OPEN ACCESS

Saudi Journal of Medicine
Abbreviated Key Title: Saudi J Med
ISSN 2518-3389 (Print) | ISSN 2518-3397 (Online)
Scholars Middle East Publishers, Dubai, United Arab Emirates
Journal homepage: https://saudijournals.com

Case Report

A Rare Cause of Small Bowel Obstruction in Adults: Meckel's Diverticulum

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DOI: https://doi.org/10.36348/sjm.2025.v10i12.003 | **Received:** 19.10.2025 | **Accepted:** 11.12.2025 | **Published:** 17.12.2025

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Abstract

Meckel's diverticulum is a congenital gastrointestinal anomaly that is usually asymptomatic but may lead to complications such as obstruction, bleeding, diverticulitis, or perforation [1-4]. Intestinal obstruction is the most common complication in adults [3]. We report the case of a 37-year-old man who presented with acute abdominal pain, bilious vomiting, cessation of stool and gas passage, and abdominal distension. Abdominal CT revealed small bowel obstruction without a clearly identifiable cause. Emergency laparotomy revealed a bowel volvulus caused by a fibrous band extending from an inflamed Meckel's diverticulum to the umbilicus. The diverticulum was resected, and a functional end-to-end bowel anastomosis was performed. Although preoperative diagnosis can be challenging, imaging may aid in identifying bowel obstruction, and surgical resection remains the definitive treatment in symptomatic cases [12-14]. This case highlights the importance of considering Meckel's diverticulum in adult patients with small bowel obstruction and the need for prompt surgical intervention.

Keywords: Meckel's Diverticulum, Small Bowel Obstruction, Adult, Volvulus, Diverticulectomy, Case Report.

INTRODUCTION

Meckel's diverticulum is a congenital gastrointestinal anomaly that results from incomplete obliteration and persistence of the vitelline duct during embryonic development [1]. Autopsy studies indicate that Meckel's diverticulum is present in approximately 2% of the general population [2]. It is typically asymptomatic and most often discovered incidentally during surgery performed for another indication [3], with an estimated complication rate ranging from 4% to 25% [4]. The most common complications of Meckel's diverticulum include bowel obstruction, bleeding, diverticulitis, and perforation [4]. In adults, intestinal obstruction is the most frequent complication [3]. In this report, we describe a case of acute intestinal obstruction caused by Meckel's diverticulum in an adult patient, and we discuss the diagnostic approach and management options.

CASE REPORT

A 37-year-old man with no significant past medical history presented with a two-day history of acute abdominal pain, cessation of stool and gas passage, bilious vomiting, and marked abdominal distension on clinical examination. Laboratory investigations revealed no abnormalities. An emergency abdominopelvic CT scan demonstrated small bowel obstruction without an identifiable mechanical cause and without signs of bowel ischemia, characterized by significant small bowel dilatation associated with a moderate amount of peritoneal fluid (Figure 1).

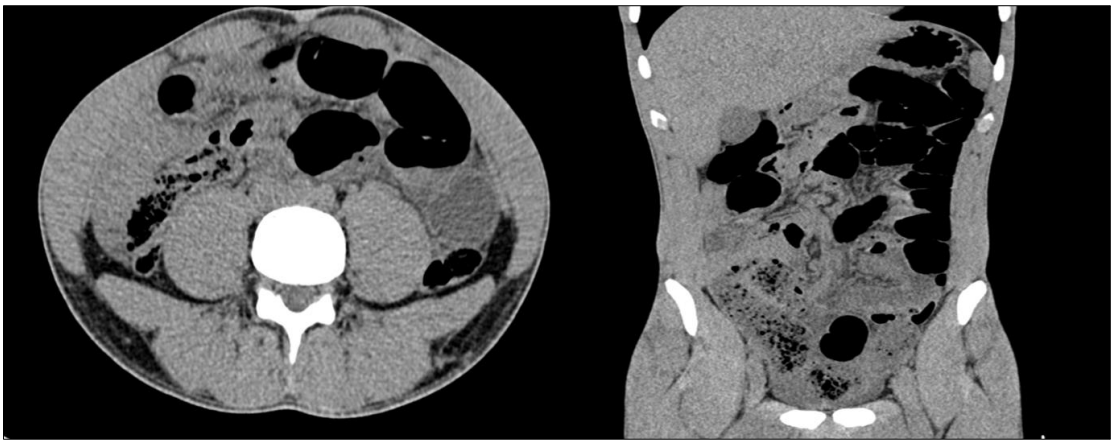

Figure 1: Abdominopelvic CT Showing Small Bowel Obstruction without Mechanical Cause

Given these findings, an emergency laparotomy was performed. Intraoperative exploration revealed a small bowel obstruction caused by a volvulus of the intestine around a fibrous band extending from a Meckel's diverticulum to the umbilicus (Figure 2). The diverticulum was long (6 cm) with inflamed base. Segmental bowel resection (Figure 3), followed by a functional end-to-end bowel anastomosis, was carried out. Histopathological examination subsequently confirmed the specimen as a Meckel's diverticulum.

