



Case Report

Solitary Cecal Diverticulitis Mimicking Acute Appendicitis in a Child: Intraoperative Diagnosis

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Abstract

Right colonic and cecal diverticulitis can mimic acute appendicitis. A 14-year-old, 105-kg boy presented at the emergency department with symptoms mimicking acute appendicitis. Surgery revealed a case of perforated solitary cecal diverticulitis. Diverticulosis is a disease known to be common in adulthood, but the incidence is increasing in childhood. Therefore, emergency room residents and pediatric surgeons need to keep this diagnosis in mind in the differential diagnosis of acute appendicitis. Early clarification of the etiology will enable the planning of the best treatment strategy.

Keywords: Cecal diverticulitis; complicated diverticulosis; pediatric.

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Colonic diverticulosis is a condition in which either the serosal and mucosal layers in the colonic wall (pseudo-diverticulum) or the entire bowel wall (true diverticulum) form saclike protrusions from the vulnerable weak points. A low quantity of dietary fiber, obesity, constipation, decreased physical activity, corticosteroids, nonsteroidal anti-inflammatory drugs, and smoking may all predispose an individual to diverticulosis. Genetics, age, geography, and ethnicity are also determinants. Most patients with diverticulosis are symptom-free, but some have abdominal pain, bloating, and constipation. The condition is frequently identified incidentally during a colonoscopy. Fecal stasis, obstruction, and bacterial overgrowth may lead to diverticulitis, the most common complication of diverticular disease.^[1, 2]

A teenager who was initially diagnosed with acute appen-

ditis was subsequently found to have perforated diverticulitis during surgery. Emergency room residents and pediatric surgeons should be aware of diverticulitis of the cecum, which can mimic acute appendicitis. Accurate diagnosis and treatment can be made easier with the appropriate preoperative studies.

Case Report

A 14-year-old boy weighing 105 kg presented at the emergency department with abdominal pain and nausea that had been ongoing for 1 day. He reported subjective fevers at home, but no vomiting or change in bowel habits. He also mentioned similar but lesser symptoms (pain at the right iliac fossa, nausea, and fever) occurring the week before.

There was tenderness, defense, and rebound in all quadrants of the abdomen and an elevated white blood cell

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count of 15.390/uL with 77.3% neutrophils. The C-reactive protein level was 0.83 mg/dL. The remainder of the laboratory values were within normal limits and a direct abdominal X-ray was normal. An abdominal ultrasound revealed a blind-ending tubular structure, 9.5-mm in diameter, alongside the cecum, which was thought to be an inflamed appendix, but the proximal site was not clearly visualized. There was no free fluid.

The initial diagnosis was acute appendicitis. Surgery was planned and intravenous hydration and antibiotic therapy were initiated. The abdomen was accessed via a right lower quadrant transverse incision. The omentum wrapping around the cecum and the proximal ascending colon were gently removed. The appendix was in a retrocecal position and looked slightly inflamed, but the cecum wall was observed to be markedly thickened on palpation. A fecaloma was seen inside a serosal defect on the anterior cecum wall. Further dissection revealed that it was a perforated diverticulum. The diverticulum was excised and the cecal wall was repaired. An appendectomy was performed, a pericecal drainage catheter was inserted, and the abdomen was closed.

The histopathological examination revealed a perforated diverticulum lined with necrotized mucosa and involving the underlying muscularis mucosa, muscular layer, and serosa (true diverticulum). Appendiceal slides also showed edema, fibrosis, and significant inflammatory cell infiltration, which was reported as catarrhal appendicitis (Figs. 1, 2).

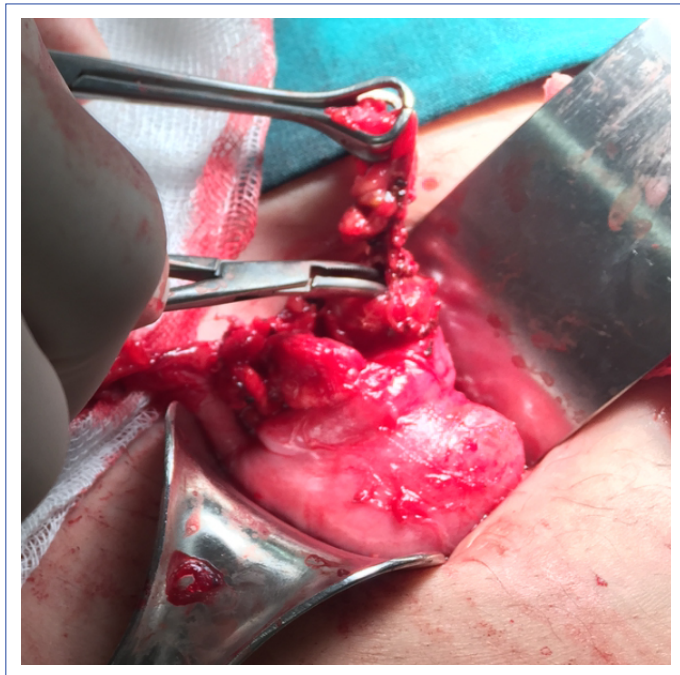


Figure 1. Intraoperative image of the diverticulum (tip of the forceps pointing at the lumen).

