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# Intussusception Secondary to Meckel's Diverticulum : A Case Report

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## Abstract

**Introduction:** Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract. Intussusception secondary to MD is rare in adults and often presents with bowel obstruction.

**Case presentation:** We report a case of a 45-year-old female patient with no prior medical history who presented with five days of abdominal pain, vomiting, and cessation of feces and gas. Physical examination revealed diffuse abdominal tenderness with mild distension. Laboratory tests showed an inflammatory syndrome (WBC: 9,400/µL, CRP: 21 mg/L). Abdominal CT revealed small bowel obstruction with a distended ileum and jejunum. Urgent laparotomy revealed an ileo-ileal intussusception 10 cm from the ileocecal valve. A 20-cm segment of small bowel including the intussusception was resected, followed by manual end-to-end anastomosis. The specimen contained Meckel's diverticulum, confirmed by histopathology. The patient recovered well postoperatively.

**Conclusions:** Adult intussusception due to MD is rare and challenging to diagnose preoperatively. Segmental bowel resection with anastomosis is the treatment of choice to prevent complications and ensure complete removal of ectopic mucosa.

**Keywords:** Intussusception, Meckel's diverticulum, Small bowel resection, Adult, Rare

## Introduction

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal system [1–4]. In the majority of cases, it is asymptomatic [2,4,5]. Complicated forms affect 4 to 16% of MD and often constitute the circumstances in which they are discovered [5].

These complications include intestinal intussusception. It is defined as the telescoping of a proximal segment of the intestine into an adjacent distal segment, resulting in luminal obstruction and potential vascular compromise. It represents one of the leading causes of bowel obstruction in the pediatric population but remains a rare clinical entity in adults [6].

Intussusception secondary to MD is rare, with only 4% of cases of intussusception presenting with intestinal obstruction being secondary to MD [7]. These cases represent a surgical emergency, as undetected intussusception can rapidly progress to bowel ischemia, necrosis, perforation, and sepsis [2].

The rationale for reporting this case lies in the rarity of intussusception secondary to MD in adults, which represents a diagnostic and therapeutic challenge. Early recognition is often difficult due to non-specific clinical presentation and overlapping features with other causes of small bowel obstruction. This case highlights the need for timely surgical management.

## Case Presentation

A 45-year-old female patient with no previous history consulted the emergency department with abdominal pain associated with bilious vomiting and cessation of feces and gas, which had been progressing for 5 days.

Over the five days preceding presentation, the patient reported intermittent, colicky abdominal pain accompanied by bilious vomiting, progressive abdominal distension, and complete cessation of flatus.

On arrival, the patient was apyretic, hemodynamically stable with a blood pressure of 140/70 mmHg, and in good general condition.

Abdominal examination revealed diffuse abdominal pain with a slightly distended abdomen. No palpable mass was detected, and digital rectal examination was unremarkable.

Biological tests revealed an inflammatory syndrome (WBC: 9400/ul CRP: 21 mg/L). The first abdominal CT scan, performed while the patient was in occlusion, showed distension of the ileal and jejunal intestines measuring 33 mm in maximum diameter at the level of a pelvic ileum, upstream of a transitional level located on the left flank, with a small to moderate intra-abdominal effusion.

It was decided to operate on the patient urgently. Initial resuscitation was undertaken and the surgical procedure was performed under general anesthesia through a midline laparotomy in standard sterile conditions. The operation revealed an ileo-ileal intussusception 10 cm from the ileo-cecal valve, with a swollen, reactive appendix. We performed an appendectomy, followed by a resection of 20 cm of small bowel, removing the intussusception followed by a manual end-to-end anastomosis.

When the resection piece was opened, it was an intussusception on MD and microscopic examination revealed ectopic gastric mucosa within the diverticulum, confirming the diagnosis of MD associated with small bowel intussusception.

Postoperatively, the patient recovered well, and was discharged on postoperative day 5 after full recovery, with normalized inflammatory markers (CRP <5 mg/L, WBC 7,000/µL).

## Discussion

Unlike in children, intussusception is rare in adults [7]. While pediatric intussusception is most often idiopathic, adult cases are generally associated with an underlying malignant process [8].

MD is a condition resulting from incomplete obliteration of the omphalomesenteric duct, causing a diverticulum in the small intestine. It is the most common congenital anomaly of the gastrointestinal system [9]. MD usually remains asymptomatic, becoming symptomatic most often with bleeding, obstruction, diverticulitis or perforation. These complications are more common in neonates and young children than in adults [10]. Whereas hemorrhage represents the most common presenting symptom in children, symptomatic Meckel's diverticulum in adults more frequently manifests as bowel obstruction [8].

Acute diagnosis of intussusception in adult populations is difficult, as the diagnosis beyond intestinal obstruction is often not made preoperatively [7]. Preoperative diagnosis of intussusception secondary to MD has remained a challenge and therefore requires comprehensive data from clinical, pathological, radiological and surgical findings [11]. Clinically, patients with intussusception often present with symptoms that overlap with other types of bowel obstruction, including vomiting, acute abdominal pain, tenderness and distension [11]. In emergency settings, acute lower abdominal pain should prompt consideration of differential diagnoses such as appendicitis, Meckel's diverticulitis, sigmoid diverticulitis, and visceral perforation [12].

CT scan is often the choice modality to investigate prolonged abdominal pain [7]. In case of MD intussusception, CT scan typically demonstrates a target or sausage-shaped soft tissue mass. It has proven superiority to other imaging modalities, offering high diagnostic accuracy and improving the rate of preoperative diagnosis [7].

In our case, on preoperative CT imaging, an intestinal occlusion was identified, whereas intussusception was not recognized.

As for the treatment, most authors accept the need for exploratory laparotomy [2]. Reduction of the intussusception is not recommended by the majority of authors in the event of signs of intestinal suffering and in the absence of formal preoperative proof of benignity of the causative lesion [2] ,therefore, segmental resection is the definitive treatment [9].

In a case series by Abid *et al.*, including 15 cases of complicated Meckel's diverticulum, the authors reported that all patients underwent segmental small bowel resection [5].

Similarly, in the case report by Abdelali *et al.*, a segmental resection with primary anastomosis was also performed for the intussuscepted segment involving a Meckel's diverticulum [2].

As for our case, a 20-cm segment of small bowel, including the intussuscepted portion, was resected, and intestinal continuity was restored by a manual end-to-end anastomosis, which is consistent with findings reported in the literature.

Our case report aims to raise awareness among surgeons about this rare clinical entity and to discuss the various circumstances in which inverted Meckel's diverticulum can be managed.

## Conclusion

Intussusception secondary to Meckel's diverticulum remains a rare but important cause of intestinal obstruction, particularly in adults where the diagnosis is often delayed due to its nonspecific presentation. Early recognition and prompt surgical intervention are crucial to prevent ischemic complications.

## Declarations

### Ethics approval and consent for publication

Written informed consent was obtained from the patient for the publication of this case report and accompanying images. A copy of the written consent is available for review by the editor-in-chief of this journal on request.

### Availability of data and materials

The data used to support the findings of this study are included within the article.

### Competing interests

The authors declare that they have no competing interests.

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### Authors' contributions

Rana Dhouib: data collection and manuscript drafting; Sihem Sindi: validation and supervision; Jihen Krichen: supervision; Mahdi Ben Saad: study conception; Khalil Ben Salah: validation; All authors read and approved the final manuscript.

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