Ophthalmic Images

Noninvasive Blue-Light Channel Imaging of Retinal Nonperfusion in Vein Occlusion

Gabriel Castilho Sandoval Barbosa, MD; Eduardo Amorim Novais, PhD; Ricardo Luz Leitão Guerra, MSc

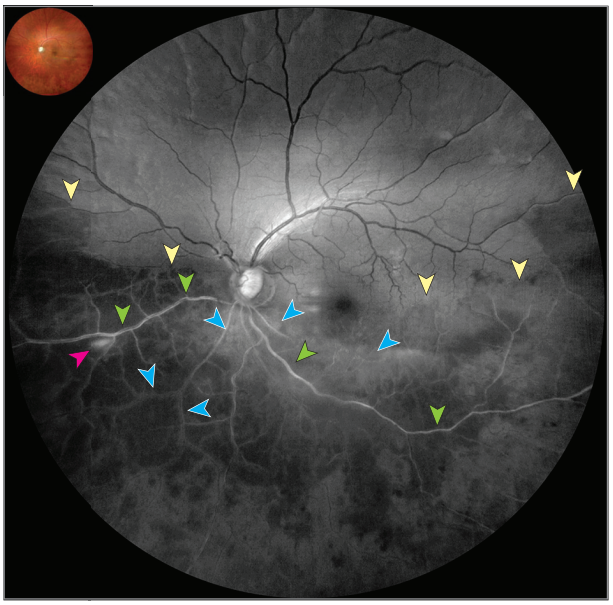

Figure. The blue-channel fundus photography evinces the nonperfused arterioles (blue arrowheads) and venules (green arrowheads) of the inferior hemiretina with a whitish and reflective aspect. The yellow arrowheads identify the transition between perfused (grayish) and nonperfused (dark patches) retina.

A patient was diagnosed with nonperfused, inferior, hemiretinal vein occlusion but could not undergo fluorescein angiography examination due to a positive history of fluorescein allergy. Thus, the patient's retinal imaging was assessed by deconstructing the single truecolor, or RGB, image into color channels: the blue channel (BC; 435-500 nm; highlights the anterior retinal layers), green channel (500-585 nm; scans the sensory retina to the retinal pigment epithelium [RPE]), and the red channel (585-640 nm; delineates the deeper structures from the RPE to the choroid) (**Figure**).[1,2] The BC allowed the visualization of the capillary nonperfused areas that appear as dark patches in contrast to the grayish appearance of the perfused retina. The focal brightness along the nasal vessel (pink arrowhead) corresponds to a flame-shaped hemorrhage. This is a noninvasive procedure with no reports of photic injuries.[3] The patient's treatment was conducted based on the images obtained, which provided a noninvasive alternative to fluorescein angiography to identify nonperfused areas of the retina.

ARTICLE INFORMATION

Author Affiliations: Department of Ophthalmology, Suel Abujamra Institute, São Paulo, Brazil (Barbosa); Department of Ophthalmology, Centro Oftalmológico Città, Rio de Janeiro, Brazil (Novais); Department of Ophthalmology, Clínica de Olhos Leitão Guerra, Salvador, Brazil (Guerra).

Corresponding Author: Gabriel Castilho Sandoval Barbosa, MD, Department of Ophthalmology, Suel Abujamra Institute, Tamandaré Street, No. 655, Apt 106, São Paulo 01525-001, Brazil (gabrielcastilho.oftalmo@gmail.com).

Conflict of Interest Disclosures: None reported.

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