Author Communication

Intravitreal Bevacizumab in Non-Arteritic Anterior Ischemic Optic Neuropathy with Bilateral Optic Disc Drusen

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Pak J Ophthalmol 2018, Vol. 34, No. 1

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Non-arteritic anterior ischemic optic neuropathy is a vascular disease of optic nerve head. It occurs around 60 years of age and usually associated with hypertension, diabetes, hyperlipidemia and smoking. We present a case of bilateral optic disc drusen with unilateral anterior ischemic optic neuropathy in a 50 years old Asian male. He had history of transient obscuration of vision before he developed non-arteritic anterior ischemic optic neuropathy. Intra vitreal Bevacizumab was given and no improvement was seen in visual acuity after three months of follow-up.

Key Words: Optic disc drusen non-arteritic anterior ischemic optic neuropathy, optic disc edema, intravitreal Bevacizumab.

Anterior ischemic optic neuropathy (AION) is a disease of micro-circulation of the optic nerve head. Although arteritic AION is related with Giant cell arteritis, non-arteritic AION (NAION) is associated with small crowded discs, optic disc drusen, hypertension, diabetes, hyperlipidemia and smoking. NAION with optic disc drusen occurs at an earlier age. Vascular supply is compromised due to drusen in already small discs. Presence of optic disc drusen is an incidental finding but there is evidence that patients report transient visual obscurations as a result of increased pressure in the optic nerve head. We present a case of bilateral optic disc drusen with unilateral NAION. The effect of a single injection of intravitreal Bevacizumab is discussed in this case report.

CASE REPORT

A fifty years old Asian male presented with sudden onset of decreased vision in left eye. He also complained of transient obscuration of vision in the last few months. He was known hypertensive and non-diabetic. There was history of familial hyperlipidemia and transient ischemic attacks. The patient suffered left hemiparesis in 2005 and he had undergone left cholesteotoma surgery three times in the past (latest in year 2000).

The patient was an average stature, average built male and general physical examination showed no systemic abnormality. He was orthotropic with best-corrected visual acuity of 6/9 in right eye and 6/60 in left eye. Color vision was disturbed in left eye. Extra ocular movements were normal with no pain on eye movements. There was left RAPD and slit lamp examination for anterior segment showed +1 nuclear sclerosis in each eye. Intra ocular pressures were 13 mm Hg in each eye. Fundus examination revealed bilateral macular drusen. Optic disc drusen were also seen in both eyes and optic disc edema in left eye. Optic disc drusen were confirmed on B-scan and red free fundus photographs. OCT showed inferior RNFL defect in right eye while in left eye there was thickening of RNFL indicating disc edema. Blood work up was unremarkable (CBC, ESR, LFTs, RFTs). Serum cholesterol was normal but triglycerides were high (524.2 mg/dl). ECG and Echocardiography were normal. Carotid Doppler was normal. CT angio showed tiny calcific atheromatous plaques in distal

portion of left common carotid artery and proximal left internal carotid artery with normal lumen. The patient was given an intravitreal injection of Bevacizumab 1.25 mg in 0.05 ml. There was no improvement in visual status after three months of follow up.

DISCUSSION

NAAION is associated with hypertension, diabetes and hyperlipidemia. Other associations include, migraine, use of oral contraceptives, anemia and use of antihypertensive medicines at bed time. This particular patient had systemic as well as ocular risk factors for NAION; hyperlipidemia, hypertension, small crowded discs and optic disc drusen. Optic disc drusen with co-existing vascular risk factors in a patient of NAAION was also reported by Deborah and Sharon[1]. Although optic disc drusen are asymptomatic but they can lead to complications including NAION. Optic disc drusen can also cause

