



## Eye and the COVID-19

Raj Kumar

Department of Optometry, Chandigarh University, NH-95 Chandigarh-Ludhiana highway, Mohali, Punjab-140413, India

[optomrajlvpei@gmail.com](mailto:optomrajlvpei@gmail.com) (Corresponding Author)

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### ABSTRACT

Unusual appearances of COVID-19 (2019 novel corona virus) infected persons. The early epicenter of the pandemic, Wuhan, China has obtained medical and scientific information and knowledge in response to the infection of COVID-19. On thirteen case series and nine case-based reports, I want to put five significant facts of ophthalmic indicators of COVID-19 infected persons, hopefully, to deliver the fresh view as well as a wider perspective of COVID-19 infection.

#### Keywords:

COVID-19, SARS-CoV-2, Pink eye, Optometry/ophthalmic practice, Healthcare professional, Tear droplet



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1. SARS-CoV-2 may reason for ophthalmic demonstrations. Infected persons mostly being with pink eye (conjunctivitis) in order to be other kinds of epidemiologic diseases (Huang et al., 2020). The firstly huge epidemiological survey described nine situations of conjunctivitis amongst one thousand ninety-nine patients in China (Guan et al., 2020). Additional indications were conjunctival discharge, watering, itching, dry eye, and foreign body sensation with the dispersion range of 0.5% to 32%. But, nowadays concern protocol saw retinal damage of micro hemorrhages in addition to cotton wool spots among the four infected persons, suggestive of possible neurological demonstrations (Marinho et al., 2020).

2. The features of ophthalmic participation are unusual. Ophthalmic appearances may be as early as well as the just indications of the diseases. The original circumstance alarms a Chinese professional, who suffered to the disease in China, Wuhan with a pink eye at the beginning of pneumonia (Xuan, 2020, January 23). Ophthalmic participations are much eventual to existing in the study of COVID-19

concern, in addition here is not all gender or age choice. To our information, the youngest concern was a thirty-four months-old male, who get pink eye and lid eczema as the first manifestation (Wu, Liang, Chen & Nie, 2020). As well, SARS-CoV-2 may live at ophthalmic superficies time-consuming than predictable. Colavita et al. described an incident by constant viral repetition on the conjunctival surface for over three weeks, representing an extensive survival period than during the nasal-pharynx.

3. SARS-CoV-2 spread through the ocular part should not be Neglected (Lu, Liu & Jia, 2020). A many of character might be transferor in the eye like a probable residence in order to viral diseases as well as transmission. The naso-lacrimal structure has delivered a structural link in lieu of viral diseases like; severe acute respiratory syndrome coronavirus-2 entrance through the respirational system to fornix of the eye. Earlier surveys have identified respiratory viruses as influenza and adenovirus virus at the naso-lacrimal soft tissue also found at the conjunctival plane, pointing the discernible transmission from the inherent path (Belser, Rota

& Tumpey, 2013). And on the other side, the ophthalmic plane, and teardrop is probable places in order to SARS-CoV-2 settlement. SARS-CoV-2 may tag from ACE2 (angiotensin-converting enzyme 2) cellular receptor plus interconnect by TMPRSS2 (transmembrane protease, serine 2) by cloud cell, which is recognized from being articulate at the human conjunctival epithelium, cornea, and retina (Hoffmann et al., 2020).

4. The sensitivity of SARS-CoV-2 recognition into infected persons' conjunctiva is about two to seven percent. The comparatively inferior and unsettled viral charge at the conjunctival fornix, apart from this identifying methods and specimen period might make an impression of the outcomes significantly. While there are not unified norms pro conjunctival SARS-CoV-2 finding, it is contemplated that the conjunctival fornix swab method has produced greater susceptibility above the Schirmer's test. But, additional perusal is necessary for respect of the perfect announcement.

5. Correct utilization of eligible PPE (personal protective equipment) is essential. Not at all evidence has made to known the defensive impact of CL (contact lenses) and personal eyeglasses. All health care persons must wear face shields, masks, and safety glasses/protective goggles. For optometrist/ophthalmologists, especially Slit Lamp Biomicroscopy shields are more dominant to stave off cross-infection from COVID-19.

## References

- Belser, J.A., Rota, P.A., & Tumpey, T.M. (2013). Ocular tropism of respiratory viruses. *Microbiology and Molecular Biology Reviews*, 77(1), 144–156. <https://doi.org/10.1128/MMBR.00058-12>
- Colavita, F., Lapa, D., Carletti, F., Lalle, E., et al. (2020). SARS-CoV-2 Isolation From Ocular Secretions of a Patient With COVID-19 in Italy With Prolonged Viral RNA Detection. *Annals of Internal Medicine* 173(3), 242-243. <https://doi.org/10.7326/M20-1176>.
- Guan, W.-J., et al. (2020). Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*, 382, 1708-1720. <https://doi.org/10.1056/NEJMoa2002032>
- Hoffmann, M., Kleine-Weber, H., Schroeder, S., Krüger, N., Herrler, T., Erichsen, S., Schiergens, T.S., Herrler, G., Wu, N.-H., Nitsche, A., Müller, M.A., Drosten, C., & Pöhlmann, S. (2020). SARS-CoV-2 Cell Entry Depends on ACE2 and TMPRSS2 and Is Blocked by a Clinically Proven Protease Inhibitor. *Cell*, 181(2), 271–280. <https://doi.org/10.1016/j.cell.2020.02.052>
- Huang, L., et al. (2020). Rapid asymptomatic transmission of COVID-19 during the incubation period demonstrating strong infectivity in a cluster of youngsters aged 16-23 years outside Wuhan and characteristics of young patients with COVID-19: A prospective contact-tracing study. *Journal of Infection*, 80(6), E1-E13. <https://doi.org/10.1016/j.jinf.2020.03.006>
- Lu, C.-W., Liu, X.-F., & Jia, Z.-F. (2020). 2019-nCoV transmission through the ocular surface must not be ignored. *The Lancet*, 395(10224), E39. [https://doi.org/10.1016/S0140-6736\(20\)30313-5](https://doi.org/10.1016/S0140-6736(20)30313-5)
- Marinho, P.M., Marcos, A.A.A., Romano, A.C., Nascimento, H., & Belfort Jr, R. (2020). Retinal findings in patients with COVID-19. *The Lancet*, 395(10237), 1610. [https://doi.org/10.1016/S0140-6736\(20\)31014-X](https://doi.org/10.1016/S0140-6736(20)31014-X)
- Wu, P., et al. (2020). Characteristics of Ocular Findings of Patients with Coronavirus Disease 2019 (COVID-19) in Hubei Province, China. *JAMA Ophthalmology*, 138(5), 575-578. <https://doi.org/10.1001/jamaophthalmol.2020.1291>
- Wu, P., Liang, L., Chen, C., & Nie, S. (2020). A child confirmed COVID-19 with only symptoms of conjunctivitis and eyelid dermatitis. *Graefes Archive for Clinical and Experimental Ophthalmology*, 258, 1565-1566. <https://doi.org/10.1007/s00417-020-04708-6>
- Xuan, D. (2020, January 23). Wang Guangfa of Peking University Hospital disclosed the treatment situation on Weibo, suspected of causing infection without wearing goggles. Retrieved from <http://www.bjnews.com.cn/news/2020/01/23/678189.html>



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Chitkara University, Saraswati Kendra, SCO 160-161, Sector 9-C,  
Chandigarh, 160009, India

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