A Left-Sided Acute Appendicitis In A 20-Year-Old Male With Intestinal Malrotation: A Case Report Highlighting An Atypical Presentation Of Acute Abdomen

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Abstract
Intestinal malrotation is a rare congenital anomaly resulting from incomplete rotation of the midgut during embryologic development and often remains undiagnosed until complications occur. We report the case of a 20-year-old male who presented with atypical features of acute appendicitis, including central abdominal pain and left-sided abdominal tenderness. Computed tomography (CT) imaging revealed intestinal malrotation with a left-sided inflamed appendix. The patient underwent successful laparoscopic appendectomy without correction of the malrotation, as it was asymptomatic. This case highlights the importance of considering intestinal malrotation in patients presenting with atypical manifestations of acute appendicitis and underscores the pivotal role of timely imaging and minimally invasive surgical management in achieving favorable outcomes.

INTRODUCTION

Intestinal malrotation is a congenital anomaly resulting from incomplete or abnormal rotation and fixation of the midgut around the superior mesenteric artery (SMA) during embryologic development. Under normal circumstances, the midgut undergoes a 270° counterclockwise rotation, allowing the small and large intestines to assume their typical anatomical positions within the abdominal cavity. Disruption of this process leads to a spectrum of rotational abnormalities that may predispose affected individuals to serious complications, including midgut volvulus, bowel obstruction, and internal herniation. The estimated incidence of intestinal malrotation is approximately 1 in 500 live births; however, its true prevalence in the adult population remains uncertain, as many cases remain asymptomatic or undiagnosed throughout life.

Although intestinal malrotation is most commonly diagnosed during infancy, adult presentations are increasingly recognized due to the widespread use of advanced imaging modalities. Adults with malrotation may present with chronic, intermittent, and nonspecific gastrointestinal symptoms such as abdominal pain, nausea, or vomiting, or they may present acutely with life-threatening complications. The rarity of this condition in adults, combined with its variable clinical manifestations, often results in delayed or missed diagnoses.

Acute appendicitis represents the most common cause of emergency abdominal surgery worldwide. Classically, it presents with periumbilical pain migrating to the right lower quadrant, accompanied by anorexia, nausea, vomiting, fever, and localized peritoneal signs. However, atypical presentations are well documented and frequently correlate with anatomical variations in the position of the appendix. Left-sided acute appendicitis is a rare clinical entity and is most commonly associated with congenital anomalies such as situs inversus totalis and intestinal malrotation, in which the cecum and appendix may be abnormally positioned on the left side of the abdomen.

Such anatomical variations may obscure the clinical diagnosis, leading to misleading physical examination findings, false-negative classical signs, and delayed imaging. Consequently, patients are at increased risk of complications such as perforation and abscess formation. Therefore, maintaining a high index of suspicion and recognizing atypical presentations are essential for timely diagnosis and appropriate management. This case report describes an unusual presentation of acute appendicitis in a young adult male with intestinal malrotation, highlighting the diagnostic challenges and emphasizing the importance of computed tomography in guiding effective surgical intervention.

Case Presentation

A 20-year-old male with no significant past medical or surgical history presented with acute central abdominal pain associated with vomiting and dysuria. Physical examination revealed left-sided abdominal tenderness without peritoneal signs. Laboratory investigations showed leukocytosis.

Imaging Findings

Contrast-enhanced CT of the abdomen demonstrated abnormal positioning of the small bowel predominantly on the left side of the abdomen, with the ileocecal junction located in the left upper quadrant, consistent with intestinal malrotation. The appendix appeared dilated and inflamed on the left side with associated appendicolith, consistent with acute uncomplicated appendicitis (Figure 1).

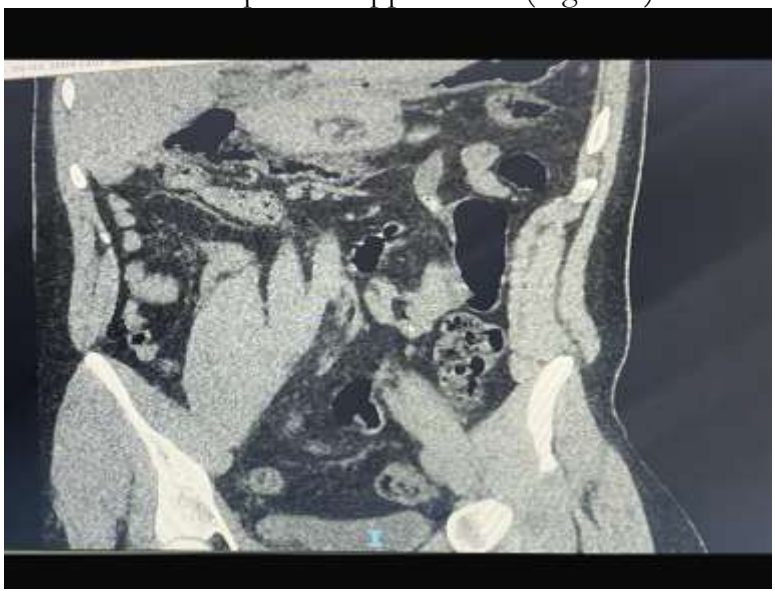

Figure 1. Coronal contrast-enhanced CT image demonstrating intestinal malrotation with left-sided small bowel and an inflamed appendix.

DISCUSSION

Intestinal malrotation in adults is rare and often underdiagnosed. CT imaging is the diagnostic modality of choice and plays a crucial role in identifying associated conditions such as appendicitis. Altered anatomy may obscure classical clinical signs, emphasizing the importance of imaging in atypical presentations.

Management of asymptomatic malrotation remains controversial. In the absence of volvulus or obstruction, laparoscopic appendectomy alone is considered appropriate. This case reinforces the need for heightened clinical suspicion and timely imaging.

CONCLUSION

Intestinal malrotation should be considered in patients presenting with atypical features of acute appendicitis. Prompt CT imaging and laparoscopic intervention enable accurate diagnosis and favorable outcomes.

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