

A Case Report: Diarrhea as the Initial Manifestation of Patient with COVID-19 Infection

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Abstract: COVID-19 infection first occurred in Wuhan, China in December 2019 until now caused by SARS-CoV-2. Transmission of this disease through droplets. In addition to respiratory symptoms, COVID-19 also shows gastrointestinal symptoms. This is associated with the presence of ACE2 receptors and enterocytes in the digestive tract. Seen in the case report of a 36 - year - old woman experiencing diarrhea and abdominal pain, followed by cough and aches all over the body with positive PCR results for COVID-19.

Keyword: COVID-19, gastrointestinal symptom, SARS-CoV-2

1. Introduction

By September 01, 2021, the total confirmed cases corona virus disease 2019, or known as COVID-19 infection, reached more than 218 million, with more than 4.52 million deaths in the worldwide. [1] It was first reported as a viral pneumonia outbreak in Wuhan, China, in December 2019, and its rapid spread has become a public health challenge. COVID-19 caused by severe acute respiratory syndrome corona virus 2 (SARS - CoV - 2). [2] The SARS - CoV - 2 mainly spreads through direct exposure (droplets, person to person). However, it is also assumed to be transmitted by contaminated objects, airborne transmission, and fecal - oral transmission. [3]

The COVID-19 is predominantly a respiratory disease manifested by fever, fatigue, dry cough, anorexia, myalgia, and dyspnea. However, gastrointestinal (GI) manifestations such as nausea, vomiting, diarrhea, and abdominal pain are increasingly being recognized as important manifestations of COVID-19. Other symptoms such as dysgeusia and anosmia are also gaining attention as important symptoms of COVID-19. [4]

In addition, recent studies have shown that the receptor of ACE2, which is essential for cells infected by COVID-19, is highly expressed not only in lung AT2 cells but also in absorptive enterocytes in the ileum and colon. These results further confirmed that the digestive system may be a potential route for COVID-19 infection. [5]

2. Case Report

A 36 - year - old man, came with complaints of diarrhea for 4 days and accompanied by abdominal pain. Defecation four to five times per day with a liquid consistency. The patient also complained of cough, felt aches and pain all over her body. There is no history of recent travel and no contact or exposure to sick animals.

Blood pressure 138/76 mmHg with pulse 73/min, respiratory rate 20/min and body temperature 36.5°C. Physical examination revealed that the patient was in pain. There is mild general abdominal tenderness, but no rigidity. Chest

examination revealed coarse bibasal crackles. The remainder of the physical examination within normal limits.

Laboratory examination showed hemoglobin (14.7 g/dL), hematocrit (46%), leukocytes (4300/uL), platelet count (18000/ul) and lymphocytes (30%). Blood biochemical examination showed levels of AST (35 U/l), ALT (31 U/l), urea (25 mg/dL), creatinine (1.1 mg/dL), random blood glucose (RBG) 135 g/dL, and C - reactive protein (CRP) 11.8 mg/dL.

Patients were placed under isolation and screened for respiratory viral infections, and PCR tests were performed. The patients were positive for COVID-19, and diagnosed with diarrhea with COVID-19 infection.

3. Discussion

Although coronavirus disease 2019 (COVID-19) presents most commonly with respiratory symptoms, severe acute respiratory syndrome coronavirus 2 (SARS - CoV - 2) obtains cellular entry via the widely expressed angiotensin - converting enzyme 2 (ACE2) receptors, thus increasing the risk of not only respiratory but also alimentary tract involvement. It causes nausea, vomiting, abdominal pain, diarrhea and anorexia. [6] In this case, the patient's gastrointestinal symptoms only experienced diarrhea and abdominal pain with respiratory symptoms of cough accompanied by pain throughout the body.

Several studies have confirmed that the primary target protein of COVID-19 is the angiotensin - converting enzyme 2 (ACE2). Although ACE2 is predominantly expressed in the respiratory tract lining of the alveolar epithelial cells, it is also highly expressed in various types of GI cells. [7] In a recent study investigating the expression patterns of ACE2 across over 150 different cell types, researchers found that ACE2 expression was highest in enterocytes, commonly found in the small intestine, colon, and duodenum. These investigations indicate that levels of ACE2 expression in colonic enterocytes can be up to 100 - fold higher when compared to those present in the respiratory tract. [8]

Enterocyte abnormality induces decreased absorption of NA^+ , water, and mucosal disaccharides. It leads to increased

undigested mono and disaccharides, carbohydrates, fats, and protein into the colon. As a result, the colon is unable to absorb sufficient water, leading to diarrhea. [9]

The results of laboratory tests were normal, except for high CRP levels. CRP is a non-specific inflammatory mediator and is a sensitive indicator for bacterial infections, inflammation, and tissue damage. During the course of COVID-19 disease, CRP also plays a role in assisting the clinical management of patients. [10]

4. Conclusion

In addition to respiratory symptoms, COVID-19 also shows gastrointestinal symptoms. This situation is associated with the angiotensin-converting enzyme 2 (ACE2) receptor as the entry point for SARS-CoV-2 in the digestive tract.

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