

Association of Optic Disc Drusen and Acute Anterior Ischemic Optic Neuropathy: A Case Report

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Abstract

Case Report

Optic disc drusen are extracellular calcified deposits that form at the level of the optic disc. These deposits may be visible during a fundus examination and are typically identified as yellowish spots of varying size. Most of the time, optic disc drusen are asymptomatic, but they can be associated with visual field changes and may influence the development of certain optic pathologies. This article describes a case of a 65-year-old man with disc drusen complicated by acute anterior ischemic optic neuropathy.

Keywords: Drusen, Optic disc, neuropathy.

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INTRODUCTION

Optic disc drusen are extracellular calcified deposits that form at the level of the optic disc. They are often associated with normal aging of the optic nerve but can also be present in younger patients. These deposits may be visible during a fundus examination and are typically identified as yellowish spots of varying size. Most of the time, optic disc drusen are asymptomatic, but they can be associated with visual field changes and may influence the development of certain optic pathologies [1]. This article describes a case of optic disc drusen complicated by acute anterior ischemic optic neuropathy (AION).

OBSERVATION

M.A., a 65-year-old male with no significant medical or ophthalmological history, presents with visual field loss and blurred vision in his right eye, which has been present for 10 days, without any other associated symptoms. Upon examination, visual acuity in the right eye is 1/10 on Monoyer scale, and in the left eye is 10/10. The anterior segment examination shows no abnormalities in either eye. Fundus examination reveals a right optic disc with blurred margins and pale yellowish lesions embedded in the disc, suggesting drusen (Fig.1). The left eye fundus is normal.

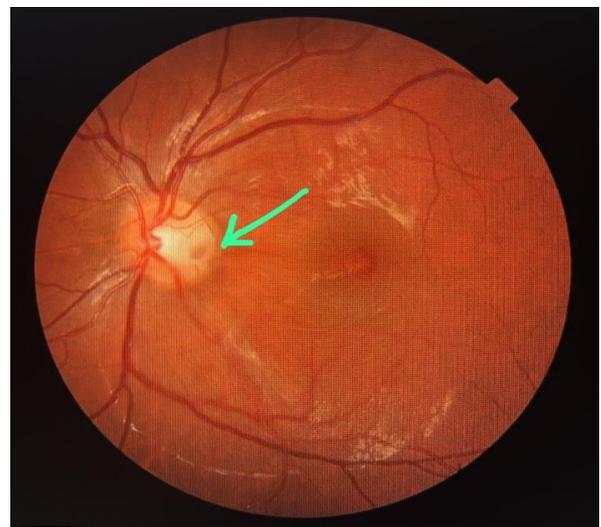


Figure 1: Color and autofluorescence retinal photographs showing a blurred optic disc with drusen (Green arrow)

A fluorescein angiography shows late disc diffusion, confirming optic disc edema (Fig.2). Optical coherence tomography (OCT) of the optic disc shows a hyporeflective halo around the drusen, surrounded by a hyperreflective ring, with an abrupt end to the retinal pigment epithelium and photoreceptor layer (Fig.3). The visual field of the right eye shows an inferior altitudinal defect, suggestive of AION (Fig.4).



Figure 2: Fluorescein angiography showing late disc diffusion

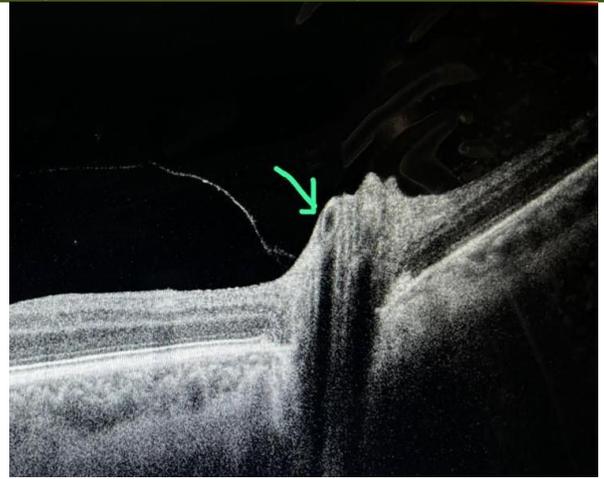


Figure 3: OCT of the optic nerve head showing drusen with a hyporeflective halo surrounded by a hyperreflective ring

