

Incidental Finding of Meckel's Diverticulum in The Context of Acute Appendicitis: A Case Report

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ABSTRACT

Meckel's diverticulum is a congenital anomaly of the gastrointestinal tract that results from the persistence of the omphalomesenteric duct. Although most cases are asymptomatic, it can present with complications such as bleeding, intestinal obstruction, or inflammation. This report presents a clinical case of an incidental finding of a Meckel's diverticulum in a patient diagnosed with acute appendicitis. The patient, a young adult, underwent an appendectomy due to classical symptoms of acute appendicitis. During surgery, a Meckel's diverticulum unrelated to the appendicitis was identified. This finding is rare and underscores the importance of careful surgical evaluation and recognition of concurrent abnormalities in patients with acute abdominal conditions. Despite being an uncommon condition, this type of finding should be considered during the evaluation of surgical diagnoses, as it may have implications for surgical management and long-term prognosis. This report highlights the relevance of maintaining a high clinical suspicion and adequate surgical exploration in cases of acute abdomen.

KEYWORDS: Meckel's diverticulum, acute appendicitis, incidental finding, congenital anomaly, gastrointestinal tract, exploratory laparotomy.

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INTRODUCTION

Meckel's diverticulum is the most common congenital anomaly of the gastrointestinal tract, resulting from the partial persistence of the omphalomesenteric duct, an embryonic structure that connects the yolk sac to the primitive intestine. It is typically located on the antimesenteric border of the ileum, approximately 40 to 100 cm from the ileocecal valve. Its estimated prevalence in the general population is around 2%, with a male predominance ratio of 2:1.¹

From an epidemiological perspective, most cases are asymptomatic and are discovered incidentally during surgical procedures performed for unrelated reasons. However, symptomatic presentations are more frequently observed in the pediatric population, particularly in children under 10 years of age. In this group, painless gastrointestinal bleeding is the most common complication, often associated with the presence of ectopic gastric mucosa. In adults, on the other hand, the most frequent complications include intestinal obstruction, diverticulitis, and, in some cases, perforation. Studies estimate that between 4% and 6% of individuals with Meckel's diverticulum will develop symptoms during their lifetime.²

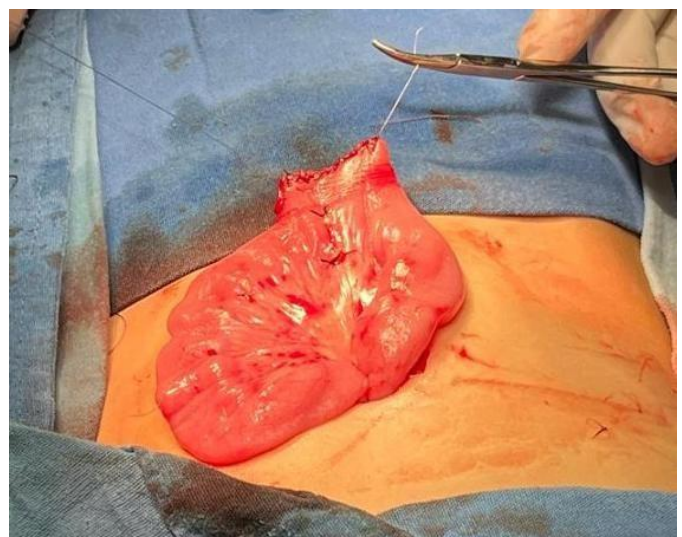
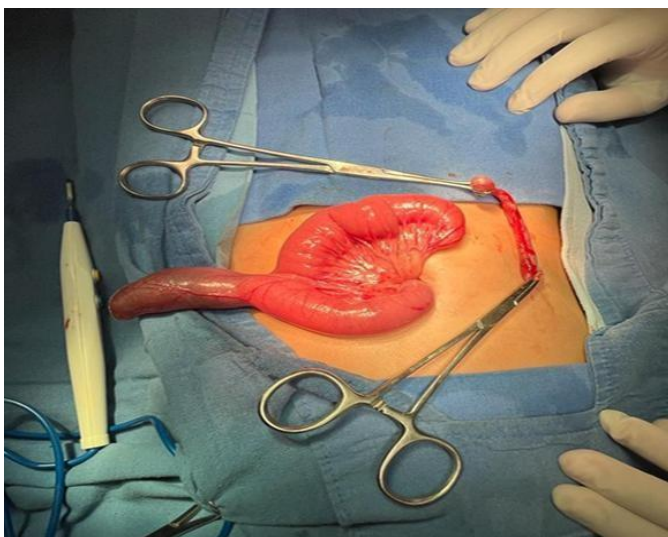
Meckel's diverticulum typically measures between 3 and 6 cm and contains all layers of the intestinal wall, which classifies it as a true diverticulum. In 50% to 60% of cases, heterotopic mucosa is present, most commonly gastric, followed by pancreatic tissue. Preoperative diagnosis is challenging due to the variable clinical presentation and nonspecific symptoms such as abdominal pain, nausea, vomiting, and distension, which can mimic other acute abdominal conditions.²

This report presents the case of a pediatric patient with a

clinical diagnosis of acute appendicitis, in whom an incidental Meckel's diverticulum was identified during appendectomy. This finding highlights the importance of careful surgical exploration in patients with acute abdomen and the need to consider Meckel's diverticulum as part of the differential diagnosis, despite its low frequency.

