

# Atypical Appendicitis Diagnosed During a Colonoscopy

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## Abstract

We present a case of atypical appendicitis diagnosed during a colonoscopy in a 85 year old male patient under study for anemic syndrome while hospitalized because of pneumonia at Clínica Versalles in Manizales, Caldas, Colombia. During the exploration of the cecum, a prominent appendicular orifice discharge purulent material into the lumen of the colon was found. Atypical appendicitis can occur in the elderly and is sometimes diagnosed during a colonoscopy. The management of these patients is unclear and is usually determined by the treating physician.

## Keywords

Appendicitis, colonoscopy, endoscopy.

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## INTRODUCTION

Acute appendicitis was first described as a surgical entity in 1886 by a pathologist named Reginald Fitz. It is currently the most common abdominal emergency. In the United States, about 250,000 cases are diagnosed each year, and the lifetime risk of occurrence is 6.7% for women and 8.6% for men. It occurs more frequently during the second and third decades of life, (1) and cases among the elderly constitute only 5% to 10% of all cases. Nevertheless, mortality rates in this group can be up to eight times higher than those in the general population. (2)

The typical clinical case of acute appendicitis is characterized by intense pain in the epigastrium or periumbilical region (49%) which subsequently migrates to the right iliac fossa where its intensity increases (50% to 60%). (3, 4) In addition, acute appendicitis may be accompanied by anorexia (41%), nausea (58%), vomiting (43%), and fever (66%). (1, 3) Upon palpation of the right iliac fossa, there

is usually pain at the point described by McBurney and during sudden decompression, and there is often a defensive reaction to palpation (65%). (3) Classical paraclinical findings include marked leukocytosis, (1) neutrophilia (4) and elevated levels of inflammatory markers such as C-reactive protein. (5) A small percentage of patients have atypical presentations. This group often includes pregnant women, immunocompromised patients and the elderly. (6, 7) Among these patients, the clinical picture is usually unclear and symptoms may even disappear which further confounds the diagnosis. (8) The triad of anorexia, fever and pain in the lower right quadrant of the abdomen is only present in 20% of elderly patients. (2) To guide diagnoses in these cases, the physician can rely on clinical guidance instruments such as the Alvarado scale and the appendicitis inflammatory response (AIR) score. (4)

Diagnosis is clinical, but images are useful for differential diagnoses, especially in cases of potential atypical presentation. The two most commonly used studies are abdominal

ultrasound and CT scans. In the first, increased wall thickness and pain are induced by pressing on the abdomen with the transducer. (3) Sensitivity is as high as 90% and specificity can be 100%. The primary aim of spiral computed tomography is to identify increased diameter of the appendix, signs of inflammation, and presence of appendicoliths. The test's sensitivity can be 100% and its specificity ranges as high as 99%. (2, 9, 10) Although it is uncommon, diagnosis of appendicitis during endoscopic examination should be mentioned since cases have been reported in the literature. Most are incidental to study of another pathology. (6, 11, 12)

Appendectomy has historically been the treatment of choice in cases of acute appendicitis, but recently antibiotic therapy alone has been considered for management of uncomplicated cases of appendicitis. (2) Antibiotics such as meropenem, metronidazole, and ciprofloxacin have been used, and it has been shown that this treatment can resolve most of the acute conditions without complications or need for surgery in groups followed for one year. (13) In addition, a Cochrane review has concluded that, although appendectomy is the treatment of choice, antibiotic management may be a good option for cases where surgery is contraindicated for some reason. (14)

## CASE PRESENTATION

The patient was an 85-year-old man who had a history of chronic obstructive pulmonary disease, high blood pressure, hypothyroidism, atrial fibrillation, anticoagulated dabigatran, an open cholecystectomy put in place more than ten years before who had been hospitalized two months earlier due to pneumonia. He came to the emergency department with progressive dyspnea, increased requirement for supplemental oxygen, functional deterioration, chest pain and lipothymia. On physical examination, his vital signs were within normal limits, and he had arrhythmic heart sounds and hypoventilation, but there was no pain upon palpation of the abdomen nor any sign of peritoneal irritation. The paraclinical tests at admission showed hemoglobin at 86 g/dL, hematocrit of 27.6%, leukocytosis with neutrophilia (16,060/mm<sup>3</sup> [94,8%]), a platelet count of 244,000/mm<sup>3</sup>, troponin T of 0.023 µg/L, urea nitrogen of 17.4 mg/dL, plasma sodium of 135.9 mEq/L and plasma potassium of 3.8 mEq/L.

