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Cecal Diverticulitis is a Challenging Diagnosis: A Report of 3 Cases

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Statistical Analysis C
Data Interpretation D
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Case series

Patient: Male, 44 • Female, 73 • Male, 63
Final Diagnosis: Cecal diverticulitis
Symptoms: Abdominal pain
Medication: —
Clinical Procedure: Right hemicolectomy
Specialty: Surgery

Objective: Challenging differential diagnosis





Background: Cecal diverticulitis is an uncommon cause of acute abdominal pain and presents clinically similar to acute appendicitis. There are many perspectives concerning the management of this condition, ranging from different types of surgical resections to conservative treatment with antibiotics.

Case Report: We present 3 cases of cecal diverticulitis. One of the patients was treated conservatively with intravenous antibiotics and the other 2 were treated with surgical resection.

Conclusions: Conservative treatment with intravenous antibiotics can be used in uncomplicated cecal diverticulitis. Complicated cecal diverticulitis is managed surgically and the type of resection depends mainly on the extent of inflammation.

MeSH Keywords: Cecum • Diagnosis, Differential • Diverticulitis

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Background

Solitary diverticulum of the cecum presents more frequently in Asian than Western societies and was first described by Potier in 1912 [1,2]. About 80% of right colonic diverticula is located in the anterior cecum, close to the ileocecal valve, and is usually asymptomatic. Cecal diverticulitis is an uncommon cause of acute pain located in the lower abdomen and is often clinically indistinguishable from acute appendicitis [3,4]. It presents mainly in younger patients with a median age of 44 years and the predominant sex is male. The males/females ratio is 3/2 [5]. There are many perspectives concerning the management of this condition. These range from different types of surgical resections to conservative treatment with intravenous antibiotics [5–8]. We present 3 cases with cecal diverticula which we treated in our clinic during a period of 2 months. Two of them were managed surgically and 1 conservatively with antibiotics.

Case Report

Case 1

A 44-year-old male patient was hospitalized in the Cardiothoracic Surgery Unit of our hospital, where he was submitted for mitral valve replacement. Ten days after the operation, the patient presented with abdominal pain located in the lower abdomen and mainly in the lower right quadrant. During the physical examination, intense tenderness located mainly in the right iliac fossa was present. He was febrile (up to 39°C) and with an elevated white blood cell count (19500) and neutrophil count (90.8%). A computed tomography of the abdomen showed thickening and edema of the cecal wall with infiltration of the surrounding fatty tissue extending up the ascending colon to the right colic flexure. We also noticed a small amount of fluid in the pelvis. An emergency operation was performed. Intraoperatively, necrosis of the wall of the cecum was noted (Figure 1). Right hemicolectomy was performed due to the extension of the inflammation. The surgical specimen is shown in Figure 2. The histopathological examination of the specimen showed the presence of a solitary diverticulum of the cecum with necrosis of its wall. The patient had a normal postoperative course and he was discharged 6 days after the second operation.

Case 2

A 73-year-old woman presented to the Emergency Department of our hospital with acute pain located in the lower right quadrant of the abdomen. She was febrile with temperature up to 39°C. Laboratory exams showed an elevated leucocyte count (20,050) as well as an elevated neutrophil count (91.2%) and

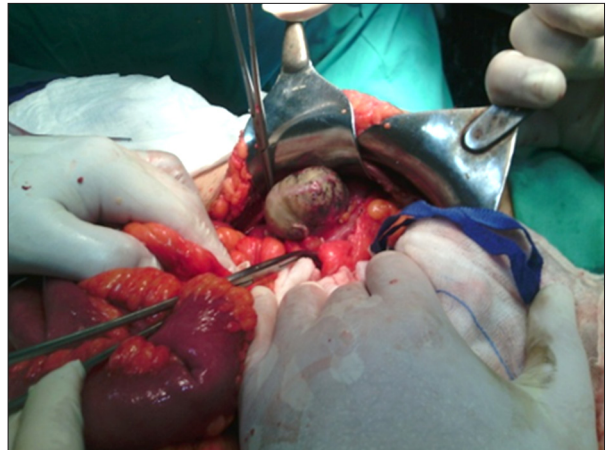


Figure 1. Intraoperative picture showing necrosis of the wall of the cecum.



