



Case report

Abdominal Pain and Diffuse Colitis Following COVID-19 Infection: Report of a Case

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ABSTRACT

Introduction: Although this is often overlooked, the gastrointestinal (GI) involvement of COVID-19 has been introduced. Diarrhea, nausea, vomiting, and abdominal discomfort are among the most common GI symptoms reported. Diffuse Colitis following COVID-19 infection is a rare presentation.

Case presentation: A 52-year-old female presented with intensified abdominal pain following COVID-19 infection to the emergency department. She was diagnosed with peritonitis due to diffuse colitis and perforation of sigmoid colon. The patient was treated with total colectomy with an end ileostomy.

Conclusion: The purpose of this study was to increase awareness among clinicians about the existence of this rare cause of abdominal pain after COVID-19 infection, diffuse colitis. Although uncommon, these presentations can potentially lead to delay in diagnosis among unfamiliar clinicians with GI presentation of COVID-19.

Level of evidence: V.

1. Introduction

About 170 million people worldwide have been infected with the SARS-COVID 19 virus in pandemic so far [1]. Although most of previous studies related to COVID-19 focus on respiratory symptoms and complications, the disease has been associated with signs and symptoms of other organs, including the gastrointestinal (GI) system in a number of patients [1]. The information on extra-pulmonary manifestations, however, has been scarce. Involvement of the gastrointestinal (GI) tract and the hepatic system after COVID-19 infection is now being increasingly reported and the first case of COVID-19 in the United States presented with nausea and vomiting in addition to systemic and respiratory symptoms, and later developed abdominal discomfort and diarrhea had been reported [2]. Herein, we reported a case of 52-year-old female presented with intensified abdominal pain following COVID-19 infection who was further diagnosed with peritonitis due to diffuse colitis and perforation of sigmoid. This case report has been presented in line with the SCARE Criteria [3].

2. Case presentation

A 52-year-old female patient with body mass index of 26, a temperature of 37.8 °C, blood pressure of 100/60 mmHg, pulse of 98 beats per minute, respiratory rate of 16 breaths per minute, oxygen saturation of 96 on ambient air and no past history of any diseases was referred to Loghman Hakim Emergency Department for abdominal pain. She mentioned diarrhea and abdominal pain three weeks before being referred to this center. Due to the positive COVID-19 PCR test, she had been admitted for a week and was treated in another center before admission to this center. The patient's GI symptoms were continued and hence she was referred to this center, two weeks afterwards. She was suffering from progressive colic type abdominal pain and first was admitted to COVID-19 Emergency ward. She mentioned abdominal pain and diarrhea in 3 previous weeks which has aggravated since 3 days ago and was not concurrent with nausea and vomiting. The patient had no previous history of alcohol use and she was not a tobacco user. The patient claimed no relevant genetic disease in herself and her family. She did not take any drugs and her family history of colitis or inflammatory

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bowel disease was negative. In physical examination, palpation of abdomen was normal but there was a localized tenderness in the left lower quadrant. Immediately fluid resuscitation with normal saline was initiated. Assessing initial laboratory tests, the patient did not have leukocytosis, CRP was 23.6 mg/l and the patient's electrolytes and renal function tests were normal. No evidence of blood, inflammatory cells or any infectious organism was reported in patient's stool exam. A plain chest X-ray was obtained from patient which revealed pneumoperitoneum and an abnormal dilated colon (bowel) loop was found in supine and upright abdominal X-ray. Abdominal and pelvic CT scan with oral and IV (intra venous) contrast agent was ordered. Pneumoperitoneum and some amounts of free intraperitoneal air without contrast extravasation and any transitional zone were seen in abdomen CT scan. The patient was transferred to operating room for diagnostic laparoscopy and due to the presence of exudative fluid and fibrin in the pelvis, the patient was candidate for laparotomy by an experienced general surgeon. During abdominal exploration, we encountered patchy necrosis and walled-off perforation in sigmoid colon. Initially sigmoidectomy was performed, but due to synchronous lesion in proximal colon, a decision was made for total colectomy (Figs. 1-2).

The patient underwent total colectomy with end ileostomy with end ileostomy and Hartmann's pouch. After the recovery period in the 8th day after the surgery, patient was discharged with good general condition. She was advised to gradually increase the distance of walking and not lifting anything heavier than 4.5 kg for the first 6 weeks after your surgery. She was also advised to drink 8-10 glasses of water in a day. In histopathologic examination, diffuse active colitis with extensive mucosal ulceration and necrosis was reported (Fig. 3). There was no evidence of malignancy, vasculitis or chronic inflammatory bowel disease. Intravascular microthrombi at perforation site were detected.



Fig. 1. The descending colon and sigmoid after colectomy.



Fig. 2. The transverse colon after colectomy.

