

## **Case report**

# **Blink of an Eye: A case report and literature review**

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### **ABSTRACT**

We report here the case of a 36-year-old male emergency physician contracting the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) while performing endotracheal intubation on a coronavirus disease 2019 (COVID-19) positive patient with conjunctivitis as the sole symptom. On the day of exposure, a conjunctival swab was collected from both eyes which turned out to be negative. But, a nasopharyngeal swab sampled on the third day of exposure gave a positive result with cycle threshold (CT) value of 16. The physician was already vaccinated with two doses of ChAdox1 nCoV-19 vaccine, with a second dose taken 81 days prior to exposure. This case report demonstrates that conjunctivitis can be the sole manifestation of COVID-19 infection. It further reiterates the importance of Personal Protective Equipments (PPEs), goggles, and face shields at the time of intubation and more specifically to all vaccinated emergency physicians, intensive care specialists, and ophthalmologists to be more cautious if a patient is presented with a sole symptom of conjunctivitis.

*Keywords: COVID-19; intubation; conjunctivitis; India.*

### **1. INTRODUCTION**

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a novel single-stranded enveloped RNA beta-coronavirus genus of the Coronaviridae family causing coronavirus disease 2019 (COVID-19), has brought the economies of several developed countries into the jolt. With a population of 1.3 billion, India has already reported 42,894,345 confirmed cases, with 513,226 deaths significantly impacted by all economic drivers [1]. Fuelled by the newer variants of SARS-CoV-2, the surge in the number of cases has posed an unprecedented challenge for healthcare workers (HCWs). As per the National Guidelines for Infection Prevention and Control in Healthcare Facilities released by the Ministry of Health and Family Welfare [2], the Government of India mentioned aerosol-generating procedures (AGPs) like bronchoscopy, sputum induction, airway suctioning, manual ventilation, and endotracheal intubation has an increased risk potential for pathogen transmission of SARS-CoV-2. Health care personnel, especially emergency physicians and intensive care specialists, who are directly in contact with suspected or confirmed COVID-19 disease routinely participate in invasive procedures that may release infectious aerosols. Theoretically, angiotensin-converting enzyme II (ACE2) receptors in the cornea and conjunctiva could serve as a portal of entry and a reservoir for viral transmission [3]. Several ocular manifestations have already emerged as studies have already detected SARS-CoV-2 RNA in tears as well as conjunctival secretions in positive COVID-19 patients [4]. As per the World Health Organization (WHO), HCWs accounted for 1707 (21%) out of 8098 cases during the SARS outbreak in 2002 [5]. Such previous experiences force us to ensure the HCWs' safety and continuously evaluate the newer transmission mode through which viral

transmission can occur. However, studies on the infection status of medical personnel are still lacking. To break-the chain in the initial stage, we need to isolate patients with rare manifestations like conjunctivitis that are often overlooked. Here, we present a case report of a fully vaccinated Emergency Physician (EP) contracting the SARS-CoV-2 virus while performing endotracheal intubation on a COVID-19 positive patient with conjunctivitis as the sole symptom.

## 2. PRESENTATION OF CASE

A 36-year-old male EP involved in the care of patients with COVID-19 in a Quaternary-care level COVID-19 hospital developed unilateral conjunctivitis. Mental state, diet, and sleep were fair, with regular bladder and bowel habits. The physician was already vaccinated with two doses of ChAdox1 nCoV-19 vaccine, with a second dose taken 81 days prior to viral infection. There was no history of SARS-CoV-2 infection, no one infected in the family, and no history suggestive of any comorbidity, known allergies, or hospitalization in the past. Three days prior to the onset of symptom, occupational exposure was documented in the form of aerosol droplet entry into the right eye while the physician was performing endotracheal intubation on one of the critical COVID-19 positive patient. 1 drop of Povidone Iodine 0.5% was instilled in the right eye immediately, followed by Moxifloxacin eye drops 0.5% one drop 4 times/day for 7 days' duration.

