

Acute Cecal Perforated Diverticulitis Synchronous with Acute Appendicitis. Clinical Case

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ABSTRACT

Introduction: Diverticular disease of the colon is an increasingly common condition in developed countries. Diverticula can develop in any segment of the colon, but are more common on the left side. The prevalence of cecal diverticula in Western countries is 1-2%, while in the East it represents 43-50% of colonic diverticula. Furthermore, in the West, the majority are solitary. When they are solitary, they are generally congenital and true, and if they are multiple, they are typically false (pseudodiverticula) and acquired.

Clinical case: 50-year-old female, administrative employee, with a history of systemic arterial hypertension and mixed dyslipidemia; that she presented to the emergency medical service reporting anorexia, generalized abdominal pain, fever of 38.2 °C on one occasion and in the absence of alterations in fecal evacuations. On physical examination, the abdomen was presented with decreased peristalsis, slightly tympanic on percussion, painful on palpation in the left iliac fossa with involuntary muscular resistance. An abdominal mass was also palpated in the left iliac fossa. Additionally, he reported mild pain on palpation in the iliac fossa. right, doubtful Mc Burney sign, negative rebound. During his hospitalization, laboratory studies were performed, which reported leukocytosis, neutrophilia and thrombocytopenia, in addition to a simple and contrasted abdominopelvic tomography which reported multiple diverticular formations in the descending and sigmoid colon, which were accompanied by striation of the pericolic fat, with fluid. free in the left slide, pelvic and perihepatic cavity, with gas particles in the slide, thickening and increased enhancement of the walls of the descending colon and sigmoid.

Discussion. Right-sided diverticulitis is a rare disease in the West, accounting for 1 to 3.6% of total cases of diverticular disease. Approximately 80% of right-sided diverticula are located on the anterior surface of the cecum, close to the ileocecal valve, and are usually asymptomatic.

KEYWORDS: Abdominal pain, right iliac fossa, diverticulitis; appendicitis; cecal diverticulitis, colorectal surgery, diagnosis, treatment.

ARTICLE DETAILS

Published On:
04 October 2023

Available on:
<https://ijmscr.org/>

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INTRODUCTION

Diverticular disease of the colon is an increasingly common condition in developed countries. Diverticula can develop in any segment of the colon, but are more common on the left side. The prevalence of cecal diverticula in Western countries is 1-2%, while in the East it represents 43-50% of colonic diverticula. Furthermore, in the West, the majority are solitary. When they are solitary, they are generally congenital and true, and if they are multiple, they are typically false (pseudodiverticula) and acquired⁽¹⁾.

Acute inflammation of the cecal diverticulum (cecal diverticulitis) is its main form of presentation and represents a diagnostic challenge, since due to its location it simulates the symptoms of acute appendicitis. Presurgical correct diagnosis rates have been reported in 4-16% of cases, based on auxiliary methods such as ultrasound and computed tomography. Regarding the clinical manifestations of cecal diverticulitis, it is worth mentioning Cutajar⁽²⁾, who despite being a series of three cases from 1987, provides three important data: increasing abdominal pain of relatively long duration up to several days, relative absence of toxicity to despite symptoms, and infrequent vomiting.

Acute appendicitis and acute right-sided colonic diverticulitis are inflammatory diseases that occur near anatomical locations. Their clinical presentations are similar, making it difficult to differentiate between them. The current standard treatment for each disease is different. Appendectomy may be needed for AA while nonoperative conservative treatments such as bowel rest and/or antibiotics are usually used for uncomplicated diverticulitis. Nevertheless, ARCD is often misdiagnosed as acute appendicitis and revealed during surgery. Computer tomography (CT) can be used as a diagnostic imaging tool to avoid unnecessary surgical exploration.

However, it has the disadvantages of radiation exposure and cost. Although ultrasound is an alternative image modality to identify these two diseases without radiation hazard, it requires skillful users. Furthermore, episodes of diverticulitis are reported to recur in about 30% of cases. Abdominal image testing for each episode to differentiate between these two diseases can be a burden for the patient. In this respect, only a few studies have verified clinical differences between these two diseases⁽³⁾.

CLINICAL CASE

50-year-old female, administrative employee, with a history of systemic arterial hypertension and mixed dyslipidemia; that she presented to the emergency medical service reporting anorexia, generalized abdominal pain, fever of 38.2 ° C on one occasion and in the absence of alterations in fecal evacuations.

