Protective Effects of Optic Atrophy against Diabetic Retinopathy Progression

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Introduction

- Vision loss can be attributed to many underlying conditions. Ischemic optic neuropathy is a common cause of acute optic nerve damage in patients 50 years or older.[1] Diabetic retinopathy remains a major complication of diabetes mellitus and is a leading yet preventable cause of vision loss.[2] There are numerous modifying factors related to the development of diabetic retinopathy.[3]
- Optic atrophy has been associated with protective effects against the further development of diabetic retinopathy.[4]

Case Presentation

- 49-year-old female with a history of type 1 diabetes and hypertension presents for “cotton wool spots” OD for the last two years.
- Ocular history notable for non-arteritic anterior ischemic optic neuropathy (NAION) OS in 2021
- BCVA was 20/20 OD & 20/100 OS. DFE showed scattered dot-blot hemorrhages (DBHs) OD and 3+ optic disc pallor OS (Figure 1).
- Review of systems negative for inflammatory and infectious etiologies. Positive family history of autoimmune conditions, but presentation not consistent with inflammatory etiology—given no signs of inflammation on fundus autofluorescence (FAF) or intravenous fluorescein angiogram (IVFA) (Figure 1).
- Patient was diagnosed with non-proliferative diabetic retinopathy (NPDR) OD and referred to a retina specialist for 6-month follow-ups.

Imaging

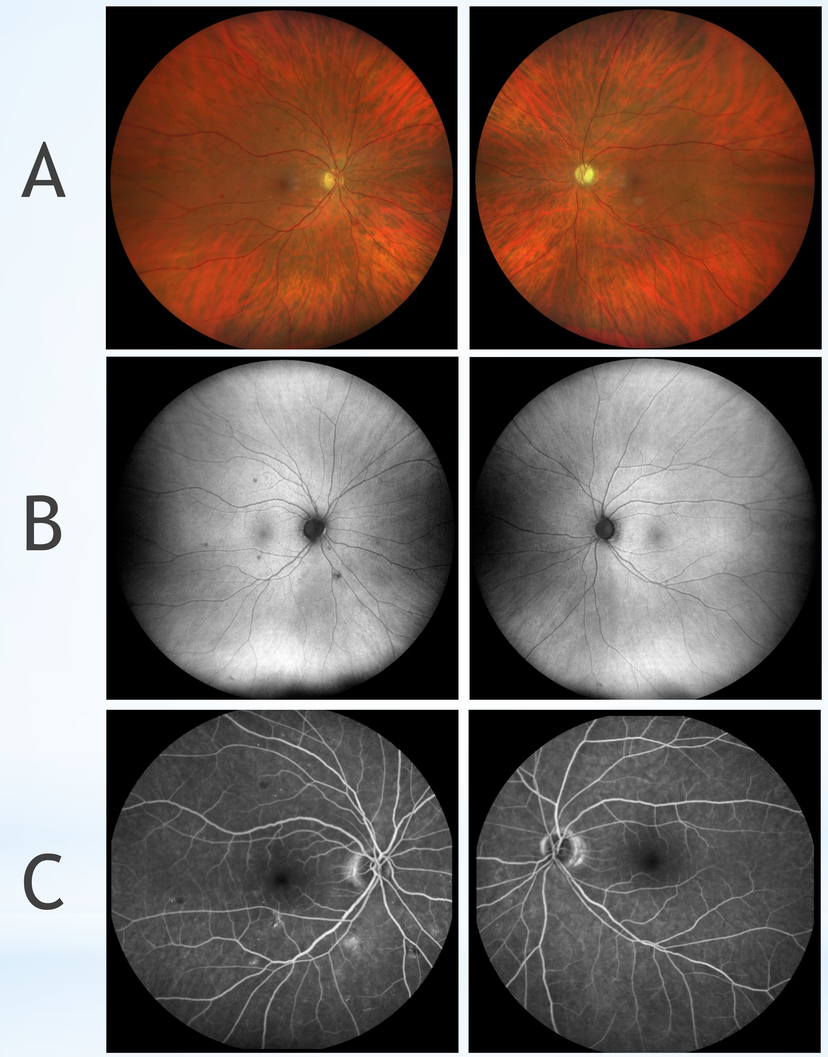

Figure 1: Fundus photos, FAF, IVFA demonstrating asymmetric nature of NPDR OD compared to OS.
A) Fundus photos: scattered DBHs OD and 3+ pallor OS
B) FAF: areas of hypo-autofluorescence OD corresponding to DBHs seen in fundus photos. No hyper-autofluorescence to suggest active chorioretinal inflammation
C) IVFA late stages (+8:00 OD & +7:18 OS): scattered microaneurysms and DBHs OD. No disc staining OU to suggest active inflammation

Discussion

- Loss of retinal nerve fibers may lower metabolic demand and lead to asymmetric diabetic retinopathy. Optic atrophy may lead to this protective effect against diabetic retinopathy.[4]
- This case describes a patient with a history of NAION and current diagnosis of diabetic retinopathy in the contralateral eye.
- Given the patient’s history and presentation, it is strongly suspected that this is an example of the protective effects that optic neuropathy can have against diabetic retinopathy progression. Additional studies are needed to further evaluate this intriguing association.

References

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