Diarrhoea: An Atypical Presentation of COVID-19

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ABSTRACT

Coronavirus disease 19 (COVID-19) is a viral pneumonia caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The disease started as an epidemic in China in December 2019 that later achieved a pandemic potential spreading to over 210 countries with more than 3.5 million confirmed cases and close to 250,000 deaths till date. Its symptoms most commonly include, dry cough, fever, myalgia, and fatigue. As the number of new cases keeps on rising, many patients have been documented with gastrointestinal manifestations such as diarrhoea, vomiting and abdominal pain. We report a case of a 23-year-old female who presented with the primary complaint of diarrhoea, after positive contact history with a COVID-19 patient.

Key Words: *SARS-CoV-2, COVID-19, Pneumonia, ARDS, Diarrhoea.*

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INTRODUCTION

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is said to have originated in the city of Wuhan, China, where the outbreak was first reported in December 2019. The virus is an enveloped, positive-sense, single-stranded RNA virus of the coronaviridae family that, in many ways, is similar to its other family members namely the SARS-CoV-1 and the MERS-CoV, both of which have caused epidemics in the past two decades. Much like the origins of its antecedents, preliminary assessments suggest that SARS-CoV-2 was transmitted as a zoonotic pathogen from bats that underwent modification to allow human-to-human transmission, mainly through infected respiratory droplets and direct contact.[1-3]

Like other SARS-related viruses, its infection is known to cause a number of symptoms including dry cough, fever, fatigue, myalgia, headache, rhinorrhea, and pharyngitis that may progress to severe pneumonia causing difficulty in breathing and culminating in life-threatening acute respiratory distress syndrome (ARDS), ultimately requiring intensive care support.[2] However, increasing numbers of COVID-19 patients are also being reported with digestive symptoms with or without other symptoms. Studies from the SARS and MERS outbreaks also evidently highlight the prevalence of gastrointestinal (GI) symptoms as sole presentation or prior to subsequent development of other symptoms such as fever and cough.[3,4]

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With similar homology, some reports estimate that about half of the COVID-19 patients also have symptoms such as diarrhea, vomiting and abdominal pain.[1,5] Diarrhea, being the most common, is predominantly watery with no blood or mucus.[4]

Until now, consideration with regards to COVID-19 is given to the most common and subtle symptoms related to the respiratory tract. With viral RNA being recovered from more than half of the stool samples,[5] the GI manifestations of COVID-19 may have been underestimated. Such cases, if left unnoticed, may lead to rapid spread of the infection among close contacts, thus worsening the public health crisis. We report a case of a COVID-19 patient whose initial symptom was watery diarrhea. The patient was a healthcare worker and had a positive contact history of COVID-19.

CASE REPORT

A 23-year-old female, a nurse without any comorbidities, presented with the chief complaint of diarrhea that started three days ago. Detailed history revealed that she started having 6-7 episodes of diarrhea per day with no visible blood and mucus. She self-medicated with metronidazole 400 mg for two days but the symptoms persisted. She started having mild fatigue and a low-grade fever that was recorded to be 101°F before presenting to the hospital. She did not complain of cough, dyspnea or any other respiratory symptoms. She denied any contact with a diarrhea patient and had not eaten unhygienic food. Later, she acknowledged having been in contact with a COVID-19 positive patient five days ago, owing to the nature of her job.

On general physical examination, her heart rate was 95 beats/min, blood pressure in both arms was 100/70 mmHg, respiratory rate 19 breaths/min, and temperature was 101.2°F. There was no pallor or jaundice, mucus membranes were dry and she

was dehydrated. Her throat was clear and no lymph nodes were palpable in the head and neck region. Chest and cardiac examination were unremarkable while abdomen was non-distended with only mild tenderness in the umbilical region.

