Non-Operative Management of Acute Appendicitis in a Patient with Ulcerative Colitis

Joshua Tierney,¹ Willie V. Melvin,² Addison K. May,¹ and Hugo Bonatti³

Abstract

Background: Right lower quadrant (RLQ) pain is a common reason for visits to the emergency department. Acute appendicitis is often suspected but multiple other differential diagnoses must be taken into consideration including inflammatory bowel disease (IBD). A computed tomography (CT) scan of the abdomen is used routinely in adults presenting to the emergency department with RLQ pain. Ulcerative colitis (UC) may affect the appendix in cases of pancolitis, however, skip lesions in the appendix have been reported rarely. Non-operative management of appendicitis has gained increasing acceptance.

Case Presentation: A 49-year-old male with UC, who was non-compliant with therapy, presented to the emergency department with acute RLQ pain and diarrhea. Computed tomography scan showed a thickened and dilated appendix, peri-appendiceal stranding, and mild thickening of the cecum. We suspected the patient had a flare of UC involving the appendix and opted for non-operative management with intravenous antibiotics. His pain improved and colonoscopy revealed active pancolitis involving the cecum. Biopsies confirmed the diagnosis of a flare of UC. He was discharged with a course of antibiotics and followed as an outpatient and started on medication for UC. He remained well during follow-up without evidence of recurrent appendicitis.

Discussion: Increasing evidence is available to support non-operative management of patients with acute appendicitis. We propose that patients with IBD who present with acute RLQ pain and CT findings of acute appendicitis should be managed non-operatively and a colonoscopy should be done to exclude active IBD. Appendectomy in a patient with active colitis may have an increased risk of morbidity such as stump leak or cecal perforation and may delay initiation of appropriate therapy.

ACUTE APPENDICITIS is known to be one of the most common etiologies of the acute surgical abdomen [1]. An epidemiologic study from 1990 determined the disease to have a lifetime prevalence of 7%–9% [2]. More recent publications have noted a decrease in this historically cited percentage [3,4]. One factor believed to have influenced this observation has been the introduction of computed tomography (CT) scans for evaluation of abdominal pain in the emergency department resulting in more accurate diagnosis of intra-abdominal pathology [5]. There is increasing evidence that early acute appendicitis can be treated successfully with antibiotics [6,7]. For perforated appendicitis, abscess drainage and antibiotics have produced superior results to emergency appendectomy [8]. The vast majority of surgeons

now prefer laparoscopic appendectomy over an open approach. Even with wide acceptance of CT scan diagnosis showing up to 95% susceptibility and specificity, ultimately diagnosis can only be made by macroscopic appearance of the appendix during removal and subsequent histopathologic examination. Appendicitis may be accompanied by constipation and diarrhea. Key symptoms of ulcerative colitis (UC) are diarrhea that can be bloody and abdominal pain [9]. Ulcerative colitis is a common disorder in Western civilization and patients may additionally be diagnosed with other disorders such as ankylosing spondylitis or primary sclerosing cholangitis. Ulcerative colitis usually starts in the rectum and if untreated may progress to pancolitis. Ulcerative colitis is a continuous disease, however, in rare cases skip lesions

¹Department of Surgery, Vanderbilt University Medical Center, Nashville, Tennessee.

²Department of Surgery, Stonecrest Medical Center, Smyrna, Tennessee.

³University of Maryland, Community Medical Group Surgical Care, Easton, Maryland.

FIG. 1. Computed tomography (CT) scan showing inflamed appendix, 1.5 cm in diameter, peri-appendiceal fat stranding, and thickened cecal wall. There is no fecolith.

may be found scattered within the colon. The appendix may be involved in the process, particularly in the case of cecal involvement although ulcerative appendicitis may represent a skip lesion [10–12]. There is controversy whether appendicitis/appendectomy are protective against UC or might promote the disease [13]. Most data on appendicitis and UC are available from colectomy specimens [14], and rarely acute appendicitis has been reported as an independent disease in patients with UC. Reports also date mainly from the pre-CT era. Surprisingly, no clear recommendations exist for patients with UC who present with acute appendicitis.

Case Presentation

A 49-year-old male was admitted to our hospital with right lower quadrant (RLQ) pain. His CT scan was significant for an inflamed appendix consistent with acute appendicitis (Fig. 1).

His past medical history included ulcerative colitis, herpetic keratitis, and uveitis that required right eye enucleation in 2009, hypertension, and bipolar disorder. In 2007, on workup for bloody diarrhea, colonoscopy revealed pancolitis consistent with inflammatory bowel disease. Therapy was initiated with prednisone taper and sulfasalazine. In between UC flares, the patient reportedly stopped taking his sulfasalazine maintenance. He also missed his follow-up appointments with gastroenterology for several years.

Three weeks prior to presentation, he had been admitted to a psychiatric hospital with bipolar disorder diagnosis. He was started on valproic acid (750 mg daily) and risperidone (2 mg daily). At this time the patient also related the onset of more than 10 bowel movements daily that were occasionally bloody. The diarrhea persisted after discharge from the psychiatric hospital. He also developed abdominal pain that localized to the RLQ, which prompted his admission to the emergency department of

FIG. 2. Colonoscopy findings (hospital day three): pancolitis (1, cecum; 2, transverse colon; 3, descending colon) with diffuse, small ulcerations, erythema, and friable mucosa. Terminal ileum could not be intubated.

an outside facility where he was found to be afebrile and did not have a leukocytosis. An abdominal CT scan was done and showed peri-appendiceal fat stranding suggesting acute appendicitis. The appendix itself measured 1.5 cm in diameter; there was no evidence of perforation. The cecal wall appeared to be thickened. He was started on piperacillin-tazobactam and transferred to our hospital.

