



Guest Editorial

Retinal manifestations of COVID-19

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As we continue fighting the coronavirus pandemic, new information regarding the virus' effects on the body is coming to light. Our understanding of its manifestations beyond that of the respiratory system is evolving constantly.

Ocular surface abnormalities, including conjunctivitis are well established ophthalmological manifestations of COVID-19 but its effect on the retinal tissue is still debated upon.¹⁻³ Animal models have demonstrated retinal damage such as retinal degeneration, retinal vasculitis and breakdown of blood retinal barrier.⁴

Wu et al.,² in their study found that 12 out of 38 patients with Covid-19 infection had conjunctivitis but none of them presented with retinal involvement.

Pirraglia et al.,⁵ conducted a cross-sectional study on 46 hospitalised COVID 19 patients. They demonstrated an absence of retinal involvement in the cohort. One patient presented with unilateral posterior chorioretinitis, though the aqueous tap was negative for SARS-CoV-2.

Pereira et al.,⁶ documented acute vascular lesions of the inner retina including flame-shaped haemorrhages and cotton wool spots.

Marinho et al.,⁷ found retinal findings such as hyporeflective lesions in 12 patients at the level of ganglion cell and inner plexiform layer & cotton wool spots and microhaemorrhages in 4 patients. Later, these findings were contested by many.⁸⁻¹⁰ Marinho et al.,¹¹ further reported that these retinal lesions appear to be part of a widespread,

ischaemic, microvascular process.

Invernizzi et al.,¹² in the SERPICO 19 study concluded that COVID-19 can affect the retina and found that retinal veins diameter seems directly correlated with the disease severity. Thus assessment of the retinal veins may be useful to monitor the inflammatory response or the endothelial damage in COVID-19

Casagrande et al.,¹³ confirmed the presence of viral RNA of SARS-CoV-2 in human retina in deceased patients with novel coronavirus disease 2019.

Virgo et al.,¹⁴ reported a case of Paracentral acute middle maculopathy (PAMM) and acute macular neuroretinopathy (AMP) following SARS-CoV-2 infection. Gascon et al.,¹⁵ reported Roth spots in addition to PAMM & AMP lesions. Sheth et al.,¹⁶ illustrated a case of vasculitic-RVO and Invernizzi,¹⁷ documented impending Central Retinal Vein Occlusion in a patients with Coronavirus Disease 2019.

The above reports throw some light on the various possible retinal manifestations of COVID 19. There should be greater emphasis on reporting ocular symptoms in COVID19 patients along with detailed ocular/retinal evaluation. Further, studies controlling for confounding factors are necessary to properly assess these findings so as to increase the understanding of COVID-19 pathophysiology and to formulate new therapies.

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