Having a high suspicion of COVID-19 infection, she was admitted and shifted to the isolation ward and started on supportive treatment. Stool sample was sent for routine examination and culture. Additionally, nasopharyngeal and oropharyngeal swabs were taken for polymerase chain reaction (PCR). Her complete blood count and differential leukocyte count were within normal limits. Other investigations including serum electrolytes, liver function tests, and renal function tests were normal except for a mildly raised creatinine of 1.1 mg/dl which was attributed to dehydration due to diarrhea. The C-Reactive Protein (CRP) was mildly elevated. Analysis of the stool showed no ova, parasite or growth of organism. Her chest radiograph did not show any abnormal findings. Since, she did not have any chest findings, a CT scan was not performed.

She was started on supportive care with intravenous fluids. The results of her PCR came positive for COVID-19 two days after admission. Stool PCR was advised but, due to limited testing, it was not performed. She was put on Azithromycin 250 mg BD and Hydroxychloroquine 250 mg BD according to the hospital's guidelines for COVID-19 patients. Her condition became stable 48 hours after admission. She did not report any adverse effects to the drug regimen during her hospital stay. Her CRP normalised within the next 6 days and she was discharged eight days later after a repeat PCR returned negative for COVID-19.

DISCUSSION

The mechanism of enteric involvement of SARS-CoV related viruses has been duly studied. Host cell infection by SARS-CoV-2 begins with the interplay of the viral spike (S) proteins with ACE2 receptors on the surface of the cells that mediates viral entry and replication. ACE2, a carboxypeptidase enzyme, is expressed in various tissues of the body including the respiratory, gastrointestinal, cardiac, and renal systems. The ACE2-dependent infection of different organs might explain the various tissue-specific manifestations of the SARS-related viruses. MERS-CoV has shown similar tropism, possibly through the dipeptidyl peptidase 4 (DPP-4) receptors, to infect human intestinal epithelial cells and replicate there.[1,3]

Knowledge of the enteric involvement by the coronaviruses is significant both for scientific and public health reasons. Relevant literature of the SARS-CoV-1 outbreak of 2002-03 shows that about 10% of the SARS patients presented with diarrhea at the time of hospital admission and close to 38% developed diarrhea during the first three weeks of infection.[4] Similarly, about 20-25% of MERS patients had diarrhea during the course of their illness.[1,3] In the case of COVID-19, however, considerable disparity in the frequency of diarrhea has been reported,[1] with a prevalence ranging from 6-50% across different regions.[1,2,5] A fraction of the infected patients (about 3-10%), such as our case, have been reported to have only GI symptoms in the absence of any respiratory symptoms.[3,5] This disproportionate behaviour could be attributed to differences in the gut microbiota in people with different demographic profiles such as geography, ethnicity, and mode of subsistence,[6] suggesting a difference in clinical manifestations of COVID-19 across different regions.[1] With gut being the largest immune organ of the body, these disparities may not be unfounded.[5]

Studies also show that patients with digestive symptoms have higher transaminases, lymphopenia, and longer prothrombin time.[2,5] Our case, however, had no derangements in liver enzymes, blood counts or coagulation profile. Our case responded well to the treatment regimen and improved reasonably quickly without requiring any intensive care support, a finding supported by most studies.[1]

This case highlights the importance of keeping a high index of suspicion for diarrhea in the current wake of COVID-19 pandemic. Infection should be ruled out in such cases even if no respiratory symptoms are found to avoid further spread. Furthermore, it shows that patients presenting with GI disturbance in the absence of respiratory symptoms show better prognosis and respond well to hydroxychloroquine and azithromycin drug regimen. Nevertheless, this is just a case report and further evidence is needed to better understand the course of COVID-19 disease.

PATIENT'S CONSENT:
Consent was taken from the patient for this case report.

CONFLICT OF INTEREST:
Authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:
SK: Concept, design, literature review, integrity and critical appraisal of work.
ZA: Acquisition, design, analysis, integrity and critical appraisal of work.
FK: Literature review, drafting, designing, final version.
HA: Acquisition, drafting, analysis, critical appraisal and revision of work.
AUR: Drafting, designing, analysis, critical appraisal of work.

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