

# Concurrent Acute Appendicitis and Recurrent Acute Diverticulitis: A Diagnostic Challenge

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## ABSTRACT

**Introduction:** There is a lack of information in the literature regarding acute appendicitis in the setting of acute diverticulitis. As acute appendicitis and acute diverticulitis together make up most community-acquired complicated intra-abdominal infections, it is very likely that the provider will encounter them in the patient presenting with abdominal pain.

**Case Description:** We report a patient with recurrent diverticulitis who carried a codiagnosis of acute appendicitis; the appendix was laparoscopically removed, and her diverticulitis flare was managed nonoperatively.

**Discussion:** In the patient with a history of diverticulitis presenting with abdominal pain, a high index of suspicion for other coexisting intra-abdominal pathology must be maintained. Computed tomography offers a powerful tool to aid in diagnosis.

**Key Words:** Appendicitis, Diverticulitis, Laparoscopy, Surgery.

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## INTRODUCTION

Appendicitis is one of the most common surgical diseases<sup>1</sup>; although more frequently observed in young individuals, this disease can occur at any age. In the elderly, symptoms may be atypical and right lower quadrant pain should lead to consideration of alternative diagnoses such as colon cancer, right colon diverticulitis, and kidney stones, among many others.<sup>2,3</sup> Computed tomography has revolutionized diagnosing the disease and few patients today undergo an unnecessary appendectomy as this modality has a high sensitivity and specificity.<sup>4,5</sup>

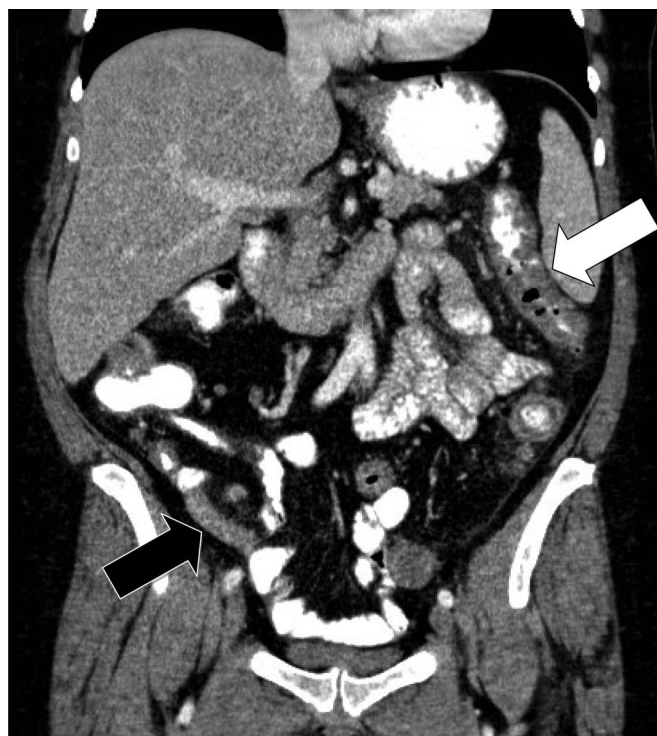
Colonic diverticulitis is a disease of the elderly, although it also affects younger individuals.<sup>1</sup> Most commonly, it involves the sigmoid colon, but it may also develop in the descending and ascending colon, cecum, and appendix.<sup>1,3,6,7</sup> Computed tomography is an excellent diagnostic modality.<sup>4</sup> The first and second episodes of uncomplicated diverticulitis are managed nonoperatively with antibiotics alone and dietary modification. Recurrent and

complicated diverticulitis is an indication for surgery with the aim of performing surgery through a laparoscopic approach and with avoidance of an ostomy. Abscesses associated with diverticulitis are commonly amenable to percutaneous drainage and emergency surgery is reserved for patients with peritonitis.<sup>8,9</sup> We herein report a patient with recurrent diverticulitis who carried a codiagnosis of acute appendicitis; the appendix was laparoscopically removed, and her diverticulitis flare was managed nonoperatively.

