Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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ORIGINAL ARTICLE

Ocular manifestation as first sign of Coronavirus Disease 2019 (COVID-19): Interest of telemedicine during the pandemic context

Présentation oculaire inaugurale du COVID-19 (Coronavirus Disease 2019) : intérêt de la télémédecine dans un contexte de pandémie

A. Daruich [a,b], D. Martin [c], D. Bremond-Gignac [a,b,*]

[a] *Ophthalmology department, hôpital universitaire Necker—Enfants Malades, AP—HP université de Paris, 149, rue de Sèvres, 75015 Paris, France*
[b] *INSERM, UMRS1138, Team 17, From physiopathology of ocular diseases to clinical development, université Sorbonne Paris Cité, Centre de recherche des cordeliers, 15, rue de l'école de médecine, Paris, France*
[c] *Instituto de ojos y oídos, avenida Belgrano 647, Resistencia, Chaco, Argentina*

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Summary We report here the case of a 27-year-old man who consulted by telemedicine during the Coronavirus disease 2019 (COVID-19) pandemic, due to foreign body sensation and left eye redness. Examination revealed unilateral eyelid edema and moderate conjunctival hyperemia. A few hours later, the patient experienced intense headache and developed fever, cough and severe dyspnea. A nasopharyngeal swab proved positive for SARS-CoV-2. This case demonstrates that conjunctivitis can be the inaugural manifestation of the COVID-19 infection. It illustrates the interest of telemedicine in ophthalmology during the COVID-19 pandemic, since moderate conjunctival hyperemia can be the first sign of a severe respiratory distress.

* Corresponding author at: Ophthalmology department, hôpital universitaire Necker—enfants malades, AP—HP université de Paris, 149, rue de Sèvres, 75015 Paris, France.
Adresse e-mail : dominique.bremond@aphp.fr (D. Bremond-Gignac).

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MOTS CLÉS
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Résumé Nous rapportons le cas d'un homme de 27 ans qui a consulté par télémédecine lors de la pandémie de Coronavirus Disease 2019 (COVID-19), pour une sensation de corps étranger et une rougeur à l'œil gauche. L'examen a révélé un œdème palpébral unilatéral et une hyperémie conjonctivale diffuse modérée. Quelques heures plus tard, le patient a présenté des céphalées intenses, de la fièvre, de la toux et une dyspnée sévère, et une PCR nasopharyngée est revenue positive au SARS-CoV-2, posant le diagnostic de COVID-19. Ce cas démontre la possibilité d'une conjonctivite inaugurale lors de l'infection COVID-19. Il illustre l'intérêt de la télémédecine en ophtalmologie lors de la pandémie, une hyperémie conjonctivale modérée pouvant être le premier signe d'une détresse respiratoire sévère.

Introduction

Since the Coronavirus Disease 2019 (COVID-19) emergence on December 2019 in Wuhan, China, there have been anecdotal reports of ocular manifestations in patients infected by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) [1]. In a large study including 1099 hospitalised patients with laboratory-confirmed COVID-19 from 30 hospitals in China, conjunctival congestion was documented in 9 patients (0.8%) [2]. In a report of 38 hospitalised patients diagnosed clinically as COVID-19, one third had ocular abnormalities, including conjunctival hyperemia, chemosis, epiphora, and increased secretions [3]. Ocular manifestations were mostly reported during the middle phase of the disease, and in patients with severe pneumonia [3]. More severe ocular manifestations as anterior uveitis, retinitis, and optic neuritis have been only documented in animal models [4].

Telemedicine has been implemented worldwide in response of COVID-19 pandemic to bring medical care to patients while attempting to reduce the transmission of SARS-CoV-2 to patients, families, and healthcare staff [5–7].

We present here the case of an otherwise healthy patient who consulted by telemedicine for ocular manifestations, and presented shortly thereafter a PCR-proven COVID-19.

Case presentation

A 27-year-old man consulted his ophthalmologist by telemedicine in Argentina during Coronavirus Disease 2019 (COVID-19) pandemic, because of foreign body sensation and red left eye. The patient did not present epiphora, secretion or decreased vision. There were no systemic symptoms. Personal history was unremarkable and he was a non-smoker sportsman. External examination revealed unilateral eyelid edema and moderate conjunctival hyperemia (Fig. 1). A topical association of antibiotic and corticoids was prescribed. Three hours later, the patient presented severe headache and fever at 39 °C and he developed 12 hours later a cough and severe dyspnea impairing speech. RT-PCR from nasopharyngeal swabs resulted positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Eleven days later, a second consultation by telemedicine showed that ocular signs had resolved. Dyspnea and cough were less severe but still present.