On physical examination, the abdomen was presented with decreased peristalsis, slightly tympanic on percussion, painful on palpation in the left iliac fossa with involuntary muscular resistance. An abdominal mass was also palpated in

the left iliac fossa. Additionally, he reported mild pain on palpation in the iliac fossa. right, doubtful Mc Burney sign, negative rebound.

During his hospitalization, laboratory studies were performed, which reported leukocytosis, neutrophilia and thrombocytopenia, in addition to a simple and contrasted abdominopelvic tomography which reported multiple diverticular formations in the descending and sigmoid colon, which were accompanied by striation of the pericolic fat, with fluid. free in the left slide, pelvic and perihepatic cavity, with gas particles in the slide, thickening and increased enhancement of the walls of the descending colon and sigmoid. No retroperitoneal adenoid growths were observed, concluding in the tomographic report Hinchey 3 diverticular disease (perforation of the sigmoid colon with purulent peritonitis) (Fig. 1).

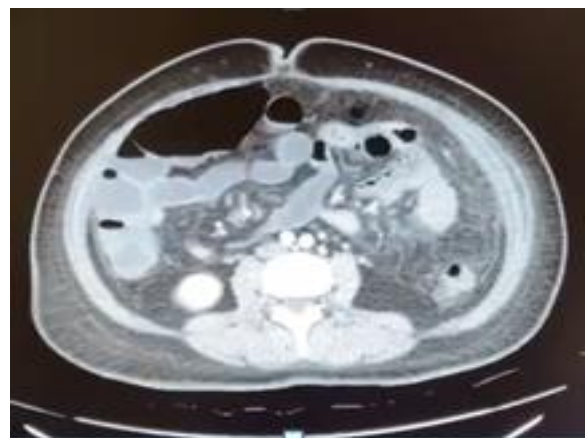


Figure 1. Contrast-enhanced abdominal tomography, sigmoid colon with evidence of multiple diverticula.

Due to the clinical picture and complementary studies, it was decided to perform an exploratory laparotomy, in which thickening of the greater omentum, intra-abdominal abscess 80 cm from the angle of Treitz, perforation in the sigmoid colon of 4 cm in diameter and fecaloid material in the abdominal cavity up to 1000 mL. Additionally, a 6 cm long cecal appendix is observed, with a hyperemic and fibrinous wall.

It is because of the intraoperative findings that it was decided to perform sigmoidectomy with diverting stoma and appendectomy. The surgical procedure was performed without additional complications and the patient was admitted to the surgery floor for post-surgical care.

Samples of the cecal appendix and sigmoid colon were sent for histopathological study, which reported: appendix with fibrinohemorrhagic surface and reactive lymphoid hyperplasia; sigmoid colon with perforated diverticulum and fibrinopurulent surface (Figs. 2-6).

The patient remained in hospitalization and general care, she was discharged on the tenth day of the post-surgical period, in the absence of significant abdominal pain, tolerating oral intake, walking, with a functional left diverting stoma, without evidence of necrosis; In addition, the levels of serum

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leukocytes and platelets were normalized. The patient presented for post-surgical follow-up after 2 months, with a functional diverting stoma and no complications.

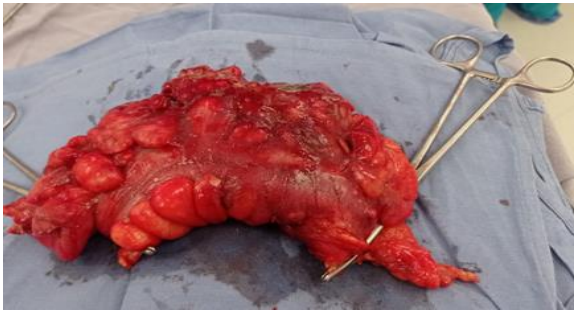


Figure 2. Sigmoid colon, lateral view.



Figure 3. Perforation of sigmoid colon and plastron.



Figure 4. Inflamed, non-perforated cecal appendix.

DISCUSSION

Right-sided diverticulitis is a rare disease in the West, accounting for 1 to 3.6% of total cases of diverticular disease. Approximately 80% of right-sided diverticula are located on the anterior surface of the cecum, close to the ileocecal valve, and are usually asymptomatic. Due to the low incidence and its location, the diagnosis of this entity is complex. Despite the sensitivity and specificity of ultrasound and tomography, two out of three patients with right-sided diverticulitis are operated on under the diagnosis of appendicitis⁽⁴⁾.