Figure 2. The surgical specimen of right hemicolectomy showing the extend of inflammation and the necrosis of the cecum wall.

a very increased CRP (26.42). The clinical examination revealed intense pain located mainly in the right iliac fossa with positive rebound sign. A computed tomography (CT) of the abdomen followed, which showed an area of about 7 cm located in the right abdomen with thickening of the cecal wall and the ascending colon and infiltration of the surrounding fat (Figure 3). A colonoscopy followed, which showed inflammation and necrosis of the cecal wall right by the appendix (Figure 4). She was then admitted to the operating room where a right hemicolectomy was performed because of the extent of the inflammation. The patient had a normal postoperative course and she was discharged 5 days after the operation.

Case 3

A 63-year-old man presented to the Emergency Department of our hospital with pain located in the lower right quadrant of the abdomen, which started 24 hours prior to admission. He presented no other symptoms and physical examination

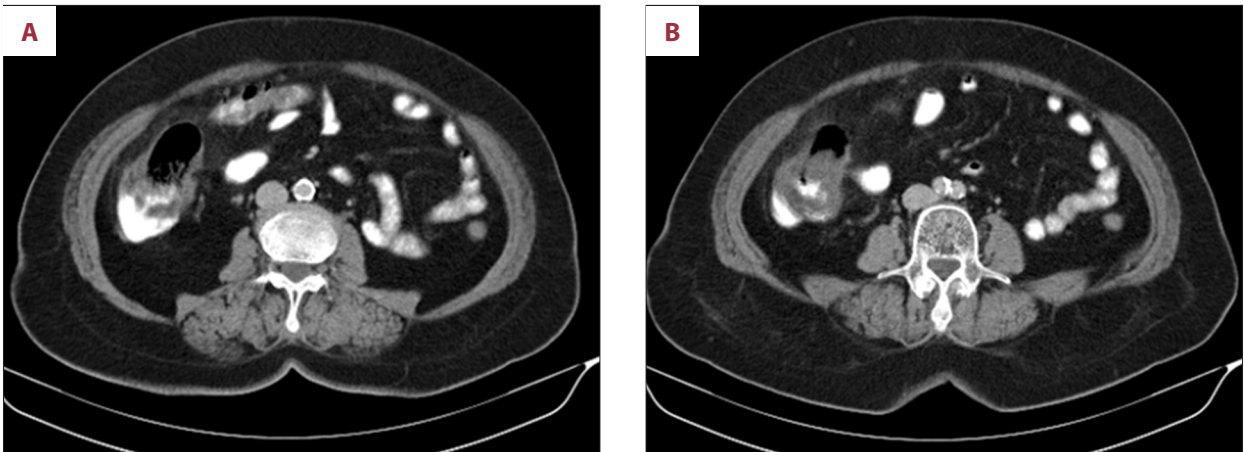


Figure 3. (A, B) CT scan of the patient showing thickening of the wall of the cecum and infiltration of the surrounding fat.

