Journal of Pediatric Surgery Case Reports 17 (2017) 20–24

Contents lists available at ScienceDirect

Journal of Pediatric Surgery Case Reports

journal homepage: www.jpscasereports.com

# Interval laparoscopic ileocecectomy in a child with cecal diverticulitis

John D. Horton [a], George E. Black IV [a], Mauricio A. Escobar Jr. [b, *]

[a] Madigan Army Medical Center, Fort Lewis, WA, USA
[b] Pediatric Surgery, Mary Bridge Children's Hospital and Health Center, MultiCare Health System, Tacoma, WA, USA

ARTICLE INFO

*Article history:*
Received 3 November 2016
Received in revised form
22 November 2016
Accepted 24 November 2016
Available online 25 November 2016

ABSTRACT

Cecal diverticulitis is a rare condition in children that can present diagnostic and surgical challenges. Cecal diverticulitis has a similar presentation to appendicitis, but the surgical management is much different. We present a case of cecal diverticulitis in a 13-year-old Hispanic male who was initially treated nonoperatively, but ultimately underwent laparoscopic assisted ileocecectomy as definitive treatment. This is the only case report to describe a delayed surgical approach to this rare medical condition. We feel this approach has particular merit with respect to cecal diverticulitis as the possibility of diagnostic uncertainty is high.

Cecal diverticulitis is a rare disease process, particularly in children. Patients predictably present with right lower quadrant abdominal pain in a manner similar to appendicitis. Imaging may reveal a phlegmon, perforation, bowel wall thickening, or nonspecific inflammatory changes. These imaging findings may not always indicate a clear diagnosis, especially if the appendix cannot be well visualized. Urgent operation may be ill advisable in this situation as the surgeon may encounter a hostile operative field with dense inflammatory changes resulting in an increased risk of ileostomy creation. We present a case of cecal diverticulitis managed safely with a delayed surgical approach. We feel a delayed surgical approach may provide an alternative option for patients with an uncertain diagnosis or surgeons who wish to avoid a potentially hazardous dissection. A delayed approach may also help to facilitate a minimally invasive approach.



## 1. Case report

A 13-year-old Hispanic male with no significant past medical or surgical history presented to Mary Bridge Children's Hospital with two days of abdominal pain. His pain was described as right lower quadrant (RLQ), cramp like in quality, and waxed and waned in intensity. He denied any coexisting symptoms such as nausea, vomiting, diarrhea, constipation, fevers or chills. He was evaluated in the emergency room and was found to have moderate tenderness with voluntary guarding in the RLQ. His exam was otherwise normal with normal vital signs. He had a leukocytosis of 13 with an elevated absolute neutrophil count as well as an elevated erythrocyte sedimentation rate (ESR) and c-reactive protein (CRP) on laboratory evaluation. His labs, including chemistry and liver function tests, were otherwise normal.

He underwent ultrasound of his RLQ to attempt to confirm the working diagnosis of acute appendicitis. However, the appendix was unable to be visualized on ultrasound. He then underwent computed tomography scanning of his abdomen and pelvis with intravenous contrast (Fig. 1a and b). This showed inflammation around his mid ascending colon with adjacent mesenteric lymphadenopathy, some trace free fluid in the retrocolic space, and what appeared to be a few small diverticula in the region of inflammation. His appendix was identified and found to be dilated up to 10 mm. However, it contained air throughout and exhibited no surrounding inflammatory changes. At this point, the pediatric surgical team was not convinced the patient had appendicitis. The differential diagnosis included inflammatory bowel disease, colonic mass with perforation, Meckel's diverticulitis, and cecal diverticulitis. He was admitted to the hospital and treated with IV ciprofloxacin, metronidazole, and bowel rest. His symptoms improved with this treatment, and he was discharged two days later with a 10-day course of oral ciprofloxacin and metronidazole.

One month after his initial hospitalization, he underwent a colonoscopy to further evaluate the colon for the possibility of a mass,

* Corresponding author. Mary Bridge Children's Hospital and Health Center, Department of Surgery, PO Box 5299, MS: 311-3W-SUR, Tacoma, WA 98415, USA.
*E-mail address:* Mauricio.Escobar@multicare.org (M.A. Escobar).

