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Case Report

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Peripapillary Intrachoroidal Cavitation in Myopic Eyes: Incidental Findings in Two Elderly Patients and Multimodal Imaging Correlation

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ABSTRACT

Introduction: Peripapillary intrachoroidal cavitation (PIC) is an uncommon structural abnormality predominantly described in highly myopic eyes. With the widespread use of optical coherence tomography (OCT), incidental detection has become more frequent.

Case Series: We report two elderly patients with anisometropia and primary open-angle glaucoma in whom PIC was identified during routine follow-up. Fundus examination revealed peripapillary atrophy associated with a deep yellow-orange lesion inferior to the myopic crescent. Spectral-domain OCT demonstrated well-demarcated hypo reflective intrachoroidal cavities beneath the retinal pigment epithelium, contiguous with the optic nerve head, mimicking a colobomatous defect. In one case, visual field testing demonstrated glaucomatous progression without clear topographic correlation with the cavitation. In the second case, updated visual field testing showed advanced glaucomatous damage with a tubular residual visual field, also without topographic correlation with the cavitation.

Conclusion: Recognition of PIC is crucial in myopic patients, particularly those with coexisting glaucoma, to prevent diagnostic confusion and ensure appropriate monitoring.

Keywords: Peripapillary Intrachoroidal Cavitation, Pathologic Myopia, Optical Coherence Tomography, Glaucoma.

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Introduction

Peripapillary intrachoroidal cavitation (PIC) is a structural abnormality associated with myopic fundus changes. It was initially described in the context of peripapillary detachment in pathologic myopia [1]. Advances in spectral-domain OCT have clarified its intrachoroidal origin and distinct anatomical configuration [2–4]. Although typically incidental, its recognition is important, especially in patients with coexisting glaucoma [5].

Case Report

Case 1

An 86-year-old male patient with diabetes mellitus, systemic hypertension, and primary open-angle glaucoma under triple topical therapy underwent routine follow-up. Best-corrected visual acuity was 5/10 in both eyes. Intraocular pressure was 22 mmHg bilaterally under treatment.

The patient presented with anisometropia. The spherical equivalent was plano in the right eye (+1.00 with −2.00 diopters of astigmatism) and −3.25 diopters in the left eye (−2.75 with −1.00 diopters of astigmatism). Axial length measurements showed an interocular difference (24.18 mm in the right eye and 25.81 mm in the left eye). No posterior staphyloma was identified clinically.

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Fundus examination showed bilateral peripapillary atrophy and a deep inferior yellow-orange lesion along the myopic crescent (Figure 1). Fundus imaging was performed using a fundus imaging device (Eidon, CenterVue). Optical coherence tomography was performed using a spectral-domain OCT device (Optovue, Aventie), revealing a well-defined hyporeflective intrachoroidal cavity beneath the retinal pigment epithelium contiguous with the optic nerve head (white arrows in Figure 2).

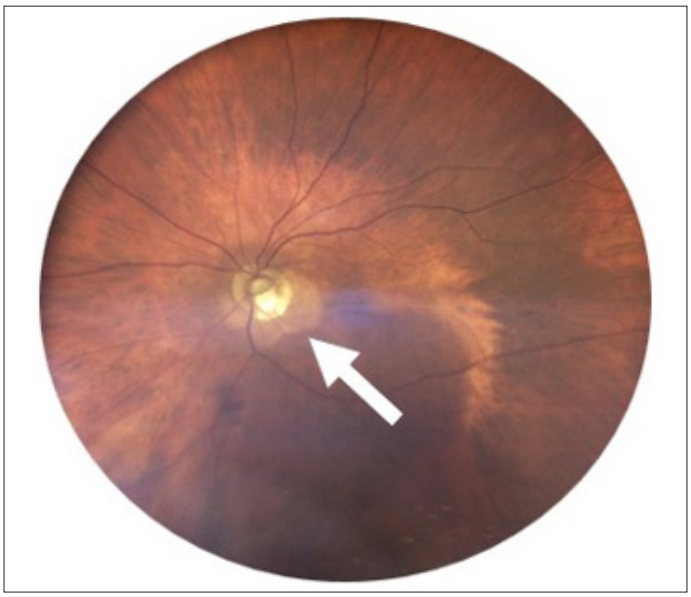

Figure 1: Fundus photograph of Case 1 showing peripapillary atrophy and an inferior yellow-orange lesion along the myopic crescent.

