The Quiet Road to Neovascular Glaucoma

Abstract
The most common cause of adult blindness in United States is diabetic retinopathy. Individuals may present with severe signs, while remaining asymptomatic. Dire complications such as neovascular glaucoma may result.

Case History
A 52 yo African American male presented to the emergency service with complaints of fluctuation of vision in his right eye for one month. He reported blurred vision for a couple of hours with subsequent resolution. He has a medical history of diabetes since 1989 and hypertension. His last HbA1c was 11% in May 2017 and last fasting blood sugar was 203mg/dL. His medications included glipizide, insulin, and Lisinopril. His ocular history is unremarkable. His last eye exam was 2 months ago at a free clinic.

Pertinent Findings
His entering vision sc was 20/40 OD (pinhole 20/20) and 20/20 OS. Entrance testing was unremarkable. Slit lamp evaluation revealed neovascularization of iris (NVI) 360 OD>OS. With 4-mirror gonioscopy, neovascularization of the angle (NVA) was noted in all quadrants in the right eye but none in the left eye. Goldmann applanation tonometry was 57mmHg OD and 12mmHg OS. Undilated fundus examination revealed neovascularization of the disc at 7-8 o’clock in the right eye. No neovascularization of the disc noted in the left eye. C/D in the right eye was 0.4/0.4 and left eye was 0.35/0.35. Macular OCT revealed macular edema in the right eye only, not classified as clinically significant macular edema (CSME).

Differential Diagnoses
Neovascular glaucoma (NVG) secondary to:
- Proliferative diabetic retinopathy
- Central retinal vein occlusion
- Ocular ischemic syndrome
- Ciliary body tumor
- Proliferative vitreoretinopathy

Treatment and Management
- Retinal specialist consultation with consensus that IOP needs to be lowered to avoid retinal occlusive event.
- IOP lowered in office with topical agents: Iopidine 1%, Simbrinza, and Combigan
  - IOP decreased from 57 to 30mmHg
  - Rx for Combigan BID OD only
  - RTC 1 day for IOP check
- 1 day follow up:
  - IOP 24 OD and 10 OS
• Referred out to retinal specialist immediately
  ▪ Treatment with anti-VEGF injections same day and panretinal photocoagulation 3 days later
  ▪ Currently being followed by retinal specialist

Discussion
Most diabetic patients are unaware of the serious consequences uncontrolled blood sugar can cause, as most of them are asymptomatic in early stages of the disease. Patients may be 20/20, they may not have clinically significant macular edema, and they may be young; yet they can have severe proliferative diabetic retinopathy that requires immediate treatment. NVI and NVA, if left undiagnosed, are major complications that may result in NVG. The worst-case scenario is a blind painful eye, leading to enucleation.

Conclusion
Most diabetic individuals are asymptomatic at the time diagnosis. An astute optometrist’s role is to not only to diagnose complications of diabetes but also, co-manage with specialist for optimal patient outcomes. Ideally, it is not only important to follow up with our diabetic patients, but also ensure their compliance in order to prevent patients from going down path of neovascular glaucoma.