An Unusual Presentation of *Clostridium difficile* Colitis in a Patient with Wegener’s Granulomatosis

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### Abstract

*Clostridium difficile* colitis (CDC) is a common hospital acquired infection with a wide range of clinical presentations. Severe cases often warrant surgical consultation and colectomy. A 54 year old woman being treated with corticosteroids for Wegener’s granulomatosis developed mild abdominal pain while in hospital. Subsequent CT scan revealed pneumatosis of the ascending colon, portal venous gas and extraluminal air. Although the patient was afebrile and hemodynamically stable, surgery was recommended based on these imaging findings. At laparotomy, the ascending colon was found to have circumferential pneumatosis and signs of ischemia. A right hemicolecotony was performed. The patient developed diarrhea on the fifth postoperative day and *C. difficile* toxin was detected in her stool. Oral metronidazole was started and the patient responded well to the therapy. Pathology demonstrated ischemia of the resected colon secondary to *C. difficile* infection. This case of a patient with an unusual presentation of severe CDC in the setting of stable vital signs will be presented and the relevant literature will be reviewed.

### Case Report

A 54 year old, mildly overweight woman with a history of depression, type II diabetes mellitus secondary to corticosteroid use and Wegener’s granulomatosis complicated by chronic kidney disease and hypertension was admitted to hospital due to new symptoms of confusion and focal neurologic deficits. The neurologic symptoms were attributed to CNS vasculitis and treatment with corticosteroids was initiated (50mg of prednisone daily).

On the 42nd hospital day the patient complained of abdominal pain. She denied GI symptoms including diarrhea, constipation, obstipation, melena or hematochezia. She was afebrile and her vital signs were within normal limits. On physical examination her abdomen was mildly distended and tender to palpation in the lower abdomen, without guarding or rebound tenderness. Her laboratory studies revealed a leukocyte count of 11.9, lactate of 2.1 (range 0.5 - 2.0) and mild chronic anemia. An ultrasound of the abdomen suggested portal venous gas. This was followed by an abdominal CT scan, which demonstrated extensive pneumatosis of the right colon, locules of extraluminal air anterior to the stomach and in the pericolic mesentery, and portal venous gas raising concerns for bowel ischemia and perforation (Figure 1).

### Introduction

*Clostridium difficile* colitis (CDC) is a common hospital acquired infection and is the most frequent intestinal infection requiring surgical consultation. Previous use of antibiotics and a history of immunosupression are risk factors for this condition. The presentation of CDC is quite variable ranging from an asymptomatic carrier state to life-threatening toxic colitis with or without bowel perforation. With the recent increase in awareness and diagnosis of CDC, atypical presentations are being reported. Here, we present a case of a 54 year old patient with vasculitis treated with long-term corticosteroids who was referred with abdominal pain and radiographic evidence of pneumatosis intestinalis (PI), portal venous gas (PVG) and pneumoperitoneum secondary to CDC, without obvious bowel perforation at laparotomy.

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**Figure 1.** Representative axial slice of contrast enhanced CT scan of the abdomen. Note the thickening of the ascending colon with pneumatosis (white arrow) and extraluminal air in the colonic mesentery (white arrowhead).
we present a case of a 54 year old woman on chronic steroid therapy for vasculitis who was found to have PI, along with portal venous gas (PVG) and pneumoperitoneum on imaging following a complaint of vague abdominal pain. Laparotomy revealed an abnormal-appearing right colon prompting hemicolecction, and the pathology of this demonstrated pseudomembranes and submucosal infarction consistent with Clostridium difficile colitis. Clostridium difficile toxin was also isolated in the patient’s stool postoperatively.

The association between PI and rheumatologic disease being treated with corticosteroids has been described. Several case reports have been published with successful conservative management of PI with or without pneumoperitoneum, with antibiotics, fluid resuscitation and oxygen. This has been described in patients with a range of rheumatologic diseases (dermatomyositis, polychondritis, renal minimal changes disease and CREST) with a benign abdominal exam and normal vital signs. Others report similar cases, in which patients ultimately underwent surgery for failure of their mild symptoms to resolve, without the development of sepsis.

In contrast, there are cases reported of rheumatological conditions involving the GI tract that ultimately require surgical intervention. Vasculitis can involve the gastrointestinal tract. Specifically it has been reported that in Wegener’s granulomatosis gastrointestinal involvement can happen in 10-24% of cases. The inflammation of arteries can lead to ischemia and bowel necrosis, which can require surgical treatment.

The association of PVG with PI is an ominous finding and warrants surgical exploration in almost all cases if curative treatment is intended. In the presence of this association, infarction of bowel can be found in 70% of cases and the mortality rate can reach 50%.

The surgical findings in our case were compatible with ischemia of the right colon and treated accordingly. CDC was suspected and diagnosed when the patient developed diarrhea on the fifth postoperative day. At this point, it was considered secondary to the use of perioperative antibiotics in an immunocompromised patient. The pathology report found no findings typical of Wegener’s granulomatosis in the small and medium sized arteries and veins of the specimen (absence of granulomas, vasculitis or necrotizing inflammation), excluding this etiology. The presence of ischemic changes and pseudomembranes, associated with the positive stool sample for C. difficile re-directed the diagnosis to CDC.

PI in CDC is an extremely uncommon event, restricted to a few case reports, and was not described in a series reporting CT scan findings in patients with CDC. Kreiss described one case of CDC after the use of antibiotics for diverticulitis in which the patient presented with severe diarrhea while remaining hemodynamically stable. Stool was tested for C. difficile toxin and the assay was positive. The CT scan of the abdomen showed pneumatosis of cecum and right colon. The patient was successfully treated with oral metronidazole and hydration.

Since CDC is becoming endemic in hospitals, reports of atypical presentations of CDC are emerging. In this case, the patient presented without diarrhea. Diarrhea can be absent in 5-10% of cases on presentation and in 17% of fulminant CDC patients. Even though bowel ischemia/infarction and bowel perforation are found in colon specimens resected due to fulminant CDC in 40% and 16% respectively, this is a rare presentation in absence of toxic signs.

Discussion

Pneumatosis intestinalis (PI) is defined as air within the bowel wall. It can be associated with bowel ischemia but can also be a benign incidental finding on imaging. Here we present a case of a 54 year old woman on chronic steroid therapy for vasculitis who was found to have PI, along with portal venous gas (PVG) and pneumoperitoneum on imaging following a complaint of vague abdominal pain.
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Awareness of atypical presentations of CDC should be raised in patients with risk factors such as long hospitalization and immunosuppression, even in the absence of diarrhea.

References