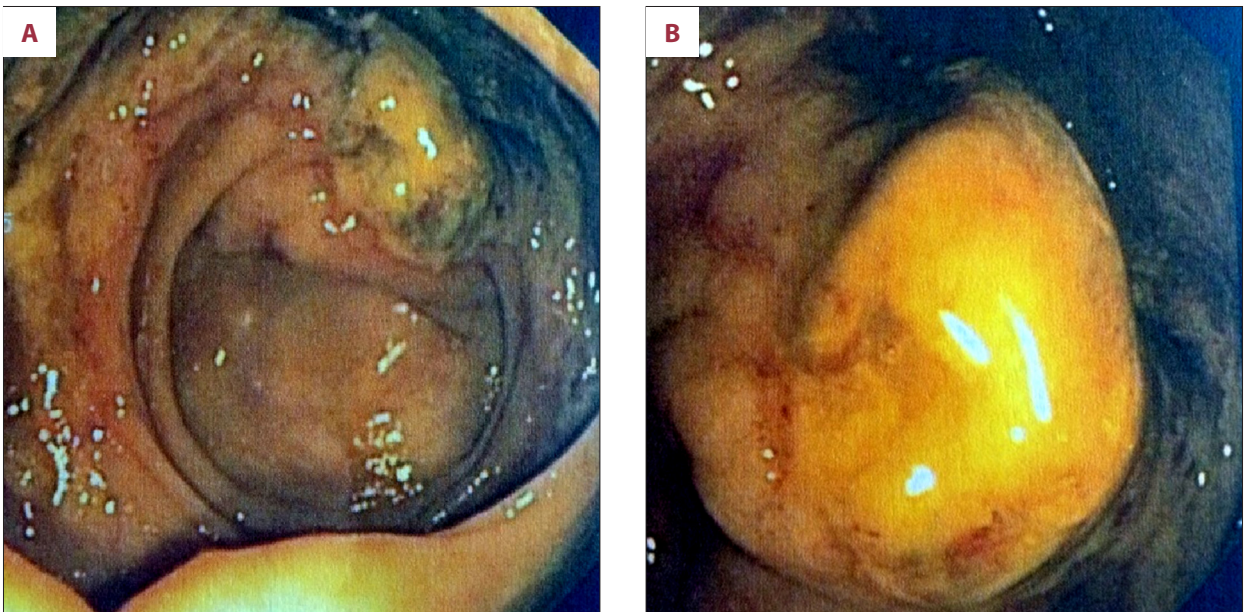


Figure 4. (A, B) Colonoscopy of the patient showing the presence of inflammation and necrosis of the cecal wall and a possible extraluminal mass.

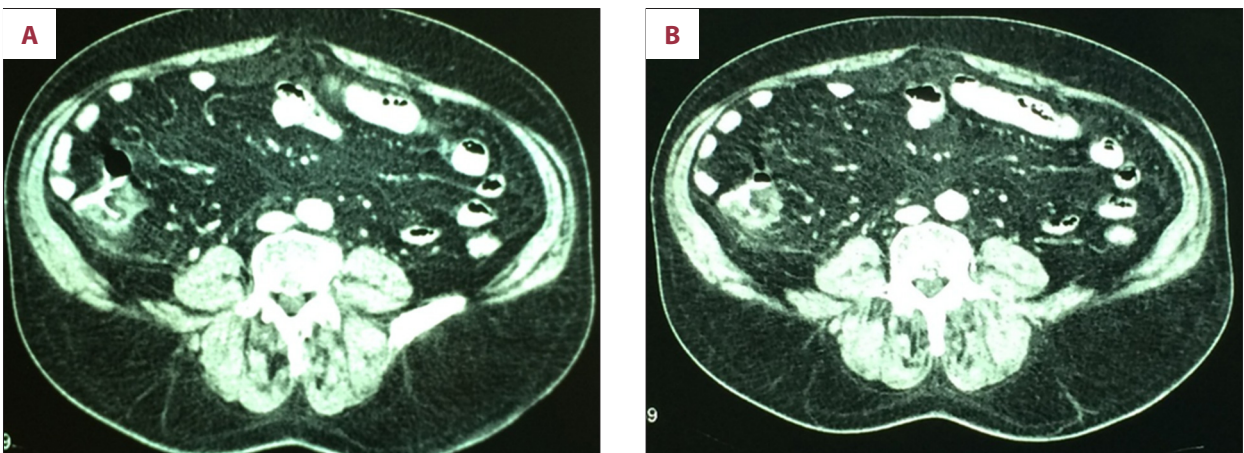


Figure 5. (A, B) CT scan of the patient showing infiltration of the peritoneal fat of the cecum.

revealed tenderness in the right iliac fossa. He was afebrile and all the laboratory test results were normal except for a neutrophil count of 81.4%, but with normal leucocyte count (WBC: 9900). An abdominal ultrasound was first executed, which was not diagnostic. It only showed the presence of air in the ascending colon and a small amount of liquid located in the right iliac fossa, at the point of maximum tenderness. A computed tomography of the abdomen followed, which demonstrated thickening of the wall of the cecum with infiltration of the surrounding fat and thickening of the parietal peritoneum. No signs of inflammation were present in the appendix (Figure 5). Intravenous metronidazole 500 mg 3 times per day was started and the patient's condition improved from the first day. Four days later, a colonoscopy was performed, showing a solitary diverticulum of the cecum with no signs of inflammation. The treatment with metronidazole continued and the patient was discharged from our clinic 7 days after admission.

