Accepted Manuscript

Focal Lamina Cribrosa Defect in Myopic Eyes with Non-Progressive Glaucomatous Visual Field Defect

Yu Sawada, Makoto Araie, Hitomi Kasuga, Makoto Ishikawa, Toyoto Iwata, Katsuyuki Murata, Takeshi Yoshitomi

PII: S0002-9394(18)30117-X

DOI: 10.1016/j.ajo.2018.03.018

Reference: AJOPHT 10452

To appear in: *American Journal of Ophthalmology*

Received Date: 26 November 2017

Revised Date: 8 March 2018

Accepted Date: 9 March 2018

Please cite this article as: Sawada Y, Araie M, Kasuga H, Ishikawa M, Iwata T, Murata K, Yoshitomi T, Focal Lamina Cribrosa Defect in Myopic Eyes with Non-Progressive Glaucomatous Visual Field Defect, *American Journal of Ophthalmology* (2018), doi: 10.1016/j.ajo.2018.03.018.

Purpose: To investigate focal lamina cribrosa (LC) defect that spatially correspond to the non-progressive glaucomatous visual field defect (VFD) in myopic subjects.

Design: Case-control study.

Subjects: We included 159 myopic eyes with glaucomatous VFD under treatment and followed up for 7 years.

Methods: Serial enhanced depth imaging spectral domain-optical coherence tomography (EDI OCT) B-scans of the optic discs were acquired at the end of the follow-up and reviewed for the LC defect. Non-progressive VFD was defined as having ≤ 1 progressing point of Humphrey VF, with a slope calculated using pointwise linear regression worse than -1.0dB/year at $P < 0.01$. Eyes were classified as having either progressive or non-progressive VFD, and associating factors were evaluated.

Results: Sixty-four subjects (40.3%) exhibited non-progressive VFD with the mean deviation change -0.06 ± 0.22dB/year. Multivariate logistic regression analysis revealed that presence of LC defect was significantly associated with non-progressive VFD (odds ratio, 3.96; $P = 0.002$). The location of LC defect corresponded spatially to the location of VFD. Non-progressive eyes with LC defect exhibited lower baseline intraocular pressure (IOP) (16.6mmHg vs. 21.0mmHg, $P = 0.0030$) and smaller percent of IOP change (12.9% vs. 30.5%, $P < 0.0001$) than those without LC defect, but greater myopic optic disc deformation (10.1 degrees vs. 1.2 degrees in torsion angle, $P < 0.0001$). When the eyes with LC defect had higher baseline IOP, they exhibited progressive VFD.

Conclusions: In myopic eyes, there are specific patters of LC defect that are suggested to be associated with non-progressive glaucomatous VFD.