3. Discussion

In this case report our patient had no known past medical history and had no other risk factor for pan-colitis except her recent history of viral infection (Covid-19). With the advent of the Covid-19 pandemic, respiratory symptoms such as cough and shortness of breath have been reported to be the most common manifestation of the disease which are concurrent with fever. Over time, GI symptoms such as abdominal pain, diarrhea, nausea and vomiting became apparent among patients infected with coronavirus. Identification of COVID-19 virus in the feces of patients with recently emphasis on the hypothesis of oral-fecal transmission confirms involvement of the GI tract among infected patients [5]. Studies have suggested different causes for diarrhea in COVID-19 patients [6,7]. Among these etiologies are invasion of the virus into gastrointestinal tract epithelial cells and GI hypercoagulation state and micro vascular thrombosis [6]. Also, it has been shown that the RNA of this virus has been detected in the cytoplasm of GI epithelial cells which suggests invasion of virus into gastrointestinal cells [8]. Another cause of diarrhea among these patients is diarrhea following usage of antiviral drugs. Disruption of normal microbial flora of GI tract following the use of antibiotics might be another cause of diarrhea in these patients. Prolonged hypoxia and O₂ saturation drop could also be another cause of GI damage in these patients because it can lead to tissue hypoxia, necrosis and damage to GI mucosal cells, followed by ulceration, mucosal bleeding, diarrhea and malabsorption [6,8]. Another hypothesis is that problems related to bowel movement are due to dysfunction of the autonomic nerves because of the tendency of the virus to invade the nerve and hence neural damage [1-9]. In our patient sigmoid perforation occurred as the consequence of diffuse dilatation of the colon without mechanical obstruction, severe necrosis of the mucosa and diffuse colitis resulted in sigmoid perforation.

4. Conclusions

Although the pathophysiology of COVID-19 virus invasion into gastrointestinal tract epithelial cells has been shown previously, GI hypercoagulation state and micro vascular thrombosis is still unknown. It is important to be vigilant about the rare COVID-19 manifestations among infected patients to prevent serious complications with early precise diagnosis.

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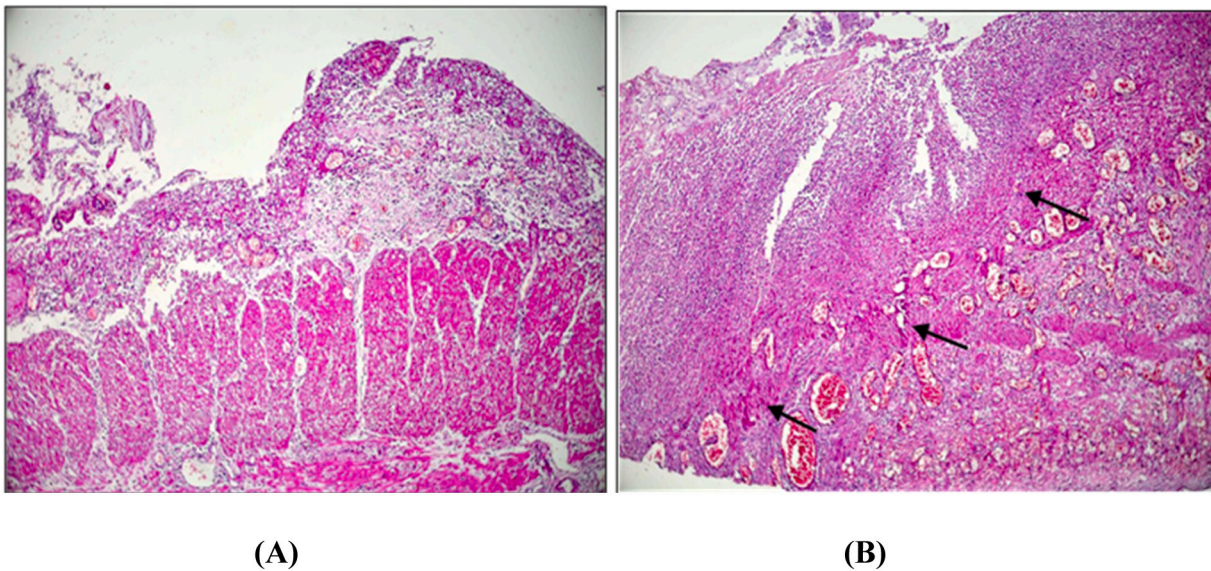


Fig. 3. Acute colitis with diffuse mucosal ulceration (A) and transmural necrosis at perforation site. (B) Delineated by arrows.

Ethical approval

Ethical approval not required.

Consent

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

Research registration

N/A.

Guarantor

Dr. Amir Zamani.

Author contribution

All authors made a major contribution in preparing this manuscript.

Declaration of competing interest

The author(s) declare no potential conflicts of interests with respect to the research, authorship, and/or publication of this article.

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