CASE REPORT

Ileal pouch functional outlet obstruction

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SUMMARY

Small bowel obstructions (SBOs) are common in patients who have undergone Ileal J-pouch-anal anastomosis (IPAA) surgery. SBO may be caused by stenosis of the diverting ileostomy, volvulus, internal hernia, adhesive bands, anastomotic stricture¹ or intra-abdominal adhesions.² Functional outlet obstruction is an important alternative diagnosis to consider in a patient post-IPAA presenting with obstructive symptoms. Recognition of this condition can prevent unnecessary surgery and save the patient from presenting repeatedly with obstructive symptoms.

BACKGROUND

Ileal J-pouch-anal anastomosis (IPAA) is considered the standard choice to reinstate continence following proctocolectomy for ulcerative colitis (UC) or familial polyposis coli.³ The common bowel symptoms following this surgery are increased stool frequency, extreme urgency and faecal incontinence. Small bowel obstructions (SBOs) are estimated to occur in up to 35% of patients following IPAA surgery,² and are most commonly caused by intra-abdominal adhesions.² This case illustrates an unusual cause of this common complication post-IPAA—a functional pouch outlet obstruction.³ This condition has been described by multiple pseudonyms in the literature, including paradoxical puborectalis contraction, pelvic outlet obstruction, anismus and paradox. The proposed mechanism of this problem is that the anal musculature fails to relax during attempts at defaecation. The anorectal angle then prevents the passage of stool and the patient is unable to successfully open the bowel, resulting in obstructive symptoms.

CASE PRESENTATION

A 39-year-old woman presented with colicky abdominal pain and distension with vomiting. [Figure 1](#) shows her abdominal radiograph. This occurred on a background of recurrent SBOs within a two-year period since she underwent IPAA with suturing of the pouch to the dentate line. This restorative procedure was completed after she experienced bleeding secondary to UC, which had necessitated a proctocolectomy. This was her fifth similar presentation, having previously undergone four laparotomies for division of adhesions.

INVESTIGATIONS

CT of her abdomen showed fluid-filled small bowel down to the level of the pouch, without a transition point identified ([figure 2](#)). A fluoroscopic study, with rectal contrast, showed pouch

Figure 1 Abdominal radiograph from the patient's fifth presentation with obstructive symptoms. The appearance is consistent with a small bowel obstruction.

distension and free flow of the contrast into the proximal dilated small bowel ([figure 3](#)).

Anorectal manometry studies demonstrated normal resting pressures, however, the patient had abnormal pressure waves in the internal anal sphincter (IAS) and her anal musculature did not relax in response to pouch filling. [Figure 4](#) shows the manometry tracings for the IAS pressure of this patient (panel A) and a normal control (panel B). The central highlighted area is during rectal distension. Panel A shows high frequency phasic wave activity throughout the tracing, and failure of IAS relaxation during anal distension.

Figure 2 Axial CT image of pelvis shows pouch distended with rectal contrast and proximal small bowel dilation, no mechanical obstruction is identified.

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Figure 3 Lateral fluoroscopy image with rectal contrast shows patent pouch with contrast flowing freely into proximal bowel.

DIFFERENTIAL DIAGNOSIS

These findings raised the possibility of a pouch outlet obstruction as the cause of this patient's recurrent presentations. Rectal examination revealed an anatomically patent and pliable anal canal and anastomosis. Direct visualisation with an endoscope did not demonstrate any mechanical obstruction of the pouch or small intestine.

OUTCOME AND FOLLOW-UP

During this patient's initial proctocolectomy, the entire rectum had been removed and later reconstructed with an anal pouch with a hand-sewn anastomosis. The proximal part of the IAS was removed in order to excise the tissue severely affected by ulcerative colitis and sepsis. Subsequently, it is likely that the myenteric innervation to the IAS was disrupted, abolishing the functional RAIR and leading to functional pouch obstruction.^{4 5}

Functional pouch outlet obstruction can be managed with intermittent pouch catheterisation.⁶ However, this option was not acceptable to the patient and she opted to have an ileostomy. Since this surgery she has had no further presentations.

DISCUSSION

CT and MRI techniques provide valuable imaging in the setting of complications post-IPAA.⁷⁻⁹ Both provide planar imaging

Figure 4 Internal anal sphincter pressures over time, with 20 mL of rectal distension demonstrated in the highlighted area. Panel (A) represents this patient's abnormal response. Panel (B) is the control. Panel (A) shows high frequency phasic wave activity and a failure of relaxation in response to distension.

that demonstrates intraluminal distension, collections, fistulas and extramural disease. MRI is particularly beneficial in demonstrating inflammation associated with pouchitis.⁸ These techniques provide static anatomical information rather than dynamic functional data; as a result, these modalities are not able to adequately differentiate functional outlet obstruction from other causes of obstruction.

A recent paper by Silva-Velazco *et al*⁵ discussed the finding of outlet obstruction due to paradoxical anal muscle contraction after IPAA. They reported that 37% of patients with functional pouch outlet obstruction were previously misdiagnosed as post-operative SBO. Anorectal manometry studies showed that the anal canal pressures were equal to or greater than the intraluminal pressures within the pouch during straining, on defecometry studies,⁵ resulting in a functional outlet obstruction. Many of these misdiagnosed patients went on to have laparotomies that potentially could have been avoided if the diagnosis of outlet obstruction had been considered in the differential diagnosis.

The Rectoanal Inhibitory Reflex (RAIR) is the transient relaxation of the IAS in response to rectal distension, which was first described by Gowers *et al* in 1877.¹⁰ This active reflex is governed by the intrinsic bowel innervation from the descending inhibitory pathways of the myenteric plexus, independent of the hypogastric nerves.¹⁰ RAIR is absent in Hirschsprung's disease as the myenteric pathway itself is absent; this can also present as functional constipation.¹¹ The IAS has an intrinsic tone due to myogenic activity. This is reflected in manometric traces as a cyclical contractile activity, confirmed by organ bath experiments on human intestine.¹²

Ileoanal pouches do not have any inherent propulsion mechanism but, rather, they act as a passive chamber for faecal storage.¹³ Increases in intra-abdominal pressure can allow

voluntary defaecation by triggering the RAIR, leading to relaxation of the IAS and, with conscious relaxation of the external anal sphincter, enable defaecation.

There is insufficient evidence available on patients with functional obstructions post-IPAA to show if anastomotic technique impacts on the incidence of functional outlet obstruction.⁵ It is generally accepted that the RAIR is more likely to be preserved with a stapled anastomosis and therefore it would be logical that functional obstruction would be less likely in this cohort.⁴ The pouch emptying problems that this patient encountered were likely due to partial denervation of the IAS as a result of previous surgery interrupting the nerve supply to the IAS with subsequent failure of the RAIR.¹⁴

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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Learning points

- Functional obstructive defaecation should be considered in all patients presenting with obstructive symptoms post Ileal J-pouch-anal anastomosis (IPAA).
- Fluoroscopic contrast imaging and anorectal manometry studies are helpful in identifying patients with functional pouch obstruction and differentiating from those with a mechanical small bowel obstruction (SBO).
- Anorectal manometry can provide insight into the pathophysiology of functional outlet obstruction.
- Examination under anaesthetic of the pouch-anal anastomosis should precede any laparotomy for SBO in patients post-IPAA.
- Recognition of this condition can prevent multiple unnecessary laparotomies.

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