Discussion

Cecal diverticulitis is rare in Western countries and appears more often in Asian populations [1]. Solitary diverticula of the cecum are rare; they were first described by Potier in 1912 [2]. They are believed to be a congenital anomaly arising during the 6th week of gestation and they are considered "true" because they consist of all layers of the colon wall. They are usually asymptomatic and only become evident when complications such as inflammation, hemorrhage, or perforation are present [9,10].

Cecal diverticulitis usually mimics acute appendicitis and the correct diagnosis is made intraoperatively. More than 2/3 of the patients with cecal diverticulitis are operated on with a presumptive diagnosis of acute appendicitis [3,4]. Some studies have shown the presence of clinical characteristics that may assist in distinguishing cecal diverticulitis from acute appendicitis. Nausea, vomiting, and anorexia are more frequent in acute appendicitis. In cecal diverticulitis, the pain has a relatively longer history that typically starts and remains in the right iliac fossa, while in acute appendicitis it begins from the central abdomen and shifts to the right iliac fossa [5,11,12].

Many patients presenting with intense tenderness and pain located in the right iliac fossa with a presumable diagnosis of acute appendicitis are generally not subjected to preoperative radiological investigations unless the diagnosis of acute appendicitis is uncertain [13]. In a study of 934 patients with unclear pain located in the right lower quadrant of the abdomen, abdominal ultrasound showed a sensitivity of 91.3% and a specificity of 99.5% in the diagnosis of cecal diverticulitis [14]. The precision of computed tomography of the abdomen

in distinguishing acute appendicitis from cecal diverticulitis has a sensitivity and specificity of 98%, as various studies have shown [14,15]. Thickening of the colon wall, pericolonic inflammation, and extraluminal mass effect are the most common CT findings of cecal diverticulitis [14–16]. These are also present in left-sided diverticulitis and can also be seen when a cecal tumor is present. In about 1/10 of cases, due to the similarity of the CT findings, cecal diverticulitis may sometimes be indistinguishable from carcinoma on the CT scan [5,17].

In uncomplicated diverticulitis a conservative surgical approach with appendectomy and drainage has been described in studies based mainly in Asian populations. However, since the diverticula are left in place, this approach has a high incidence of recurrence of cecal diverticulitis [6,18]. Although right hemicolectomy has a higher rate of morbidity and mortality, it is recommended when the extent of inflammation is so great that a diverticulectomy is usually not possible, or when a tumor is suspected [5,7,17]. Diverticulectomy and ileocecal resection have also been described in the literature as being an adequate treatment [4,6,7]. Right-sided diverticulitis can also be managed with laparoscopic diverticulectomy [8,19,20]. Both our patients that were managed surgically underwent a right hemicolectomy due to the extent of inflammation and because the presence of a tumor could not be excluded.

As a result of our experience and as some studies have shown, in patients with suspected uncomplicated cecal diverticulitis diagnosed by radiological imaging, conservative treatment with intravenous antibiotics has the advantage of avoiding surgery and may be sufficient [8,21,22].

Conclusions

Solitary diverticulum of the cecum is a rare entity especially in Caucasian populations. Cecal diverticulitis is rather uncommon, but should be considered in the differential diagnosis of pain located mainly in the right iliac fossa. It is generally an intraoperative diagnosis, but abdominal ultrasound or CT scan may be helpful for a preoperative diagnosis. Conservative treatment with intravenous antibiotics can be used in uncomplicated diverticulitis. Depending on the extent of inflammation, the surgical resection varies from a diverticulectomy or ileocecal resection to a more aggressive resection such as a standard right hemicolectomy.

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