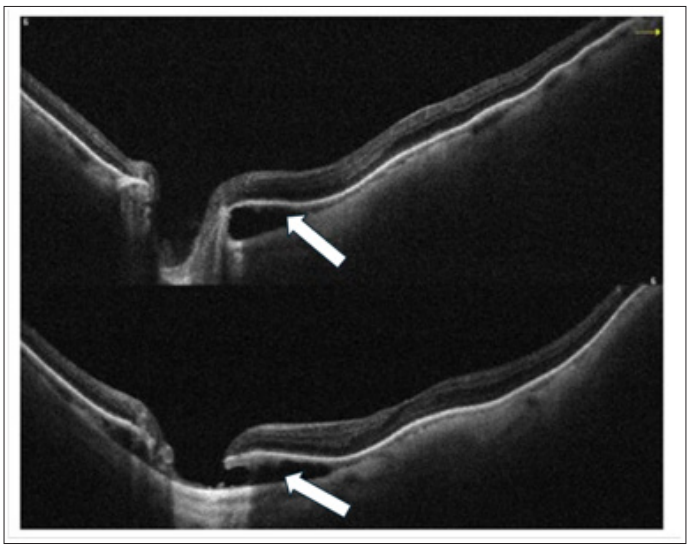

Figure 2: Spectral-domain OCT of Case 1 (two B-scans) demonstrating well-defined hyporeflective intrachoroidal cavities (white arrows) beneath the retinal pigment epithelium, contiguous with the optic nerve head.

RNFL thinning was compatible with glaucomatous damage and remained stable during follow-up.

Standard automated perimetry was performed using the Humphrey Field Analyzer and demonstrated mild progression consistent with glaucoma (Figure 3). Although a visual field defect was present, no clear topographic correlation with the location of the cavitation was identified.

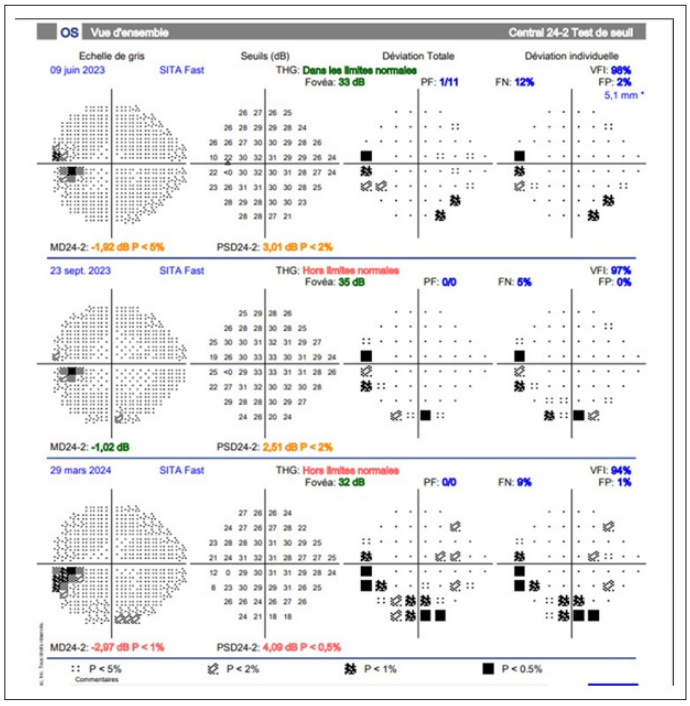

Figure 3: Standard automated perimetry of Case 1 showing a visual field defect consistent with glaucomatous damage. No clear topographic correlation with the intrachoroidal cavitation was observed.

Case 2

A 76-year-old male patient with a history of systemic hypertension and well-controlled primary open-angle glaucoma was seen during a scheduled follow-up visit. He did not report any new visual complaints. Best-corrected visual acuity measured 8/10 in the right eye and 6/10 in the left eye, and intraocular pressure was 13 mmHg in both eyes under topical therapy.

The patient also presented with anisometropia. The spherical equivalent was −2.38 diopters in the right eye (−1.50 with −1.75 diopters of astigmatism) and −5.75 diopters in the left eye (−5.00 with −1.50 diopters of astigmatism). Axial length measurements were 24.98 mm in the right eye and 26.04 mm in the left eye. No posterior staphyloma was identified clinically.

On fundus examination, we visualized a dysverted optic disc, with marked peripapillary atrophy (Figure 4). Inferior to the disc, there was a well-circumscribed, deep yellowish lesion, clearly demarcated from the surrounding atrophic area. The appearance was suggestive of a structural abnormality rather than an active lesion.

Spectral-domain OCT confirmed the presence of a hyporeflective intrachoroidal cavity contiguous with the optic nerve head (Figure 5). The overlying retina and retinal pigment epithelium remained intact. Retinal nerve fiber layer analysis showed thinning consistent with previously documented glaucomatous optic neuropathy, without recent progression.

