

Prevalence of SARS-CoV-2 among central retinal vein occlusion patients

Dear Editor,

Correlation of coronavirus disease-2019 (COVID-19) and central retinal vein occlusion (CRVO) is under hot debate,^[1-3] but there is no higher level of evidence other than case reports. We studied the correlation between the two diseases by investigating the prevalence of SARS-CoV-2 in patients with acute CRVO. Under COVID-19, clinic patients' respiratory tract samples were tested for SARS-CoV-2 in our city by the validated Xpert Xpress SARS-CoV-2 assay.^[4]

Medical records of all patients with CRVO presented to our tertiary ophthalmology unit under the local COVID-19 outbreak (from 1 March 2020 to 31 October 2020 inclusively) were retrospectively reviewed. Patients with ischemic and nonischemic CRVO aged 18 or above were included. Hemi-CRVO or eyes without fundal view for proper examination were excluded. Data on laterality of eye involved, contralateral eye retinal vascular disease status, and visual acuity were extracted. Risk factors of CRVO including hypertension, hyperlipidemia, and diabetes mellitus were reviewed.

A total of 66 patients with CRVO (38 men and 28 women) were included; all were of unilateral CRVO on presentation with 22 (33.3%) patients suffered from left eye disease, and 44 (66.7%) patients suffered from right eye CRVO. A patient with hemi-CRVO was excluded. For types of CRVO, 3 (4.5%) eyes were of ischemic type [Fig. 1], while the remaining 63 (95.5%) eyes were nonischemic type.

Mean age was 72.4 ± 12.7 years old (range 25–95). A couple of patients were young adult, of 25 and 26 years old, respectively. Both were women with good past health, of nonischemic CRVO, and subsequently tested negative for COVID-19. Excluding these two extreme cases, age range shifted to 54–95. No one got COVID-19 before the onset of CRVO. Not any (0%) of the 66 patients got SARS-CoV-2 RNA detected on reverse-transcription polymerase chain reaction. At their last follow-up, mean 5.8 ± 2.7 months (range 2–10), none got COVID-19 infection despite our locality was on the fourth wave of COVID-19 attack.

In terms of CRVO risk factors, 46 (70.0%) got hypertension, 33 (50.0%) got hyperlipidemia, whereas 19 (28.8%) of them got diabetes mellitus. With good past health, 7 (10.6%) patients were tested negative for any risk factors after being diagnosed with CRVO. Investigations included repeated blood pressure measures across different visits, hemoglobin A1c test, fasting blood glucose and lipid tests, vasculitis screening profile. Among all cases, 21 (31.8%) and 9 (13.6%) patients got two and even all three risk factors, respectively [Fig. 2].

To our best knowledge, this is the first CRVO case series reporting on its prevalence of SARS-CoV-2. Despite a negative result, this retrospective case series is important to evidence the raising concern of CRVO in patients with COVID-19. Metabolic risk factors such as hypertension, hyperlipidemia, coronary artery diseases, smoking etc., are all well known for CRVO.^[5] The occurrence of CRVO could be coincident on these at-risk COVID-19 positive patients.

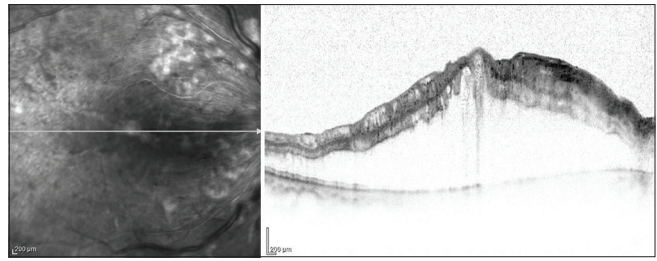


Figure 1: Optical coherence tomography image of ischemic central retinal vein occlusion. Note the cotton-wool spots over the infrared fundus photo

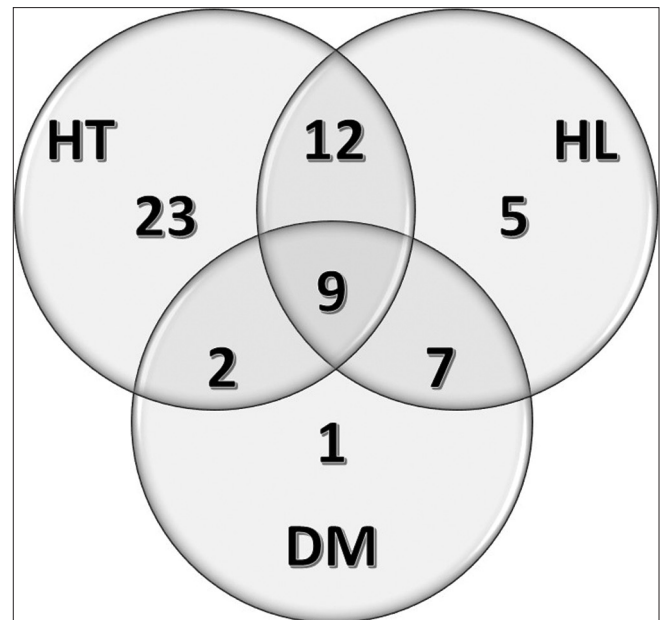


Figure 2: Distribution of risk factors among the central retinal vein occlusion patients. HT: Hypertension; HL: Hyperlipidemia; DM: Diabetes mellitus

The evidence on the correlation of CRVO and COVID-19 is still controversial, and rather weak, despite 11 months since the COVID-19 pandemic with >100 million infected cases. Our observational study would add some values to future determinant on the correlation of CRVO with COVID-19.

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Conflicts of interest

There are no conflicts of interest.

Sunny, Chi Lik Au

Department of Ophthalmology, Tung Wah Eastern Hospital, Hong Kong

Correspondence to: Dr. Sunny, Chi Lik Au, 9/F, MO Office, Lo Ka Chow Memorial Ophthalmic Centre, Tung Wah Eastern Hospital, 19 Eastern Hospital Road, Causeway Bay, Hong Kong. E-mail: kilihcu@gmail.com

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