Meckel's diverticulum with benign stricture: A very rare cause of intestinal obstruction

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Abstract We report a very rare case of Meckel's diverticulum with benign stricture presenting as recurrent small bowel obstruction in a malnourished young adult female. Extensive preoperative investigations were unable to diagnose the cause of recurrent obstruction. Segmental small bowel resection with attached diverticulum was performed.

Keywords Meckel's diverticulum · Benign stricture · Intestinal obstruction

Introduction

Meckel's diverticulum represents the most common congenital abnormality of the small intestine with a 4–6% lifetime risk of developing a complication [1]. Hemorrhage is most common below 2 years while intestinal obstruction is a commoner presentation among adults [2]. A benign inflammatory stricture at the base of the Meckel's diverticulum is one of the rarest causes leading to small bowel obstruction [3].

Case summary

A 22-year-old malnourished female presented with recurrent episodes of spasmodic abdominal pain with features of recurrent sub-acute intestinal obstruction for the last 11 months. The patient had taken anti-tubercular drugs outside without any significant improvement. She was pale, thin built with features of hypoproteinemia and had a mild abdominal distension with poor respiratory reserve. Contrast studies showed dilated jejunal and ileal loops with prolonged transit time and non-distension of distal ileum and proximal colon suggesting a distal ileal stricture. She was given an conservative trial and was followed with an emergency exploratory laparotomy. On exploration, her distal ileum loops were grossly dilated proximal to an inflamed broad based Meckel's diverticulum. Mesentery was studded with enlarged lymph nodes. A segmental small bowel resection with the diverticulum and end to end ileo-ileal anastomosis done. Rest of her gut was healthy.

Gross examination of the resected specimen showed the broad based Meckel's with a stricture in the intestine at the level of the meckel's (Fig. 1). There was loss of mucosal folds in the intestine proximal to the stricture.

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Fig. 1 Cut section of gut showing the Meckel's Diverticulum with stricture at the level of diverticulum. Proximal gut (absent folds) is dilated compared to distal gut

Histo-pathological examination of the stricture showed an inflammatory infiltrate. No ectopic tissue or malignancy was identified. Patient had a very poor respiratory function hence was shifted to intensive care unit in the immediate postoperative period and was put on ventilatory support. She moved her bowels subsequently and was started on enteral nutrition through nasogastric tube. In the intensive care unit she developed septicaemia, acute respiratory distress syndrome with multi-organ dysfunction syndrome and expired on the 17th postoperative day.

Discussion

Meckel's diverticulum represents the most common congenital abnormality of the small intestine [2]. It represents the remnants of the omphalomesenteric or vitelline duct, between the intestinal tract and the yolk sac and disappears between 5th to 7th weeks. Vitelline duct are known to harbour heterotopic gastric mucosa (50%), pancreatic mucosa (5%) and less commonly colonic, endometrial or hepatobiliary tissue which are mainly responsible for complications like gastrointestinal bleeding (31%), inflammation (25%), bowel obstruction (16%), intussusception (11%), hernial involvement (11%), umbilical sinus or fistula (4%), tumor (2%) [2, 4]. In adults majority of patients with meckel's are discovered incidentally, at post-mortem, laparoscopy or laparotomy.

Meckel's diverticulum can cause intestinal obstruction as follows: (a) Small intestine volvulus around a fibrous band extending from Meckel's to umbilicus or base of mesentery [1]. (b) Intussusception – in which the diverticulum serving as lead point (c) Littre's hernia – incarceration of the diverticulum in hernia [5] (d) Entrapment of small

bowel beneath the blood supply of the diverticulum, also known as a mesodiverticular band (e) Stricture secondary to chronic diverticulitis. Kim et al. have reported the only other case prior to us of a Meckel's diverticulum with ileal stricture causing partial intestinal obstruction [3]. (f) Meckel's diverticular lithiasis.

Tumors although infrequent are known to occur in the 0.5–3.2% of Meckel's diverticulum. Benign (leiomyomas, angiomas, lipomas) and malignant (adenocarcinoma, sarcoma, carcinoid tumour and (Gastrointestinal stromal tumor) neoplasms are known [4, 6, 7]. No malignant histology was identified in our patient.

Meckel's diverticulum is surgically removed when a complication arise or is possible. Mostly simple wedge excision is satisfactory however segmental resection with end-to-end anastomosis is reserved for patients with ulceration, gangrenous diverticulitis affecting the base or rarely in malignancy.

Conclusion

Preoperatively diagnosis of such cases of Meckel's diverticulum may not be possible through the battery of routine investigations. We should have a low threshold for exploratory laparotomy in unclear or recurrent cases of intestinal obstruction. Clinicians should also keep rarer diagnosis in mind for patients with distal ileal strictures, specifically who have not responded to routine treatment.

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