

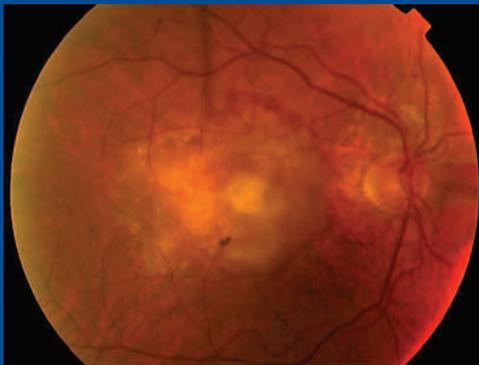
Scott Cousins, M.D.
Duke Center for Macular Diseases
Duke University Eye Center

Update on Indocyanine Green Angiography

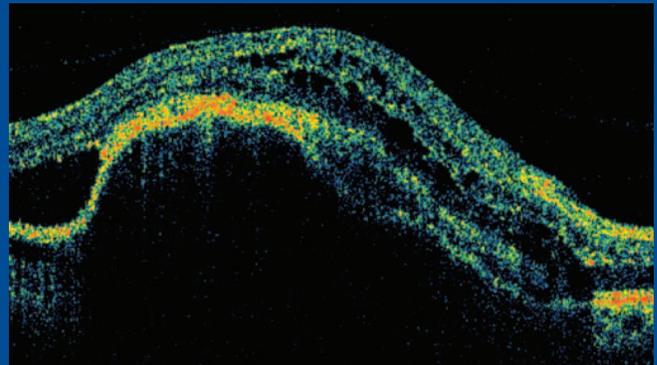
WOULD YOU TREAT OR GIVE UP?

Case Presentation

A 73 year old man presents for a fourth opinion about treatment of his right eye. The left eye has 5/200 vision for 5 years after failed photodynamic therapy (PDT). The right eye developed choroidal neovascularization (CNV) one year ago, and received PDT twice, the last treatment was 6 months ago. He received anti-VEGF (vascular endothelial growth factor-A) therapy 3 months prior and another anti-VEGF therapy one month prior. Until recently, it was his better eye. Now he notes a shadow in his inferior field and can no longer use low vision aids. Upon exam, his acuity was 10/200. Fundus exam demonstrates a fibrotic CNV with active blood along the superior edge. Optical coherence tomography (OCT) reveals thick CNV, pigment epithelial detachment (PED), subretinal fluid and cystic retinal thickening.



Color Fundus Photograph



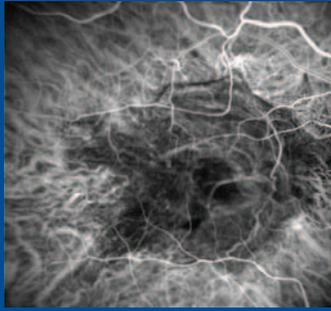
Optical Coherence Tomography (OCT)

Clinical Course

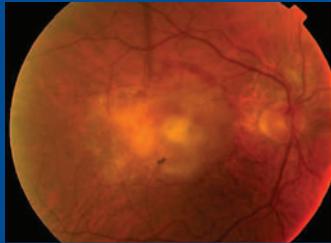
High speed video (ICG) indocyanine green (IC-GREEN[®], Akorn, Inc.) angiography was performed using the Heidelberg Retina Angiograph (HRA) which revealed a mature vascular complex within the fibrotic CNV. A large feeder vessel filled the lesion, but many moderate-sized branching arterioles perfused the CNV.

Millipulse diode red laser was performed to close the feeder vessel. Immediately post-treatment, greatly diminished perfusion of the CNV was observed. Three months later, the PED had flattened, the CNV had consolidated, the subretinal fluid resolved and the retina became compact. Vision improved to 20/200 and the patient resumed use of his low vision aids.

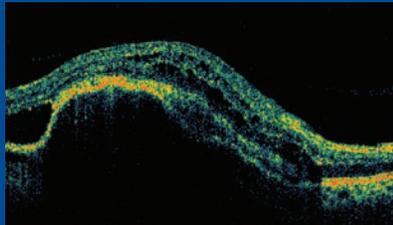
Pre-feeder



Heidelberg Retina Angiograph (HRA)

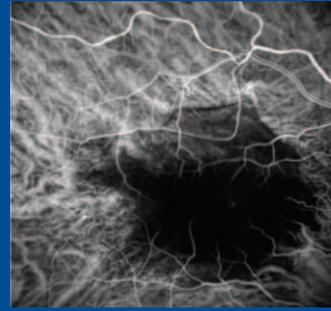


Color Fundus Photograph



10/200

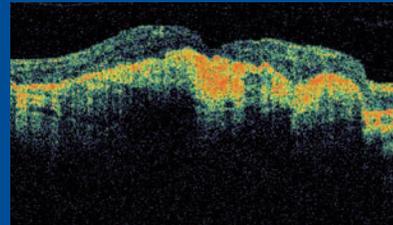
Post-feeder



Heidelberg Retina Angiograph (HRA)



Color Fundus Photograph



20/200, 3 months later

Commentary

CNV evolves over time in a process called remodeling, ultimately becoming fibrotic. Fibrotic CNV usually demonstrates mature vascular complexes characterized by one or more feeder arteries and many moderate diameter arterioles. Persistent leakage is caused by hemodynamic decompensation due to high blood flow through the vasculature more than by VEGF driven permeation. Thus, anti-VEGF therapy does not always diminish the leakage, or demonstrates short duration of action. Fibrotic CNV is one indication in which feeder vessel laser appears to be effective. In our series of 20 eyes, perfusion was effectively decreased in 17 by a single session of laser. About half the eyes experienced improved vision.