

LETTER

Novel corona virus disease (COVID-19) and ophthalmic manifestations: Clinical evidences

Dear Editor,

The World Health Organization has announced coronavirus disease (COVID-19) outbreak as a global emergency. Coronavirus is a large family of viruses (enveloped, single-stranded RNA viruses), which includes Middle East respiratory syndrome-related coronavirus and severe acute respiratory syndrome coronavirus (SARS-CoV-2).¹ COVID-19 mainly affects respiratory and gastrointestinal tract in humans and shows its life-threatening effects. Ocular tissues or secretions can alternatively transmit the virus.

The first case of ocular manifestation of COVID-19 patients was reported in a 60-year-old man admitted to the intensive care unit with influenza-like and other acute respiratory syndromes. After a period of 19 days, petechiae, tarsal hemorrhage, mucous filaments, and tarsal pseudomembranous were observed in the eyes of the patient. However, microbial growth (bacteria or virus) was not observed in the conjunctival scraping and the ocular swab sample analysis.² In Zhejiang University Hospital, China, 2 out of 30 COVID-19-positive patients had tear and conjunctival secretions. The study reported that patients with conjunctivitis have more risk to get infected with COVID-19.³ Wu et al reported that 12 out of 38 COVID-19-infected patients had symptoms of ocular manifestations. The serious clinical manifestations were epiphora, conjunctive swelling, or chemosis. Reverse transcriptase-polymerase chain reaction (RT-PCR) test results were positive for COVID-19 in 28 patients. Nasopharyngeal swabs, conjunctival swabs, and many more significant changes in blood test values appeared in patients with ocular abnormalities.⁴

In a study population of 534 positive cases of COVID-19, 25 patients had conjunctival congestion, 112 patients had dry eyes, and 68 patients had blurred vision. A total of 332 out of 534 patients had a history of hand-eye contact and eye disease. Conjunctival congestion was the main ocular symptoms in COVID-19 patients.⁵ Twelve out of 38 hospitalized COVID-19 infected patients had eye-related issues such as epiphora, inflammation and swelling of the conjunctiva, conjunctiva hyperemia, and eye secretion. However, no patient had blurred vision.⁶ Xie et al reported one patient out of 30 had conjunctivitis. However, at the time of testing, there was no sign of severe fever or respiratory-related problem.³

A 30-year-old patient in China had initial symptoms of sore throat and diarrhea followed by the development of pulmonary symptoms. The patient was treated for COVID-19. However, after 13 days of treatment, eye redness was developed with tearing and sensation of foreign body in eyes. Slit lamp examination confirmed conjunctival infection, watery discharge, and palpebral conjunctival follicles. The

conjunctival swabs tested positive on RT-PCR test for SARS-CoV-2. On the 17th day of treatment, ribavirin eye drop was prescribed, which decreased the symptoms of conjunctival. Ocular symptoms minimized on day 19 of the treatment and negative RT-PCR test was reported.⁷ Loon et al collected 36 samples from SARS-CoV-2-suspected patients in Singapore and examined using real-time RT-PCR test. The study reported three SARS-CoV-2 RNA-positive results in ocular tissues and secretions. SARS-CoV-2 can be transmitted to the respiratory tract through droplets. The anterior segment pathologies such as conjunctivitis and anterior uveitis to sight-threatening conditions such as retinitis and optic neuritis were observed in ocular manifestations.⁸ In North America, a 29-year-old woman reported with red eyes and watery discharge, but do not have mild respiratory symptoms and fever. Test of conjunctival swabs confirmed that the patient had keratoconjunctivitis with SARS-CoV-2.⁹

These cases emphasize the importance for eye care professionals to remain vigilant and consider SARS-CoV-2 as the causative agent in patients presenting with viral conjunctivitis, particularly in high-risk patients with travel to areas of active transmission of the virus.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTIONS

R.A. and R.M. conceived and designed the study. G.S., P.K.S., and R.M. were responsible for literature search and screening. G.S., P.K.S., R.M. and R.A. were responsible for data collection. R.M. and R.A. contributed to data interpretation. G.S., P.K.S., R.M., and R.A. drafted the manuscript and R.A. analyzed and critically revised the manuscript.

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