

Acute Intestinal Obstruction due to Ileo-Ileal Knotting Secondary to Meckel's Diverticulum

Hamza Iqbal

Department of Surgery, Dow University of Health Sciences, Karachi, Pakistan

ABSTRACT

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract. It is relatively rare and tends to be benign in adulthood. Complications may lead to symptoms of intestinal obstruction, ulceration, bleeding, or perforation. Here, a case of acute intestinal obstruction due to ileo-ileal knotting secondary to Meckel's diverticulum is being reported. A 34-year male presented with symptoms of intestinal obstruction. His physical examination showed a firm and non-tender abdomen with laboratory parameters revealing deranged liver functions. The radiological evaluation demonstrated dilated bowel loops. Exploratory laparotomy revealed Meckel's diverticulum with ileo-ileal knotting. The unhealthy bowel segment was resected and the patient was discharged after an uneventful recovery. An early diagnosis with high clinical suspicion is crucial for timely surgical intervention. Patients presenting to surgical emergencies with acute abdomen should be evaluated for possible complications of Meckel's diverticulum.

Key Words: Meckel's diverticulum, Acute intestinal obstruction, Ileo-ileal knotting.

How to cite this article: Iqbal H. Acute Intestinal Obstruction due to Ileo-Ileal Knotting Secondary to Meckel's Diverticulum. *JCPSP Case Rep* 2023; 1:116-118.

INTRODUCTION

Meckel's diverticulum is the congenital anomaly of the gastrointestinal tract resulting from an incomplete obliteration of the omphalomesenteric duct during the embryonic period.¹ It is found in 2-4% of the population, mostly in the paediatric age group, and is rarely encountered in adults. Although mostly asymptomatic, it may lead to intestinal obstruction, ulceration, bleeding, or perforation. The overlapping symptoms of complications with other acute surgical conditions often make it difficult to correctly diagnose preoperatively.² It may present as gastrointestinal bleeding and rarely as intestinal obstruction due to small intestinal volvulus around a diverticulum anchored to the abdominal wall, intussusception or diverticular incarceration. Other rare complications include internal herniation by a band attached to another viscus, herniation of small bowel beneath a band of mesodiverticulum or volvulus, direct small bowel compression by mesodiverticular band, knotting in a long diverticulum involving another viscus and volvulus of the diverticulum in an axial manner leading to bowel infarction.³ Herein, a case of acute intestinal obstruction due to ileo-ileal knotting secondary to Meckel's diverticulum is being presented.

CASE REPORT

A 34-year male presented to the surgical emergency with primary complaints of abdominal pain and vomiting for three days.

He gave a history of sudden onset, intermittent, non-radiating, dull abdominal pain more prominent in the lower right and left quadrants associated with episodes of watery, non-bilious, and non-projectile vomiting. There was no significant history of fever, altered bowel habits, weight loss, per rectal bleeding, or haematemesis.

The patient did not have a medical history remarkable for chronic illness such as tuberculosis nor was there a family history positive for similar symptoms.

On the physical examination, the abdomen was firm and non-tender with audible gut sounds. The laboratory values revealed a haemoglobin level of 8.2 g/dl, platelet count of 184,000/ml, INR of 1.46, serum amylase, 525 U/L, and serum glutamic pyruvate transaminase (SGPT), 783 U/L. Arterial blood gases showed a pH of 7.49, a pCO₂ value of 33.3 mmHg, and HCO₃ of 27 mEq/L.

Radiological assessment was remarkable for dilated jejunal loops on abdominal x-ray while ultrasound gave an impression of mild abdominopelvic ascites along with multiple dilated fluid-filled bowel loops with sluggish movements. Abdominal CT scan demonstrated multiple short segment narrowing involving small bowel loops resulting in asymmetrical dilation of bowel loops, one of them measuring 4.4 cm in diameter. Large bowel caliber was normal in the study.

Correspondence to: Dr. Hamza Iqbal, Department of Surgery, Dow University of Health Sciences, Karachi, Pakistan

E-mail: drsyedhamzaiqbal@gmail.com

Received: July 15, 2023; Revised: September 01, 2023;

Accepted: October 26, 2023

DOI: <https://doi.org/10.29271/jcpspcr.2023.116>

The patient underwent exploratory laparotomy which revealed Meckel's diverticulum, 2 feet proximal to ileocecal junction (ICJ) with ileo-ileal knotting seen in the involved ileum and gangrenous small intestinal segment extending from 6 feet distal to duodenojejunal flexure till 1.5 feet proximal to ICJ (Figure 1). A gangrenous bowel segment measuring 16 cm was resected and the small bowel exteriorised as double barrel ileostomy. The patient was transferred to the intensive care unit postoperatively, extubated one day later, and stepped down to the surgical ward. He was discharged after 5 days of observation and uneventful recovery.

