Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Bilal Hameed, Uma Mahadevan, and Kay Washington, Section Editors

Can COVID-19 Trigger De Novo Inflammatory Bowel Disease?

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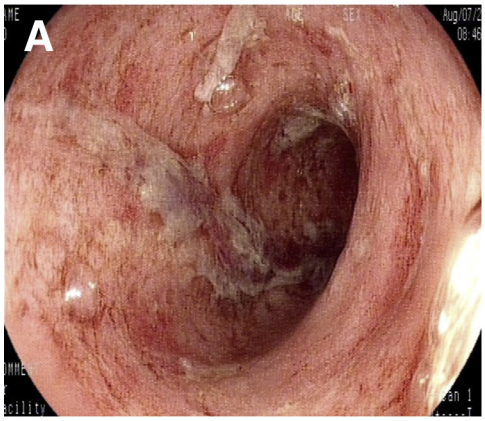

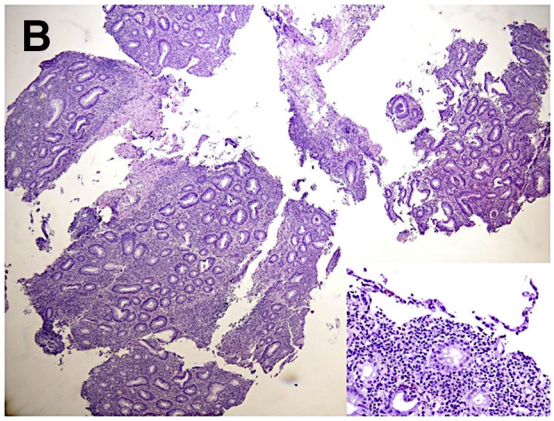

Question: On March, 2020 an otherwise young female never smoker presented to the emergency department with a seven-day episode of fever up to 38°C, sore throat, myalgia, dyspnea, and bloodless watery diarrhea (6–7 stools per day). Laboratory tests showed a leucocyte count of 14,000/μL, lymphocyte count of 1200/μL, C-reactive protein of 26.8 mg/dL, D-dimer of 1769 ng/mL, and lactate dehydrogenase of 670 U/L; other laboratory results were unremarkable. A nasopharyngeal swab tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). A chest radiograph showed bilateral infiltrates and the patient was admitted. During hospitalization, the patient was treated with hydroxychloroquine, lopinavir/ritonavir, and azithromycin. Her symptoms improved significantly, and peripheral oxygen saturation while breathing ambient air was 98%. Markers of systemic inflammation dropped progressively, and lymphocyte count increased. On day 7 a new nasopharyngeal reverse transcriptase polymerase chain reaction swab was negative, and she was discharged from hospital.

Between April and June, watery diarrhea (3–4 stools per day) persisted, with no other common symptoms of coronavirus disease-2019 (COVID-19). In July, her diarrhea worsened, with blood in all bowel movements. A chest radiograph and laboratory tests were normal, with IgG positive and IgM negative SARS-CoV-2 antibodies. Stool cultures ruled out common pathogens, including *Clostridium difficile*. Fecal calprotectin concentration was elevated (460 μg/g).

In August, after a negative nasopharyngeal reverse transcriptase polymerase chain reaction swab, an ileocolonoscopy showed confluent colonic involvement extending for 35 cm from the anal verge, with granularity, edema, friability, and ulcers (Figure *A*). The rest of the colon and 5 cm of terminal ileum were normal. Histopathology showed widespread crypt architectural distortion, superficial erosions, a diffuse transmucosal inflammatory infiltrate, cryptitis, and mucin depletion (Figure *B*, stain: hematoxylin and eosin; original magnification ×4 large picture, ×40 small picture; courtesy of Dr. María Suárez). Immunohistochemistry excluded cytomegalovirus infection.

Given this history, clinical presentation, and endoscopic and histology findings, what is your diagnostic suspicion?

Look on page 1030 for the answer and see the *Gastroenterology* website (www.gastrojournal.org) for more information on submitting your favorite image to Clinical Challenges and images in GI.

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Conflicts of interest
The authors have made the following disclosures: CT has served as a speaker, consultant and advisory board member for MSD, Abbvie, Hospira, Pfizer, Takeda, Janssen, Ferring, Faes Farma, Shire Pharmaceuticals, Dr. Falk Pharma, and Tillots. CA has served as a speaker for Janssen, and has prepared promotional material for Falk Pharma. JF has no conflict of interest to disclose.

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Answer to (Page 1029): Image 1: Incident Ulcerative Colitis

Treatment with oral and topical mesalamine was started. On day 10, the patient achieved remission (partial Mayo score of 0). Based on clinical data, endoscopic, and histology findings, incident ulcerative colitis (UC) was diagnosed in a patient with no prior gastrointestinal symptoms. Because there is no pathognomonic feature for diagnosis of a first flare of UC, we consider the presence of a second flare with repeat endoscopy necessary to confirm the diagnosis.

The exact etiology of UC is unknown, although the disease is thought to be triggered by an interaction between genetic and environmental factors. Infectious gastroenteritis (GE) has been associated with an increased risk of incident inflammatory bowel disease (IBD).[1] The observation that the incidence rate of IBD after a documented bacterial GE was similar to the incidence after episodes of GE with negative stool culture, in which a significant proportion of cases are probably of viral origin, suggests the possibility that both bacterial and viral infections can trigger IBD. However, no specific bacterial or viral pathogens have been confirmed as a cause of IBD as per Koch's postulates.

Available evidence indicates that IBD patients are not at a greater risk of acquiring COVID-19,[2] but data on SARS-CoV-2 infection in triggering IBD are lacking. Initial intestinal inflammation may arise owing to SARS-CoV2 infection. This response overshoot or defective down-regulation of mucosal immune response could lead to chronic intestinal inflammation. A case of incident UC during SARS-CoV-2 infection has been reported, but unlike our patient, COVID-19 and UC were diagnosed simultaneously, making it difficult to determine whether endoscopic and histologic alterations were related to UC or to SARS-CoV2 by itself.[3] In our case, it is not possible to rule out that the patient had UC at the time of diagnosis of the SARS-CoV-2 infection, but the absence of previous gastrointestinal symptoms and the appearance within hours of watery diarrhea as a presenting symptom of COVID -19 makes this possibility highly unlikely.

In conclusion, in clinical practice, we should be vigilant to the possibility that COVID-19 may trigger de novo UC, although large population studies would be necessary to confirm a causal link.

Keywords: COVID-19; SARS-CoV-2; Ulcerative Colitis; Diarrhea; Inflammatory Bowel Diseases.

References

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