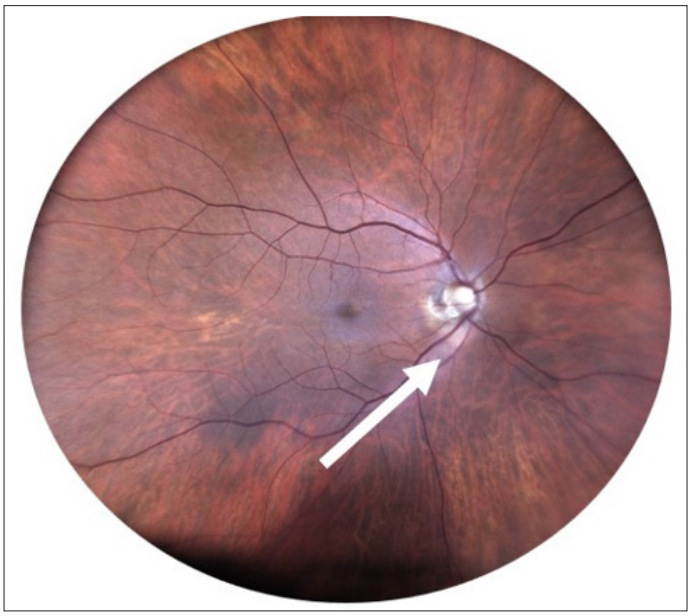

Figure 4: Fundus photograph of Case 2 demonstrating dysverted optic disc with marked peripapillary atrophy and inferior yellow-orange lesion.

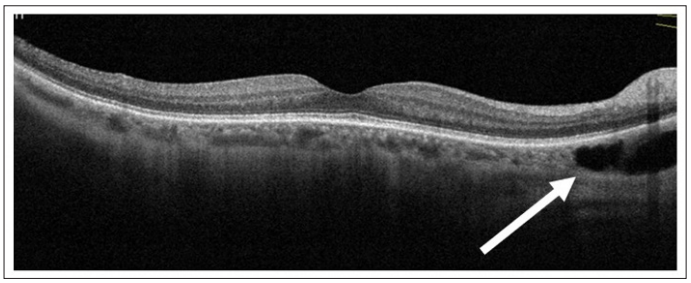

Figure 5: Spectral-domain OCT of Case 2 confirming peripapillary intrachoroidal cavitation (white arrow) within the choroid.

Standard automated perimetry (Humphrey Field Analyzer) demonstrated advanced glaucomatous visual field loss in both eyes, with a tubular residual visual field (Figure 6). Given the severity of glaucomatous damage, functional impairment could not be specifically attributed to the intrachoroidal cavitation. No clear topographic correlation was observed between the location of the cavitation and the visual field defects.

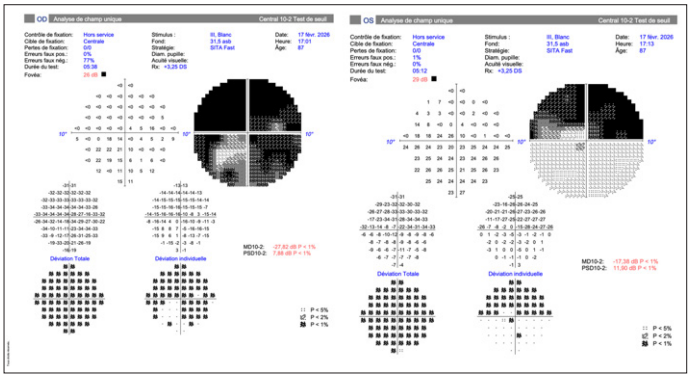

Figure 6: Humphrey 10-2 visual fields of Case 2 showing advanced glaucomatous damage with tubular residual fields and no topographic correlation with the intrachoroidal cavitation.

Discussion

Initially, authors thought that this pathology results from progressive biomechanical stress related to axial elongation in myopic eyes, leading to localized separation within choroidal layers [2,5]. The lesion is frequently found in the inferior peripapillary region in myopic eyes, as observed in both of our cases.

The coexistence of PIC and glaucoma represents a diagnostic challenge. Several studies have emphasized that structural alterations associated with PIC may influence RNFL segmentation and complicate glaucoma progression analysis [3,4,6]. In our first case, visual field changes were consistent with glaucomatous progression but did not demonstrate spatial correspondence with the cavitation, supporting the interpretation that the functional defect was primarily glaucomatous.

In our second case, updated visual field testing demonstrated advanced glaucomatous damage with a tubular residual field. Despite the severity of functional impairment, no topographic correlation was observed between the visual field defects and the location of the intrachoroidal cavitation, supporting the hypothesis that visual field loss was primarily related to glaucoma.

OCT remains the cornerstone of diagnosis, allowing precise visualization of a hyporeflective intrachoroidal cavity contiguous with the optic nerve head [2,5]. Enhanced depth imaging further improves delineation of choroidal architecture and facilitates differentiation from other peripapillary anomalies.

Structural alterations may mimic glaucomatous progression and complicate RNFL interpretation due to segmentation artifacts. In our second case, functional changes were attributable to glaucoma rather than the cavitation itself. Awareness of this entity is particularly important in myopic glaucomatous patients, in whom structural interpretation of OCT parameters may be misleading [4,6].

Accurate recognition of PIC is essential to avoid misinterpretation and unnecessary therapeutic escalation.

Conclusion

Peripapillary intrachoroidal cavitation is an uncommon but clinically relevant finding in myopic eyes. OCT plays a central role in diagnosis. Awareness of this entity is essential in myopic patients with coexisting glaucoma to avoid diagnostic misinterpretation and unnecessary therapeutic escalation.

Guarantor of Submission

The corresponding author is the guarantor of submission.

Conflict of Interest

The authors declare no conflicts of interest.

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