Case Report

Duodenocolic Fistula in a Neonate Post Necrotizing Enterocolitis

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Abstract

Internal enteric fistula following necrotizing enterocolitis (NEC) is a rare complication. Only a handful of cases have been described in world literature. We report an interesting case of a neonate with a duodenocolic fistula following NEC. The child was successfully managed surgically.

Keywords: *Internal enteric fistula, necrotizing enterocolitis, neonate*

Introduction

Internal enteric fistulas secondary to necrotizing enterocolitis (NEC) have rarely been described. Fewer than 10 cases have been reported.[1] Typically, it occurs with distal intestinal strictures and is associated with signs of sepsis, inflammatory mass, or bowel obstruction. Surgery is invariably required and is successful in most cases. However, it may have complications of high morbidity and a risk of major bowel resection/short bowel syndrome.

Case Report

A 15-day-old male neonate with NEC was brought to us with intestinal obstruction. The child was born at 32 / 40 weeks, had a low birth weight (1.6 kg), and was in the neonatal intensive care unit care after birth. The child has problems with abdominal distention and bilious aspirates from day 3 of life. He was diagnosed with NEC (Bell's stage 2) and was medically managed for 10 days. On restarting feeds, the child again developed abdominal distention following which he underwent a contrast enema which showed opacification of the small bowel just as the contrast entered the proximal transverse colon. The child was further transferred to us for surgical management. On examination, the child was septic and had signs of intestinal obstruction. An ultrasound scan showed an inflammatory mass in the right hypochondrium with inflammatory collection around it. Serial images of the contrast enema showed opacification of the duodenum, stomach, and jejunal loops as the contrast entered the right transverse colon [Figure 1]. The entire colon distal to the fistula was normal. A laparotomy and proceed were planned for the child after stabilization.

At laparotomy, the child had an inflammatory mass in the right hypochondrium formed by adhered jejunal, distal ileal loops, and ascending colon. On gradual separation of the bowel loops and the omental adhesions, a fistula between the second part of the duodenum and the hepatic flexure of the colon was identified. The NEC was affecting the distal ileum and the ascending colon up to the site of the internal fistula. The rest of the small bowel and colon were normal. The duodenum was repaired in two layers with 5-0 polyglactin sutures. The diseased segment of the distal small bowel (4 cm) along with the IC junction and the ascending colon up to the hepatic flexure was excised and end-to-end ileocolic anastomosis was done. The child underwent an uneventful postoperative recovery. He received TPN along with intravenous (IV) antibiotics and antifungals as per the blood culture reports. An upper gastrointestinal (GI) contrast study was done on the 7th postoperative day which showed smooth flow of the contrast up to the rectum following which oral feeds were commenced and slowly built up to full feeds. Histopathology of the resected specimen confirmed NEC with serositis. The child was discharged on the 14th postoperative day and is thriving at 1-month follow-up.

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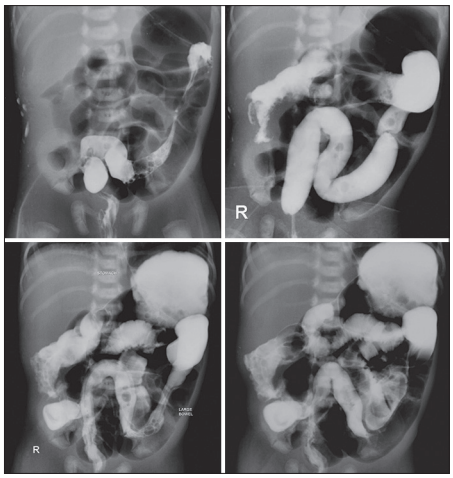

Figure 1: Serial images of the contrast enema (clockwise) showing opacification of the duodenum, stomach, and the jejunal loops as the contrast enters the transverse colon

Discussion

Enterocutaneous fistulas following intestinal resections or drainage procedures in NEC are well known. However, spontaneous internal fistulas are quite rare and have not been documented even in large clinical series of NEC.[2,3] Kiely and Eckstein in 1984 reported an infant with a colonic stricture with two enterocolic fistulas.[4] Fewer than 10 cases of internal enteric fistulas have been reported in world literature.[1]

NEC involves an entire cohort of pathophysiological events which may lead to the formation of intestinal fistulas. Transmural necrosis is a known phenomenon in NEC. A localized perforation walled off by an adjacent inflamed bowel may lead to an internal fistula formation. Sometimes, a fistula may have formed within an inflammatory mass which may go unnoticed at the time of surgery. Distal intestinal stricture, a known complication of NEC may also predispose to proximal bowel obstruction and formation of an internal fistula. These fistulas may spontaneously close in the same way as colonic strictures are able to resolve.[5] However, most of the cases of complicated NEC may result in a generalized perforation resulting in pneumoperitoneum and do not encourage an internal fistula formation.

Most of these children with internal fistulas present with symptoms of partial or complete intestinal obstruction or an inflammatory mass with sepsis. While the inflammatory mass may be appreciable on clinical examination, the internal fistula can only be established by an upper or lower GI contrast study. Not only will this help diagnose the internal fistula but also exclude proximal and distal disease. Disconnection of the fistula and repair of the native bowel or resection of the inflammatory lump with primary anastomosis or formation of a proximal stoma may be required depending on the site of the internal fistula and the condition of the child. In our case, the fistula was present between the second part of the duodenum and the hepatic flexure of the transverse colon. The NEC was involving the distal small bowel and the ascending colon. The diseased bowel may have undergone a perforation which would have sealed off by the underlying duodenum and small bowel loops. This lead to the formation of an inflammatory lump and later an internal fistula between the duodenum and the hepatic flexure of the colon.

Conclusion

Enteric fistula formation is a rare complication of NEC. Typically, it occurs with colonic stricture and is associated with signs of incomplete bowel obstruction and intermittent sepsis. Resectional surgery is successful, but there appears to be a significant risk of high morbidity and short bowel syndrome.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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