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Letter to the Editor

Purtscher-like retinopathy is not only due to SARS-CoV-2 infection, but to many other causes

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Letter to the Editor

We were interested to read the article by Shroff *et al*. about a 32-year-old man who developed Purtscher-like retinopathy on the left side two weeks after recovery from a severe SARS-CoV-2 infection (SC2I) that required treatment in the intensive care unit [1]. Fundoscopy revealed areas of intraretinal whitening and some absorbent cotton spots, as well as embolic occlusion of capillaries with multimodality imaging [1]. It was concluded that SC2I activates the coagulation cascade, leading to microvasculopathy of the left retina [1]. The study is remarkable, but several points should be discussed.

The first point is that a causal relationship between SC2I and left retinal microvasculopathy has not been proven. Retinal microangiopathy may be due not only to thrombosis caused by SC2I [2], but also to vasculitis, hereditary coagulopathy or embolism. Purtscher-like retinopathy has been observed in particular in giant cell arteritis, polyangiitis after stem cell transplantation, systemic lupus erythematosus, Takayasu arteritis, sarcoidosis, HELLP syndrome, Still's disease, Susac syndrome and hemolytic uremic syndrome [3, 4]. Purtscher-like retinopathy has also been associated with pancreatitis, fatty, air or amniotic embolism, renal failure, trauma, connective tissue disease, pre-eclampsia/eclampsia, post partum, after stillbirth, steroid injection around the orbita, gemcitabine therapy, polymethyl methacrylate injection, myocardial infarction, coil embolization of a carotid aneurysm, iron deficiency anaemia, Valsalva manoeuvre, retrobulbar or peribulbar anesthesia, host-versus-graft reaction, thrombotic cryoglobulinemia due to hepatitis, vascular or non-vascular surgery, thrombocytopenic purpura, anaphylaxis, hypereosinophilic syndrome, pemphigus vulgaris and with parenoplastic phenomena in patients with lymphoma, leukemia, multiple myeloma or lymphangiohistiocytosis [5]. SC2I can also be complicated by endocarditis or myocarditis, which is why cardioembolism should be considered. Was there any evidence of hereditary coagulopathy? Have all these differential diagnoses been adequately excluded in the index patient?

The second point is that it is quite unlikely that the patient received only remdesivir, glucocorticoids and fresh frozen plasma during the ICU stay. Assuming the patient was intubated and ventilated, he most likely received other medications in addition to remdesivir and steroids. To assess the cause of his retinopathy, it is crucial to know the entire medication regimen. We should also know what medications the patient was taking regularly prior to admission.

The third point is that the day when SC2I was diagnosed was not mentioned [1]. To assess the duration between the onset of the infection and the appearance of left visual impairment, it would be necessary to know the exact latency period.

The fourth point is that the statement “known to past systemic illness” is not comprehensible. Do the authors mean SC2I or do they mean another systemic disease? If they mean a disease other than SC2I, they should specify it. In addition, the entire history should be specified.

The fifth point is that the term “life-sustaining care system” is unspecific. We should know whether the patient was intubated, received extracorporeal membrane oxygenation (ECMO), an intra-aortic balloon pump or a temporary pacemaker.

The sixth point is that cerebral imaging is missing. To exclude cerebral co-pathology of unilateral visual impairment, it might be helpful to perform cerebral imaging.

In conclusion, this interesting study has limitations that affect the results and their interpretation. Addressing these limitations could strengthen the conclusions and support the message of the study. Purtscher-like retinopathy may not only be due to SC2I, but to many other causes that need to be carefully ruled out before attributing it to COVID-19. As the patient was also receiving glucocorticoids, it cannot be ruled out that the therapy rather than the viral infection was responsible for the unilateral retinopathy.

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