



CONJUNCTIVITIS PRESENTING AS SOLE SYMPTOM OF COVID-19

Neha Thakur and Dr. Pranidhi Sharda*

India.

*Corresponding Author: Dr. Pranidhi Sharda

India.

Article Received on 03/09/2022

Article Revised on 24/09/2022

Article Accepted on 14/10/2022

ABSTRACT

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a novel virus causing an ongoing pandemic in 2020. Although the symptomatic patients infected by SARS-CoV-2 generally show respiratory distress, atypical manifestations such as conjunctivitis are also observed. A series of cases are reported in which reverse transcriptase polymerase chain reaction (RT-PCR) testing on tears had demonstrated the presence of the virus. In this case report, we present a case where conjunctivitis was the sole symptom of Covid19 infection.

INTRODUCTION

COVID-19 is a highly contagious newly recognized infection that has a significant worldwide impact on mortality and economic morbidity. Generally, patients infected with SARS-CoV-2 develop respiratory illness, with the first symptoms of fever, cough, and fatigue that quickly progress to pneumonia. Several patients were observed with atypical manifestations at the onset of the illness, such as conjunctivitis, or even presented with asymptomatic infection. SARS-CoV-2 gains entry into host cells by bSARS-CoV-2 gains entry into host cells by binding to the angiotensin-converting enzyme 2 (ACE-2) receptor, which is distributed among various tissues, including the conjunctiva.^[1] Detection of viral RNA by reverse transcriptase polymerase chain reaction (RT-PCR) can be useful in early detection of SARS-CoV-2 infection and taking appropriate quarantine measures. Therefore, determining whether SARS-CoV-2 is capable of transmitting through contact with conjunctiva is an important consideration that warrants for exploration. Here, we present a case report of a patient who was diagnosed with COVID-19 who experienced conjunctivitis as the first and sole symptom of the disease.

CASE DESCRIPTION

A 36-year-old male presented to ophthalmology clinic history of one day of redness, stinging, watery discharge, and photophobia in his right eye. The patient had no symptoms of fever, cough, shortness of breath, or general malaise. He denied any history of travel to abroad in recent days. In his ophthalmic examination, the visual acuity was 20/20 for both eyes without correction. Intraocular pressure was 13mmHg on the right and 14mmHg on the left eye. Slit-lamp examination of the right eye revealed eyelid edema and serous secretion with 2+ conjunctival injection, mild chemosis, and follicular reaction in the upper and lower fornices. The

cornea was transparent, and no sign of inflammation was detected in the anterior chamber. Fundus examination revealed vital optic disc and macula. Anterior and posterior segment examination of the left eye was normal. Physical examination did not show any tenderness or enlargement of the submandibular, preauricular, or cervical lymph nodes. Considering acute conjunctivitis, moxifloxacin eye drop QID and artificial tears without preservative QID were prescribed for 7 days. 2 days later on followup, RTPCR was done and patient was found positive for that. Patient still had no other symptoms and was quarantined according to the protocol.

CONCLUSION

Ocular diseases caused by coronaviruses are relatively rare compared to adenovirus and influenza viruses.^[2] Although it is known that the main route of transmission of the SARS-CoV-2 is through the respiratory tract, several studies have raised concerns due to infection in the unprotected eyes. So far, it has not been clarified whether ocular secretions are contagious. Based on current literature, SARS-CoV-2 can be detected in the swab samples taken from the conjunctiva by the RT-PCR method. In a study of 30 COVID positive patients, conjunctivitis developed in one patient (3.3%), which was the only symptom during the disease.^[3] Conjunctival specimen taken at days 3 and 5 gave positive results for viral RNA in the same patient, whereas all other patients had negative results. Conjunctival secretion of the patient was also tested for Herpes simplex virus, adenovirus, and other common viruses of conjunctivitis. However, the results were all negative indicating that the viral conjunctivitis of the patient might be related to SARS-CoV-2. In contrast, another study suggested that the risk of SARS-CoV-2 transmission through tears was low. Among a total of 17 patients, only one patient had conjunctival injection and chemosis during the stay in

the hospital. Conjunctival RT-PCR tests conducted on day three and day 20 were negative for all patients. The virus has been incubated in cell culture, and no cytopathic effect has been determined.^[4] Studies have shown that SARS-CoV-2 needs ACE-2 receptors for cell invasion.^[1] The ACE-2 receptors are found not only in human type 2 alveolar epithelial cells but also in the cornea and conjunctiva.^[5] This suggests that ocular surface tissue may be a potential target tissue for SARS-CoV-2. Whether ocular contact with SARS-CoV-2 causes COVID-19 disease is unclear. However, according to one proposed theory, when the ocular surface comes into contact with SARS-CoV-2, virus particles can cause infection by draining the respiratory tract through the nasolacrimal canal.^[4] It is not yet known whether SARS-CoV-2 causes a more severe eye disease beyond keratoconjunctivitis. Fibroblasts are suggested to play a significant role in the damaged tissue leading to gliosis of the retinal pigment epithelium. In conclusion conjunctivitis may appear to be the only sign and symptom of COVID-19, and these patients may not have fever, fatigue, or respiratory symptoms that may cause suspicion. The patients are generally those who report contact with COVID positive patients and therefore undergo nasopharyngeal RT-PCR test. Thus, all physicians and ophthalmologists should be cautious when addressing a patient with conjunctivitis and adopt proper steps for the possible ocular transmission of SARS-CoV-2. The RT-PCR test for nasopharyngeal or conjunctival swabs may help in early diagnosis of the disease if patients have no symptoms other than conjunctivitis.

BIBLIOGRAPHY

1. Wan Y, Shang J, Graham R, et al. Receptor Recognition by the Novel Coronavirus from Wuhan: An Analysis Based on Decade-Long Structural Studies of SARS Coronavirus. *J Virol*, 2020; 94(7): e00127-20.
2. Belser JA, Rota PA and Tumpey TM. Ocular tropism of respiratory viruses. *Microbiol Mol Biol Rev.*, 2013; 77: 144–56.
3. Xia J, Tong J, Liu M, Shen Y and Guo D. Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection [published online ahead of print, 2020 Feb 26]. *J Med Virol.*, 2020.
4. Seah I and Agrawal R. Can the Coronavirus Disease 2019 (COVID-19) Affect the Eyes? A Review of Coronaviruses and Ocular Implications in Humans and Animals. *Ocul Immunol Inflamm*, 2020; 28(3): 391-395.
5. Zou X, Chen K and Zou J, et al. Single-cell RNA-seq data analysis on the receptor ACE2 expression reveals the potential risk of different human organs vulnerable to 2019-nCoV infection. *Front Med.*, 2020; 14(2): 185-192.