Case Report

A Curious Case Report of Meckel's Diverticulum with Diverticulitis

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Abstract

Meckel's diverticulum (MD) is the most common congenital defect found in the gastrointestinal system, occurring in 2%–4% of the population, with a male-to-female ratio of 2:1. In this report, we describe an unusual case of a 4-year-old male who presented with symptoms of abdominal pain, vomiting, and stools resembling red currant jelly. Physical examination revealed diffuse abdominal tenderness, while ultrasonography showed a target sign in the right hypochondrium, indicating intussusception. Diagnostic laparoscopy confirmed ileal loops intussuscepting into the ascending colon, which could not be reduced laparoscopically. A midline laparotomy revealed approximately 30 cm of ileal loops intussuscepting up to the transverse colon, with MD and diverticulitis identified as the lead point. Surgical intervention included resection of the diverticulum, end-to-end ileal anastomosis using the Vertex endo linear cutter stapler, and an appendectomy. Histopathology confirmed follicular lymphocytic hyperplasia in MD with subacute appendicitis. The patient recovered well and was discharged without complications.

Keywords: *Congenital gastrointestinal anomalies, diverticulitis, gastrointestinal bleeding, intestinal obstruction, intussusception, Meckel's diverticulum*

Introduction

Meckel's diverticulum (MD) is the most common congenital anomaly of the gastrointestinal (GI) tract, arising from a remnant of the vitellointestinal duct.[1] The closure of this duct usually occurs by the 7th month of gestation, and failure to do so results in MD in 98% of cases.[2] Histologically, MD may contain heterotopic tissue, particularly gastric mucosa, in 50%–60% of cases, potentially leading to complications such as abdominal pain, ulceration, or bleeding.[3] In addition, 5%–6% of MD cases may involve the presence of duodenal, colonic, or pancreatic tissue, often associated with intestinal obstruction.

Case Report

A 4-year-old male patient presented with complaints of abdominal pain and vomiting, accompanied by three episodes of red currant jelly stools. Vital signs were stable, and the abdominal examination showed diffuse tenderness across all quadrants without any palpable mass, and normal bowel sounds. Laboratory tests indicated leukocytosis with neutrophilia, while urine analysis was normal. Abdominal ultrasonography revealed a target sign in the right hypochondrium [Figure 1], suggesting intussusception with ileal loops telescoping into the large bowel.

Under general anesthesia, a diagnostic laparoscopy was done which revealed ileal loops intussuscepting into the ascending colon. However, ileal loops could not be reduced laparoscopically, prompting a conversion to open laparotomy. A midline laparotomy was done which revealed approximately 30 cm of ileal loops intussuscepting up to the transverse colon, with inflammatory changes noted in the appendix. Reduction of the intussuscepted ileal loops revealed MD with diverticulitis as the lead point [Figure 2]. The diverticulum was removed, and an end-to-end ileal anastomosis was performed using Vertex endo linear cutter stapler (Healthium Medtech, Bangalore, Karnataka, India), along with an appendectomy. The skin was closed in layers using triclosan-coated polyglactin 910 Trusynth Plus Neo suture (Healthium Medtech, Bangalore, Karnataka, India). Histopathology confirmed follicular lymphocytic hyperplasia in the MD with

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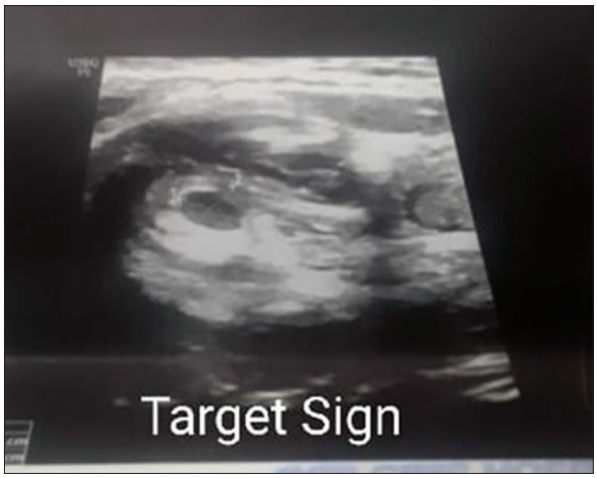

Figure 1: Target sign in the right hypochondrium indicating intussusception

subacute appendicitis. The patient was discharged after 8 days without any complications.

Discussion

The historical timeline of MD traces back to its identification by Hildanus in 1598 which was later reported by Johann Friedrich Meckel in 1809.[4] Based on the "rule of 2s," MD occurs in about 2% of individuals, with 2% of those showing symptoms, and the proportion of male to female is 2:1. It is situated 2 feet above the ileocecal valve, usually presents before the age of 2, is approximately 2 inches long, and may exhibit 2 varieties of mucosal lining-gastric or pancreatic.[5,6]

Although MD is typically asymptomatic, it can cause symptoms due to complications such as hemorrhage, perforation, obstruction, and diverticulitis. Over half of symptomatic cases are present in children younger than 2 years.[4] Symptoms may range from abdominal discomfort due to ulceration or intussusception, rectal bleeding, and intestinal perforation.[6] MD is the leading cause of massive painless, lower GI bleeding in children, which can lead to shock from massive melena whereas older children and adults commonly undergo intestinal obstruction. Nonetheless, the manifestation of MD can be diverse and unspecified.[6,7]

In children, intestinal obstruction associated with MD can arise from intussusception, volvulus, diverticulitis, or Littre hernia.[8] The most frequent causes include intussusception where MD acts as the lead point and mechanical volvulus of the small intestine around a persistent band linking the MD to the umbilicus. In fact, approximately 50% of intussusception cases related to MD occur in children older than 3 years.[7]

A research study revealed that the most prevalent symptoms associated with MD were lower GI bleeding (35.3%), abdominal pain (32.4%), vomiting (8.9%), and abdominal distension (2.9%).[8] In a separate study, the most frequent

Figure 2: Meckel's diverticulum with diverticulitis as the lead point of intussusception

symptoms were intestinal obstruction (32.4%) and lower GI bleeding (47.0%).[9] This case is particularly unusual, as the child initially exhibited upper GI bleeding, followed by bowel obstruction, contrasting with the more typical presentation of lower GI bleeding.

The variable presentation of MD makes it a diagnostic challenge, particularly in pediatric cases, emphasizing the importance of awareness among pediatricians and pediatric surgeons regarding its potential manifestations. Although rare, it should be considered in differential diagnoses for pediatric patients. Early identification and intervention are essential to prevent complications, as they can lead to significant morbidity in children.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given his consent for his images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal his identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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