Choroidal Neovascular Membrane Mimicking a Branch Retinal Vein Occlusion
Resident’s Day Case Report
Lindsey M. Jendrasko, OD
Optometry Resident, VA Togus
lindsey.jendrasko@va.gov

Abstract
Idiopathic CNVM can mimic other retinal diseases including BRVO. OCT can miss early cases, while FA is a more reliable test for definitive diagnosis.

I. Case History
- 61 year old Caucasian male
- **Chief Complaint**
  - Black spot in center of vision, right eye only, for past two months. Noted wavy lines when looking at roofs. Condition constant and relatively stable since onset.
- **Ocular History**
  - No history of eye exam.
- **Medical History**
  - Coronary Artery Disease
  - Hyperlipidemia
  - Congestive Heart Failure
  - Esophageal Reflux
  - Paroxysmal Ventricular Tachycardia
  - Smoker
- **Medications**
  - Carvedilol
  - Clotrimazole
  - Lisinopril
  - Omeprazole
  - Rosuvastatin
  - Vitamin C
  - Aspirin 325 mg
  - Ezetimibe/Simvastatin
  - Omega 3 Acid
  - Vitamin E

II. Pertinent Findings
- **Initial Exam**
  - VA sc
    - OD: 20/30\(^{-1}\) PH 20/20\(^{-2}\)
    - OS: 20/25\(^{-1}\) PH 20/20
- **Amsler Grid**
  - OD: Superior Distortion
  - OS: Normal

- **Dilated Fundus Exam**
  - OD: cluster of blot hemorrhages and swelling following distribution of retinal venule
  - OS: Normal ocular health

- **Macular OCT**
  - OD: Central Thickness 282, intraretinal thickening inferior temporal to macula
  - OS: Central Thickness 234, normal foveal contour
- **Differential Diagnosis**
  - Branch Retinal Vein Occlusion (BRVO)
    - Risk factor of coronary artery disease
    - Intraretinal hemorrhages and macular edema consistent with typical presentation
  - Juxtafoveal Retinal Telangiectasia (JFRT)
    - Age and sex of patient consistent with unilateral, idiopathic presentation that JFRT can exhibit
    - Often presents with exudates which are not present in this patient.
  - Diabetic Retinopathy (DR)
    - Blot hemorrhages and macular edema consistent with DR
    - Medical record showed regular care and labs were not indicative of diabetes
  - Choroidal Neovascular Membrane (CNVM)
    - Age of patient appropriate for suspicion of CNVM due to macular degeneration
    - No drusen or pigmentary changes in either eye.

- **Impression**
  - Branch Retinal Vein Occlusion

- **Plan**
  - Following consult with ophthalmology, patient asked to:
    1. Return in one month.
    2. Begin home Amsler Grid.
    3. In case of deterioration, Anti-VEGF was planned.

- **Two Week Follow-Up- An Early Return**
  - Patient returned two weeks early with worsening vision and increased Amsler Grid distortion in the right eye.
  - Best corrected visual acuity worsened in the right eye to 20/40.
  - Dilated Fundus Exam
    - OD: Cluster of hemorrhages, 1DD of edema inferior to macula.
    - Also noted: a grey-green appearance in the edematous area.
  - Macular OCT
    - OD: Central thickness 372 microns, change analysis of +90 microns, thickening with disruption and elevation at level of RPE/choroid
    - OS: Central thickness 230 microns, stable & normal

![Images of OD, OS, and OCT scans]
- Fluorescein Angiography (FA)
  - OD: Early, well-defined hyperfluorescence consistent with a classic choroidal neovascular membrane
  - OS: Normal
III. **Differential Diagnosis: Causes of CNVM**

- **Age-Related Macular Degeneration**
  - Age and smoking status of patient suggestive
  - No drusen or RPE disruption in diseased or fellow eye.
- **Myopic Degeneration**
  - Patient is not myopic.
- **Angioid Streaks**
  - None present.
- **Trauma**
  - No history of trauma.
- **Inflammation (such as Presumed Ocular Histoplasmosis Syndrome)**
  - No signs of ocular inflammation
  - No risk factors in medical history for inflammatory disease.

IV. **Diagnosis and Discussion**

- **Final Diagnosis: Idiopathic Choroidal Neovascular Membrane**
  - No associated signs suggesting underlying disease process.
- **OCT** failed to show the lesion early on, but later did at follow-up. The diagnosis was then confirmed with a fluorescein angiogram.
  - Variability exists in the literature regarding the detection of subtle OCT changes in chorioretinal disease\(^9\).
  - Some report morphologic changes on OCT precede subjective and functional changes\(^8\), while others cite discrepancies between FA and OCT in the detection of macular disease.
- It has been suggested that a retinal vein occlusion could preclude the development of a CNVM\(^1\), but this does not seem likely in this case.
  - The lack of collateral vessel formation does not point to a causal relationship.
  - If this was the case, it would likely occur more frequently in ischemia from diabetic retinopathy and retinal vein occlusion, which are the two leading causes of retinal vascular disease in the United States\(^1,2\).

V. **Treatment & Management**

- Following the FA, a treatment series of three intravitreal Lucentis injections was initiated.
  - The patient will return in 1 month for the second injection.

- Anti-VEGF therapy has been successfully used in the treatment of neovascular AMD, proliferative diabetic retinopathy, retinal vein occlusion, diabetic macular edema and retinopathy of prematurity\(^2,7\).
  - Large clinical trials investigating anti-VEGF for idiopathic CNVM have not been performed, but several smaller studies suggest it is beneficial, safe and well tolerated for CNVM secondary to non-AMD causes\(^3,4,5,6\).
VI. Conclusion

- CNVM, especially idiopathic, can mimic a BRVO. Even in the absence of associated signs and risk factors, CNVM must remain a top differential diagnosis in cases of macular edema with intraretinal hemorrhaging.
- OCT provides limited information in the early detection of choroidal changes, and fluorescein angiography remains an important diagnostic indicator in chorioretinal disease of unclear etiology.
- Home Amsler Grids can detect subtle changes and facilitate earlier diagnosis and treatment.
- Lastly, anti-VEGF has become the standard treatment for chorioretinal diseases involving the macula.

VII. Bibliography