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Case Report
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Meckel's Diverticulum Presenting as Intestinal Subocclusion: A Case Report

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Abstract

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract; however, symptomatic cases in adults are uncommon and often difficult to diagnose because of their nonspecific clinical presentation. We report the case of a 30-year-old woman who presented to the emergency department with an acute abdomen characterized by diffuse abdominal pain, nausea, vomiting, abdominal distension, watery diarrhea, and leukocytosis with marked neutrophilia. Computed tomography demonstrated free intra-abdominal fluid and dilated small bowel loops with air-fluid levels suggestive of intestinal subocclusion; pelvic ultrasonography revealed no ovarian pathology. Diagnostic laparoscopy, initially performed for suspected acute appendicitis, revealed a complicated Meckel's diverticulum with significant erythema, edema, and adjacent small bowel dilatation. The procedure was converted to minilaparotomy for surgical resection using a 75-mm linear stapling device; an incidental appendectomy was also performed. Histopathological examination confirmed a true diverticulum containing all layers of the intestinal wall, with acute and chronic inflammatory infiltrates within the lamina propria and focal areas of subepithelial hemorrhage. The postoperative course was uneventful (Clavien-Dindo grade I), and the patient was discharged on postoperative day four in stable condition with outpatient follow-up scheduled. This case highlights the diagnostic challenge of Meckel's diverticulitis presenting as intestinal subocclusion and underscores the importance of maintaining a broad differential diagnosis in patients with acute abdomen. Surgical exploration serves as both a diagnostic and therapeutic modality, and timely intervention is associated with favorable outcomes.

Keywords: Meckel's diverticulum; Diverticulitis; Intestinal subocclusion; Acute abdomen; Laparoscopy; Case report

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Introduction

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract and results from incomplete involution of the vitelline duct during the fifth to seventh week of gestation. It is commonly described by the "rule of twos": it occurs in approximately 2% of the population, is typically located within 2 feet of the ileocecal valve, measures about 2 inches in length, and is more frequently found in children and males [1].

It is estimated that one in every 300-400 cases of acute abdomen in adults is attributable to complicated Meckel's diverticulum. The condition is prone to several complications, including intestinal obstruction, gastrointestinal bleeding, inflammation, and perforation. Clinical manifestations may also include intussusception and melena. Additionally, Meckel's diverticulum may present as a malignant neoplasm or a carcinoid tumor [2].

The diagnosis of Meckel's diverticulum can be difficult because its clinical presentation is often nonspecific. It is estimated that approximately 4% of patients develop clinically significant symptoms requiring surgical intervention. Imaging studies such as computed tomography and ultrasound may suggest the diagnosis, although their findings are often inconclusive. In cases presenting with lower gastrointestinal bleeding, a technetium-99m pertechnetate scan (Meckel scan) is the preferred diagnostic study, especially when ectopic gastric mucosa is present. Other diagnostic modalities, including angiography, capsule endoscopy, and double-balloon enteroscopy, may be useful in

Table 1: Differential diagnosis of acute abdominal pain.

Diagnosis	Shared Features	Distinguishing Features	Key Diagnostic Tool
Acute appendicitis	RLQ pain, fever, leukocytosis, nausea	Appendix >6 mm, periappendiceal fat stranding	CT abdomen
Meckel's diverticulitis	Abdominal pain, fever, leukocytosis	RIF mass, SBO pattern, ectopic gastric mucosa on Tc-99m scan	CT, Meckel scan, laparoscopy
Small bowel obstruction	Abdominal distension, nausea, vomiting	Air-fluid levels, dilated loops, transition point	CT abdomen (coronal)
Ovarian pathology	Pelvic pain, nausea, free fluid	Adnexal mass on US; no bowel dilatation	Pelvic ultrasound
Adhesion-related obstruction	Prior surgery, abdominal pain, distension	History of prior abdominopelvic surgery	CT abdomen
Crohn's disease	Diarrhea, abdominal pain, leukocytosis	Transmural inflammation, skip lesions, chronicity	CT enterography, endoscopy

Table 2: Timeline of clinical events.

