

# Microstructure of Peripapillary Atrophy and Subsequent Visual Field Progression in Treated Primary Open-Angle Glaucoma

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**PURPOSE:** To investigate the relationship between the microstructure of  $\alpha$ -zone peripapillary atrophy (PPA) and the subsequent visual field (VF) progression in eyes with primary open-angle glaucoma (POAG) , including highly myopic eyes.

**DESIGN:** Retrospective cohort study.

**PARTICIPANTS:** A total of 129 patients with POAG who had been followed up for a minimum of 2 years and had undergone at least 5 reliable standard automated perimetry tests after spectral-domain (SD) optical coherence tomography (OCT) examination.

**METHODS:**  $\alpha$ -Zone PPA was evaluated from 3 SD OCT scans centered on the optic disc. Upper and lower scans were defined as scans at 30° above and below the horizontal scan, respectively. From 3 scans of each eye,  $\alpha$ -zone PPA was classified as PPA+BM or PPA-BM on the basis of the presence or absence of Bruch's membrane (BM) , respectively. Eyes were classified into 3 groups according to the horizontal scan images: group A (only PPA+BM) , group B (both PPA+BM and PPA-BM) , and group C (only PPA-BM) . Factors associated with the subsequent mean deviation (MD) slope after OCT examination were analyzed, and the hemifield total deviation (TD) slope was assessed in eyes with unilateral hemifield VF defects in the corresponding direction.

**MAIN OUTCOME MEASURES:** Subsequent MD slope after OCT examination.

**RESULTS:** The VF progression in group A was faster than in group C ( $P = 0.004$ ) . A larger PPA+BM width was associated with a faster MD slope in all eyes ( $P < 0.001$ ) .

**CONCLUSIONS:** There were significant differences in VF progression according to the microstructure of the  $\alpha$ -zone PPA in eyes with POAG. The PPA+BM width may be an important risk factor for VF progression in POAG, including high myopia, and the PPA-BM width may have a protective effect for VF progression in this subtype of POAG.

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