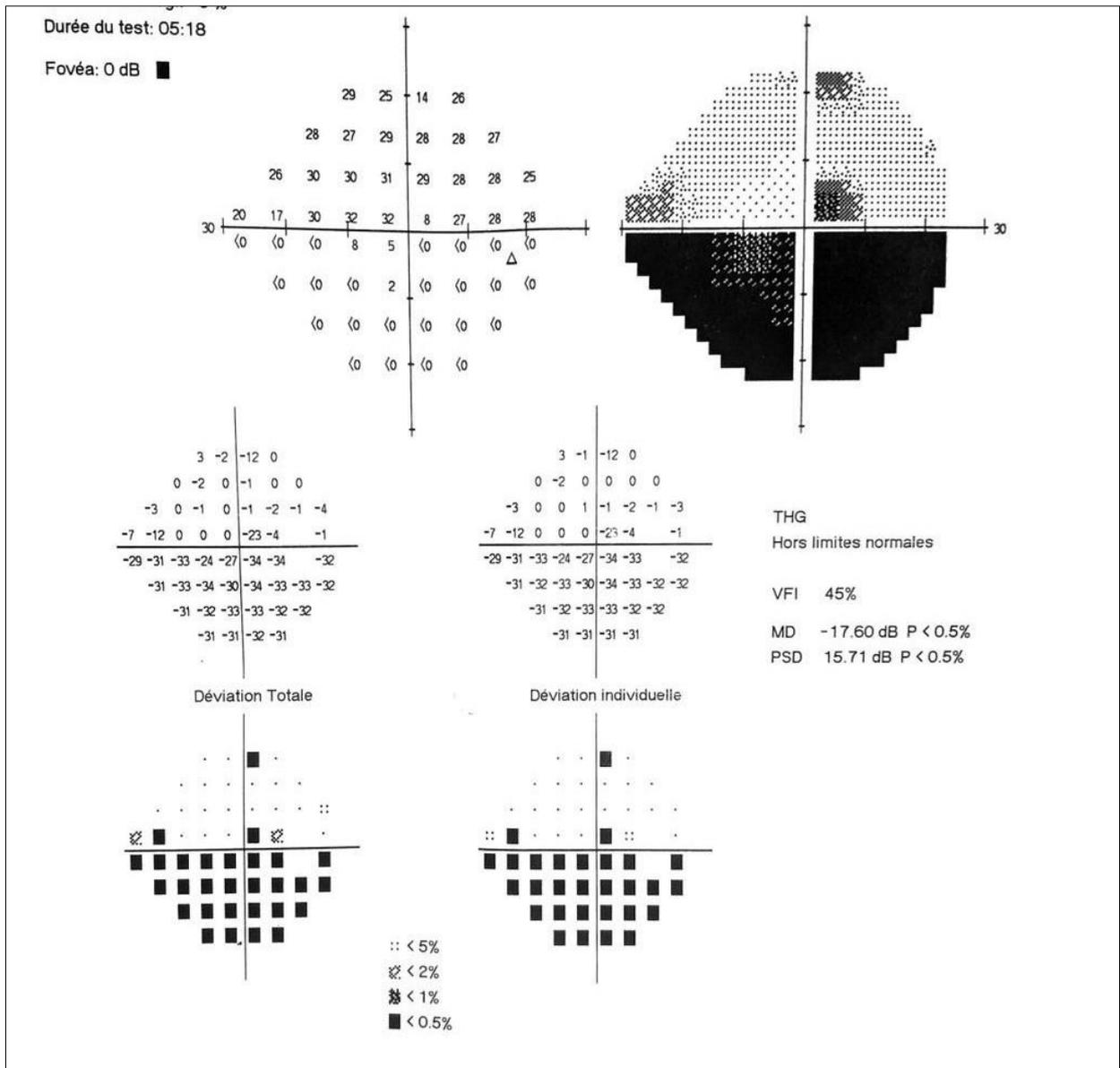


Figure 4: Automated visual field showing an inferior altitudinal defect

The sedimentation rate and CRP are normal. A cardiovascular workup, including an electrocardiogram, 24-hour blood pressure monitoring, transthoracic echocardiogram, and Doppler ultrasound of the supra-aortic trunks, returned normal results. Fasting blood glucose and thyroid tests were also unremarkable. Cerebro-orbital MRI angiography showed no abnormalities.

No treatment was initiated, but regular follow-up visits showed slight improvement in visual acuity in the right eye, rising to 3/10, while the visual field defect remained unchanged.

DISCUSSION

Optic disc drusen, which seem to be associated with a narrow scleral canal, may cause vascular complications. The explanation could be mechanical, with compression of vascular axes in already small optic discs with minor excavation [2].

Complementary examinations rely on autofluorescence imaging and OCT to evaluate the thickness of the optic nerve fiber layer and confirm the presence of drusen. Their characteristics on OCT include a hyporeflective subretinal space within 0.7 mm of the disc and smooth dome-shaped lesions in the disc with a lumpy internal contour and a hyporeflective space between the retinal pigment epithelium and photoreceptor layers, which have an abrupt end [3].

Several studies have found that optic disc drusen are an independent risk factor for the development of anterior ischemic optic neuropathy [4,5], while other studies consider this association to be purely coincidental [6,7].

The management of AION is delicate. Close monitoring of intraocular pressure is essential. Strategies to improve blood flow to the optic nerve, such as hyperbaric oxygen therapy, may be considered. It is also important to educate the patient about modifiable cardiovascular risk factors to reduce the risk of worsening or bilateral involvement [8]. Although no preventive or curative treatment is currently available for visual field loss caused by optic disc drusen, a cardiovascular screening is essential to rule out other causes of non-arteritic AION [9].

The progression of AION in the presence of optic disc drusen varies from one patient to another, with a slightly better prognosis compared to other causes of non-arteritic AION [10]. Prognosis also depends on age, the severity of initial nerve damage, and comorbidities.

Long-term studies are needed to better understand prognosis and identify predictive factors [11].

CONCLUSION

Optic disc drusen are sometimes considered a simple fundus anomaly. However, their presence can be associated with a form of non-arteritic AION that seems to have specific features, such as earlier onset, a better underlying vascular condition, and a better functional prognosis.

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