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Do Optic Disc Drusen Cause Unilateral Nyctalopia?

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Key Words

Optic disc drusen · Optic nerve head · Nyctalopia · Visual field defect

Abstract

This is a case report of a patient with unilateral nyctalopia in whom ipsilateral optic disc drusen were the only finding despite extensive investigation.

Introduction

This is a case report of a patient with unilateral nyctalopia in whom ipsilateral optic disc drusen were the only finding despite extensive investigation.

Case Report

A 38-year-old female with no previous ocular problems presented with a 12-month history of impaired vision in the left eye in dimly lit conditions. The right eye retained good vision in both photopic and scotopic conditions. There were no symptoms of floaters, photopsia or headache. Past medical history was unremarkable except for regular fluoxetine that she had taken for 3 years. She is 1 of 4 siblings and there is no family history of ocular disease.

On examination visual acuity was found to be 6/5 in both eyes unaided. Color vision using Ishihara number plates, pupil testing and anterior segment examination were normal, and the ocular media were clear.

Left eye fundal examination revealed optic disc drusen at the superonasal disc quadrant with a lumpy but not swollen disc margin and anomalous vessel branching. Retinal vessels were of normal caliber and there was no evidence of peripheral retinal degenerative changes. Right eye fundoscopy was within normal limits. Left disc drusen were confirmed with ophthalmic ultrasound.

MRI of the brain demonstrated normal brain, pituitary fossa and optic nerve appearances. Both pattern and flash ERG demonstrated normal functioning retina with no difference between each eye. There was no delayed conductivity with visual-evoked potential. Central 30 degrees standard automated perimetry did not identify any visual field defect. Blood investigations including full blood count, thyroid function tests, serum vitamin B₁₂, folate and ferritin, vitamin A, liver function tests, glucose, urea and electrolytes, and erythrocyte sedimentation rate were within normal limits.

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Discussion

Optic disc drusen are characterized by the presence of laminated aggregates of acellular hyaline-like material embedded in the optic nerve head – commonly found in front of the lamina cribosa. There is female preponderance and they usually affect both eyes, asymmetrically. Prevalence rate was thought to be 3.4 in 1,000 [1], but was found to be higher in cadaveric histological studies. Pathogenesis remains unknown. The most accepted theory is that they are due to the altered axoplasmic flow of the ganglion cells [2]. Optic disc drusen can be categorized as buried or exposed by the depth of the calcified material. The former lies deeper beneath the surface making it more difficult to be identified, thus diagnosed at a later age. The latter (as in our patient) may be diagnosed in childhood with the presence of an irregular waxy pearl-like substance at the surface of the disc [1].

A study demonstrated that 87% of the patients with optic disc drusen experience an extent of progressive visual field defect in their lifetime [3]. Arcuate scotoma is common and it tends to be worse when it is associated with exposed drusen [4]. Surprisingly, there is no association between the position of the optic disc drusen and the visual field defect. Central vision is usually well preserved [5].

Reported complications of disc drusen can include acute visual field defect, retinal vein or artery occlusion and peripapillary choroidal neovascularization [4, 6], believed to be due to compressive effects within the optic nerve head [6]; and commonly small discs [7] and anomalous vessel branching [8] are present.

Common causes of nyctalopia include high myopia, vitamin A deficiency, cataract, retinitis pigmentosa and miotics [9], which were ruled out in our patient. We can find no literature describing nyctalopia in patients with optic disc drusen.

Conclusion

This patient has very eloquently described and specific symptoms, which are persistent and reproducible, and yet despite extensive examination and investigations no abnormal findings apart from optic disc drusen in the symptomatic eye can be found.

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