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Volvulus Due to Meckel's Diverticulum in Adults: A Rare Cause of Bowel Obstruction Not to be Overlooked

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Abstract | **Case Report**

Meckel's diverticulum represents the most common congenital anomaly of the small intestine and is typically asymptomatic. However, it may give rise to acute complications, including bowel obstruction. Volvulus associated with Meckel's diverticulum is an exceptional occurrence, particularly in adults. We report the case of a 27-year-old male with no prior medical or surgical history, admitted for acute small bowel obstruction. Preoperative imaging failed to identify a definitive etiology, but surgical exploration revealed a small bowel volvulus around a Meckel's diverticulum. This case highlights the diagnostic limitations of imaging and emphasizes the importance of considering this rare entity in the differential diagnosis of unexplained bowel obstruction in young adults.

Keywords: Meckel's diverticulum, volvulus, small bowel obstruction, emergency surgery, abdominal imaging.

INTRODUCTION

Meckel's diverticulum, a remnant of the omphalomesenteric duct, is the most prevalent congenital anomaly of the gastrointestinal tract, with an estimated incidence of 2–3% in the general population [1]. Although it remains asymptomatic in over 90% of cases, it may lead to complications such as gastrointestinal bleeding, diverticulitis, intussusception, or bowel obstruction. Among these, volvulus secondary to Meckel's diverticulum is exceedingly rare in adults [2]. The diagnosis remains challenging due to non-specific clinical presentations and the low sensitivity of imaging studies. We report a representative case and discuss the diagnostic and therapeutic challenges.

CASE REPORT

A 27-year-old man with no past medical or surgical history presented to the emergency department with sudden-onset abdominal pain, initially peri-umbilical and later migrating to the right iliac fossa and pelvic region. The pain was associated with persistent vomiting and cessation of both stool and flatus.

Clinical examination revealed moderate abdominal distension and localized tenderness in the right iliac fossa, without guarding or rigidity. Laboratory investigations, including complete blood count and liver and renal function tests, were within normal limits. Contrast-enhanced abdominal CT revealed significant small bowel distension and a moderate volume of free intraperitoneal fluid, but no signs of ischemia or identifiable mechanical obstruction. No Meckel's diverticulum was visualized.

Due to the absence of an identifiable cause on imaging in the context of acute obstruction, exploratory laparotomy was undertaken. Surgical exploration revealed a small bowel volvulus around a Meckel's diverticulum, tethered by a mesodiverticular band. There was partial mesoserosal ischemia, but no frank bowel necrosis. A segmental resection of the affected ileum with end-to-end anastomosis was performed. Postoperative recovery was uneventful, with bowel function resuming on postoperative day 3 and discharge on day 5.

DISCUSSION

First described by Johann Meckel in 1809, Meckel's diverticulum results from incomplete obliteration of the omphalomesenteric duct. It typically arises 50–100 cm proximal to the ileocecal valve, on the antimesenteric border of the ileum [1]. While most cases remain clinically silent, the diverticulum can occasionally become symptomatic, with volvulus representing one of the rarest complications.

Volvulus due to Meckel's diverticulum is particularly uncommon in adults and is typically diagnosed intraoperatively [2,3]. Several pathophysiological mechanisms have been proposed, including:

- axial torsion of the diverticulum itself,
- the presence of a mesodiverticular band,
- or abnormal fixation to the abdominal wall acting as a pivot point for torsion [3].

In the present case, a mesodiverticular band was the apparent cause of acute intestinal rotation. Similar presentations have been reported sporadically in the literature [3,4].

Preoperative diagnosis relies primarily on imaging, yet its contribution remains limited. Meckel's diverticulum is seldom visualized unless associated with diverticulitis, active bleeding, or contrast enhancement abnormalities. Abdominal CT may show indirect signs such as a blind-ending bowel loop, unexplained focal small bowel dilatation, a mesenteric whirlpool sign, or free intraperitoneal fluid [4]. In the series by Hernández *et al.,* CT identified the diverticulum in only 18% of cases, underscoring the diagnostic challenge in non-inflammatory contexts [1].

Surgical exploration, either via laparotomy or laparoscopy, remains indispensable in cases of unexplained bowel obstruction, especially in patients with no prior abdominal surgeries. Segmental small bowel resection is indicated when the diverticulum is implicated in volvulus or when bowel compromise is present. Simple diverticulectomy may be sufficient in uncomplicated cases, although a broad-based diverticulum or the presence of heterotopic mucosa may favor recurrence if not resected adequately [3,5].

A debated issue is the management of incidentally discovered, asymptomatic Meckel's diverticulum. Recent literature suggests that prophylactic resection may be considered in patients younger than 50 years, with diverticula exceeding 2 cm, narrow base morphology, or the presence of mesodiverticular bands [6].

Although rare, this condition should be better recognized by clinicians and radiologists, as delayed diagnosis in the presence of bowel ischemia can be life-threatening. Several recent reports emphasize the importance of considering Meckel's diverticulum in the differential diagnosis of small bowel obstruction in young adults without prior surgical history [2,3,7].

CONCLUSION

This case underscores the importance of including Meckel's diverticulum in the differential diagnosis of acute intestinal obstruction, even in young adults without surgical history. The often asymptomatic nature and poor radiological detectability of this entity complicate its identification. Surgical exploration remains crucial in ambiguous cases. Increased awareness of this rare but potentially serious pathology may enhance early management and reduce morbidity and mortality.

REFERENCES

1. Hernández R, *et al., Meckel's diverticulum: analysis of 27 cases in an adult population.* Front Surg. 2023.
2. Medicina. *Internal hernia and ileal volvulus due to Meckel's diverticulum.* Medicina (Kaunas). 2021;57(5):443.
3. Cureus. *Small bowel volvulus secondary to Meckel's diverticulum with mesodiverticular band: a case report.* Cureus. 2023.
4. Eurorad. *Volvulus secondary to Meckel's diverticulum. Case ID: 13998.* Eurorad.org. 2021.
5. Sapalidis K, *et al., Internal hernia and ileal volvulus due to Meckel's diverticulum.* Medicina. 2021.
6. Park JJ, *et al., Management and complications of Meckel's diverticulum: A review.* Arch Surg. 2005;140(6):564–568.
7. Uppal K, *et al., Meckel's diverticulum in adults: Surgical considerations.* Am Surg. 2018;84(3):312–318.