Internal hernia and small bowel obstruction following open ileoanal pouch formation: A case report

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Abstract

INTRODUCTION: Internal herniae, although rare, can give rise to potentially serious morbidity and mortality. The protrusion and entrapment of the small bowel through an embryological or iatrogenic mesenteric aperture within the confines of the peritoneal cavity can be difficult to diagnose, and delay treatment (operative). Timely intervention must be achieved to minimize small bowel ischemia and infarction.

CASE PRESENTATION: In this case, a young lady who had a previous laparoscopic total colectomy and ileostomy developed an unusual internal hernia. Small bowel was passing behind the lesser curvature of the stomach causing the stomach to be rotated to form of a tight “band” trapping bowel. The herniated small bowel was reduced, hence, avoiding resection; the defect closed by interrupted 4-0 PDS. “Prompt” surgery avoided small bowel length resection and sacrifice of the ileoanal pouch reconstruction.

DISCUSSION: It is theorized that a laparoscopic approach results in a more advanced mobilization of the mesentery right up to the small bowel origin, and with less adhesion formation may in fact promote unusual internal hernia and volvulus.

CONCLUSION: The case presented highlights the difficulty in making the diagnosis, and the pictures clearly indicate an unusual hernia passing directly behind the stomach and involving a large section of the small bowel. The lead up history of several admissions with sub acute small bowel obstruction suggested the underlying problem was adhesional but quite clearly there was a well defined internal hernia. Without timely surgery she would have been at high risk of losing her pouch.

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1. Introduction

Internal herniae are a rare and potentially serious condition, defined as a protrusion of a viscus through a normal (embryological) or acquired (iatrogenic) mesenteric aperture within the confines of the peritoneal cavity. The orifice can be congenital (foramen of Winslow or from an abnormality arising as a result of anomalies of internal rotation and peritoneal attachments). The other main group is acquired (post operative; traumatic; post-inflammatory) [1].

We report a unique case of a lady with an internal hernia resulting in small bowel obstruction following reconstructive “pouch” surgery.

2. Case report

A 29 year old lady was admitted with symptoms of 24 hours cramping abdominal pain and vomiting. She had a previous emergency laparoscopic sub-total colectomy for fulminant ulcerative colitis and subsequent restorative ileoanal pouch formation.

Following this surgery she had two admissions, in the preceding months, for suspected obstruction which spontaneously resolved.

Physical examination revealed a distended but soft abdomen with no palpable incisional nor groin hernias. Full blood count revealed a white cell count of 15,000 mm³. Remaining blood biochemistry including CRP were unremarkable. Plain abdominal film revealed dilated loops of small bowel, and a presumed diagnosis of adhesive small bowel obstruction was made Fig. 1.

She was initially managed conservatively with intravenous fluids and nasogastric tube suction. With failure to improve within 72 hours of conservative management (including oral Gastrografin) and a further abdominal film displaying dilated small bowel (6 cm in diameter) and no passage of contrast into the ileoanal pouch Fig. 2, the decision was made for surgical intervention.

At laparotomy, a closed loop small bowel obstruction through an internal hernia was noted Fig. 3. The small bowel passing behind the lesser curvature of the stomach into the lesser sac and out below the greater curvature was noted. The stomach had clearly been rotated by the movement of the small bowel and taken on the form of a tight “band” trapping the small bowel. The herniated trapped small bowel was discolorized by ischemia Fig. 4. The hernia was subsequently reduced and the bowel rapidly “pinked” up with no requirement to resect any small bowel; the defect in the lesser curve was closed with 4-0 PDS Fig. 5.
She made a good recovery with initial parenteral nutrition and return to oral feeding on the second post-operative day. She was discharged on the seventh post-operative day and has subsequently remained well at clinic review.

3. Discussion

Internal hernias can also be categorized anatomically: para-duodenal (53%); peri-caecal (13%); foramen of Winslow (8%); trans-mesenteric and trans-mesocolic (8%); inter-sigmoid (6%); and retro-anastamotic (5%). With modern techniques the number of trans-mesenteric; trans-mesocolic; and retro-anastomotic internal hernias are reportedly on the rise. Herniation through the foramen of Winslow, as in this case is categorized as congenital due to it being a natural communication between the greater and lesser sac. Two thirds of these hernias only contain bowel, the remainder can include: cecum; ascending colon; gallbladder; transverse colon; or omentum. Risk factors for this type of internal hernia can be an enlarged foramen of Winslow or a longer than normal small bowel mesentery. This could have been a contributory factor in this case secondary to attempts to gain small bowel mobility for a tension free ileoanal pouch anastamosis [1].

Symptoms of proximal bowel obstruction are most common with this type on internal hernia from the pressure effect of the hernia contents applying extrinsic compression on the stomach. Occasionally, it can even lead to common bile duct compression; thus, resulting in jaundice or distended gall bladder Fig. 5.

Radiological imaging plays an integral diagnostic role in identifying internal hernias. CT is the first line imaging technique due to the ease of its availability, speed and reformattting capabilities. CT can detect abnormalities of the mesenteric vessels such as engorgement, crowding and twisting of the vessels. Plain contrast films can show encapsulated distended bowel loops in abnormal locations; crowding of small bowel loops within the hernia sac; and segmental dilatation and stasis. Fixation and reversed peristalsis can be seen on fluoroscopy [1].

PubMed search did not reveal any results of patients who had internal hernias following open ileoanal pouch formation, there was a single case report following laparoscopic pouch formation [2]. In a study of 110 pouch patients, only 6 developed small bowel obstruction and of these only 2 required laparotomy [4].

Laparoscopic assisted colectomy (LAC) has several advantages over traditional open surgery with patients having less pain; lower morbidity; quicker recovery of bowel function and physical activity. However, it does appear to be associated with reduced adhesion formation, leaving behind a more mobile and extensively mobilized
Fig. 5. Intraoperative findings: defect highlighted whilst small bowel hernia is reduced. Obstructing “band” now more clearly defined as stomach.

small bowel. This lady's previous LAC may, therefore, have contributed to her internal hernia formation.

Small bowel obstruction secondary to an internal hernia post LAC has only been reported five times in the English literature, but internal herniae are much more common following Roux-en-Y bypass surgery, where recommendations have been made to close mesenteric defects below 5 cm. However, closure of these defects laparoscopically can be challenging and time consuming [3]. Larger defects are less likely to cause bowel strangulation and subsequent obstruction.

4. Conclusions

With laparoscopic surgery for patients undergoing restorative proctocolectomy becoming commonplace, the number of unusual internal hernias may well rise. A high degree of suspicion in such patients is essential as obstruction due to internal herniae, as opposed to adhesions, are less likely to resolve with conservative therapy and are more likely to require operative intervention to avoid the risk of small bowel infarction and possible pouch jeopardy.

Conflict of interest

None.

Funding

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Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor in Chief of this journal on request. All identifying details have been removed.

Author contributions

H.S. Nair, K.A. Watt and D.N. Anderson all contributed to data collection, data analysis and writing of the case report. D.N. Anderson was the supervising author.

Guarantor

H.S. Nair and D.N. Anderson.

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