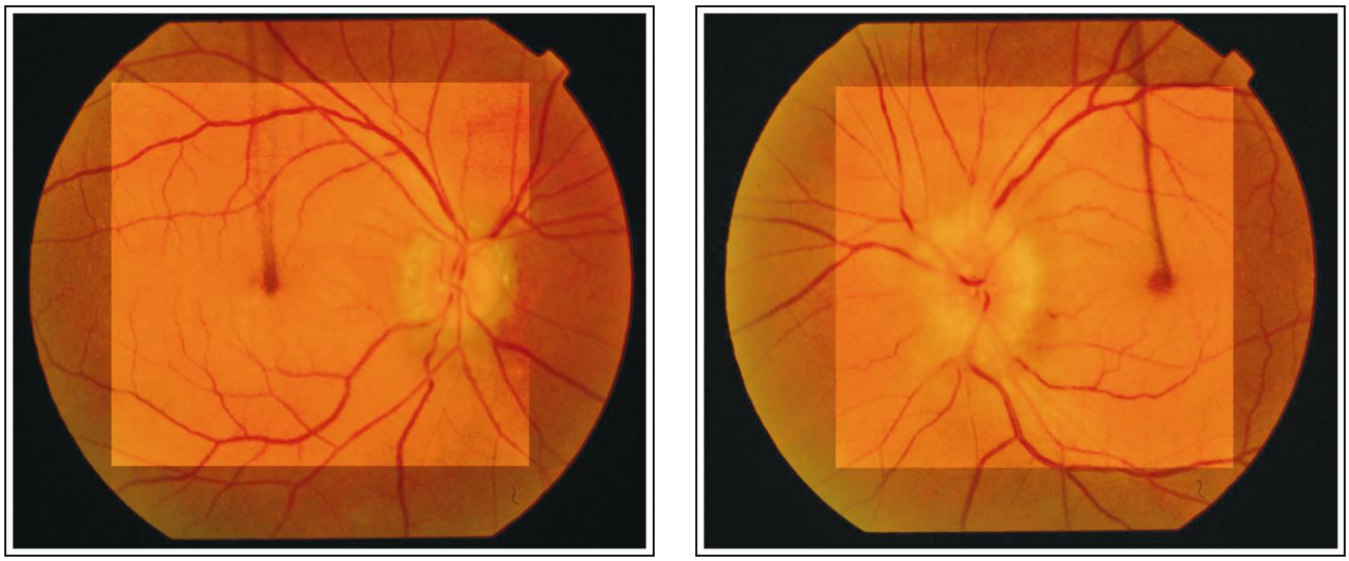

Fig. 1: Fundus photographs showing optic disc drusen in both eyes and disc edema in left eye.

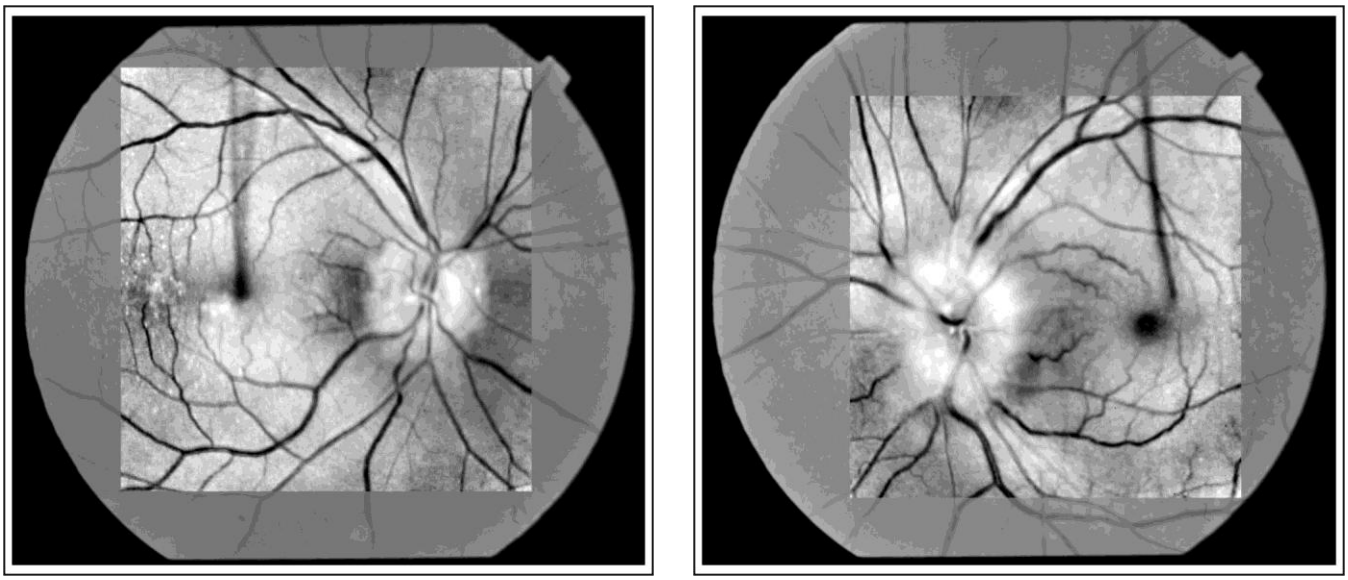

Fig. 2: Red free Fundus photographs showing auto-fluorescence of optic disc drusen in both eyes and disc edema in left eye.