Diverticulitis and acute appendicitis are among the most common causes of an acute surgical abdomen, with estimated incidences of approximately 110 and 190 per 100,000, respectively. The two presentations can be difficult to differentiate clinically and well documented mimics of appendicitis include right colonic diverticulitis, cecal diverticulitis or an inflamed redundant loop of sigmoid located in the right iliac fossa. Herein we describe a presentation of acute sigmoid diverticulitis with the rare intra-

and extra-peritoneal complications of secondary acute appendicitis and retroperitoneal perforation and abscess⁽⁵⁾.

CD is an uncommon disease, and there is still some challenge regarding the appropriate diagnostic and therapeutic management of this condition. Our objective was to provide an overview of the existing diagnostic methods and therapeutic alternatives through a systematic review of the field. We noted that 662 patients (662/988, 67%) experienced abdominal pain, which was localized in the right iliac fossa in 93.2% of them. In early reports, imaging techniques were not well developed, leading surgeons to perform explorative surgery, more than 70% of the time upon a preoperative assumption of acute appendicitis. Therefore, preoperative medical imaging constitutes an essential step in the diagnostic approach, resulting in a reduction in the rate of explorative surgery for CD⁽⁶⁾.

Because of the unusually high prevalence of right colonic diverticulosis in Asian

countries, acute right colonic diverticulitis (ARCD) is a very important differential diagnosis of acute appendicitis (AA). Thanks to qualitative improvement and the high penetration rate of computed tomography (CT) scanning in Japan, differentiation of ARCD and AA mainly depends on this modality.

However, cost, limited availability in primary care settings, and concern for radiation exposure in young patients make CT scanning problematic. Although prolonged pain, initial right lower quadrant (RLQ) pain, lack of migration of pain, leukocytosis, nausea/vomiting, constipation, and systemic toxic signs have been proposed as differential findings of ARCD from AA, these findings are based on several small studies using univariate comparisons from Korea and Taiwan; we could not find any previous published studies from Japan or confounder-adjusted studies. Therefore, this study aimed to reveal useful clinical differentiation points between AA and ARCD using a logistic regression model that adjusted for confounders based on Japanese data. Given the limitations of CT scanning described above, evidence on the clinical differences between ARCD and AA may be useful to clinicians⁽⁷⁾.

The primary symptom of both appendicitis and diverticulitis is a pain in the right lower abdomen; diagnosis of these diseases using symptoms alone is nearly impossible. Diagnosis is performed using abdominal computed tomography (CT); abdominal ultrasound examination or magnetic resonance imaging (MRI) can also be used depending on the situation. However, it is known that over 70% of diverticulitis patients undergo surgery owing to an initial diagnosis of appendicitis. The rate of missed diagnosis of appendicitis in emergency department visits is 3.8-15% in children and 6-24% in adults, which can be especially confounding when patients present with atypical symptoms⁽⁸⁾.

Acute diverticulitis is a painful condition of the gastrointestinal tract that results from sudden inflammation of

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one or more diverticula in the bowel wall. Right-sided acute diverticulitis, such as cecal diverticulitis, is uncommon diagnosis that can be easily misdiagnosed as acute appendicitis as it shares similar clinical presentation. An unusual complication of right-sided acute diverticulitis such as perforated cecal diverticulitis has different management from acute appendicitis. Thus, definitive diagnosis of this clinical condition with imaging is crucial to optimal management.

Tsetse, et al. ⁽⁹⁾ report a case of 43-year-old man who presented to the Emergency Department with acute onset severe right lower quadrant abdominal pain associated with anorexia, fever, and nausea. Computed tomography scans obtained showed findings consistent with perforated diverticulitis limited to the cecum, and normal caliber appendix. Conservative medical treatment was decided based on localized imaging findings with excellent outcome.

Causes of right iliac fossa pain: Appendicitis, Meckel's diverticulitis, Mesenteric adenitis, Infective colitis (typhilitis) Terminal ileitis/Crohn's disease, Right-sided diverticulitis Sigmoid diverticulitis, Epiploic appendagitis Omental infarction, Intussusception Renal colic/stone, Pyelonephritis, Cholecystitis, Ovarian cyst rupture, Ovarian torsion, Endometriosis, Pelvic inflammatory disease, Ectopic pregnancy, Rectus sheath hematoma. Inguinal hernia, Psoas abscess ⁽¹⁰⁾.

Financial support and sponsorship: None.

Conflicts of interest: There are no conflicts of interest.

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