http://dx.doi.org/10.1016/j.epsc.2016.11.012

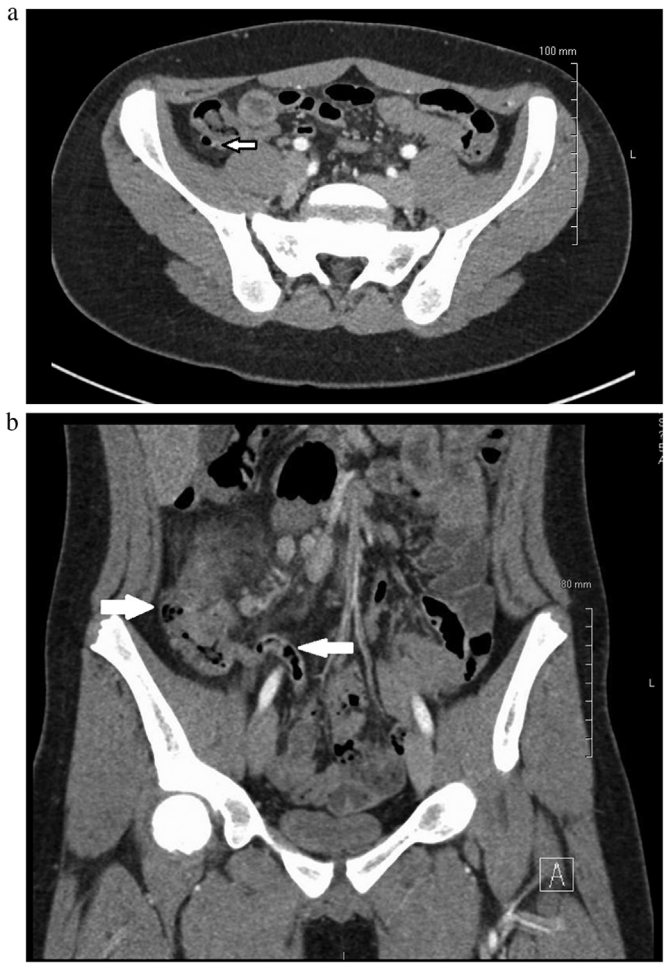


**Fig. 1.** a. Cecal diverticulitis noted on axial CT images at presentation. b. Cecal diverticulitis noted on coronal CT images at presentation.

inflammatory bowel disease, or presence of diverticula. The colonoscopy was normal except for diverticulosis of the cecum (Fig. 2). Repeat cross sectional imaging at that time showed a persistent mass in the prior area of inflammation (Fig. 3). Due to concern for this mass being a neoplastic process and the presence of diverticula in the cecum, he and his parents were counseled for a laparoscopic-assisted ileocecectomy. The surgical team felt the procedure would be diagnostic in terms of the mass and possibly therapeutic in terms of the cecal diverticula. The family agreed and he underwent laparoscopic assisted ileocecectomy with primary anastomosis without complication (Fig. 4). His cecum was opened following resection in the operating room and multiple diverticula of the cecum were identified (Fig. 5). There was a palpable mass in the mesentery adjacent to the resected cecum. Pathology showed a 1.7 cm focus of dense granulomatous, mixed inflammation, and fecal material, representing the site of a ruptured diverticulum. There was no evidence of neoplasia. He was advanced to a regular diet quickly post operatively and was discharged home on post-operative day number one. The patient was last seen in clinic ten months after surgery. At that time, he was doing well and without any complaints.

## 2. Discussion

Colonic diverticular disease is a rare clinical entity in children first described by Ashurst in 1908 [1]. Since that time, there have been numerous case reports and case series describing cecal diverticulitis in the adult literature [2]. Current understanding of cecal diverticulitis is based on this relatively large body of literature. The diverticulum may be a true diverticulum containing all layers of the colonic wall, or a false diverticulum consisting of mucosa and submucosa only. This distinction may be important with respect to the surgical management of this disease [3]. However, there have been only a handful of recent (since 2005) case reports describing this clinical entity in pediatric patients (Table 1). Granted, the separation between proximal right sided colonic diverticulitis and cecal diverticulitis is an arbitrary anatomic distinction, but this discussion will focus on cecal diverticulitis in children.

Cecal diverticulitis and appendicitis can be difficult to distinguish based solely on clinical presentation. Historically, right sided diverticulitis and cecal diverticulitis have been reported more commonly in patients from Asian heritage. Two of the seven patients in modern pediatric case reports come from an Asian background. Cecal diverticulitis can present as early as 3 years of age [4].

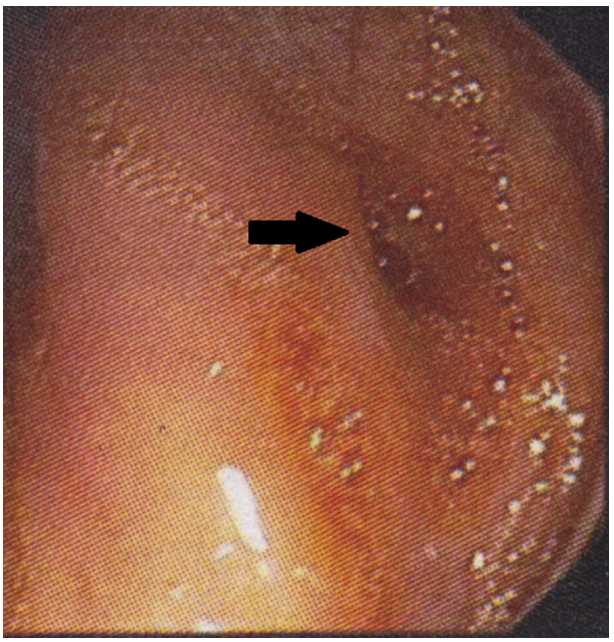

**Fig. 2.** Colonoscopy depicting diverticulosis of the cecum.

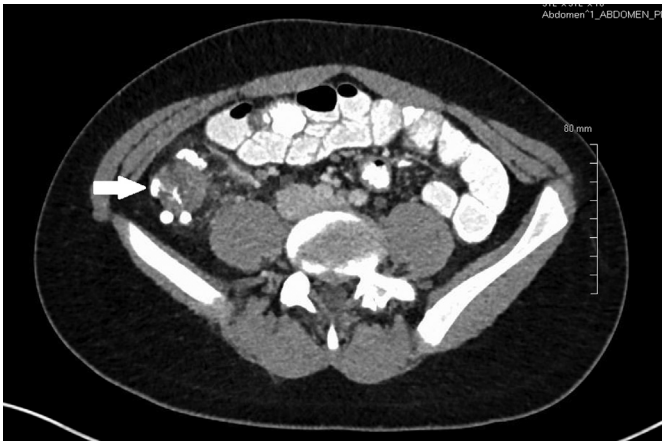


**Fig. 3.** Cecal diverticulitis noted on axial CT images at one month follow up. Note the mass-like appearance to the cecum.