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Case Report

Perforated and abscessed Meckel's diverticulum in an adult: case report

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Background: Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, and is typically asymptomatic. However, it can lead to severe complications such as inflammation, bleeding, obstruction, or perforation. Perforation with abscess formation in adults is rare and often mimics other intra-abdominal conditions, such as appendicitis, which can cause diagnostic delays.

Case presentation: A 74-year-old woman presented with lower right quadrant abdominal pain, fever, and leukocytosis. Contrast-enhanced computed tomography revealed thickening of the eco-ascending region with fat stranding. Diagnostic laparoscopy revealed seropurulent fluid and an inflamed appendix, which were removed. Further exploration revealed a gangrenous mass in the distal ileum, prompting a conversion to open surgery. Segmental small bowel resection with primary enteroenteral anastomosis was performed.

Conclusion: This case highlights the diagnostic challenges of Meckel's diverticulitis in adults and underscores the importance of thorough intraoperative inspection of the distal ileum when appendicitis is suspected. However, the findings are atypical. Early recognition and surgical management are essential to prevent severe complications.

Keywords: *Meckel's diverticulum, intestinal perforation, diverticulitis, abscess, case report*

Introduction

Meckel's diverticulum results from incomplete obliteration of the vitelline duct during embryonic development, leading to a true diverticulum containing all layers of the intestinal wall. It occurs in approximately 2% of the population, and is usually asymptomatic (Sagar et al., 2006). However, 2–4% of cases may develop complications such as inflammation, hemorrhage, intussusception, obstruction, or perforation (Kusumoto, 1992; Sagar et al., 2006; Zani et al., 2008).
Abscess perforation is an uncommon and severe complication in adults. The clinical presentation often resembles acute appendicitis, making the preoperative diagnosis challenging (Weinstein et al., 1962; Mora-Guzmán et al., 2018). This case highlights the diagnostic and surgical challenges associated with this rare presentation, and contributes to the growing body of literature on adult Meckel's diverticulitis (Ueberrueck et al., 2005; Ruiz-Tovar et al., 2008).

Case Presentation

A 74-year-old woman with a history of laparoscopic cholecystectomy (2018), right inguinal hernia repair (2008), hypothyroidism, and hypertension presented with a 24-hour history of right lower quadrant pain associated with nausea and fever (38°C). On physical examination, she was hemodynamically stable, but had localized tenderness and guarding in the right lower abdomen with signs of peritoneal irritation.

Laboratory tests revealed leukocytosis (WBC 15,700/μL). Contrast-enhanced computed tomography (CT) of the abdomen and pelvis revealed thickening of the ascending region with adjacent fat stranding (Figure 1). Diagnostic laparoscopy revealed seropurulent free fluid and an inflamed appendix, which was removed laparoscopically. Further exploration revealed a gangrenous mass at the antimesenteric border of the distal ileum in the pouch of Douglas. Conversion to open surgery was performed, and segmental small-bowel resection with primary enteroenteral anastomosis was completed.

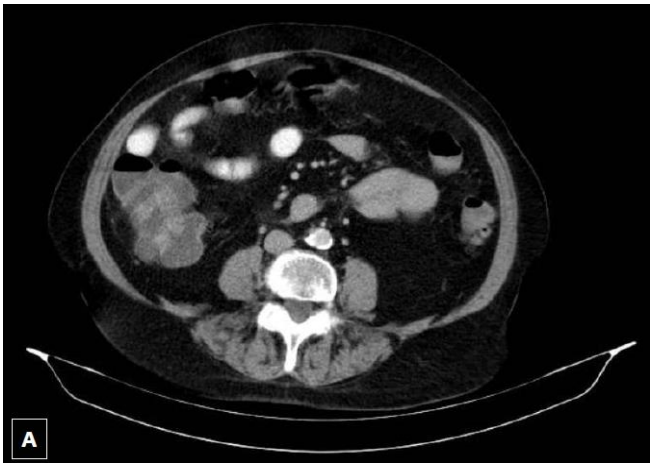

Figure 1. Contrast-enhanced CT scan of the abdomen and pelvis showing marked thickening of the ceco-ascending region with surrounding fat stranding

Gross examination revealed a 21 cm segment of the small intestine containing a true diverticulum measuring 4.5 × 4.5 cm, located 8 cm from the resection margin (Figure 2). Microscopic findings confirmed a true diverticulum with ulceration, hemorrhage, and acute inflammatory exudate, consistent with an inflamed and perforated Meckel's diverticulum, causing acute peritonitis. Postoperative recovery was uneventful. The patient was administered intravenous antibiotics and received supportive care. No postoperative complications were noted. The patient was discharged after full resolution of symptoms and remained asymptomatic at the 3-month follow-up.

