CASE REPORT

Small bowel obstruction caused by vas deferens: a first documented report

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SUMMARY

Small bowel obstruction (SBO) is one of the most common causes for an acute surgical admission. Most of the time SBO is a result of common causes such as postoperative adhesions. However, rare and unusual causes of SBO do exist which can be challenging for surgeons. We report a first documented case of SBO caused by a remnant of the vas deferens in a 24-year-old patient with a history of gastroschisis and left orchidectomy. Clinical presentation, investigations, imaging and management of this case are described. To summarise, clinicians should keep an open mind in dealing with patients with intestinal obstruction due to the rare and atypical causes.

BACKGROUND

Small bowel obstruction (SBO) is an important acute surgical condition which carries significant morbidity and cost implications to health services.^{1,2} Often, this presentation requires an emergency laparotomy, which the national emergency laparotomy has shown to carry a mortality rate of 10.6%.³ There are a number of causes of SBO with adhesion formation being the most common.⁴ This is mostly caused by previous abdominal surgery, often resulting in further surgery to treat SBO by adhesiolysis.⁵ The incidence of adhesions in those patients with previous abdominal surgery is as high as 93%.⁶ Although adhesion formation can account for up to 74% of the causes of SBO, rarer causes have been shown to account for 6%–11% which is a significant proportion of cases.^{1,4} Rare causes described in the literature include varieties of bezoars, including chewed hair making a ball of hair,⁷ cherry tomatoes,⁸ dental impression material,⁹ dried apricots¹⁰ and so on. In this report, we describe a rare case of SBO in a 24-year-old patient which was caused by a remnant of the vas deferens making an adherent band around the terminal ileum. To our knowledge, this is the first ever documented case of SBO caused by vas deferens.

CASE PRESENTATION

A 24-year-old man was admitted with long-standing abdominal pain and weight loss. He was born with gastroschisis, small bowel atresia, intestinal malrotation and left undescended testes. As an infant, he underwent repair of his gastroschisis, resection of small segment of the atretic small bowel with anastomosis and left orchidectomy (left inguinal approach). During the current presentation, his

main symptoms were intermittent crampy lower abdominal pain associated with intermittent abdominal distension over a 3–4 month period. Eating worsened the pain hence he had reduced oral intake which resulted in weight loss and nutritional decline. During this time, he had episodic vomiting. He had reduced but intermittent bowel opening but no absolute constipation. He was admitted initially under the care of the gastroenterologist team for nutritional failure where despite enteral nutritional support, he failed to improve and had further weight loss. On surgical review following a referral to the surgical team, he was found to be cachectic with body mass index of 17 with distended abdomen but no signs of peritonism. He was subsequently investigated with plain abdominal radiograph and contrast-enhanced CT scan. CT scan revealed a pre-existing malrotation with dilated loops of small bowel which measured 5 cm in diameter. A calcific density within the bowel lumen measuring 2.6 cm can be seen with uncertainty as to whether this was the cause for the obstruction. CT demonstrated SBO, although the exact transition point and cause of obstruction was not ascertained. A decision was then made that the patient would need a laparotomy to treat his SBO. At laparotomy, he was found to have a fused peritoneal cavity with dense adhesions. Small bowel was obstructed at the ileocaecal junction due to a cord like tubular structure. This was extending from the caecum to deep pelvis running anterior to rectum and posterior to urinary bladder. The relatively collapsed caecum and ascending colon were lying in the left lower quadrant of the abdomen. Clinically, the appearance of the cord-like structure was suspicious of a remnant of vas deferens. This remnant was lying anterior to ileocaecal area and causing obstruction of the terminal ileum. A 5 cm foreign body was found within the lumen of small bowel lying proximal to the point of obstruction, as seen in [figure 1](#). Extensive and complete adhesiolysis was performed from duodenojejunal flexure to the rectum. The aforementioned cord-like structure was thoroughly dissected, resected and sent to histopathology. Enterotomy was performed to remove the foreign body. Clinically this foreign body appeared to be a calcified material. The bowel was subsequently repositioned anatomically and caecopexy was performed. Post-operatively he required ongoing nutritional support due to prolonged paralytic ileus. He then resumed a normal diet and subsequently discharged home. Histology of the tubular structure causing obstruction was confirmed to be vas deferens.

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Figure 1 Schematic diagram showing the remnant of vas deferens causing small bowel obstruction at the terminal ileum, with the calcified foreign body within the lumen.

DISCUSSION

As previously stated, this is a first documented case of a remnant of the vas deferens causing SBO. In this particular case, the patient had a number of risk factors for developing SBO. Neonatal patients requiring a laparotomy have a significant risk for developing SBO in future.¹¹ Gastroschisis is a condition where infants are born with segments of bowel outside the external wall and is associated with malrotation.¹² Often malrotation associated with gastroschisis is not documented during the primary repair and often does not require a Ladd's procedure.¹² Similarly to our case, cryptorchidism is associated with gastroschisis often requiring orchidopexy at the time of abdominal wall repair.¹³ It is believed that intra-abdominal pressure is low in patients with gastroschisis and can therefore explain the association with undescended testes.¹⁴ Our case showed that abnormal embryology and previous laparotomy may have a role in causing chronic SBO. We believe that the remnant of the vas deferens linked to an undescended testes treated by orchidectomy directly caused a transition point which required surgical correction. Embryological structures have been shown to cause SBO. The omphalomesenteric duct, a primitive embryonic structure between the midgut and yolk sac, has been reported to have caused SBO in a 42-year-old man.¹⁵ The combination of enterolith, vas deferens making a fibrous band and chronic adhesions would have played a role in causing this patient's intermittent chronic SBO. When patients present with an obstructive symptoms, our case highlights that we must always keep an open mind as to what the cause of obstruction could be. CT imaging is useful, but does not always reveal the exact cause of bowel obstruction. It is

important to consider the unusual causes of SBO and to identify those patients at high risk of developing SBO.

Learning points

- ▶ Small bowel obstruction (SBO) is one of the the most common acute surgical presentations and CT scans may not always locate an exact transition point.
- ▶ Anatomical variances and previous surgery can make emergency laparotomy very challenging.
- ▶ Patients with extensive previous surgery and anatomical anomalies can present with rare causes of SBO.
- ▶ The surgeon must prepare for unexpected and rare causes when proceeding to laparotomy in these particular patients.

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