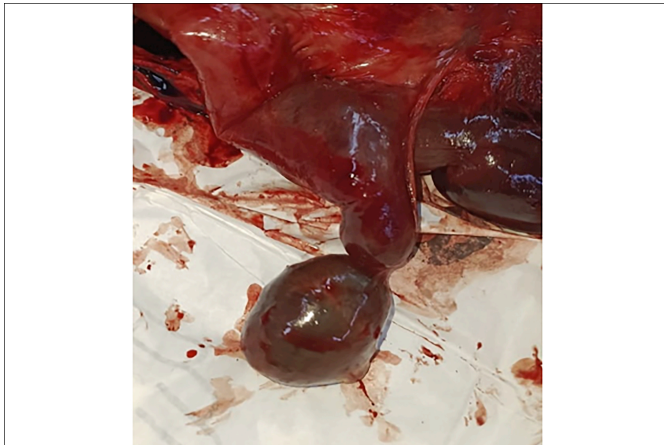


Figure 1: Intra-operative image showing ileo-ileal knotting and an unhealthy bowel segment.

DISCUSSION

A rare complication of Meckel's diverticulum with presentation as acute intestinal obstruction is being reported. Although intestinal obstruction remains the most frequent presentation of symptomatic Meckel's diverticulum followed by gastrointestinal bleeding and inflammation of Meckel's with or without perforation, the rarity of the condition itself renders prompt diagnosis challenging.² However, with diagnostic modalities like contrast-enhanced CT scan, it is now possible to diagnose the condition preoperatively. Diagnostic laparoscopy is useful in suspected cases as diagnosis and resection of complicated diverticula can be achieved at the same time.⁴

Technetium-99m pertechnetate Meckel scan, a scintigraphic study can be employed especially in cases of bleeding diverticulum for diagnostic purposes with reported accuracy reaching up to 90%. The scan is reported to have higher sensitivity (85-90%) in children as compared to adults (60%) but the high cost and time consumption may lead to delayed surgical intervention.^{5,6} Once the diagnosis is established, it is essential to adequately resuscitate patients with IV fluid administration and prophylactic antibiotics before operative intervention.⁷ Surgical management largely depends upon the evident pathology. In cases of symptomatic obstruction, the viability of the bowel segment guides the extent of surgical removal. In complicated intestinal obstruction, the procedure of choice is

wedge or segmental resection. Laparoscopic as well as open technique may be opted. However, with clinically evident intestinal obstruction, diagnostic laparoscopy is not usually advised due to difficult pneumoperitoneum creation.⁸ The two approaches were found to have equivalent results in terms of 30-day mortality, post-procedure complications, and re-operation rate.⁹

With the advent of modern diagnostic modalities, early diagnosis can be effectively made enabling timely and safe surgical interventions in a complicated Meckel's diverticulum. However, high clinical suspicion remains the strongest means leading to correct clinical decisions with improved outcomes. It is, therefore, important for clinicians attending surgical emergencies to consider ruling out Meckel's diverticulum as a potential cause behind symptoms such as intestinal obstruction, bowel perforation, ulceration or unexplained gastrointestinal bleeding.

PATIENT'S CONSENT:

Informed, written consent was obtained from the patient and his attendant regarding the use of clinical information, both descriptive and photographic, for research purposes. The patient understood that his identity will not be revealed in any explicit and implicit manner.

COMPETING INTEREST:

The authors declared no competing interest.

AUTHOR'S CONTRIBUTION:

HI: Substantial contribution to the conception or design of the work, drafting and final revision of the manuscript.

REFERENCES

1. Sagar J, Kumar V, Shah DK. Meckel's diverticulum: A systematic review. *J R Soc Med* 2006; **99(10)**:501-5. doi: 10.1177/014107680609901011.
2. Hansen CC, Søreide K. Systematic review of epidemiology, presentation, and management of Meckel's diverticulum in the 21st century. *Medicine (Baltimore)* 2018; **97(35)**: e12154. doi: 10.1097/MD.00000000000012154.
3. Malik AA, Shams-ul-Bari, Wani KA, Khaja AR. Meckel's diverticulum-Revisited. *Saudi J Gastroenterol* 2010; **16(1)**: 3-7. doi: 10.4103/1319-3767.58760.
4. Sai Prasad TR, Chui CH, Singaporewalla FR, Ong CP, Low Y, Yap TL, et al. Meckel's diverticular complications in children: Is laparoscopy the order of the day? *Pediatr Surg Int* 2007; **23(2)**:141-7. doi: 10.1007/s00383-006-1844-z.
5. Rivas H, Cacchione RN, Allen JW. Laparoscopic management of Meckel's diverticulum in adults. *Surg Endosc* 2003; **17(4)**:620-2. doi: 10.1007/s00464-002-8613-4.
6. Elsayes KM, Menias CO, Harvin HJ, Francis IR. Imaging manifestations of Meckel's diverticulum. *AJR Am J Roentgenol* 2007; **189(1)**:81-8. doi: 10.2214/AJR.06.1257.
7. Ruscher KA, Fisher JN, Hughes CD, Neff S, Lerer TJ, Hight DW, et al. National trends in the surgical management of Meckel's diverticulum. *J Pediatr Surg* 2011;**46(5)**:893-6.

8. Blouhos K, Boulas KA, Tsalis K, Baretas N, Paraskeva A, Kariotis I, *et al.* Meckel's Diverticulum in Adults: Surgical concerns. *Front Surg* 2018; **5**:55. doi: 10.3389/fsurg.2018.00055.
9. Ezekian B, Leraas HJ, Englum BR, Gilmore BF, Reed C, Fitzgerald TN, *et al.* Outcomes of laparoscopic resection of Meckel's diverticulum are equivalent to open laparotomy. *J Pediatr Surg* 2019; **54**(3):507-10.

• • • • •