

Ocular Findings and Coronavirus: A Review Report

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Abstract

The route of transmission of COVID-19 is not yet fully understood but is thought to be mainly respiratory. The primary symptoms of COVID - 19 include fever, sore throat and loss of appetite. In severe condition it causes difficulty in breathing. There have been enormous evidences through case study that the patient having positive to COVID - 19 had ocular finding such as Conjunctivitis, Conjunctival Hyperaemia, Lacrimation (epiphora), Chemosis. Similarly, it has also been suggested that redness in the eye associated with fever can be a poor sign of COVID- 19 . The RT-PCR should be performed in this case. Eye care practitioner along with patient should take the safety measures to minimize the risk of transmission via person to person. Additional, Invasive ophthalmic procedure like Applanation Tonometry, Gonioscopy should be avoided .

Keywords: Coronavirus; Ocular findings; COVID-19; Conjunctivitis; RT-PCR

Introduction

According to WHO (World Health Organisation) , the total infected cases of Corona virus disease is 6 million worldwide with 3% of mortality rate as of June 2020 [1] .Since December 2019, corona virus disease 2019 (COVID-19) has been reported among patients in China. Currently, the disease is quickly spreading worldwide. The pathogen of COVID-19 is a novel corona virus (severe acute respiratory syndrome Corona virus, identified as a member of the Coronaviridae family. Another corona virus, named SARS, was responsible for severe acute respiratory syndrome [2]. The route of transmission of COVID-19 is not yet fully understood but is thought to be mainly respiratory [3], and evidence thus far suggests human transmission, with the potential for efficient human transmission [4]. Researchers have not reported ocular abnormalities nor have they stated in the medical literature if there was conjunctivitis or viral presence detected in the tears of patients with COVID-19.

Reviewing Strategies

A literature search was conducted through Pubmed and Google Scholar with the search keywords like Corona virus, Ocular Surface, Conjunctivitis. The abstracts of all these documents were read, and those dealing with any corona virus and the ocular surface tissues or conjunctivitis were downloaded and reviewed. In addition, the references contained in these downloaded documents were examined for other sources of information that would be pertinent to the review.

Ocular Signs Related to Corona Virus

An evidence of 65-years-old patient visited to the ophthalmologist with a complain of redness, stickiness and watering for two days. Systemic history reveal of Diabetes Mellitus. He refused to have fever, cough, or any other symptoms. The body temperature was 36.8°C and 36.9°C during first visit. Slit lamp examination showed mucous

discharge and follicular conjunctivitis [5]. The patient was diagnosed as a case of viral conjunctivitis and topical medication along with lubricating eye drops were given. The patient visited after 2 days with sudden-onset of fever, cough, and breathing difficulty. A CT-SCAN of the chest revealed bilateral ground glass opacity of the lungs. The real-time reverse transcription polymerase chain reaction (RT-PCR) of the nasopharyngeal swab was positive to COVID-19.

Similarly, another case report [6] of a 65 year old woman visited to the hospital with the complain of dry cough, sore throat, and conjunctivitis. Travel history of the patient reveals of returning to Italy from Wuhan, China. The patient was admitted to hospital after six days of returning. Conjunctivitis didn't heal for sixteen days. The swab was tested positive for COVID - 19.

In a study on Hubei Province [7], China among 38 patients to understand the ocular finding in the patient with Corona virus disease, 12 patient reports conjunctivitis, including conjunctival hyperaemia, chemosis, epiphora, and increased secretions (epiphora). In addition, 11 of 12 patients with ocular abnormalities had positive results for n-COV on RT-PCR from nasopharyngeal swabs. Of these, 2 (16.7%) had positive results for n-COV on RT-PCR from both conjunctival and nasopharyngeal swabs.

Similarly, 10 percent of the total patient tested positive for COVID - 19 in Wuhan, China had been observed having bilateral Conjunctivitis. A total of 30 patient were diagnosed with COVID-19 .One of three patient were having redness with blurring of vision before the swab report [8]. Another patient who had uveitis for five years prior to COVID-19, had a dry cough and tiredness before noticing redness with foreign body sensation, with conjunctivitis as a ocular sign. The third patient developed conjunctivitis three days after being admitted to hospital with COVID-19.

Another case study of 27-year-old man had a conversation with Ophthalmologist with a complain of redness associated with foreign bodies sensation in the left eye through telemedicine in Argentina during Corona virus Disease 2019 (COVID-19) pandemic [9]. There was no systemic history. Personal history was not significant. External examination showed unilateral edema and tenderness in the eyelids

with conjunctival hyperaemia. The patient was given topical antibiotics along with steroids. The patient developed sudden rise in body temperature (39°C) after three hours and difficulty in breathing after twelve hours of consultation. The naso-pharynx swabs of the patient resulted positive for COVID -19 by RT-PCR.

However, ocular manifestations during COVID-19 have not been the centre of attention by emerging guidelines [10,11]. Ranging from conjunctival hyperaemia, hyper secretion, chemosis, epiphora, ocular secretions might be a poor source for testing of COVID-19.

Conclusion

Eye-care practitioners and patients should take precautionary steps during the COVID-19 pandemic to minimize viral transmission through person-to-person contact. Though, many research studies have revealed that the virus does not always bind to the ocular surface to initiate the infection. However, ocular sign like non healing conjunctivitis can be a attentive sign for the individual for the COVID -19.

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