

Internal hernia following total gastrectomy with Roux-en-Y reconstruction

JO Larkin, F Cooke, N Ravi, JV Reynolds

Department of Clinical Surgery, St James's Hospital, Dublin, Ireland

ABSTRACT

Internal herniation is a well-described complication after a gastric bypass, particularly when performed laparoscopically, although it is rarely described following a total gastrectomy.

A 55-year-old lady presented with a 24-hour history of vomiting and rigors 10 months after a radical total gastrectomy with Roux-en-Y reconstruction for a gastric adenocarcinoma. Computed tomography (CT) showed a complete small bowel obstruction and a mesenteric swirl sign, indicating a possible internal hernia. The entire small bowel was found at laparotomy to have migrated through the mesenteric defect adjacent to the site of the previous jejunojejunostomy and was dark purple and aperistaltic. The small bowel was reduced through the defect. At a second laparotomy, the small bowel looked healthy and the defect was repaired. Postoperative recovery was unremarkable.

Of numerous signs described, the mesenteric swirl sign is considered the best indicator on CT of an internal hernia following Roux-en-Y reconstruction in gastric bypass surgery. A swirl sign on CT in a patient with abdominal pain should always raise the suspicion of an internal hernia.

KEYWORDS

Gastrectomy – Roux-en-Y anastomosis – Hernia

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CORRESPONDENCE TO

John Larkin, Department of Clinical Surgery, St James's Hospital, James's Street, Dublin 8, Ireland
T: +353 (0)1 410 3000; F: +353 (0)1 410 3461; E: larkin.dundalk@gmail.com

Although a well-described complication after a gastric bypass, particularly a laparoscopic gastric bypass, internal hernias are rarely described following a total gastrectomy. We present a rare case of herniation of the entire small bowel through the mesenteric defect adjacent to the jejunojejunostomy of the Roux-en-Y reconstruction. The ischaemia noted at the laparotomy was reversible upon reduction of the internal hernia. Recognition of the mesenteric swirl sign on computed tomography (CT) and a high degree of clinical suspicion with early operative intervention are critical to pre-empt ischaemic necrosis.

Case history

A 55-year-old woman presented with a 24-hour history of vomiting and rigors. She had been complaining of low-grade central abdominal pain for about a month and her appetite had been poor. She was hypotensive and the abdomen was diffusely tender without signs of peritonism. Ten months previously she had undergone a radical total gastrectomy with Roux-en-Y reconstruction for a T2 proximal gastric adenocarcinoma. On histopathological analysis, the

resection margins were clear. Three of twenty-four regional lymph nodes contained metastatic adenocarcinoma so she was then treated with an adjuvant course of chemotherapy that was completed six months after the surgery. She had previously had a hysterectomy and a bilateral salpingo-oophorectomy for a cervical carcinoma.

Following initial fluid resuscitation, CT of the abdomen and pelvis was performed, which showed moderate volume ascites, a complete small bowel obstruction with a transition point in the distal ileum and a collapsed colon but no evidence of recurrent or metastatic malignant disease. A mesenteric swirl sign was noted, indicating a possible internal hernia.

At emergency laparotomy it was discovered that the entire small bowel had migrated through the mesenteric defect adjacent to the site of the previous jejunojejunostomy, rotating on its vascular supply with a consequent impending venous infarction. The bowel looked dark purple, was distended with gas and fluid, and was aperistaltic. There was no perforation and no evidence of malignancy. The bowel was carefully delivered through the internal hernia and warm saline instilled in the abdomen. The colour of the



Figure 1 Computed tomography showing small bowel obstruction with transition point in the distal ileum and mesenteric swirl sign

bowel appeared to recover over 15 minutes so it was decided to leave the abdomen open to obviate the development of an abdominal compartment syndrome.

The patient remained ventilated overnight in the intensive care unit. Twelve hours later, at a second laparotomy, the bowel was observed to have fully recovered colour and peristalsis. A nasojejun tube was inserted over a guidewire and the sequestered fluid in the small bowel was milked proximally and suctioned from the tube. The mesenteric defect was repaired with interrupted sutures and the abdomen primarily closed. The patient's subsequent recovery was unremarkable with diet reintroduced on the sixth postoperative day. She was discharged home, well, 18 days later.

Discussion

Internal herniation is a well described complication after gastric bypass, particularly when performed laparoscopically, although it is rarely described following a total gastrectomy. To our knowledge, there has only been one report, in the French literature, of necrosis of the entire small bowel following herniation through the mesenteric defect after a Roux-en-Y anastomosis.¹

Potential hernia locations include a transverse mesocolon defect, Petersen's space, the potential space between the mesentery of the ascending Roux limb and the transverse mesocolon, and, less commonly, the jejunojunctionostomy mesenteric defect (as in the current case).