The patient's vital signs were within normal limits and repeat white blood cell (WBC) count was normal with 9,900 cells per milliliter. His abdomen was soft, non-distended, and diffusely tender to palpation, most pronounced in the RLQ; he was voluntarily guarding to palpation. Despite his CT scan diagnosis of an acute appendix we decided to manage this episode conservatively based on our suspected diagnosis of a flare of UC involving the appendix. Of note, the patient reported non-compliance with sulfasalazine. The patient was begun on bowel rest and ciprofloxacin (400 mg twice daily) and metronidazole (500 mg every eight hours) were started. The complex situation was discussed with the patient and he was made aware that there was a chance for perforation in which case surgery would be performed immediately. It was also explained that in case of colitis involving the cecum, an appendectomy would have a high risk of stump leak and that he may in fact require colectomy and an ileostomy. Surgery would potentially also delay specific UC therapy. The patient agreed to our treatment plan and we performed serial abdominal examinations demonstrating continuous improvement of the RLQ pain. A multi-disciplinary conference was called in together with gastroenterology and it was decided to proceed with a colonoscopy. The patient again agreed although he was made aware of an increased risk of perforation of his acutely inflamed appendix. Bowel preparation was well tolerated and on colonoscopy, pancolitis from the cecum to rectum with diffuse small ulcerations, erythema, and friable mucosa was found. The terminal ileum could not be intubated and the appendiceal orifice could not be identified clearly. Colonoscopy was uneventful and the patient was started on a diet. Surgical pathology from biopsies of the cecum, ascending, transverse, and descending colon during colonoscopy revealed chronic inflammation and crypt abscesses consistent with ulcerative colitis (Fig. 2). The abdominal pain improved markedly over his four-day hospital course and he was discharged to complete a 14-day course of antibiotics. He was observed one week after discharge by gastroenterology and started on prednisone with taper and an increased dose of sulfasalazine (500 mg daily) for his UC flare. He also underwent CT enteroclysis during follow-up and was found to be free of small bowel pathology.

Discussion

This case illustrates the importance of correlating clinical findings with the interpretation of radiographic imaging. Appendiceal inflammation on CT scan in the appropriate clinical setting is accepted as grounds for appendectomy. However, non-operative management of appendicitis is accepted increasingly. In our case, the CT scan was read as acute appendicitis, but the patient's clinical situation led to an alternative diagnosis (appendiceal involvement of UC) and an alternative interpretation of the CT scan findings.

There are little published data on the management of suspected appendicitis in the setting of inflammatory bowel

disease. Appendiceal involvement of UC is a well-known pattern of disease and occurs as a skip lesion in approximately 40% of patients with distal UC at the time of their initial diagnosis [15]. Pathologic studies have confirmed that appendiceal involvement of UC has a pattern of inflammation that is distinguishable from acute appendicitis. Moreover, the histologic appearance is similar to involved colon during a UC flare with chronic inflammatory changes and the characteristic crypt abscesses. The clinical significance of appendiceal involvement of UC appears to be nil, as it has not been shown to be a marker for disease severity and has no influence on remission rates. Yet as in our case, appendiceal inflammation as a skip lesion in UC can be a diagnostic challenge for the surgeon. Weighing the potential risks versus the benefits of appendectomy is unclear when the pathogenesis of the appendiceal inflammation is distinct from the typical etiology of acute appendicitis. Performing an appendectomy during a flare of UC with adjacent cecal inflammation would place the appendiceal stump at an increased risk for a leak. In addition, UC flares are either managed medically and when refractory to medical management or in the case of a toxic colon they are treated surgically, with a total abdominal colectomy [9].

Large epidemiologic studies have suggested that the appendix may have a role in the development of UC. The observation that few patients with UC have had prior appendectomies led to numerous investigations attempting to establish the connection between the appendix and the pathogenesis of UC [16]. However, it remains unclear if acute appendicitis or appendectomy is protective against the future development of UC.

In our patient, appendiceal inflammation was part of a flare of his untreated UC (ulcerative appendicitis). Appendectomy in this patient would likely have been non-therapeutic in relieving his pain and would have added unnecessary morbidity, especially in the setting of pancolitis with increased risk of stump leak. On the basis of our case we suggest that patients with ulcerative colitis who present with RLQ pain and show signs of appendicitis on CT scan should not undergo appendectomy but be started on antibiotics and then have a colonoscopy.

Author Disclosure Statement

No competing financial interests exist.

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Address correspondence to:

Dr. Hugo Bonatti
University of Maryland
Community Medical Group, Surgical Care
500 Cadmus Lane, Suite 280
Easton, MD 21601

E-mail: hugo.bonatti@dr.com

Abbreviations Used

CT = computed tomography
IBD = inflammatory bowel disease
RLQ = right lower quadrant
UC = ulcerative colitis

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