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1. Introduction

Being an epicenter of this catastrophic pandemic, much of the clinical knowledge and experience has been delivered by China to the world. In addition to different factors, the potential of SARS-CoV-2 virus to get transmitted through various routes and modes, would have considerably contributed to the current alarming situation around the globe. The available data has reported that besides respiratory, cardiovascular, neurologic and GI symptoms, SARS-CoV-2 can even result in ocular manifestations, with the symptoms varying from dry itchy eyes, epiphora, heperemia, chemosis, conjunctivitis or foreign body sensation. Colavita et al. has reported a case in which the viral replication was observed for over 20 days in the conjunctiva of the infected patient, that advocates the established fact that the survival time of virus can be longer than expected on several surfaces. In such a case, the possibility of a potential site for viral replication and transmission of the eye cannot be ruled out. Ocular surface, being exposed can acquire respiratory droplet infections and can serve as a gateway in their transmission. In a study, a few cases reported conjunctivitis to be the initial presentation of Covid-19 patients. But the chances remain low, as per clinical observation. This case report describes the patient infected with Covid-19, confirmed by PCR of the nasopharyngeal swab in whom SARS-CoV-2 RNA was detected in tears. Infected patient confirmed by real time-PCR by samples taken from nasopharynx, in whom, the virus has been detected conjunctiva as well, who developed ischemic stroke during their hospital stay.

2. Case report

A 70-year-old male, known diabetic, with no recent travel history, presented to emergency room (ER) with complaints of fever, cough and body aches for the past 10 days and shortness of breath for 01 day. His receiving vitals were Temp: 98°F, B.P: 110/80 mmHg, Pulse: 88 bpm, Respiratory rate: 25/min with 80% oxygen saturation on room air and 94% @ 15L via facemask. Neurological examination was GCS: 15/15, pupils bilateral equal and reactive to light, moving all four limbs. Systemic enquiry revealed bilateral coarse crepitations on chest auscultation, leaving rest of the examination unremarkable. Soon initial management, he was taken over by the covid-Isolation ward after PCR detected SARS CoV-2 infection in nasopharyngeal swab. Inflammatory markers including CRP, Serum ferritin, D-dimers, IL-6, Pro-calcitonin were sent along with all other baseline investigations (Table 1). HRCT was consistent with the findings of classic covid and showed large areas of ground glass opacities with septal thickening in bilateral lungs, more pronounced in lower lobes.

Keywords:
- Covid-19
- SARS-CoV-2
- Tears

Abstract

SARS-CoV-2 infections are transmitted through droplets or through direct contact with secretions from an infected person. The transmission of the virus through tears and other body secretions remains controversial. PCR detection of Covid-19 in the samples/swabs taken from nasopharynx, CSF fluid, and tears, clarifies that the virus may be transmitted through the modes other than aerosol droplets or direct contact. In order to control and prevent this infectious disease, cutting-off the route of transmission will be one of the most important steps. SARS-CoV-2 RNA has been detected in tears and conjunctival samples of patients. The ocular tropism of Covid-19 is still uncertain but contentious. © 2021 International Hemorrhagic Stroke Association. Publishing services by Elsevier B.V. on behalf of KeAi Communications Co. Ltd. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).
Colavita F, Lapa D, Carletti F, et al. SARS-CoV-2 isolation from ocular secretions of two patients with SARS-CoV-2 in ICU.

Beyond this, the cellular receptors e.g. angiotensin converting enzyme-2 (ACE-2) receptors also provide the doorway to all the coronaviruses including SARS-CoV-2 that can bind to it and then get distributed to various issues and cell types, including the conjunctiva. Sun et al. found ACE-2 receptors in cornea and conjunctival tissues. They also found that ACE-2 expression has been found to be located more in the cytoplasm of conjunctiva and corneal cells than on the cell membrane. The potential portal of entry for SARS-CoV-2 to cause an infection could be the eye, also the virus can be shed via ocular secretions and tears. Eyes can harbor the virus and then can act as a carrier.

This can be dangerous transmission mode and thus is of great consideration in order to protect clinicians especially ophthalmologists.

4. Conclusion

Based on the current evidence and analysis, the potential of SARS-CoV-2 transmission through ocular surfaces exists. Though the risk could be lower than that for respiratory tissues, but not inescapable. In order to curb the spread of SARS-CoV-2, the exact routes of transmission need to be explored further. And for protection and minimizing the transmission, eye protection should be one of the essential safeguards.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Ethics approval and consent

The study was approved by the institutional review board.

Consent for publication

Patient consented for the study and publication.

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