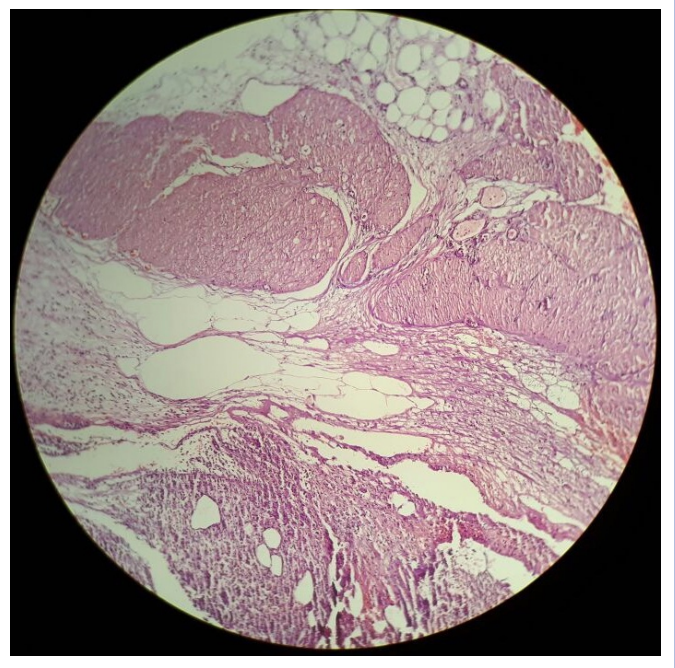


Figure 2. Histopathological appearance of the diverticulum: the serosa, the muscular layer, and the mucosa, from top to bottom (Hematoxylin and eosin stain, x10).

The nasogastric tube was withdrawn on postoperative day 1 when the patient spontaneously passed flatus. A clear diet was initiated. There was no discharge from the drain, and it was withdrawn on postoperative day 3. The patient tolerated the clear diet and was subsequently given liquids and solid food. The administration of intravenous antibiotics was terminated and the patient was discharged on day 5 with per oral medication.

The recovery was uneventful with the exception of subcutaneous fat necrosis, which resolved within a week.

The patient and his guardians gave informed consent for this case report to be published.

Discussion

Possible complications of colonic diverticulosis include bleeding, inflammation (diverticulitis), and perforation. The symptoms depend on the localization of the diverticuli. The differential diagnosis includes colon cancer, Crohn's disease, ischemic colitis, pseudomembranous enterocolitis, and pelvic inflammatory disease.

Right colonic and cecal diverticulitis can mimic acute appendicitis.^[3-7]

Uncomplicated right colonic diverticulitis can be managed with antibiotic therapy and bowel rest. Computed tomography (CT) or magnetic resonance imaging can help to diagnose complicated diverticuli,^[8, 9] but the final diagnosis is

generally made during surgery. There are, however, cases where abscess and bowel necrosis blur the picture and a definitive diagnosis cannot be made, even intraoperatively. In this case, the patient was an obese teen with cecal diverticulitis mimicking acute appendicitis. There are very few similar cases in the literature in the pediatric age group. Cecal diverticuli are often solitary lesions, and therefore thought to be congenital in origin. In addition, the pediatric cecal diverticuli cases reported are cases of false diverticuli, while the patient in this case had a true diverticulum. Certain syndromes have been reported to have an increased incidence of diverticular disease, such as Ehlers-Danlos syndrome, Williams syndrome, and hyper IgE syndrome; however, none of these were applicable in the present case.^[10–14]

In this case, because the physical examination suggested acute appendicitis and the ultrasound results pointed to appendiceal inflammation, it was not scrutinized further with CT imaging. However, a CT scan can help to distinguish between diverticulitis and appendicitis, especially in an obese patient, when it is more difficult to get an accurate result with ultrasound.

In addition to being difficult to diagnose preoperatively, an intraoperative diagnosis can also be a challenge in cases of complicated diverticulosis. The surgical preference may be either a simple diverticulectomy or a hemicolectomy, according to the site of the lesions and degree of inflammation or change when the diagnosis is doubtful or malignancy cannot be excluded.^[15–17] There is a consensus on a conservative approach that minimizes the extent of bowel resection. In this case, the patient was treated with a simple diverticulectomy because there was no visible necrosis of the nearby tissue and no abscess formation. The recovery period was uneventful.

A concurrent appendectomy is another consideration. It could prevent misdiagnosis in any future episodes of acute abdomen.^[18] In this case, because the initial clinical diagnosis was acute appendicitis and we had prepared the patient for surgery, we performed an appendectomy. The patient had a history of fixed right lower quadrant pain and if the initial diagnosis had been questioned and examined more thoroughly, the solitary cecal diverticulum might have been diagnosed earlier and allowed for more conservative treatment.

While diverticulosis is known to be a common disease in adults, the objective of this report is to draw attention to the increasing incidence in children. Emergency room residents and pediatric surgeons need to keep this diagnosis in mind in the differential diagnosis of apparent acute appendicitis in order to better understand the etiology and define the appropriate measures to be taken.

Disclosures

Informed Consent: Written informed consent was obtained from the parents of the patient for the publication of the case report and the accompanying images.

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