



Images in Clinical Medicine

Ileal knotting secondary to a mesodiverticular band associated with axial torsion of a Meckel's diverticulum and small bowel volvulus

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A 14-year-old boy with no previous medical problems or surgery presented to the surgical emergency and trauma department with the complaints of generalized abdominal pain, vomiting, and nausea over the past 3 days. He denied a history of similar pain or episodes. Abdominal examination revealed generalized distension with guarding and rigidity and absent bowel sounds. He had a body temperature of 37°C, a blood pressure of 98/70 mmHg, and a pulse rate of 120/min. Laboratory findings showed a white blood cell count of 16,000/mL with a left shift. Abdominal ultrasonography showed a small bowel obstruction. An erect plain abdominal radiograph revealed small intestine obstruction. Given that the patient had presented with sepsis and overt bowel obstruction, we suspected bowel strangulation or gangrene. An exploratory laparotomy was urgently warranted, so abdominal computed tomography was not performed. A right lower transverse abdominal incision was made, and the laparotomy revealed a mesodiverticular band encircling the terminal ileum [Figure 1] with axial torsion and gangrene in a Meckel's diverticulum [Figure 2]. The mesodiverticular band was surgically divided, the diverticulum was detorsed and the obstruction was relieved. The gangrenous Meckel's diverticulum and a short segment of the ileum were resected followed by anastomosis of the remaining segment. Histopathology of the specimen was consistent with a clinical diagnosis of a gangrenous Meckel's diverticulum. The patient had no postoperative complications and was discharged on the 7th postoperative day.

A Meckel's diverticulum is commonly associated with small bowel obstruction. The possible pathomechanisms by which a Meckel's diverticulum causes obstruction are development of volvulus secondary to a band attached to the abdominal wall, intussusception, and rarely, incarceration of the diverticulum in an inguinal hernia. Meckel's diverticulum with a mesodiverticular band can cause intestinal obstruction through the development of an internal hernia or direct compression [1]. A mesodiverticular band causing axial torsion of a Meckel's diverticulum and volvulus of the small bowel is an extremely rare condition – we found only eight cases reported before this one [2]. Erect abdominal radiographs and ultrasonography clearly demonstrated the small bowel pathology



Figure 1: Mesodiverticular band leading to knotting of the ileum and small bowel volvulus

in our patient. Therefore, we performed a transverse incision, which allowed easy access to treat the pathology in the small bowel.

Treatment of asymptomatic Meckel's diverticulum is relatively simple and direct. Asymptomatic diverticula in children should be resected. Treatment of asymptomatic diverticula in adults is controversial, although resection has a low risk of complications [3]. Recently, prophylactic diverticulectomy has gained popularity based on a strong body of evidence in the literature [4]. In a recent study, Thirunavukarasu *et al.* reported that the adjusted risk of malignancy in patients presenting with a Meckel's diverticulum was at least 70 times higher than at any other ileal site, and therefore, a prophylactic diverticulectomy is recommended [4].

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Figure 2: Mesodiverticular band leading to axial torsion of a Meckel's diverticulum

Declaration of patient consent

The authors certify that the guardian has obtained an appropriate patient consent form. In the form, the guardian has given the consent for images and other clinical information to be reported in the journal. The guardian understands that his

name and initials will not be published and due efforts will be made to conceal patients identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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