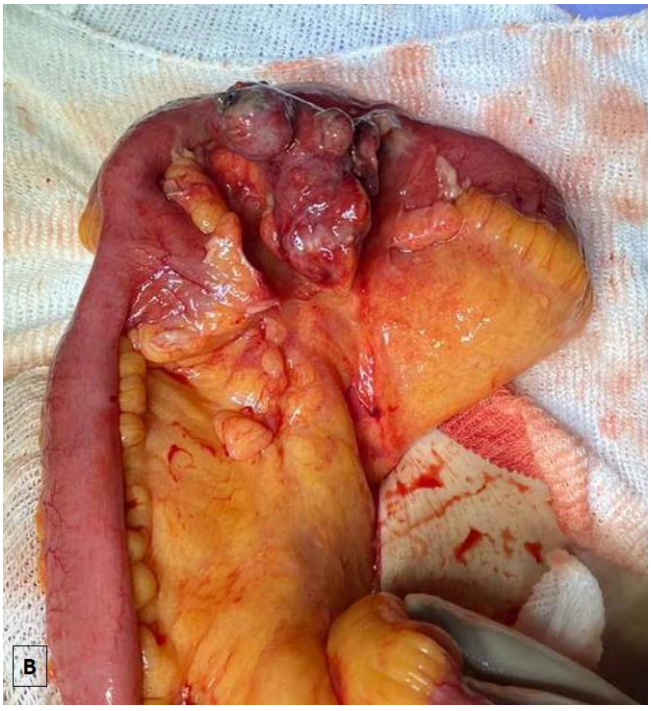

Figure 2. Surgical specimen of a 21 cm segment of small intestine containing a 4.5 × 4.5 cm diverticulum with evidence of ulceration and inflammation, confirming perforated Meckel's diverticulum

Discussion

Perforated Meckel's diverticulum in adults is rare and frequently misdiagnosed as appendicitis. Preoperative imaging often fails to distinguish between these entities, emphasizing the importance of thorough intraoperative exploration. CT imaging may show nonspecific signs, such as segmental thickening and inflammatory fat stranding, but a definitive diagnosis is usually made intraoperatively or histologically (Blouhos et al., 2018; Frutos Ortiz, n.d). Management depends on the extent of the inflammation and bowel viability. The options include simple diverticulectomy or segmental bowel resection. In this case, resection was required due to necrosis and perforation. Previous studies have reported that symptomatic Meckel's diverticulum occurs in 2–4% of cases, with perforation accounting for a minority. Ruiz-Tovar et al. (2008) reported 8 cases of Meckel's diverticulitis, reinforcing its diagnostic complexity. Early surgical intervention remains the cornerstone of management. This observation aligns with the findings of Blouhos et al. (2018) and Mora-Guzmán et al. (2018), who reported similar presentations of perforated Meckel's diverticulum that required resection. Furthermore, embryological anomalies of the omphalomesenteric duct have been described by Ortiz (n.d.), supporting the developmental basis of this pathology.

Conclusion

Meckel's diverticulitis should be considered in adults presenting with an acute abdomen, particularly when appendicitis is suspected but the findings are atypical. Careful intraoperative exploration of the distal ileum is essential to identify Meckel's diverticulum. Prompt surgical management can prevent complications, such as generalized peritonitis. Clinicians should maintain a high index of suspicion for Meckel's diverticulum in atypical appendicitis cases as early recognition and appropriate surgical intervention ensure optimal outcomes.

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Author contributions

Laila Yacar: Conceptualized the study, performed all surgical procedures, and developed the described technique. She contributed the clinical cases, images, and the initial draft of the manuscript. She also assisted in data collection, literature research, preparation of tables and figures, manuscript formatting, and reference organization.

All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

Conflict of interest

The authors declare no conflict of interest.

Ethics approval

No animal subjects were used in this study. Institutional ethics committee approval was not required, as the work reports clinical cases managed according to established standards of care.

Ethical concern and informed consent

All patient information was handled with strict confidentiality. Written informed consent was obtained from all patients for the use of their clinical data and images for academic and scientific publication. Written informed consent was obtained from all patients for the use of clinical photographs in this publication.

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