Spontaneous resolution of COVID-19-associated retinopathy diagnosed with raised antibody titer

Dear Editor,

Retinal involvement in COVID-19 patients can be subtle and may include hyperreflective lesions in the inner layers on optical coherence tomography (OCT), cotton-wool spots, and microhemorrhages.[1] Such changes in the retina can be attributed to occlusion of terminal retinal arterioles in the nerve fibers and ganglion cell layer, with subsequent retina ischemia and infarction that may result from thromboembolic phenomena.[2]

We present a case of a 37-year-old apparently healthy female presenting with diminution of vision in her left eye for the last 20 days. She informed us about a short episode of febrile illness ten days prior to the onset of ocular symptoms; at that time, her oropharyngeal swab tested negative for COVID-19 by RT-PCR. Her best-corrected visual acuity (BCVA) was 20/20 and 20/60 in the right and the left eye, respectively. Intraocular pressure (IOP) was 10 mm Hg in both eyes. The slit-lamp biomicroscopic examination was unremarkable in both eyes. Fundus examination revealed areas of retinal thickening with multiple cotton-wool spots (CWS) and intraretinal hemorrhages nasal to the disc and along the inferotemporal arcade of the right eye [Fig. 1a]. The left eye showed few CWS inferior to the fovea and macular star appearance by the hard exudates with subretinal fluid [Fig. 1b]. Optical coherence tomography (OCT) confirmed the CWS as hyperreflective lesions at the level of the inner plexiform and ganglion cell layers [Fig. 2]. She was investigated extensively to rule out other causes of systemic involvement. Her laboratory investigations included normal homocysteine level, lipid profile and negative antiphospholipid antibody and antinuclear antibody. She was advised immunoglobulin assay for COVID-19 antibody titer. However, she was lost to follow up and came back after a month with spontaneous resolution of most of the retinal lesions [Fig. 1c and d]. Her serum IgG level against COVID-19 was raised.

Recently, there has been an increase in the literature on retinal vascular involvement in COVID-19 patients secondary to complement activated thrombotic microangiopathy and hypercoagulable state. However, various systemic vasculopathies such as diabetes, hypertension as well as other viral infections (e.g., HIV) and systemic rheumatic disorders have been associated with ocular microangiopathies. These conditions should be excluded in all patients with occlusive vasculitis by extensive laboratory investigations and meticulous history taking. The index case highlights the role of antibody titer estimation in suspected clinical scenarios in individuals presenting later when RT-PCR tests are negative or have not been done.[3] Subtle occlusive changes in the retina can occur that may resolve spontaneously in COVID-19 patients, and a high index of suspicion is required to clinch such a diagnosis.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published.

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Figure 1: (a) Fundus photograph of the right eye showing multiple cotton-wool spots (CWS) and intraretinal hemorrhages nasal to the disc and along the inferotemporal arcade of the right eye. (b) Fundus photograph of the left eye showing few CWS inferior to the fovea and macular star appearance by the hard exudates with subretinal fluid. (c and d) Fundus examination of both eyes showing spontaneous resolution of most of the lesions after 1 month. A streak of retinal hemorrhages is observed nasal to the disc along the inferotemporal arcade.

Figure 2: (a) OCT scan at the first visit. (b) OCT scan at the follow up visit after 1 month.
and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Cite this article as: Patnaik G, Sen P, Majumder PD. Spontaneous resolution of COVID-19-associated retinopathy diagnosed with raised antibody titer. Indian J Ophthalmol 2021;69:3792-3.

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