

Letter to Editor

Association of Covid-19 with Conjunctivitis

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Corona Virus Disease 2019 (COVID-19) is caused by the highly transmissible Severe Acute Respiratory Syndrome Corona Virus 2 (SARS-CoV-2). The key to combating this disease besides prevention is rapid and early diagnoses of cases, which includes identification of atypical presentations of this respiratory illness. We have attempted to collect information on the ophthalmological manifestations of COVID-19 for identifying such symptoms, providing diagnostic pearls, and hence mitigating transmission.

There have been several reports suggesting that SARS-CoV-2 can cause conjunctivitis, either as an early sign of infection, or during hospitalization for severe COVID-19 disease. As conjunctivitis is amongst the most common disease that ophthalmologists see in the outpatient department, ophthalmologists may be amongst the first to evaluate and hint a diagnosis of a patient with COVID-19 and mitigating transmission.

The virus is believed to spread primarily through respiratory droplets produced when an infected person coughs or sneezes. Recently, few studies have been conducted where SARS-CoV-2 has been isolated from the in tear samples in patients, prompting a concern that respiratory illness could be transmitted through ocular secretions. This knowledge is not only essential amongst the front lines workers triaging what could be initial symptoms of COVID-19, but also could be a major source of transmission from COVID patients to healthcare workers. Summarized below in table 1 is a list of studies.

Author	Type of study	Study population	Observation	Methodology/Sample collection	Outcome	Inference
Ping Wu et al., [1]	Retrospective case series	38 clinically confirmed hospitalized cases of COVID-19 in Hubei Province, China	12 of 38 patients had ocular manifestations consistent with conjunctivitis (conjunctival hyperemia, chemosis, epiphora, increased secretions). 1 patient had epiphora as the first symptom of COVID-19.	Nasopharyngeal and conjunctival swabs for RT-PCR	28 patients (73.7%) had positive findings for COVID-19 on RT-PCR from nasopharyngeal swabs, of these, 2 patients (5.2%) yielded positive findings for SARS-CoV-2 in their conjunctival and nasopharyngeal swabs.	31.6% COVID patients have ocular abnormalities, with most among patients with more severe systemic manifestations or abnormal findings on blood tests.
Loffredo et al., [2]	Meta-analysis	Three studies, including 1167 patients	Patients reported the incidence of conjunctivitis at admission to the hospital.	Meta-analysis with studies that included patients with severe vs non-severe form of COVID-19 infection.	The overall rate of conjunctivitis was 1.1%; it was 3% and 0.7% in severe and non-severe COVID-19 patients	Conjunctivitis is more frequent in severe COVID and may be a warning sign of poor outcomes.
Xia et al., [3]	Prospective case series	30 patients hospitalized for COVID-19	1 had conjunctivitis	Tear and conjunctival secretions for RT-PCR	SARS-CoV-2 RNA present in ocular secretions	Infectious viral particles might be present in tears of COVID-19 patients with conjunctivitis.
Guan et al., [4]	Retrospective review	1,099 confirmed hospitalized COVID-19 patients from 30 hospitals across China	9 of 1,099 patients (0.8%) had conjunctival congestion	Tears were not sampled		

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Zhang et al., [5]	Cross-sectional study	72 confirmed COVID-19 patients at Tongji Medical College	2 patients had conjunctivitis	Ocular discharges for RT-PCR	SARS-CoV-2 RNA in isolated from tears in one patient out of two conjunctivitis patients	Nosocomial infection of SARS-CoV-2 through the eyes after occupational exposure is a potential route
Zhou et al., [6]	Cross-sectional study	121 patients with confirmed COVID-19	Eight patients (6.6%) showed ocular symptoms	Conjunctival swab for RT-PCR	1 out of 8 showed positive results for SARS-CoV-2 in the conjunctiva. Two patients without ocular symptoms showed positive results for conjunctival SARS-CoV-2	Conjunctival transmission of SARS-CoV-2 is a possibility
Hong et al., [7]	Prospective cohort	56 patients infected with SARS-CoV-2	Fifteen (27%) had aggravated ocular symptoms, of which 6 (11%) had prodromal ocular symptoms before disease onset. Two subjects had conjunctivitis after hospitalization.	Ocular Surface Disease Index (OSDI) and Salisbury Eye Evaluation Questionnaire (SEEQ) were used to assess the anterior ocular surface condition before and after the onset of disease along with conjunctival swab for RT-PCR	The differences in mean scores of OSDI questionnaire and SEEQ between before and after onset of COVID-19 were all significant. Conjunctival swab sample from one patient showed positive virus RNA detection	Ocular symptoms are relatively common in COVID-19 disease and may appear just before the onset of respiratory symptoms.

Table 1: List of studies reporting the association of conjunctivitis in Covid-19 patients.

Therefore, protecting your mouth, nose (e.g., an N95 mask) and eyes (e.g., goggles or shield) is recommended when caring for patients potentially infected with COVID-19 due to risk of ocular transmission.

Author's Contribution

All the authors made substantial contributions to the conceptualization, design of work, data acquisition, validation, drafting the work or revising it critically. All the authors have read and approved the final version of the manuscript and agreed to be accountable for all aspects presented in the article.

Declarations of Interest

The authors have no conflicts of interests to declare

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References

1. Wu P, Duan F, Luo C, Liu Q, Qu X, et al. (2020) Characteristics of Ocular Findings of Patients With Coronavirus Disease 2019 (COVID-19) in Hubei Province, China. *JAMA Ophthalmol* 2020: 1291.

2. Loffredo L, Pacella F, Pacella E, Tiscione G, Oliva A, et al. (2020) Conjunctivitis and COVID-19: a meta-analysis. *J Med Virol*.

3. Xia J, Tong J, Liu M, Shen Y, Guo D (2020) Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection. *J Med Virol*.

4. Guan W, Ni Z, Hu Y, Liang W, Ou C, et al. (2020) Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine* 382:1708-1720.

5. Zhang X, Chen X, Chen L, Deng C, Zou X, et al. (2020) The evidence of SARS-CoV-2 infection on ocular surface. *Ocul Surf*.

6. Zhou Y, Duan C, Zeng Y, Tong Y, Nie Y, et al. (2020) Ocular Findings and Proportion with Conjunctival SARS-COV-2 in COVID-19 Patients. *Ophthalmology* 2020.

7. Hong N, Yu W, Xia J, Shen Y, Yap M, et al. (2020) Evaluation of ocular symptoms and tropism of SARS-CoV-2 in patients confirmed with COVID-19. *Acta Ophthalmol*: 14445.



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