Nasal vein occlusion after COVID-19: A case report

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To present a case of nasal vein occlusion that has not been reported after the coronavirus disease 2019 (Covid-19) pandemic. A 53-year-old patient reported a complaint of floaters after a recent severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. His best corrected visual acuity (BCVA) was 20/20 for both the eyes. On examination, a flame-shaped hemorrhage was observed in the left eye around the infero-nasal area adjacent to the optic disc. Temporal branch vein occlusion has been widely reported in association with SARS-CoV-2 infection. We emphasize that nasal vein occlusions triggered by Covid-19, which do not cause vision loss, should also be considered.

Key words: Covid-19, nasal vein occlusion, retina

Coronavirus disease 2019 (Covid-19) emerged in Wuhan, China, at the end of 2019, and a pandemic has been declared in March 2020 by the World Health Organization, resulting in more than 3 million cases reported so far.[1] There are still unexplained aspects of Covid-19, and its clinical manifestations vary in each patient. Although conjunctivitis is known as the most common anterior segment involvement, posterior segment involvement, temporal vein branch occlusions, and central vein occlusions are also frequently reported.[2]

We present a case of nasal vein branch occlusion observed after Covid-19 for the first time to the best of our knowledge.

Case Report

A 53-year-old male patient applied to us with a complaint of floaters in his right eye that had begun a week before. Based on his anamnesis, this non-smoker patient did not have any additional disease such as diabetes or hypertension. The patient was diagnosed with the Covid-19 delta variant 2 months ago and remained in quarantine for 2 weeks, receiving supportive treatment at home. At the end of the quarantine, his polymerase chain reaction (PCR) test was negative. His best corrected visual acuity was 20/20 in both the eyes on the Snellen chart. The intra-ocular pressure was 16 mmHg in both the eyes. During the examination, the anterior segment and dilated fundus has been found normal in the right eye, whereas a flame-shaped hemorrhage was observed in the left eye around the infero-nasal area adjacent to the OD [Fig. 1]. Fluorescein angiography showed the infero-nasal vein occlusion [Fig. 2]. There was no macular edema in optical coherence tomography (OCT) [Fig. 3]. Although the patient's Covid test was negative, his D-dimer (normal range <243 μg/L), erythrocyte sedimentation rate (ESR) (normal range <30 mm/hr), and C-reactive protein (CRP) measurements (normal range <10 mg/L) were 404 μg/L, 74 mm/hr, and 29,8 mg/L, respectively. The patient abandoned the given treatment (enoxaparin sodium, methylprednisolone, N-acetyl-cysteine) after the first 2 days because he felt well during the quarantine period. When consulted with the infectious diseases branch, the patient was prescribed with enoxaparin sodium for anti-coagulation and methylprednisolone for hyper-inflammation. The blurred vision complaint of the patient at ophthalmologic visits regressed after 1 week. The visual levels were 20/20 on the bilateral Snellen chart. The intra-ocular pressures were measured as 14 mmHg on the right and 15 mmHg on the left. No rubeosis or retinal neo-vascularization was observed in the iridocorneal angle or iris. There was mild regression in the retinal hemorrhage. Monthly follow-up visits have been scheduled for the patient.

Discussion

Retinal vein occlusion is the most common retinal vascular disease after diabetic retinopathy and usually arises after 60 years of age.[3] Risk factors for retinal vein occlusion include hypertension, diabetes mellitus, thrombophilia, hyper-coagulation, and systemic and inflammatory diseases.[4] Retinal vascular diseases, which have increased recently after Covid-19, show the role of Covid-19 in the pathogenesis because of hyper-coagulation and inflammation. Cases have been reported where there was inflammation after Covid-19 causing platelet activation and increased angiotensin-2 causing vasoconstriction. Given these, hyper-coagulation is an expected result of Covid-19.[5] In our case, the ESR, CRP, and D-dimer were found to be off the limits. Increased hyper-coagulation in Covid-19 is indicated by the high D-dimer level.[6] The high D-dimer levels in our patient suggested that the nasal branch retinal vein occlusion (BRVO) might have been caused by Covid-19. Retinal artery and vein occlusions have been published in various age groups after Covid-19.[2] What makes our case different is that BRVO developed in the infero-nasal region after Covid-19.

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Figure 1: Color fundus photograph of infero-nasal vein occlusion

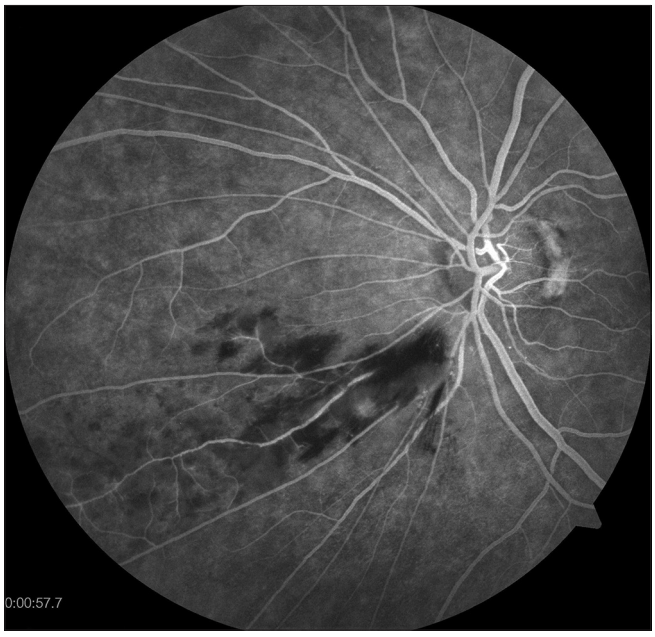

Figure 2: Fundus fluorescein angiography image of the infero-nasal vein occlusion

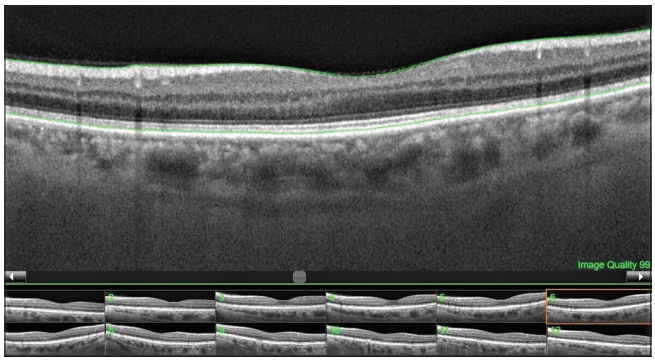

Figure 3: OCT image of infero-nasal vein occlusion and macula unaffected

Nasal BRVO is less common clinically than temporal BRVO. The most recent study on nasal vein occlusions was published by Parodi *et al*.[7] in 2004. In this study, diagnosis of 16 nasal BRVOs within a 5-year period was reported, and eight of them were infero-nasal BRVOs. In the same study, when the symptoms were examined, a decrease in central vision was observed in the temporal BRVOs, whereas 25% of the patients in the nasal BRVOs presented the symptom of floaters only. Similarly, our patient applied to us with the complaint of floaters. In nasal BRVOs that do not affect the macula the central vision is not impaired, suggesting that the floaters are the important symptoms to be considered for the diagnosis.

Conclusion

In conclusion, considering the hyper-coagulation effect of Covid-19, an increase in BRVOs can also be seen compared to the pre-Covid-19 period. Nasal BRVO may be missed clinically because of less macular involvement and therefore less visual loss or less attention paid to the nasal half on examination. Although patients with Covid-19 only have symptoms of floaters, detailed fundus examinations should be performed considering nasal hemi-retina.

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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