A chest x-ray showed evidence of cottony infiltrates around the hilar region with a tendency for consolidation while an electrocardiogram atrial fibrillation, a heart rate of 100 bpm, but nothing suggestive of acute ischemia or an atrioventricular blockage. It was decided to hospitalize the patient with a diagnosis of infectious pneumonia and to treat him with ampicillin/sulbactam and clarithromycin. The patient was assessed by the internal medicine service

who requested that he be monitored with paraclinical tests. The troponin T level was 0.023 µg/L, so a coronary event was ruled out.

On the second day of hospitalization, the patient's hemoglobin level was 7.5 g/dL. When he was questioned about anemia, he reported bleeding gum prior to admission. Following a transfusion of hemoderivates, the patient's hemoglobin level was 10 g/dL, his prothrombin time was 12.9 seconds, and his TPT was 65.5 seconds (reference value: 24.3-26.00). Internal medicine ordered endoscopy and colonoscopy to rule out digestive hemorrhaging.

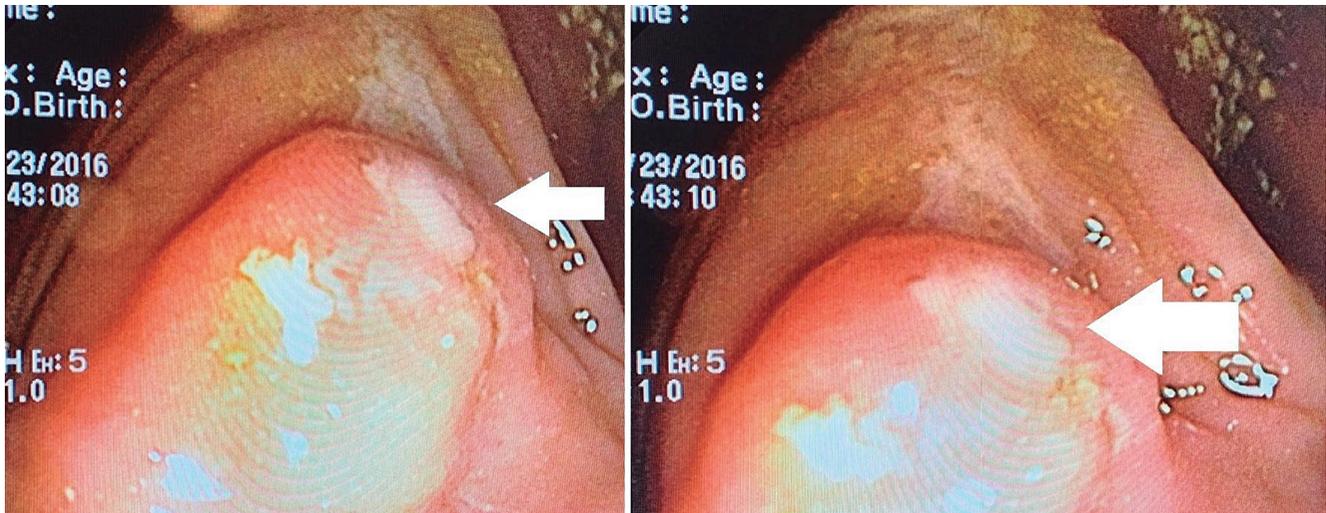
On the third day of hospitalization, an endoscopy found cottony lesions in the esophagus that were severely deformed by the passage of the endoscope, antral erythematous mucosa, diffuse edema, and a moderate quantity of biliary reflux. A diagnosis of chronic antral gastritis, duodenal-gastric reflux and esophageal candidiasis was established. Treatment started with omeprazole, sucralfate, fluconazole and nystatin.

On the fifth day of hospitalization, a colonoscopy found Grade I internal hemorrhoids in the anal canal, vascularization and morphology of the ascending and transverse colon without alterations, and the descending colon and sigmoid colon with multiple but uncomplicated diverticula. In addition, a prominent appendiceal orifice with drainage of purulent material into the lumen of the colon was observed during exploration of the cecum (Figure 1). The patient was determined to have atypical appendicitis and a joint evaluation by a gastroenterologist and a general surgeon was requested. Both specialists requested additional paraclinical tests and an abdominal CT scan to use in the determination of management.

