Commentary: Sight-threatening intraocular infection in patients with COVID-19 in India

We congratulate Nayak *et al*. for their excellent article.[1] Besides infective etiology, ocular inflammation and hypercoagulability status may be possible causes leading to loss of vision post COVID-19.[2-4] Previously, we had reported sight-threatening cases of multifocal retinitis with vascular occlusions[3] and a case of panuveitis with optic neuritis.[4] The authors can illustrate more about COVID-19-related systemic complication in their case series. Our series from a similar cohort of patients (unpublished data, submitted for publication), with final visual outcomes ranging from no perception of light to 20/36, again predominantly males, showed that D-dimer and serum ferritin were disproportionately raised during their ocular manifestations in patients with endophthalmitis/panophthalmitis post COVID-19 and were statistically significant compared to the patients with milder and non-vision-threatening manifestations. Lactate dehydrogenase levels, erythrocyte sedimentation rate, and C-reactive protein were also raised but were not statistically significant. Diabetes and hypertension were also the systemic risk factors in our series. We were not able to isolate the SARS-CoV-2 virus on ocular sampling, but we had polymerase chain reaction positive for eubacteria and panfungal genome.

The level (primary, secondary, or tertiary care) and details of COVID-19 care received by individual patients, including duration of hospital admission, intravenous fluid administration, oxygen supplementation, and assisted ventilation details, will provide additional information to study the risk factors that may also have affected the final outcomes. The fact that the patients reported belong to a specific geographic location (South India) could attribute to the COVID-19 treatment protocol in that region, which could contribute to the spike in the cases.

A detailed description of the clinical presentation of the pediatric case who had a secondary viral infection (HSV-1 infection) with additional information regarding management with antiviral therapy can give additional insight into this clinical entity. Following vitrectomy, intravitreal antiviral agent injection would have helped faster resolution of retinal lesions secondary to HSV-1 infection. There have been reports of acute retinal necrosis in patients following COVID-19[5,6] where the authors have hypothesized that SARS-Cov-2 may have decreased the peripheral CD3+ and CD8+ T lymphocytes, consequently inhibiting both the regulatory and protective mechanisms against latent HSV.

The authors have mentioned the duration of corticosteroids during COVID-19 as one of the risk factors, which has been similar in our cohort too. Additional information regarding systemic status such as preexisting diabetic status and *de novo* diabetes during COVID-19 will add additional information, especially because there was a greater percentage of fungal endophthalmitis in the study group. Shroff *et al*.[7] also reported a series of fungal endophthalmitis in patients who received intensive corticosteroid therapy, with Candida sp. being the most common fungal organism isolated from ocular samples. Additional information of systemic disease status in patients

who had extraocular specimens suggestive of infective organisms, such as renal biopsy and paranasal sinus biopsy, may reveal important clues for future diagnosis and management of sight-threatening complications of this dreadful disease.

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