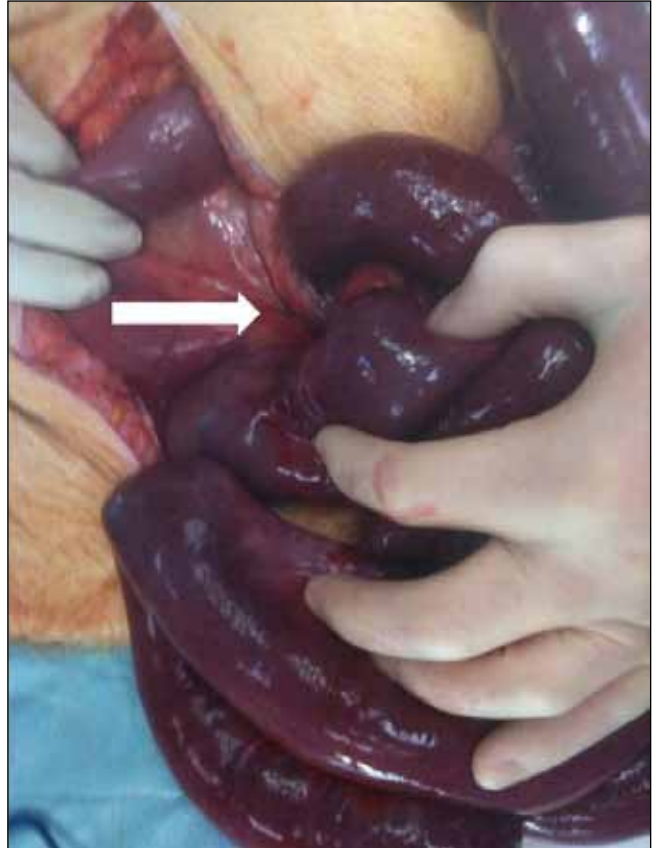


Figure 2 Small bowel twisted through mesenteric defect, exhibiting dark purple colour indicative of impending venous infarction

Conclusions

Suturing of these defects is not without risk and probably unnecessary given the rarity of herniation but a high index of clinical and radiologic suspicion is important in the early recognition of postoperative complications.

Of numerous signs described, the mesenteric swirl sign is considered the best indicator on CT of an internal hernia following Roux-en-Y reconstruction in gastric bypass surgery.^{2,5} A swirl sign on CT in a patient with abdominal pain should always raise the suspicion of an internal hernia.⁴

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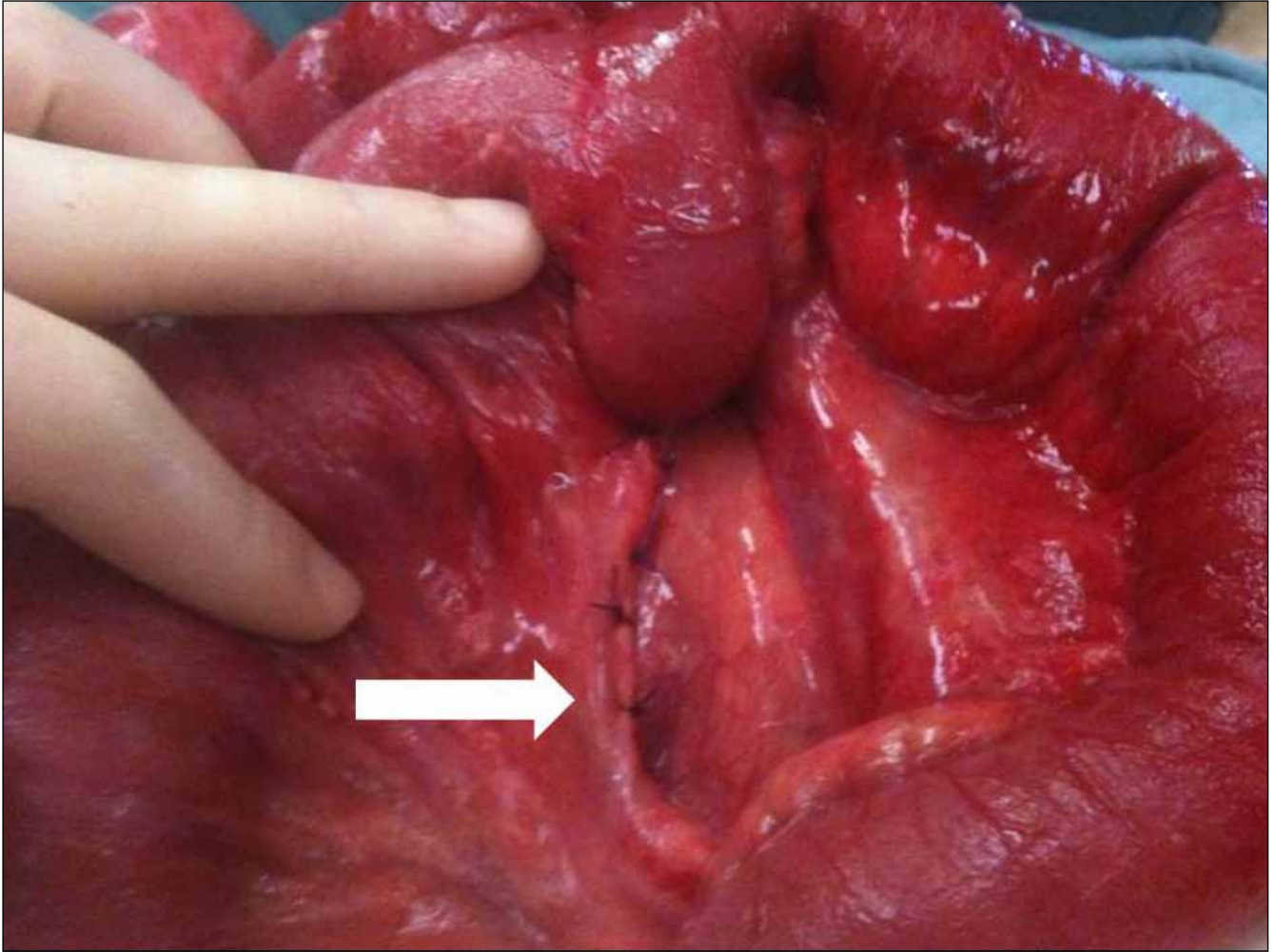


Figure 3 Healthy, vascularised small bowel seen at second laparotomy 12 hours after initial reduction of twisted segment through mesenteric internal hernia with subsequent repair of the defect using interrupted sutures