Date / Time	Event	Action / Findings
March 9, 2026 – Morning	Symptom onset	Sudden diffuse abdominal pain, nausea, vomiting, diarrhea, hyorexia
March 9, 2026 – ED admission	Emergency department evaluation	Dehydration, distended abdomen, increased bowel sounds, tenderness in epigastrium/mesogastrium
March 9, 2026 – Several hours later	Re-evaluation	Pain localized to mesogastrium, hypogastrium, RIF; McBurney's +; Psoas sign +; Leukocytosis 15,210 cells/mm³ (neutrophilia 87.9%)
March 9, 2026 – Imaging	CT abdomen + pelvic ultrasound	Free fluid RIF/hypogastrium; borderline appendix 6 mm; dilated small bowel loops with air-fluid levels; normal right ovary
March 9–10, 2026	Urgent surgical decision	Progressive RLQ pain + rebound tenderness → decision for laparoscopic exploration
March 10, 2026 – Intraoperative	Laparoscopy + minilaparotomy	Complicated Meckel's diverticulum identified; resection with 75-mm linear stapler; incidental appendectomy; drain placed
POD 2	Post-operative follow-up	Ambulating; serosanguineous drain output; soft abdomen with minimal tenderness
March 13, 2026 (POD 3-4)	Discharge	Hemodynamically stable; tolerating oral intake; Clavien-Dindo grade I; outpatient follow-up scheduled at 1 week
5-week follow-up	Outpatient visit	Significant clinical improvement; no complications

selected patients (Table 1). However, despite advances in imaging techniques, surgical exploration remains an important diagnostic and therapeutic tool in patients with high clinical suspicion [2].

The treatment of symptomatic Meckel's diverticulum is surgical resection. Depending on the patient's presentation and intraoperative findings, treatment may consist of diverticulectomy or segmental ileal resection. Nowadays, laparoscopy is commonly used because it serves both diagnostic and therapeutic purposes and is associated with faster postoperative recovery. However, the management of incidentally discovered asymptomatic Meckel's diverticulum remains controversial, and the decision to perform resection should be made on an individual basis [2].

Case Presentation

A 30-year-old female patient with a history of prior left ovarian cyst surgery presented to the emergency department with acute abdominal pain. Symptoms began on the morning of admission (March 9, 2026) with the sudden onset of intense, diffuse abdominal pain, described as intermittent and cramping, predominantly involving the mesogastrium, with exacerbation and radiation toward the hypogastrium and right lower quadrant (Table 2). Additional symptoms included nausea with progression to five episodes of vomiting, abdominal distension, five episodes of watery diarrhea without blood or mucus, hyporexia, and generalized malaise. Initial self-medication with oral hyoscine butylbromide provided no significant relief. On initial physical examination, the patient appeared dehydrated. The thorax was well ventilated. Abdominal examination revealed a distended abdomen with increased bowel sounds and tenderness predominantly localized to the epigastrium and mesogastrium, without signs of peritoneal irritation at that time.

Several hours after admission, repeat evaluation demonstrated persistent abdominal pain with localization to the mesogastrium, hypogastrium, and right iliac fossa. Physical examination revealed pain at McBurney's point and a positive Psoas sign, while rebound tenderness and Rovsing sign remained negative. Laboratory studies demonstrated leukocytosis (15,210 cells/mm^3) with marked neutrophilia (87.9%).

Computed tomography of the abdomen demonstrated free fluid within the right iliac fossa and hypogastric region, a borderline enlarged appendix measuring 6 mm without intraluminal gas, and dilated small bowel loops with air-fluid levels suggestive of small bowel obstruction. Pelvic ultrasonography revealed a normal right ovary without cystic or solid lesions and confirmed the presence of free pelvic fluid (Figure 1).

Given the progression of symptoms and concern for acute appendicitis, the patient was admitted with a diagnosis of acute abdomen. During subsequent evaluation, increasing right lower quadrant pain with associated rebound tenderness prompted the decision to proceed with urgent laparoscopic exploration.

Using conventional laparoscopic port positioning, diagnostic laparoscopy revealed a complicated Meckel's diverticulum characterized by significant erythema, edema, and associated dilatation of adjacent small bowel loops (Figures 2 and 3). Systematic exploration of the abdominal cavity revealed no additional pathological findings. Based on the intraoperative findings, the procedure was converted to minilaparotomy for resection of the Meckel's diverticulum.