Discussion

We present here a case that illustrates the interest of telemedicine in an ophthalmological setting during the COVID-19 pandemic, where moderate conjunctival hyperemia was the presenting sign of the infection that rapidly progressed to respiratory distress. Ocular anomalies, including acute follicular conjunctivitis [8], conjunctival hyperemia, chemosis, epiphora, and increased secretions have been reported in patients with COVID-19 [3]. These manifestations have been observed to occur more frequently in patients with severe pneumonia and during the middle phase of illness [3] with only 1 patient in a series of 38 cases presenting with conjunctivitis as the initial manifestation of the disease [3]. Interestingly, in the present case, ocular symptoms were the first manifestation of the disease that progressed within a few hours to a severe respiratory distress. Here, the patient presented unilateral manifestations, but bilateral follicular conjunctivitis has been also reported in a COVID-19 patient [8]. Additionally, only 5% of conjunctival swabs from patients with ocular manifestations have proven positive for SARS-CoV-2 [3], possibly indicating a low prevalence of the virus in conjunctival secretions and tears [1]. Alternatively, the virus could be present at the ocular surface, but with viral loads below the detection thresholds of existing PCR diagnosis techniques. Interestingly, our patient did not experience epiphora or secretions. Vision loss has not been reported among the ocular manifestations of COVID-19 [3,8], which is in accordance with the case presented here.

This case also illustrates the usefulness and relevance of teleophthalmology procedures during the COVID-19 epidemics, which, in addition to preventing the transmission of SARS-CoV-2, could help detect potentially COVID-19 patients. Ophthalmologists should be aware of these unusual ocular presentations of COVID-19 since they could precede the development of severe respiratory distress.

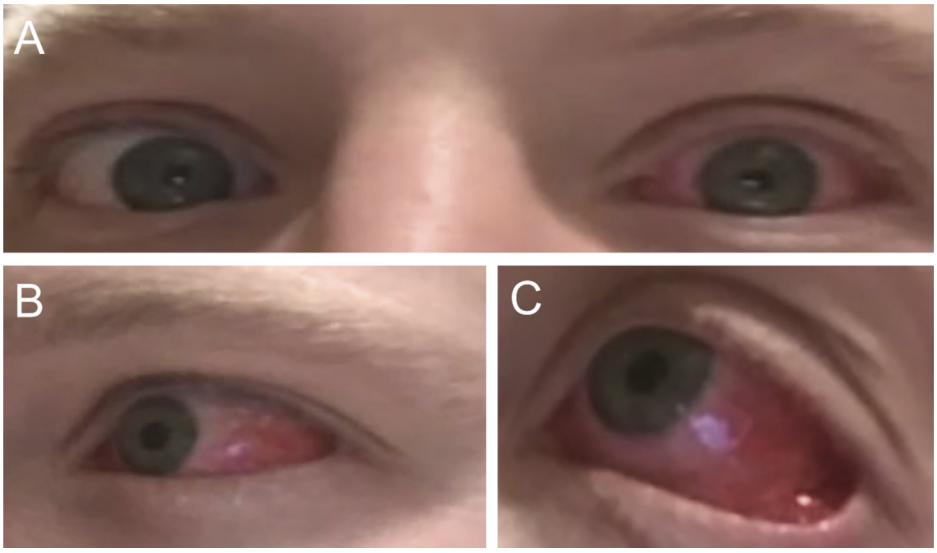

Figure 1. Smartphone photograph of a left eye conjunctivitis as first presentation of Coronavirus Disease 2019 during teleophthalmology consultation. A. Left eyelid edema. B. Moderate temporal conjunctival hyperemia of the left eye. C. Inferior bulbar conjunctival hyperemia of the left eye.

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Disclosure of interest

The authors declare that they have no competing interest.

Références

[1] Xia J, Tong J, Liu M, Shen Y, Guo D. Evaluation of coronavirus in tears and conjunctival secretions of patients with SARS-CoV-2 infection. J Med Virol 2020, http://dx.doi.org/10.1002/jmv.25725.

[2] Guan W-J, Ni Z-Y, Hu Y, Liang W-H, Ou C-Q, He J-X, et al. Clinical characteristics of Coronavirus Disease 2019 in China. N Engl J Med 2020, http://dx.doi.org/10.1016/j.jcv.2020.104356.

[3] Wu P, Duan F, Luo C, Liu Q, Qu X, Liang L, et al. Characteristics of ocular findings of patients with Coronavirus Disease 2019 (COVID-19) in Hubei province, China. JAMA Ophthalmol 2020, http://dx.doi.org/10.1001/jamaophthalmol.2020.1291.

[4] Seah I, Agrawal R. Can the Coronavirus Disease 2019 (COVID-19) affect the eyes? A review of coronaviruses and ocular implications in humans and animals. Ocul Immunol Inflamm 2020;28:391—5, http://dx.doi.org/10.1080/09273948.2020.1738501.

[5] Hollander JE, Carr BG. Virtually perfect? Telemedicine for Covid-19. N Engl J Med 2020, http://dx.doi.org/10.1056/NEJMp2003539.

[6] Portnoy J, Waller M, Elliott T. Telemedicine in the era of COVID-19. J Allergy Clin Immunol Pract 2020, http://dx.doi.org/10.1016/j.jaip.2020.03.008.

[7] Calton B, Abedini N, Fratkin M. Telemedicine in the time of Coronavirus. J Pain Symptom Manage 2020, http://dx.doi.org/10.1016/j.jpainsymman.2020.03.019.

[8] Chen L, Liu M, Zhang Z, Qiao K, Huang T, Chen M, et al. Ocular manifestations of a hospitalised patient with confirmed 2019 novel coronavirus disease. Br J Ophthalmol 2020, http://dx.doi.org/10.1136/bjophthalmol-2020-316304.