## CASE REPORT

A 51-year-old woman with a history of 2 prior episodes of diverticulitis over the past 5 years treated with antibiotics presented to the emergency department with 3 days of acute-onset bilateral lower quadrant abdominal pain and diarrhea associated with fevers to 101°F. The pain was described as similar in quality to her previous diverticulitis flares but worse in severity. Her WBC was 6,900/mm<sup>3</sup>. Recurrent diverticulitis was suspected. Computed tomog-

raphy confirmed descending colonic diverticulitis, but also revealed a 13-mm fluid-filled appendix with surrounding fat stranding (**Figure 1**). The cecum appeared normal. She was admitted to the hospital and started on intravenous antibiotics. The following day, the pain in her left lower quadrant had subsided, but the pain on her right side had significantly worsened. We decided to perform diagnostic laparoscopy. The abdomen was entered through an umbilical port and a 5-mm port was placed in the left lower quadrant. Adhesions between the omentum and the abdominal wall were divided. The cecum was mobilized and the appendix was lifted up; acute phlegmonous appendicitis was found. The appendiceal base and mesoappendix were divided using two Endo GIA loads (Covidien, Mansfield, Massachusetts, USA). Further exploration revealed a normal distal sigmoid colon. The proximal sigmoid colon and the distal descending colon, however, appeared thickened and inflamed. No perforation was noted, and following removal of the specimen using an EndoCatch (Covidien) device and irrigation of the abdominal cavity, the incisions were closed. Pathol-



**Figure 1.** Dilated appendix with wall thickening and surrounding fat stranding (black arrow); descending colon with scattered diverticula, bowel wall thickening, and pericolonic stranding (white arrow).

ogy confirmed the diagnosis of acute appendicitis. After surgery, she recovered well and was kept an additional day on intravenous antibiotics. She was discharged on postoperative day 1 with a 14-d course of oral ciprofloxacin in combination with metronidazole. She has been followed up in the clinic for an elective interval colectomy, given her recurrent diverticulitis.

## DISCUSSION

The lack of information about acute appendicitis in the setting of recurrent acute diverticulitis in the literature seems rather surprising, given the high incidences of both diseases in surgical practice. The coincidence of these separate but common diseases provides a challenging scenario for the physician, requiring both surgical and medical management. Both conditions are significant and require urgent diagnosis and treatment.<sup>1</sup> As the diseases together make up most community-acquired complicated intra-abdominal infections,<sup>10</sup> it is very likely that the provider will encounter them in the patient presenting with abdominal pain. Some suggest a similar underlying pathogenesis,<sup>11</sup> and diverticula may involve the appendix.<sup>12</sup> The microbiology of peritonitis associated with both diseases is also similar, with *Escherichia coli* and *Streptococcus* being commonly isolated pathogens.<sup>13,14</sup> It is nevertheless necessary to differentiate the two diseases, as they are treated very differently, but in both cases antibiotics play an important role in adjunct therapy. Although the rare finding of appendiceal diverticulitis is usually treated with appendectomy,<sup>6</sup> uncomplicated colonic diverticulitis is managed nonoperatively, with an elective colectomy warranted for recurrent diverticulitis. Acute appendicitis, on the other hand, warrants prompt surgical removal of the appendix before the unwanted sequelae of perforation and intra-abdominal sepsis. Physical examination alone may be inconclusive for diverticulitis and appendicitis, and computed tomography offers a powerful tool to aid in diagnosis.<sup>3</sup> Thus, in the patient with a history of diverticulitis presenting with abdominal pain, a high index of suspicion for other coexisting intra-abdominal pathology must be maintained.

A common scenario a clinician may encounter would be a patient presenting with left lower quadrant pain and computed tomography demonstrating acute uncomplicated sigmoid diverticulitis, as well as an incidentally noted abnormal-appearing appendix (whether it be extra long and tortuous or containing a fecalith) without any signs of infection. In this instance, without right lower quadrant pain and infection or inflammation of the appendix, an

appendectomy would not be advised, as risks of the surgery would be increased in the proinflammatory setting of diverticulitis. However, if the patient later must have a sigmoid colectomy, an appendectomy would be encouraged at that time, as appendicitis would be more likely to develop and diagnosis is difficult.<sup>15,16</sup>

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