The diverticulum was resected using a 75-mm linear stapling device with a 3.8-mm staple height. Hemostasis was carefully verified, followed by copious irrigation of the abdominal cavity. A surgical drain was placed and secured. An incidental appendectomy was also performed. No intraoperative complications or technical incidents occurred. Surgical specimens, including the Meckel's diverticulum

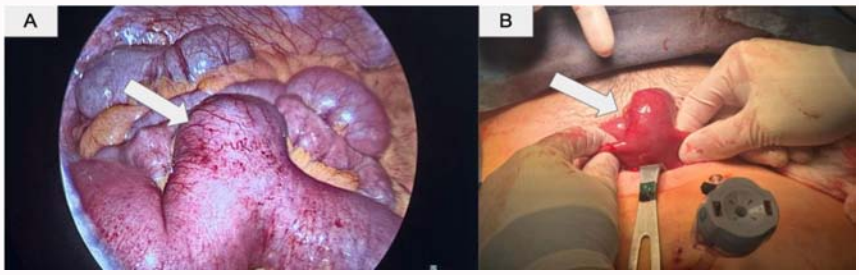

Figure 1: (A) Intraoperative laparoscopic visualization of the complicated Meckel's diverticulum demonstrating significant erythema, edema, and adjacent small bowel dilatation. (B) Minilaparotomy intraoperative visualization of the diverticulum prior to resection.

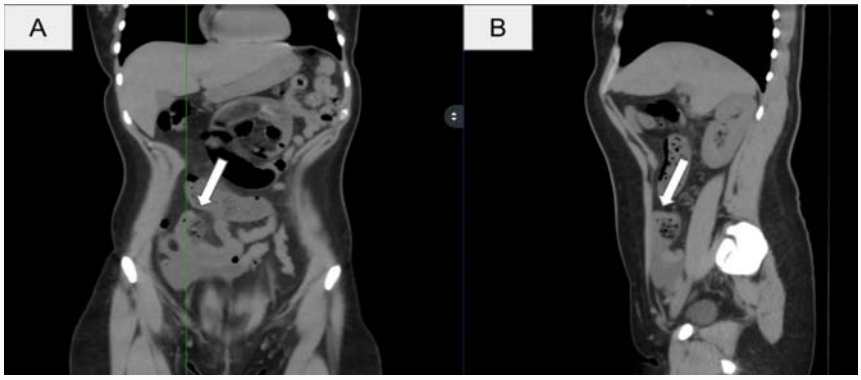

Figure 2: Computed tomography of the abdomen. (A) Coronal reconstruction demonstrating dilated small bowel loops with findings suggestive of intestinal subocclusion. (B) Sagittal reconstruction showing the transition zone, with the arrow indicating the probable site of obstruction.

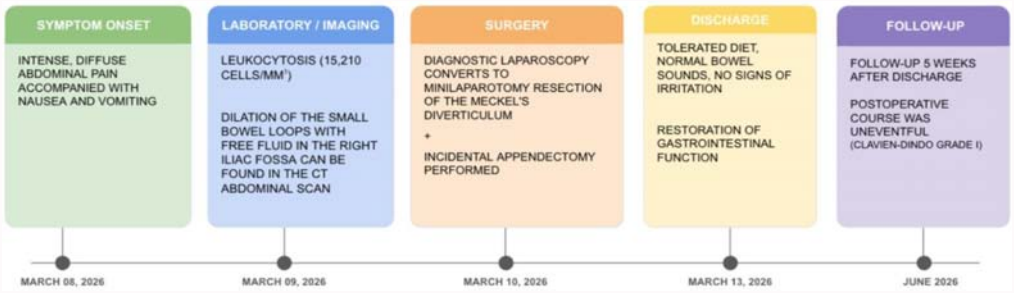

Figure 3: Timeline of clinical events.

and appendix, were submitted for pathological examination.

Histopathological examination of the diverticular specimen revealed a true diverticulum containing all layers of the intestinal wall, with acute and chronic inflammatory infiltrates within the lamina propria and focal areas of subepithelial hemorrhage. Examination of the appendix demonstrated partially sloughed mucosa and submucosal lymphoid follicular hyperplasia with prominent germinal centers.