A conjunctival swab was collected from both eyes in a standard vial containing viral transport media and for rapid antigen testing on the next day of exposure which turned out to be negative. A nasopharyngeal swab was collected in a standard vial containing viral transport media and sent under the cold chain to COVID-19 testing laboratory recognized by the Indian Council of Medical Research (ICMR) for reverse transcription-polymerase chain reaction (RT-PCR) testing on the third day, which gave a positive result with cycle threshold (CT) value of 16. As the patient was vaccinated, the SARS-CoV-2 immunoglobulin G (IgG) antibody test was the sent on the first day, which came positive with a value of 81 (negative is less than 15). The patient was regularly followed-up through telemedicine and was advised for self-monitoring of temperature, respiratory rate, heart rate, and SpO<sub>2</sub> using portable pulse oximeter. The patient was started on oral antibiotics, antivirals, decongestant, proton pump inhibitors, antiplatelets, multivitamins, antipyretic drugs and other supportive therapy like steam inhalation, deep breathing exercises, incentive spirometry. The patient had a persistent symptom of conjunctivitis with occasional dry cough for 14 days. Blood tests were monitored every 72 hours, which were within normal limits. A repeat conjunctival swab was sent on day 6 for RT-PCR, which again came out positive. No changes in oxygen saturation was noticed throughout the disease. The patient recovered completely on the 16th day from the onset of symptoms.

Written informed consent was obtained from the patient to publish his case in the journal.

## 3. DISCUSSION

Endotracheal intubation is regarded as a high-risk procedure for viral transmission. Insight from the past investigations has revealed several principal respiratory viruses like species D adenoviruses and subtype H7 influenza viruses are capable of causing ocular complications in infected individuals [6]. Still, the studies pertaining to ocular disease due to respiratory pathogens are underreported. Ozturker et al reported conjunctivitis as the sole symptom of COVID-19 in a 32-year-old HCW employed in the emergency department (ED). The patient declared that he had to remove his protective eyewear during the interventions [7]. Zhou et al, in their retrospective study on 67 confirmed or suspected cases of COVID-19, reported a 48 years old female anesthesiologist who developed ocular symptoms after performing

intubation wearing only an ordinary surgical mask, hats, and gloves but without wearing goggles [8]. However, data from the same study did not support the viral transmission via the conjunctival route. Scalinci and Trovato in their study, also reported five atypical clinical presentations of COVID-19 patients with no fever, general malaise, or respiratory symptoms but presented only with non-remitting conjunctivitis. The infection in these five patients were confirmed by RT-PCR on nasopharyngeal specimens (CT value range: 17 – 22) [9]. Hamzeh MA et al reported a 20-year-old male patient without any significant past medical history presented with conjunctivitis as a sole sign & symptom of COVID-19. However, 7 days before the presentation, the patient had a history of close contact with his friend diagnosed with COVID-19 [10]. Eid and Al Khalaf also reported a case of a 27-year-old male who presented to the ED with a complaint of increased lacrimation and right eye redness. The patient had no signs of respiratory symptoms or fever but had a history of close contact with a COVID-19 positive patient before six days [11]. Ocular symptoms as a reliable indicator for SARS-CoV-2 is still under the radar and needs further validation. It would be correct to justify that prevention is better than cure, and this requires early identification and isolation of cases that can potentially create high chances of HCWs being exposed to COVID-19.

#### **4. CONCLUSION**

As a moral obligation, the authors, through this report, would like to suggest all vaccinated emergency physicians, intensive care specialists, and ophthalmologists (due to proximity during slit lamp test) to be more cautious if a patient is presented with a sole symptom of conjunctivitis. Such patients should be directed for the RT-PCR test either by nasopharyngeal or conjunctival swabs, which can help in the early diagnosis of the disease. The authors would like to reiterate the importance of Personal Protective Equipments (PPEs), goggles, and face shields at the time of intubation or other AGPs.

#### **CONSENT**

"All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editorial office/Chief Editor/Editorial Board members of this journal."

#### **ETHICAL APPROVAL (WHERE EVER APPLICABLE)**

"All authors hereby declare that all experiments have been examined and approved by the appropriate ethics committee and have therefore been performed in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki."

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