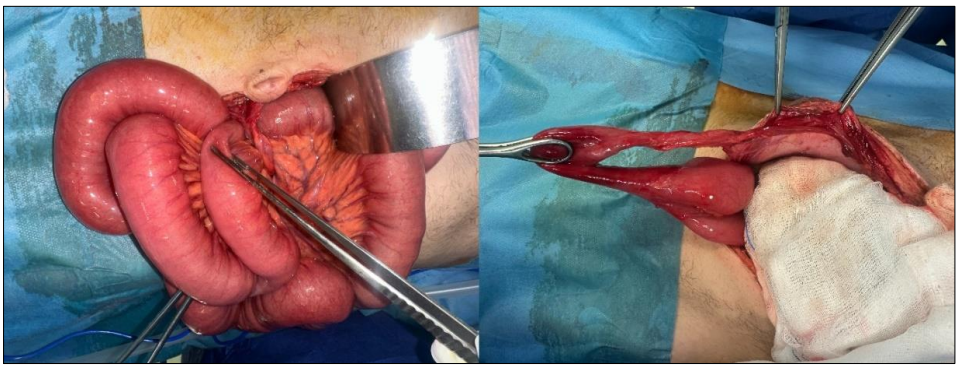

Figure 2: Intraoperative View Showing Small Bowel Volvulus around a Fibrous Band Extending from a Meckel's Diverticulum to the Umbilicus

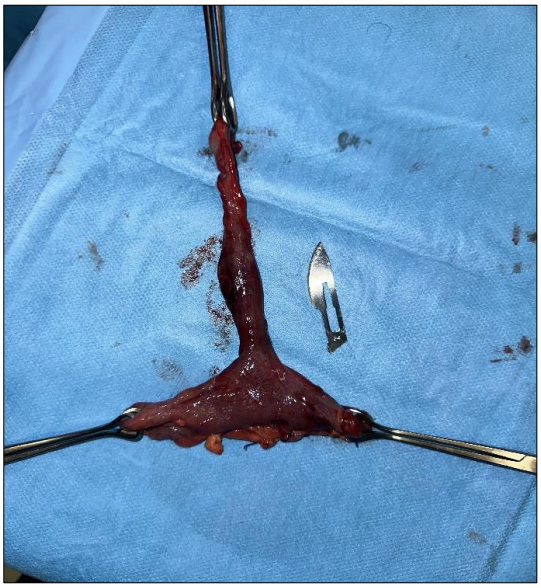

Figure 3: Intraoperative View of a 6-cm Meckel's Diverticulum with an Inflamed Base Managed by Segmental Bowel Resection

DISCUSSION

Meckel's diverticulum was first identified by Fabricius Hildanus in 1598; however, Johann Meckel later provided the first comprehensive description of this relatively common congenital anomaly [5]. It represents a remnant of the omphalomesenteric duct and contains all three layers of the small intestinal wall [1-6]. Meckel's diverticulum frequently harbors heterotopic gastric mucosa, typically measures 1–12 cm in length, and is located 45–90 cm proximal to the ileocecal valve [7]. It is often asymptomatic and incidentally discovered during surgery performed for another condition [3]. Nevertheless, it may lead to complications in 4–25% of cases, including small bowel obstruction, hemorrhage, diverticulitis, and perforation [4].

In adults, intestinal obstruction represents the most frequent complication of Meckel's diverticulum, with reported incidence rates ranging from 22% to slightly above 50% [3]. Meckel's diverticulum can lead to intestinal obstruction through several mechanisms, including bowel volvulus around a fibrous band connecting the diverticulum to the umbilicus, intussusception involving the diverticulum itself [7], or a strangulated Littre's hernia [8]. Various imaging modalities have been used in the evaluation of Meckel's diverticulum; however, conventional radiography and ultrasound offer limited diagnostic value [9]. Abdominal CT may be helpful in selected cases for identifying obstruction related to Meckel's diverticulum, particularly in cases of intussusception [10].

Resection of asymptomatic Meckel's diverticula remains controversial because of the potential risk of postoperative complications [9]. However, diverticula with a narrow neck predisposing them to obstruction or torsion should be considered for removal, as should those demonstrating inflammation, mural thickening, or other intramural pathology [11]. In the presence of complications, resection is considered mandatory [12]. The management of symptomatic Meckel's diverticulum is primarily surgical and includes diverticulectomy, wedge resection, or segmental bowel resection [13]. In cases of diverticulitis, a short diverticulum warrants wedge resection, whereas diverticulectomy is sufficient when the diverticulum is long [14, 15]. Bleeding, bowel obstruction, complicated diverticulitis with an inflamed or perforated base, or tumor involvement necessitates a wedge or segmental resection [14, 15].

CONCLUSION

Meckel's diverticulum is a rare but significant cause of small bowel obstruction in adults. Its clinical presentation is often non-specific, making preoperative diagnosis challenging. Imaging, particularly CT, can suggest obstruction but may not always identify the underlying cause. Symptomatic diverticula require surgical management, and the type of resection should be guided by the size, morphology, and presence of inflammation or complications. Early recognition and timely surgical intervention are crucial to reduce the risk of morbidity and ensure favorable outcomes.

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