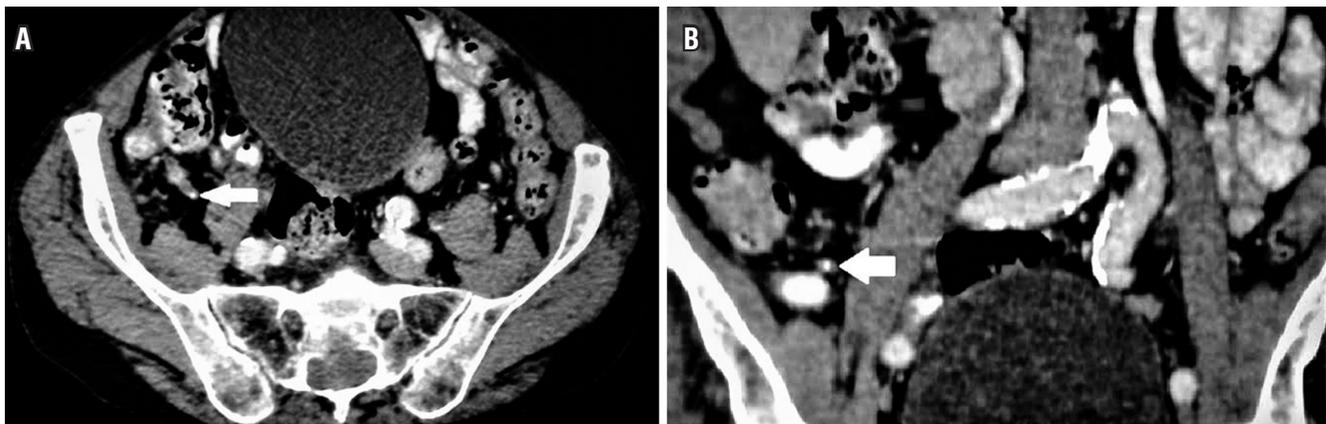
On the sixth day of hospitalization, a CT scan showed an appendix of normal diameter, with no evident inflammatory changes, but containing hardened feces (Figure 2). Paraclinical tests showed a hemoglobin level of 9.6 g/dL, erythrocyte count of 3,600,000/mm<sup>3</sup>, hematocrit of 29.8%, a leukocyte count of 5,590/mm<sup>3</sup> and a reactive protein C level of 3 mg/dL.

The specialists examined the patient together. He showed no signs of abdominal pain or peritoneal irritation. They determined that the surgical risk for this patient was very high and that, because there was no evidence of inflammatory response or signs of peritoneal irritation, he was not a candidate for an appendectomy. They decided to extend antibiotic management with ampicillin/sulbactam for up to ten days, add metronidazole for seven days and to monitor the patient with paraclinical tests until the time of discharge.

On the seventh day, the patient's leukocyte count was 5,000/mm<sup>3</sup>, and his C-reactive protein level was 2 mg/dL. Since he no longer presented respiratory symptoms, his pneumonia was determined to have been successfully treated. He was assessed by a general surgeon who found



**Figure 1.** Prominent appendicular foramen (white arrows) with drainage of purulent material into the lumen of the colon.



**Figure 2.** Computed tomography showing hardened feces in the opening of the appendix (white arrow). A. Cross section. B. Crown section.

him to be without abdominal pain or signs of peritoneal irritation. He was given recommendations about signs of alarm, and it was decided to discharge him to continue oral antibiotic therapy until complete at home. Nine months after diagnosis, the patient had not suffered a recurrence of the symptoms of appendicitis.

## DISCUSSION

The diagnostic and therapeutic approach to acute appendicitis continues to be a medical challenge, especially in atypical presentations of this pathology. The large currently existing diagnostic arsenal together with clinical guidance instruments such as the Alvarado scale can contribute to the approach to these patients, especially to those who are diagnosed incidentally. (4, 6, 15). It should also be mentioned that, at present, some authors have proposed less

orthodox methods, such as colonoscopy, for the study of atypical forms. (16)

When the clinical picture is unclear, as in the case reported, the physician should rely on paraclinical testing and imaging. (4, 10) Leukocytosis and neutrophilia in this patient were not very useful for diagnosis since infectious pneumonia alone could account for these findings. (17) The next step should be the use of computed tomography which showed the presence of hardened feces or fecoliths in the appendix and confirmed the diagnosis of appendicitis. (18)

The therapeutic approach has traditionally been surgical, (2, 4) but this can be rethought for patients at high surgical risk and for those with uncomplicated forms. (14) In this case, the patient did not present a complicated form of appendicitis and presented a high surgical risk due to his underlying pathologies and his concomitant anemia. Antibiotic management was a very good option con-

ring that there was no evidence to show that it would be inferior to an appendectomy. (14)

This is an exceptionally rare case, as there are few cases reported in the literature, and their management remains controversial. (19) The publications suggest endoscopic drainage of purulent material which could contribute to conservative management and avoid surgery. (20, 21) This type of management has been reported frequently, (6, 22, 23) so it is up to the treating physician to determine treatment for patients who are diagnosed incidentally, especially when they have atypical presentations.

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