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Newborn and toddler intestinal obstruction owing to congenital mesenteric defects

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Abstract Transmesenteric hernia is a rare cause of intestinal obstruction most commonly affecting the small bowel. The mesenteric defect is usually 2 to 3 cm in diameter. The authors describe 2 cases of young pediatric patients presenting with bowel obstruction resulting from a congenital mesenteric defect. The initial patient had a 30-cm-wide congenital defect in the ileal mesentery through which the sigmoid colon and some loops of small bowel had herniated. The second patient is a newborn infant who presented with symptoms and radiographic evidence of proximal bowel obstruction initially thought to be resulting from malrotation with midgut volvulus but was found at surgical exploration to have a small defect in the ileal mesentery.
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Transmesenteric hernia is a form of internal hernia through a congenital defect in the mesentery. It is a rare but serious cause of intestinal obstruction. Although dated, the largest review of this subject reported a morality rate of up to 45% [1]. Despite the congenital nature of the mesenteric defect, this phenomenon can present at any age with adults making up most of the cases reported. Various theories have been advanced on the developmental events leading to fenestration of the mesentery. We report 2 cases of transmesenteric herniation in the pediatric population.

1. Case 1

A 22-month-old female presented to the emergency department with a 1-day history of lower abdominal pain and nonbilious emesis. Her past medical history was significant for recurrent constipation and abdominal pain during her first year of life. Her monozygotic twin had similar, although less severe symptoms also during the first year. At age 7 months, the patient was admitted to an outside hospital. Studies at that time ruled out intussusception but described an incidental loop of dilated sigmoid colon that was not further evaluated.

On presentation to our institution, her abdomen was soft, although tender and mildly distended. No masses were palpable. Abdominal plain films showed dilated loops of small bowel with a question of lateralization of the ileum. Computed tomography scan showed stool-filled bowel and mesentery between the aorta and superior mesenteric artery (Fig. 1). During air contrast enema, it was impossible to insufflate past the distal sigmoid colon. The patient was brought to the operating room for emergent laparotomy.

The sigmoid colon was found to pass through a wide defect in the mesentery of the terminal ileum and formed a volvulus. A long segment of ischemic jejunum and ileum also passed through the defect. The herniated intestine was carefully reduced. Although the small bowel ischemia

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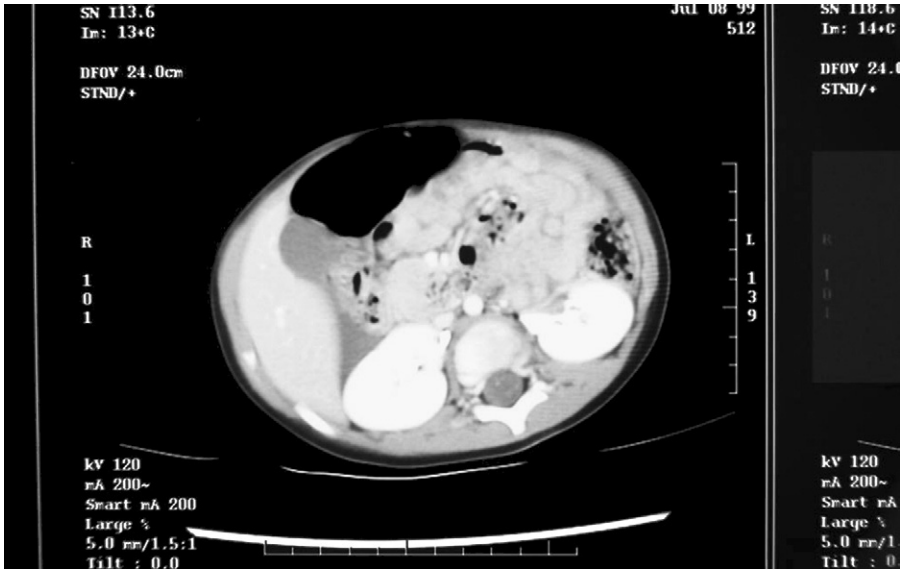

Fig. 1 Computed tomography scan showing stool-filled bowel and mesentery between the aorta and superior mesenteric artery, suggestive of an internal hernia.

quickly resolved, the sigmoid colon was infarcted. The mesenteric defect was localized to the distal ileal mesentery and measured 30 cm in diameter. The sigmoid colon was resected, and a descending colostomy was created, leaving a Hartman pouch inside. The mesenteric defect was repaired by suturing the mesenteric sides of the bowel together, forming an ileal loop (Fig. 2). The patient was recovered uneventfully in the intensive care unit. She was discharged on postoperative day 11.

2. Case 2

A term newborn infant was transferred to our institution on the first day following birth. He had developed abdominal distension with bilious emesis after beginning oral feedings. Examination revealed a soft yet distended abdomen with no palpable masses. Laboratory examination was unremarkable. An abdominal plain film was obtained, which showed air in a decompressed stomach with a small amount of air in the colon. The child was brought urgently for an upper gastrointestinal contrast study with small bowel follow through. Contrast was seen to pool into a dilated distal duodenum with an abrupt caliber change and only a small amount of contrast passing into the bowel distal to a near

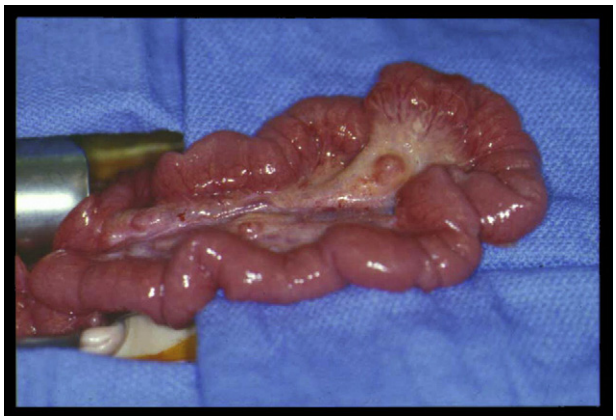

Fig. 2 Repair of large congenital mesenteric defect encompassing the entire operative field.

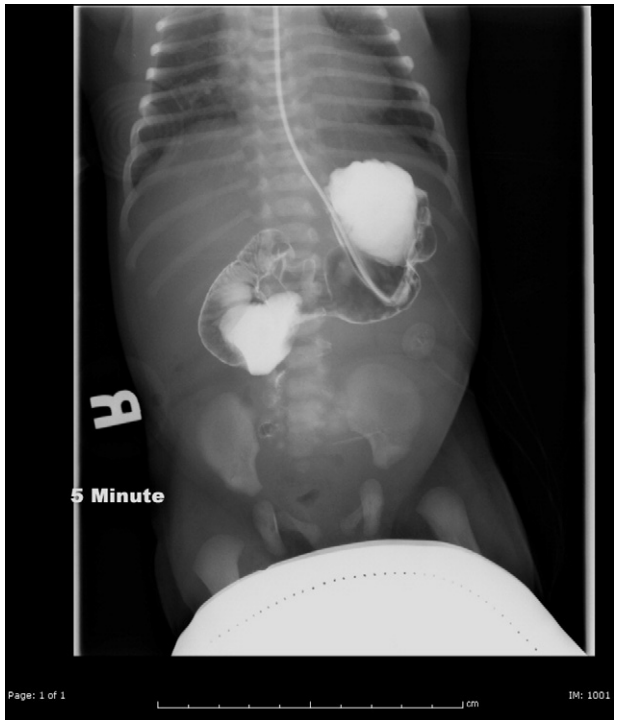

Fig. 3 Upper gastrointestinal study with dilated duodenum tapering down to near complete obstruction.

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