Bilateral sub-internal limiting membrane hemorrhage in a COVID-19 patient

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Key words: Infectious disease, SARS CoV, Sub-internal limiting membrane hemorrhage

Sub-internal limiting membrane hemorrhages, although uncommon, have been documented to occur in Valsalva retinopathy, blood dyscrasias, Terson syndrome, and ocular trauma.[1] Due to their predilection for the macular region, they often lead to severe vision loss in young patients.[2,3]

Case Report

A 32-year-old, male, Indian patient presented with blurring of vision in both eyes for 20 days. It was sudden and painless in nature. There was no history of ocular or brain trauma, severe headache, strenuous exertion, lifting heavy objects or straining for a bowel movement. Although patient had complaints of cough, it was mild. Best-corrected visual acuity for right eye was 20/70, left eye was 20/100, N6 in both eyes. On dilated fundus examination, both eyes had sharp demarcated, dome-shaped hemorrhages at the macula peculiar for a sub-internal limiting membrane (sub-ILM) bleed and other hemorrhages along major vascular arcades [Fig. 1].This finding was confirmed on optical coherence tomography (OCT) macula [Fig. 2]. High-resolution computed tomography (HRCT) thorax revealed multiple air space consolidations with ground glass densities in both lungs which were features suggestive of an infective etiology [Fig. 3].Consequently, detailed blood investigations were done which included hematology profile, HCV, HBsAg, VDRL, WIDAL test, Mantoux test, HIV 1&2,

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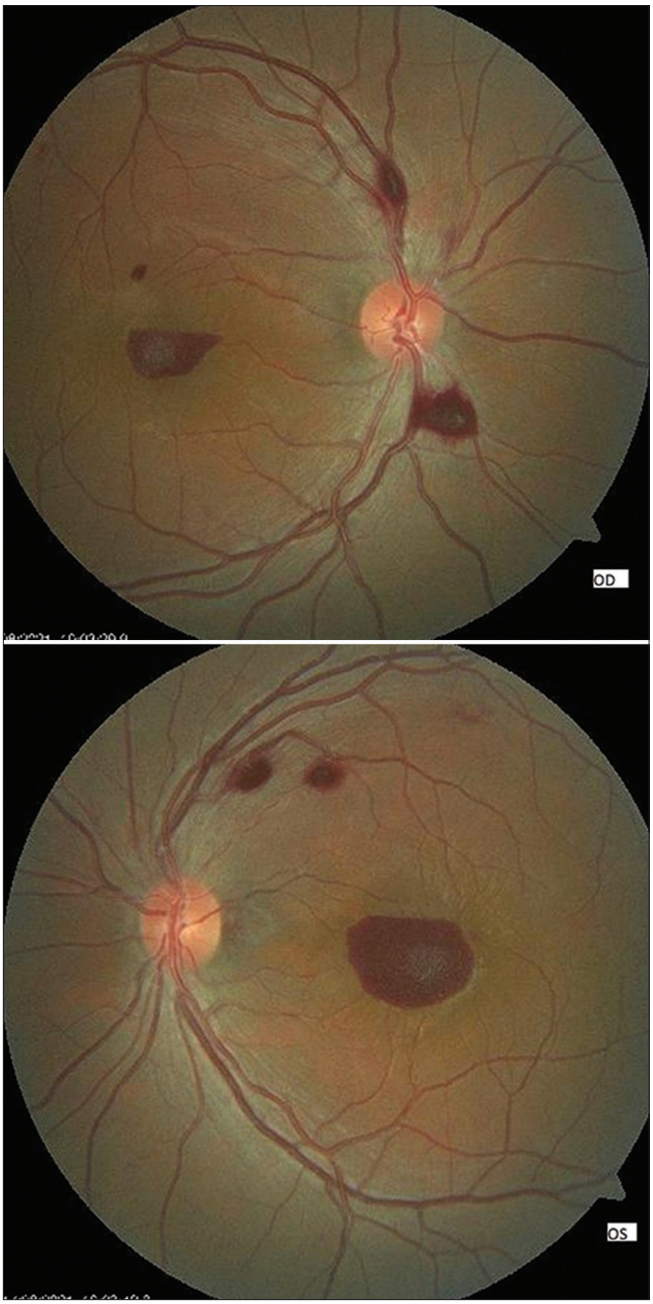

Figure 1: Fundus photos of both eyes showing multiple retinal hemorrhages including a sub-internal limiting membrane hemorrhage at macula

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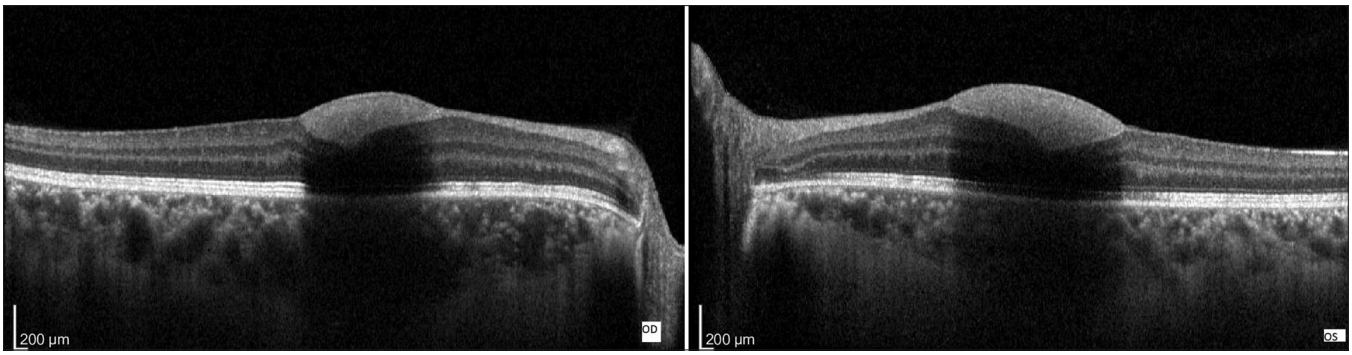

Figure 2: Optical coherence tomography (OCT) of both eyes at presentation showing a foveal hyper-reflective band and tissue corresponding to the sub-internal limiting membrane and sub-internal limiting membrane hemorrhage respectively

Figure 3: High-resolution computed tomography (HRCT) thorax showing air-space consolidations with ground glass opacities in both lungs

TPHA, dengue IgM, IgG, dengue rapid screening test all of which turned out negative except for SARS-CoV IgG test (the value was 56. 72 BAU/ml, positive >20.33) which was strongly positive. Ancillary test in the form of bronchoscopy showed no evidence of mycobacterium tuberculosis. After conducting these batteries of tests and ruling out other infectious diseases, we can conclude that the retinal hemorrhages can be attributed to COVID-19 infection.

Discussion

Unlike other retinal hemorrhages which occur secondary to retinal pathologies, sub-ILM hemorrhages are caused by bleeding from normal retinal blood vessels.[4] This blood is caused by extravasations and sedimentation under ILM.[1] Due to their predilection of the macula and prolonged retinal contact with hemoglobin and iron, it leads to severe visual impairment.[2] Basic pathomechanism of such retinal hemorrhages was thought to be due to microangiopathy following deranged coagulation profile; however, the plasma D Dimer in our patient was normal.[5]

Conclusion

This case is first of its kind to document COVID-19 as a novel cause for bilateral retinal hemorrhages.

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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 and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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