Commentary: Retinal manifestations in patients following COVID-19 infection: A consecutive case series

Coronavirus disease-2019 (COVID-19) pandemic has created a global health challenge owing to widespread mortality and morbidity. Alterations of the immune system, activation of coagulation pathways, and direct cytopathic effect of the virus are purported as the possible mechanisms that are responsible for the pathology of COVID-19. In addition to these, side effects of drugs and complications related to prolonged hospitalization and intensive care all combine to cause systemic manifestations of this virus, including ocular complications.[1,2] Multiple ophthalmic manifestations related to COVID-19 have been reported. Initially, when the pandemic started, ocular surface involvement was reported with self-limiting conjunctivitis being the earliest reported ocular manifestation.[3] Subsequently, a plethora of retinal manifestations have been reported in these patients, namely cotton wool spots, flame-shaped and dot-blot hemorrhages, retinal vascular occlusions, acute macular neuroretinopathy (AMN), paracentral acute middle maculopathy (PAMM), fungal retinitis, acute retinal necrosis, and serpiginous choroiditis. Neuro-ophthalmic manifestations like optic neuritis, papillo-phlebitis, extra-ocular muscle palsies, neurogenic ptosis, intracranial hypertension, cerebrovascular accident with vision loss, and orbital manifestations like mucormycosis and histiocytic orbital mass have also been reported in patients with COVID-19.[1,4,5] In the current study, authors have enumerated varied retinal manifestations following COVID-19. Patients with candida retinitis, tubercular choroidal abscess, and central serous chorioretinopathy (CSC) have been reported for the first time in this cohort.[6] Coagulopathy and endothelial dysfunctions are known associations of COVID-19 infection. In the eye, these manifest as cotton wool spots, central retinal vein occlusion, central retinal artery occlusion, AMN, and PAMM.[5,7] As reported in the current article, the aforementioned entities may occur during the active phase or even after recovery from COVID-19. Presence of cotton wool spots has been shown to be a potential biomarker in identifying underlying vascular and/or neurological comorbidity in COVID-19 patients.[7] Mean retinal artery diameter and the mean retinal vein diameter (MVD), measured using the Automated Retinal Image analyzer, have been shown to be higher in COVID-19 patients compared to healthy cohorts. MVD was negatively correlated with the time from onset of symptoms and positively correlated with disease severity.[8] Herein lies the role of an ophthalmologist and ocular examination in COVID-19 patients. Fundus examination is a simple, easy to perform and non-invasive. It has been shown to predict systemic endothelial dysfunction and triggering of the inflammatory cascade in subclinical and asymptomatic patients, thereby allowing earlier institution of appropriate therapy and potentially improving long-term morbidity and mortality.

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