CASE REPORT

Antimesenteric jejunal diverticulosis after a remote history of necrotising enterocolitis: a case report

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Dr Rosebel Monteiro,
monteir@ccf.org**SUMMARY**

Jejunal diverticulosis is a rare, acquired pathology of the small bowel. While most patients are asymptomatic, the condition is difficult to diagnose. It may present with chronic abdominal pain, diarrhoea, bloating and complications including malabsorption, diverticulitis, bleeding, intestinal obstruction or perforation. This is a case presentation of a 27-year-old woman with a history of necrotising enterocolitis (NEC) requiring surgical resection as a premature newborn who presented with recurrent abdominal pain and was found to have several small bowel diverticula intraoperatively. She underwent resection with complete resolution of symptoms over a 2-year follow-up. This is the first case report to suggest that small bowel diverticular disease as a long-term complication of NEC may result in chronic morbidity in long-term survivors.

BACKGROUND

Jejunal diverticulosis is a rare, acquired pathology of the small bowel. They are not true diverticuli. When symptomatic, patients with jejunal diverticula most commonly present with vague, chronic crampy epigastric abdominal pain of varying severity with a sensation of bloating or fullness after food intake.¹ Complications of jejunal diverticula include stasis, bacterial overgrowth, diarrhoea, malabsorption, intestinal pseudo-obstruction, gastrointestinal bleeding, diverticulitis and rarely, free perforation with peritonitis. The current surgical literature cites that the two most common long-term complications after surgical therapy for necrotising enterocolitis (NEC) include strictures and short gut syndrome. This is a case of a 27-year-old woman with a history of NEC as a newborn requiring surgery with recurrent abdominal pain, who underwent resection of three small bowel diverticula with complete resolution of symptoms over a 2-year follow-up.

CASE PRESENTATION

The patient is a 27-year-old woman with a previous history of NEC, who was referred to paediatric surgery with a 6 year history of worsening postprandial epigastric abdominal pain. She had undergone a subtotal colectomy with ileostomy and subsequent reversal for perforated NEC as a 26 week premature infant, with intraoperative findings of perforations at the caecum, ascending colon and splenic flexure with fibrinous purulent exudate on loops of small bowel as per the original operative report. She had an uneventful childhood and adolescence. However, during adulthood she began

having vague abdominal pain for which she underwent an open cholecystectomy and appendectomy at age 22. These failed to resolve her symptoms as she continued to have recurrent abdominal pain with nausea, vomiting and constipation with poor oral intake, followed by diarrhoea for 3 years resulting in one admission for small bowel obstruction (SBO) managed conservatively. Over the last 6 months, her symptoms progressed in frequency, warranting multiple emergency department visits with at least three admissions for SBO, all of which resolved with conservative management.

After being seen in the paediatric surgery clinic, her physical examination revealed multiple well-healed abdominal scars with tenderness to palpation in the mid-abdomen. She subsequently underwent an upper gastrointestinal (UGI) series with small bowel follow through and a CT scan, both of which were unremarkable. An MR angiography was without evidence of arterial stenosis. Preoperative labs were otherwise unremarkable.

TREATMENT

Given the frequency and severity of her symptoms, a decision was made to take the patient to the operating room for exploration and lysis of adhesions. Upon entering the patient's abdomen via midline incision, significant adhesions were encountered requiring an extensive lysis of adhesions with blunt and sharp dissection. After freeing up the intestine, the patient was noted to have two diverticula on the antimesenteric border of the proximal jejunum (figure 1). A third, large antimesenteric jejunal diverticulum was encountered adherent to the duodenum, the gallbladder bed and liver. A 30 cm segment of bowel incorporating all three diverticuli was resected and an end-to-end primary anastomosis was performed (figures 2–4).

OUTCOME AND FOLLOW-UP

The patient's postoperative course was unremarkable. By postoperative day 5, the nasogastric tube was discontinued and she was able to tolerate oral intake by postoperative day 6. She was discharged home in stable condition on postoperative day 9.

Pathology revealed a 30 cm segment of jejunum containing diverticula, with the largest measuring 2.2 cm in greatest dimension. The diverticula lacked a complete muscularis propria layer indicating acquired, pulsion-type diverticula rather than congenital diverticula. The patient was followed for 2 years after surgery without recurrence of symptoms.

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Figure 1 Bowel loop containing antimesenteric diverticulum.

DISCUSSION

First described in 1794 by Sommering and in 1807 by Sir Astley Cooper, jejunal diverticulosis is a rare pathology with an estimated incidence of 1.3–4.6% in adult autopsy studies and 0.02–2.3% from radiological studies.² This pathology presents with a peak incidence in the sixth and seventh decades with a male predominance.³ These pulsion-type diverticula result from mucosal and submucosal herniation through the muscular layer of the bowel wall in areas where the blood vessels penetrate the intestinal wall, explaining their typical occurrence along the mesenteric border.⁴ Although the exact aetiology of jejunal

diverticula is unclear, they are thought to be acquired due to abnormalities in peristalsis, intestinal dyskinesia, high segmental intraluminal pressure, or impaired bowel wall strength and cross-linking either through previous damage or connective tissue disease.^{5,6}

NEC is a common disorder that occurs mainly in premature infants. There has not been a previously described association between NEC and small bowel diverticuli; however, the distinctive aspects of this case lending support that these diverticula are likely related to the patient's history of NEC are the young age of this patient, her female gender and the fact that these

Figure 2 Resected loop of bowel containing three antimesenteric jejunal diverticuli.

Figure 3 Close up of diverticulum.

diverticula were noted to be on the antimesenteric side of the small bowel indicating that they were not due to inherent defects in the bowel wall where the vessels perforate but rather from an acquired defect. In addition, these are unlikely to be congenital due to their pulsion nature. Potentially due to high intraluminal pressures from subclinical strictures or from weakness in the bowel wall from a previous ischaemic injury, the possibility that these diverticula are directly resultant from the episode of NEC must be entertained, especially given the lack of any other previous inciting condition.

This is the first reported case in the literature to suggest small bowel diverticula as an additional long-term complication of NEC in survivors. While surgery for NEC continues to improve with better postsurgical outcomes, this case illustrates that complications for NEC may extend beyond feeding intolerance, intestinal strictures and short gut syndrome to include the rare finding of small bowel diverticular disease. Physicians treating adults with a history of NEC as neonates should be aware of this as a possible diagnosis of patients presenting with vague abdominal symptoms.

Figure 4 Close up of diverticulum.

Learning points

- ▶ While often considered benign, jejunal diverticular disease is a rare cause of small bowel obstruction.
- ▶ The long-term complications of necrotizing enterocolitis (NEC) are poorly understood but include strictures due to ischaemia, and short-gut syndrome.
- ▶ Physicians must maintain a high index of suspicion of gastrointestinal complications for patients with a history of NEC.

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Competing interests None.

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