

Mini Review

Gastrointestinal Manifestations of Coronavirus Disease 2019 (COVID-19) and its Potential Fecal-Oral Transmission

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Abstract

As the outbreak of coronavirus disease 2019 (COVID-19) has rapidly spread over the world, besides typical respiratory symptoms and signs, digestive symptoms and liver injuries have been frequently reported. In the present mini-review, we summarized the most recent studies reporting gastrointestinal manifestations during the course of COVID-19. Digestive symptoms, including abdominal discomfort, anorexia, nausea, vomiting and diarrhea, are not uncommon in patients with COVID-19, and in some few cases digestive symptoms may occur in the absence of any respiratory symptoms. Furthermore, the virus could be isolated in the stool of infected patients, implicating the possibility of fecal-oral transmission. The importance of monitoring liver enzymes has also been emphasized especially in patients with higher disease severity.

Keywords: COVID-19; Gastrointestinal symptoms; Manifestations; Liver injury; Fecal-oral transmission

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The novel coronavirus disease 2019 (COVID-19) developed initially in China has been documented globally across 5 continents [1]. The first cases of COVID-19 were reported to have severe acute respiratory symptoms, causing lethal pneumonia especially in the elderly population [2]. According to the latest World Health Organization (WHO) report, there have been more than 3 million confirmed cases of the disease globally, with more than 200,000 deaths as of April 2020 [2]. Although respiratory manifestations such as fever, dry cough, and dyspnea are the most common symptoms which are indicative of droplet and contact transmissions, emerging data shows that the Gastrointestinal (GI) tract and liver might also be affected by the virus suggesting a potential fecal-oral transmission [3].

The less common GI symptoms like loss of appetite, diarrhea, nausea, vomiting, and abdominal discomfort are shown to vary significantly among different populations, and are frequently followed by typical respiratory symptoms [1,3]. However, only digestive symptoms might predominate throughout the whole course of the disease [4]. Mild to moderate elevations in aminotransferases,

hypoproteinemia and prolongation of prothrombin time may suggest liver injury and these biochemical findings are not rare, as well [5]. Some recent studies have shown that the major receptor of COVID-19, Angiotensin-Converting Enzyme 2 (ACE2), is expressed not only in the respiratory tract, but also in both GI epithelial and liver cells [5-7]. Furthermore, the first case of COVID-19 infection seen in the United States reported a recent history of nausea and vomiting on admission, and then diarrhea started [4]. The viral Nucleic Acids (NA) of his stool and both respiratory specimens later tested positive. Furthermore, viral NA in his saliva, not in nasopharyngeal aspirate, and following serial saliva specimens showed declines of viral load. All these findings reported in the recent studies have suggested a probable fecal-oral transmission with or without droplet transmission or direct route.

In other studies, different types of clinical specimens in patients with COVID-19 has been analyzed using Polymerase Chain Reaction (PCR), and found that 32% of pharyngeal swabs and 29% of faecal specimens were positive for the viral load [6,8]. The authors also cultured some of the positive faecal specimens with high copy numbers and showed live virus using electron microscopy. Then, they suggested that in some patients, although the virus has been cleared in the respiratory tract, its nuclear load continues to replicate in the GI tract and could be shed in faeces. However, the answers of questions such as why and how long the virus survives in the GI tract or faeces are still not known.

In conclusion, all clinicians should be alert on the initial digestive symptoms of COVID-19 for early detection, diagnosis, isolation, and treatment. One should also keep in the mind that GI symptoms might be the only indication of the disease.

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Citation: Unal E, Yılmaz UE, Yılmaz N. Gastrointestinal Manifestations of Coronavirus Disease 2019 (COVID-19) and its Potential Fecal-Oral Transmission. Clin Gastroenterol Int. 2021; 3(1): 1018.

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Publisher Name: Medtext Publications LLC

Manuscript compiled: May 31st, 2021

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