Atypical Presentation of Branch Retinal Vein Occlusion

Abstract:
Patient with history of non-ischemic branch retinal vein occlusion (BRVO) in the right eye presents with iris neovascularization and neovascularization elsewhere one month after occurrence, showing that a non-ischemic BRVO can become ischemic.

I. Case History:
- 74 YO WM presents for eye exam
- Ocular History
  - BRVO OD 6/2014
  - NAION OD 4/2013 and 5/2013
  - NAION OS 9/2000
- Medical History
  - HTN x ~40 years
  - Smoker x > 30 years
  - COPD
  - Hyperlipidemia
  - Peripheral vascular disease

II. Pertinent Findings
- Clinical
  - BCVA OD HM @ 1 ft, OS 20/25-2
  - Pupils: Equal, round, reactive to light OU, (+)APD OD
  - Slit Lamp:
    - Iris OD: NVI around pupillary margin, OS WNL, (-)NVI
  - Tonometry: OD 19mmHg, OS 18mmHg
  - DFE:
    - Optic Nerve: CD OD 0.35, diffuse pallor 360, CD OS 0.5, diffuse pallor 360
    - Macula: OD thickening, OS RPE mottling
    - Vessels: OD (+)NVE along sup/temp arcades, superficial hemes from resolving BRVO along sup/temp arcade, OS attenuated arterioles
    - Periphery: OD NVE sup/temp, OS unremarkable
  - Other Tests:
    - Gonioscopy: OU open to CBB 360, (-)NVA/PAS/AR
    - Fluorescein Angiography OD: ischemia along superior arcade with late leakage superiorly and temporally
    - OCT: macular edema OD

III: Differential Diagnoses
- Branch retinal vein occlusion
- Central retinal vein occlusion
- Proliferative diabetic retinopathy
- Diabetic macular edema
Hypertension

IV. Diagnosis and Discussion

- **Branch Retinal Vein Occlusion**
  
  BRVO patients present with flame shaped intraretinal hemorrhages, retinal edema and cotton wool spots along the distribution of the affected vessel, respecting the horizontal midline. While NVI and NVE are more commonly seen in CRVO patients, studies show cumulative 36 month incidences of NVI and NVE are 2.4% and 7.6% respectively in BRVO.

V. Treatment and Management

- Treatment for macular edema and neovascularization elsewhere retina: Intravitreal Avastin injection
- Treatment for iris neovascularization: Intravitreal Avastin injection + panretinal focal photocoagulation (PRP)

References:


VI: Conclusion

- Retinal vein occlusion is the second most common sight threatening retinal vascular disorder, with BRVOs occurring more commonly than CRVO. As with prevalence, the incidence of BRVO increases with age. Conversion from non-ischemic to ischemic BRVO can occur although the rate varies with the definitions used for these terms. In the SCORE BRVO study, using a definition of ischemia as five disc areas of capillary non-perfusion, the percentage of eyes which converted from non-ischemic to ischemic BRVO was double the baseline percentage at 12 and 24 months follow up. Other studies have shown a 29% rate of conversion from non-ischemic to ischemic. Clinicians should be mindful that while instances of iris neovascularization and neovascularization elsewhere are small in BRVO patients, they should be monitored closely in the event that the BRVO converts from non-ischemic to ischemic in order to initiate prompt treatment or referral as necessary.