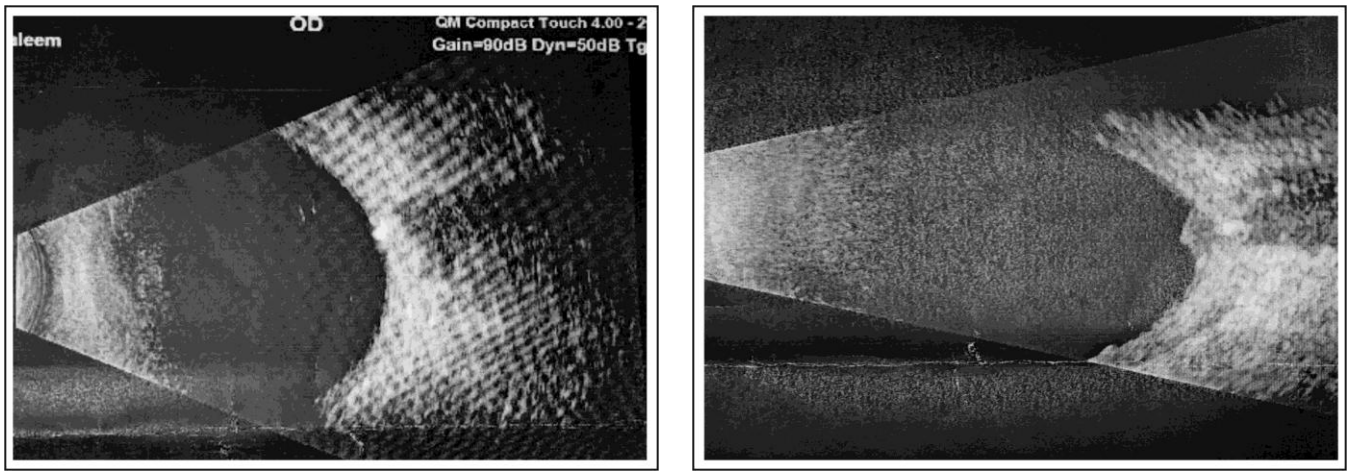

Fig. 3: B-scan showing optic disc drusen.

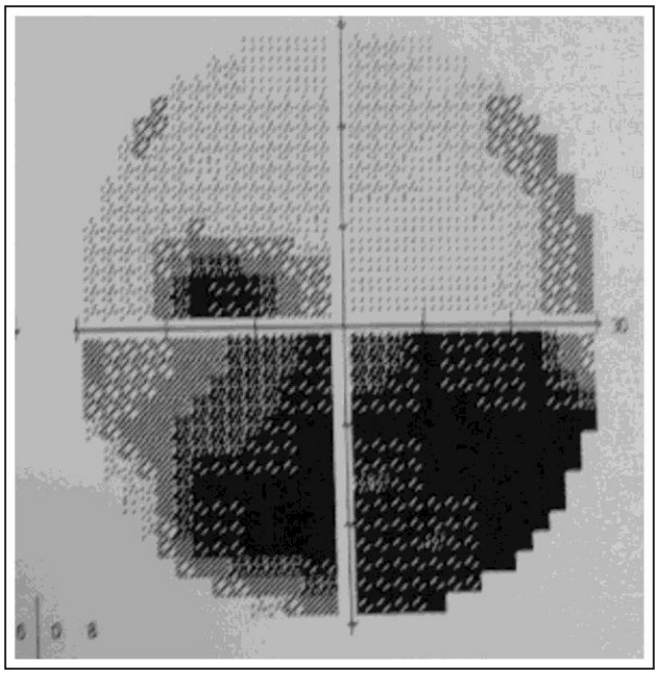

Fig. 4: Inferior Altitudnal visual field defect in NAAION and optic disc drusen.

CRAO and CRVO due to small scleral canal and crowding of retinal nerve fibers in the optic disc.

NAAION with optic disc drusen occurs at a younger age as was seen in our patient whose age was 50 years. Ayhan Z has reported NAION with bilateral optic disc drusen in a 46 years old patient[2]. The youngest patient reported to have NAION with optic disc drusen was of 12 years[3]. Other authors have also reported optic disc drusen with NAION.[4] Purvin et al in a case series showed that patients with NAION with optic disc drusen have transient visual obscurations[5]. This finding was consistent with our patient who had transient obscuration of vision and transient ischemic attacks before he developed optic neuropathy. Although Purvin reported better visual prognosis in such patients, our patient had poor visual outcome after three months of follow up. This particular patient had inferior altitudinal visual field loss which is seen in 55 to 80% cases of NAION[6].

Hypertension can have a direct effect on optic disc blood supply as well as indirect effect, caused by nocturnal hypotension due to antihypertensive drugs taken at bed time.

Use of anti VEGF agents in retinal diseases has become wide spread all over the world. Its use in the treatment of NAION is also reported in literature but with variable results. It is hypothesized that anti-VEGFs decrease disc edema thus resulting in decrease pressure on optic nerve fibers and better visual outcome. But the results are inconsistent. Some authors showed visual improvement after injecting intravitreal anti-VEGF for NAION[7]. Others showed no visual improvement in vision after intravitreal anti-VEGF injection[8]. This was similar to our result. Still there are other reports which found no difference between bevacizumab and natural history for change in visual field, visual acuity, or optic nerve OCT thickness[9]. One case report showed definitive promising results where NAION was related with macular edema[10]. This can be explained by the fact that the visual loss caused by macular edema was corrected with anti-VEGF which has shown promising results in macular edema cases.

Few case reports are not enough evidence for use of anti-VEGF in NAION. Further clinical trials are needed to see the role of these agents in optic nerve diseases.

CONCLUSION

Optic disc drusen are important risk factor for development of NAION in younger patients, even in the absence of vascular risk factors. However, these patients should be kept at close watch for earlier and timely management of vascular factors like hypertension, diabetes, migraine, hyperlipidemia and anaemia etc. Role of anti-VEGF in this condition is still a question mark.

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