CASE REPORT

A 6-year-old female, with no significant clinical history, presented with 10 hours of abdominal pain, along with nausea but no vomiting. On physical examination, the abdomen was distended with deep tenderness in the lower right quadrant, primarily at McBurney's point, without signs of peritoneal irritation. She had tachycardia, normal blood pressure, and was afebrile. The rest of the physical examination was unremarkable. Laboratory tests showed a leukocytosis of 21,400 mm³ with a predominance of neutrophils. An abdominal ultrasound was inconclusive. The decision was made to proceed with an open appendectomy, using a transumbilical approach based on age and gender (**Figure 1**). The appendix was found to be erythematous, with a preserved base and an appendicolith at the tip. Exploration of the ileum revealed a Meckel's diverticulum 110 cm from the ileocecal valve, approximately 3.5 cm in length (**Figure 2**). The surgical procedure was completed without incident, and the patient was hospitalized with a 4- day fasting period, electrolyte support, and analgesic therapy. She had a favorable post-operative recovery and was discharged home. Pathological studies reported acute appendicitis with a calcified fecalith of 0.8 cm and a 3.5 cm Meckel's diverticulum with heterotopic gastric mucosa



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Figure 1. Resected appendix and Meckel's diverticulum.

Figure 2. Resected Meckel's diverticulum. With ligation of the

DISCUSSION

Meckel's diverticulum originates from improper closure of the omphalomesenteric duct, which begins to develop in the third week of gestation. Its function is to connect the primitive yolk sac with the midgut to ensure adequate nutritional status. It is considered a true diverticulum, as it contains all layers of the intestine. It was first described by Guilhelmus Fabricius Hildanus (father of German surgery) but was first reported with embryological and anatomical origin by Johann Friedrich Meckel in 1908.³ Its location can vary throughout the entire length of the small intestine, with the furthest distance reported as 180 cm from the ileocecal valve, and there is a direct relationship between the age of presentation and its distance from the ileocecal valve. Most cases are asymptomatic, as in the present case, and are diagnosed as an incidental finding during surgical exploration. However, symptomatic cases in children often present with intestinal obstruction, bleeding, and finally, diverticulitis.⁴ Diagnosis can be challenging, as the clinical presentation overlaps with multiple abdominal pain causes, and imaging is not reliably used since it is difficult to distinguish the diverticulum from the small intestine. Literature suggests the use of CT imaging, but only in cases with a clinical predominance of diverticulitis.⁵

This case highlights an incidental finding of Meckel's diverticulum during surgery for acute appendicitis. Although Meckel's diverticulum is a common congenital anomaly, its diagnosis is often incidental since most cases are asymptomatic. This case reinforces the importance of adequate surgical exploration and thorough evaluation, even in cases presenting with typical symptoms such as abdominal pain and signs of appendicitis. The surgical approach, in this case, consisted of an open appendectomy, with block resection of the Meckel's diverticulum, without post-operative complications.⁶ Despite its rarity, Meckel's diverticulum should be considered in

the differential diagnosis of patients with acute abdomen, especially when no clear cause for the symptoms is identified, as in this case. Identifying this anomaly during surgery may prevent future complications, as a Meckel's diverticulum with heterotopic gastric mucosa can lead to complications such as bleeding, obstruction, or perforation.^{7,8}

CONCLUSION

Meckel's diverticulum is a relatively rare congenital anomaly of the gastrointestinal tract that is difficult to diagnose and manage due to its low incidence in the general population. Although most patients remain asymptomatic, Meckel's diverticulum can present with clinical complications that pose diagnostic and treatment challenges for clinicians. In most cases, it is detected incidentally during exploratory surgery or when addressing a different pathology, as was the case here, where the Meckel's diverticulum was found incidentally during an appendectomy. In symptomatic patients, particularly in children, Meckel's diverticulum can present with various complications such as intestinal obstruction, gastrointestinal bleeding, or diverticulitis. These complications generally follow a common order of presentation: intestinal obstruction, followed by bleeding, and finally diverticulitis. This emphasizes the importance of considering Meckel's diverticulum in the differential diagnosis when a patient presents with symptoms of acute abdomen, even if the incidence of this condition is low. The incidental finding of Meckel's diverticulum, as in the presented case, underscores the need for careful and meticulous surgical exploration, as these anomalies may go unnoticed if their possible presence is not considered. Early identification of this condition helps prevent serious complications, such as recurrent bleeding, perforation, or intestinal obstruction, which may require more suspicion, proper surgical evaluation, and early diagnosis are crucial for the successful management of this condition and for preventing long-term complications.

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Incidental Finding of Meckel's Diverticulum in The Context of Acute Appendicitis: A Case Report

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