Postoperative course and follow-up

By postoperative day two, the patient was ambulating independently and tolerating recovery well. Drain output was serosanguineous and within expected limits. Clinical examination demonstrated a soft abdomen with minimal tenderness. Given her favorable clinical progression, restoration of gastrointestinal function, adequate oral intake, and hemodynamic stability, the patient was discharged on March 13, 2026. She was instructed to continue postoperative recovery at home and scheduled for outpatient follow-up one week after discharge. The postoperative course was uneventful, corresponding to Clavien-Dindo grade I.

Discussion

This case describes the management of Meckel's diverticulitis identified during a diagnostic laparoscopy initially performed for suspected acute appendicitis. The diagnosis of Meckel's diverticulum remains challenging because its clinical presentation is often nonspecific and may mimic other causes of acute abdomen, particularly appendicitis [3].

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal tract, with an estimated prevalence ranging from 0.3% to 2.9% in the general population. Despite its relatively frequent occurrence, most individuals remain asymptomatic throughout life, with only 4% to 9% developing clinical manifestations or complications [4].

The presentation of our case is consistent with that reported in the

literature for symptomatic Meckel's diverticulum in adults. Common manifestations include intestinal obstruction, diverticulitis, and gastrointestinal bleeding, with diverticulitis often mimicking acute appendicitis. Our patient presented with abdominal pain, nausea, vomiting, abdominal distension, leukocytosis, and radiologic findings suggestive of small bowel obstruction. Laparoscopic exploration demonstrated a complicated Meckel's diverticulum as the cause of the acute abdomen [2].

Histopathological examination of Meckel's diverticulum most commonly reveals normal small intestinal mucosa without evidence of ectopic tissue or inflammation. In a large histopathologic series, nearly half of all specimens (47.9%) were found to be histologically unremarkable, demonstrating neither inflammatory changes nor heterotopic mucosa [5]. Unlike these reports, our specimen showed acute and chronic inflammation with focal subepithelial hemorrhage, consistent with diverticulitis. In contrast, the appendix demonstrated only reactive changes, further supporting Meckel's diverticulum as the cause of the acute abdomen.

The management of an incidentally discovered Meckel's diverticulum continues to be a controversial topic due to the absence of clear guidelines, leaving the decision to resect largely dependent on the surgeon's judgment and intraoperative findings. This issue becomes even more relevant in the pediatric population, where the incidence of incidentally discovered Meckel's diverticulum has been reported to be as low as 0.56%, limiting the available evidence and making standardized recommendations difficult [3].

Although several studies have evaluated the outcomes of incidental diverticulectomy, there is still no universal consensus regarding its management. Recent evidence suggests that resection can be performed safely, with low morbidity rates, while potentially preventing future complications such as intestinal obstruction, bleeding, inflammation, perforation, or even malignant transformation [3].

Take-Home points

- Meckel's diverticulitis can closely mimic acute appendicitis.
- Preoperative diagnosis remains difficult despite modern imaging.
- Diagnostic laparoscopy is both a diagnostic and therapeutic modality.
- Surgical resection provides excellent outcomes in symptomatic patients.
- The diagnostic threshold for Meckel's diverticulum should be lower in patients presenting with borderline appendicitis findings and concomitant signs of small bowel obstruction.

The limitations of this report include its single-case design, the relatively short follow-up period, and the limited available evidence regarding the optimal management of Meckel's diverticulum.

Conclusion

Meckel's diverticulum remains a challenging diagnosis due to the absence of a universally accepted management strategy and its nonspecific clinical presentation. Only approximately 4% of patients develop symptomatic disease, highlighting the importance of recognizing and reporting these cases. In our patient, surgical treatment resulted in significant clinical improvement at the five-week follow-up, reinforcing the role of timely intervention and contributing to the existing evidence supporting favorable outcomes in symptomatic Meckel's diverticulum.

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Authors' Contributions

VHG-O: conception, surgical management, manuscript drafting and revision. LEM-G, ESM, ADLGP, MGLG, SMC-B: data collection, literature review, manuscript drafting. All authors read and approved the final version of the manuscript.

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