

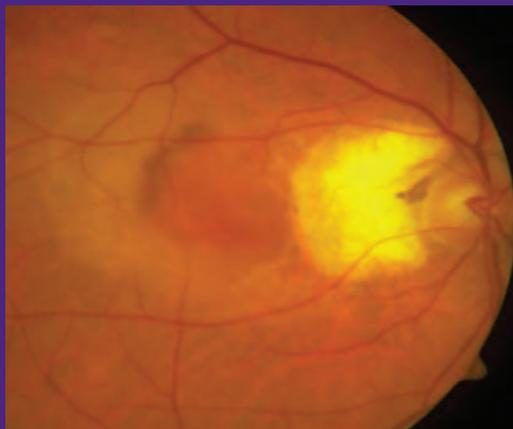
**Scott Cousins, M.D.**  
**Duke Center for Macular Diseases**  
**Duke University Eye Center**

# Update on Indocyanine Green Angiography

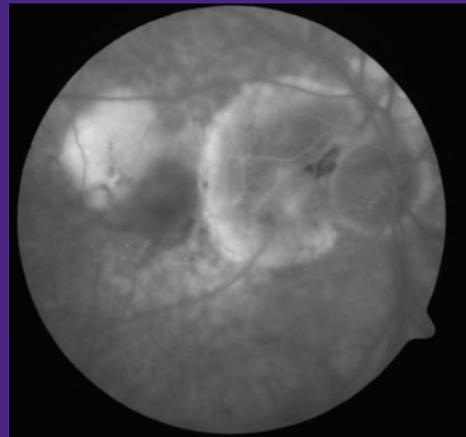
## WHAT WOULD YOU DO NEXT?

### *Case Presentation*

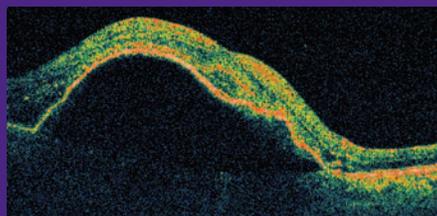
68 year old male presented with acute vision loss. He had prior thermal laser for peripapillary choroidal neovascularization (CNV) five years ago. The fellow eye had a disciform scar. Examination revealed 20/200 vision with a serous pigment epithelial detachment (PED) emanating from the laser scar associated with subretinal blood along the nasal edge. Fluorescein angiography revealed no evidence for CNV. He was treated with anti-VEGF (vascular endothelial growth factor-A) therapy without visual or anatomic improvement.



Color Fundus Photograph



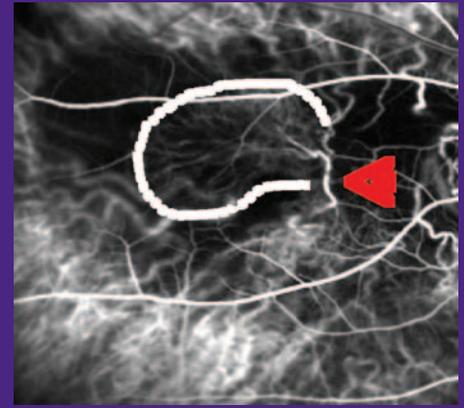
Fluorescein Angiogram



Optical Coherence Tomography (OCT)

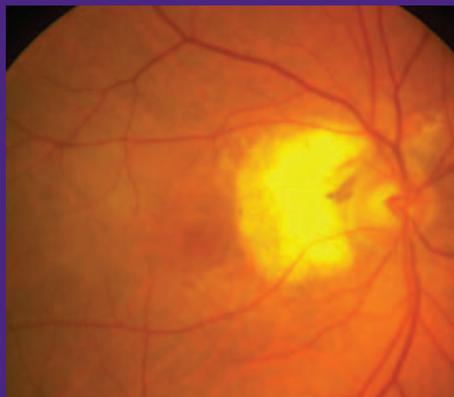
## Clinical Course

High speed video (ICG) indocyanine green (IC-GREEN<sup>®</sup>, Akorn, Inc.) was performed using the Heidelberg Retina Angiograph (HRA). The ICG angiogram revealed a definite CNV with a mature vascular complex associated with the area of blood. A prominent feeder vessel (red arrow) perfused moderately large arterioles within the complex (dotted line).

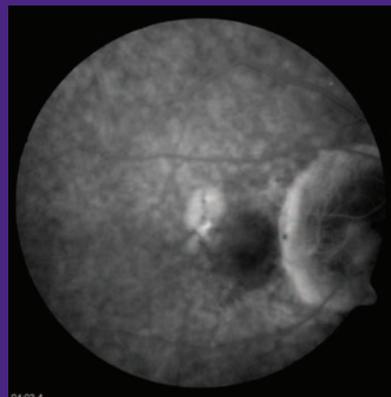


High Speed Video ICG Angiography

Photodynamic therapy (PDT) with 50% reduced fluence was applied only to the area of vascularity defined by the ICG, followed by steroid injection. Within 3 months, the PED had flattened and vision improved to 20/40. Repeat high speed video ICG angiography (below) demonstrated markedly less perfusion of the vascular complex (dotted line) although feeder vessel (red arrow) remains partially perfused.



Color Fundus Photograph



Fluorescein Angiogram



High Speed Video ICG Angiography

## Commentary

Serous PEDs often fail to demonstrate clear-cut CNV by fluorescein angiography. In our series of 45 consecutive PEDs imaged by high speed video ICG angiography, almost 50% demonstrated unequivocal CNV, about 1/3 with mature vascular complexes as shown in this case. Many cases fail to respond to anti-VEGF pharmacotherapy, suggesting that hemodynamic decompensation caused by high blood flow, rather than permeation due to VEGF, is causing the PED. In our series, 6 of 7 eyes with mature vascular complexes (as in this case) responded to PDT treatment with flattening of the PED and improved vision. Although retinal pigment epithelium (RPE) tears might be a complication of PDT treatment of serous PED, tears also occur after anti-VEGF therapy. Reduction of PDT fluence might reduce the risk of tears.