

Retinal Vein Occlusion Associated With COVID-19



CRVO is commonly seen in association with a hypercoagulable state.

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Infection with SARS-CoV-2, the virus that causes COVID-19, is known to induce a hypercoagulable state with resulting venous thromboembolism.¹ Central retinal vein occlusion (CRVO) is commonly seen in association with a hypercoagulable state, which may contribute to the pathogenesis of retinal vein occlusion (RVO).² We report, to the best of our knowledge, the first case of CRVO associated with COVID-19 infection.

A 59-year-old man was referred to our clinic with blurred vision in his right eye concurrent with cough and abdominal pain. COVID-19 infection was suspected, but polymerase chain reaction testing was not performed because he was not ill enough for hospital admission, which at the time was required for testing. Several weeks later, his systemic symptoms resolved, and he was tested for COVID-19 antibodies. He was positive for SARS-CoV-2 immunoglobulin G and negative for immunoglobulin M.

The patient's medical history was significant for a 5-year history of microscopic colitis. His only medication was aspirin 81 mg/day.

An eye examination revealed 20/20-1 VA OD, with normal IOP and slit-lamp examination. His right fundus showed a mild CRVO (Figures 1 and 2). His left eye visual acuity and examination were normal. OCT imaging did not show macular edema (Figure 3), and therefore he was not treated.

DISCUSSION

CRVO is due to a thrombus in the central retinal vein as

it exits the globe within the optic nerve. Often patients with CRVO have systemic risk factors such as hypertension, diabetes, cardiovascular disease, or a hypercoagulable state. Our patient had none of these risk factors for CRVO. Although ulcerative colitis has been reported as a rare association with CRVO, no such association has been reported with microscopic colitis, a less severe form of inflammatory bowel disease.³ As noted, COVID-19 infection can cause hypercoagulability.

Retinal microvascular changes have been reported with COVID-19, including subtle cotton wool spots and microhemorrhages but not a retinal vascular occlusion.⁴

The timing of COVID-19 infection, as documented by antibody testing in this patient, with visual symptoms and findings of a CRVO, suggest an association between the two conditions. The pathogenesis is consistent with COVID-19

AT A GLANCE

- The hypercoagulable state induced by COVID-19 may be linked with CRVO, which itself is associated with the presence of hypercoagulation.
- The authors share what is possibly the first reported case of a patient with COVID-19 who presented with CRVO.



Figure 1. A CRVO can be seen in the patient's right eye.



Figure 2. Magnified view of the macula shows disc edema, scattered dot and blot hemorrhages, and cotton-wool spots.

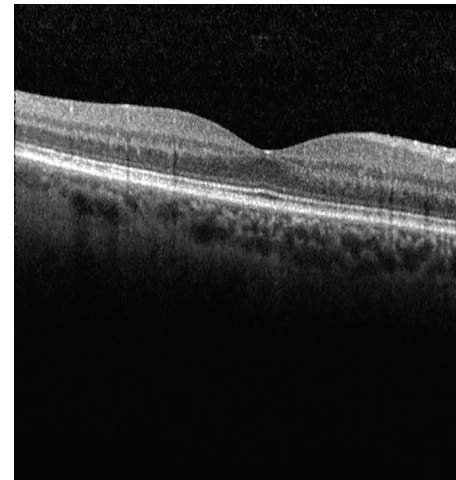


Figure 3. OCT of the right eye shows no macular edema or retinal opacities.

inducing a hypercoagulable state, which can lead to CRVO.

Clinicians should be aware that eyes of patients with COVID-19 infection are at risk for vascular occlusive events and that visual symptoms may occur even with milder forms of systemic viral infection. This may help distinguish COVID-19 from other common forms of upper respiratory illness not known to induce a hypercoagulable state. ■

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