterior to the stomach and through the pars flaccida (gastrohepatic ligament or caudal portion of the lesser omentum) representing a transmesenteric hernia (Figure 3 and 4).

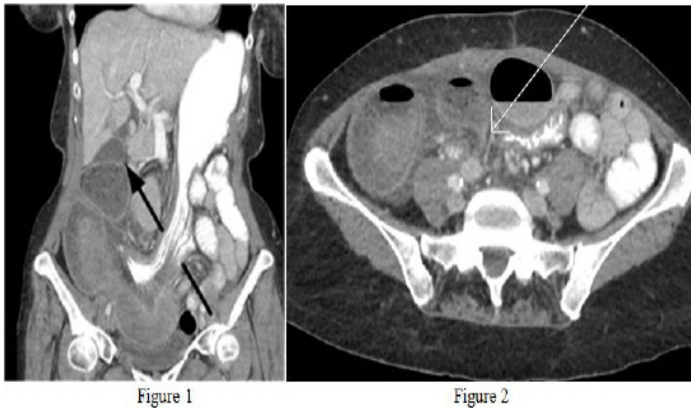


Figure 1: CT image showing a small bowel obstruction with herniation under the antrum and through the pars flaccida exiting above the stomach (arrow).

Figure 2: Transition point of small bowel obstruction marked by arrow.

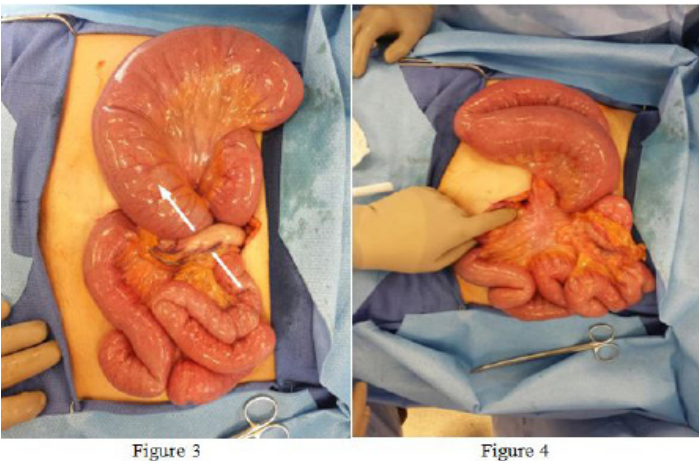


Figure 3: Operative photograph showing small bowel herniating through pars flaccida (gastrohepatic omentum). Direction of herniation marked by arrow.

Figure 4: Residual compression of the small bowel mesentery visible after reduction of the hernia.

This hernia was easily reduced under the stomach into the left side of the abdomen, releasing the obstruction. The bowel was pink and viable and the defect in the pars flaccida was closed primarily. During this operation, very little intra-abdominal fat was noted and the mesentery was thin and delicate. Intra-abdominal adhesions were limited to a few between the omentum and the anterior abdominal wall, but none involved the small bowel. The patient's postoperative course was uneventful and she returned home on post-operative day five tolerating a regular diet and with full recovery of her bowel function. Since this last operation, the patient has had no further obstructive symptoms.

Discussion

Restorative proctocolectomy with IPAA is associated with a high rate of post-operative complications with small bowel obstruction being one of the most common. Early small bowel obstruction accounts for 44% of post-operative small bowel obstructions and most resolve without surgical intervention. The most common cause of small bowel obstruction after proctocolectomy with ileal pouch-anal anastomosis is the formation of internal adhesions [3]. One study reported pelvic adhesions as the most common location for patients requiring exploratory laparotomy for small bowel obstruction, followed by adhesions at the prior ileostomy site [3]. Patients undergoing ileal pouch-anal anastomosis have up to a 31% risk of small bowel obstruction at ten years after surgery, but generally do not require reoperation and usually respond well to conservative management [4].

Internal hernias and mesenteric volvuli are more commonly found after laparoscopic surgeries as compared to open procedures [5] due to a variety of factors including increased mesenteric mobilization and less adhesion formation allowing for greater bowel migration. Transmesenteric hernias, which occurred twice in our patient, are most commonly found in patients following Roux-en-Y gastric bypass or other surgeries that involve the creation of a Roux limb. A major contributing factor that varies among different institutions is the inconsistent closure of mesenteric defects following bowel resection [6]. Non-closure of a mesenteric defect created by a Roux limb increases the opportunity for bowel migration into the defect and closure of the mesenteric defect is generally accepted as the preferred approach. Closure of normal anatomical orifices is controversial [7]. Additionally, the rapid weight loss that occurs following Roux-en-Y procedures is believed to enlarge a previously small internal defect further increasing the risk of internal hernia formation [1].

Attenuated mesentery, often found in thin patients, increases the risk of developing a mesenteric defect heightening the possibility of an internal hernia. Some authors recommend filling mesenteric defects with omentum rather than closing them in patients with thin mesenteries to avoid small bowel obstruction and ischemia [8].

Most case reports of transomental hernias describe a double omental hernia through both the gastrocolic and gastrohepatic omentum. Only a handful of reported cases discuss internal hernias through the lesser omentum after total proctocolectomy. The lesser omental hernia is a potential postoperative complication after total proctocolectomy or total colectomy with removal of the transverse colon allowing small bowel to herniate into the retrogastric space. In our patient, the gastrocolic omentum was absent from prior surgeries, aggravating her risk for developing a hernia through the gastrohepatic omentum [7]. Most literature advocates for repair of any defects in the lesser omentum that are created at the time of total proctocolectomy and total colectomy to prevent this complication [3].

Our patient had a unique constellation of factors contributing to recurrent internal hernias. She had previously undergone IPAA with its inherent high risk of post-operative small bowel obstruction. Interestingly, she had almost no intra-abdominal adhesions even after multiple open abdominal surgeries. The patient's delicate omentum and thin mesentery put her at elevated risk for developing recurrent internal hernias. At each subsequent surgery, the patient's symptomatic mesenteric defect was closed [9,10]. Her three internal hernias - transmesenteric near the prior ileostomy site, transmesenteric beneath the mesentery leading to the J pouch and finally a transomental hernia - display an interesting series of surgical internal hernias following IPAA.

Conclusions

Internal hernias are well known potential post-operative complications after major open and laparoscopic abdominal surgeries, including IPAA. The surgeon must have a high level of suspicion for internal hernias in patients with a surgical history of IPAA presenting with signs and symptoms of a small bowel obstruction or recurrent partial small bowel obstructions and must have a low threshold for surgical exploration.

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