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CORRESPONDENCE

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Structural integrity of retinal pigment epithelial cells in eyes with age-related scattered hypofluorescent spots on late phase indocyanine green angiography (ASHS-LIA)

Eye (2023) 37:377–378; https://doi.org/10.1038/s41433-022-02232-x

TO THE EDITOR:

We read with great interest "Visualizing lipid behind the retina in aging and age-related macular degeneration, via indocyanine green angiography (ASHS-LIA)" by Chen et al. [1], suggesting that ASHS-LIA arises from the diffuse form of lipoprotein-related lipids accumulating in Bruch's membrane throughout adulthood, with age being the most relevant independent factor for ASHS-LIA frequency [1–3]. This article piqued our interest as it explains our similar findings in a separate patient cohort.

A retrospective analysis of 105 subjects at the National Eye Institute revealed an age-dependent distribution of ASHS-LIA (Fig. 1) which replicates the findings reported in Fig. 6 of Chen et al. [1] in a distinct patient cohort.

In addition to conventional clinical imaging, the increased resolution capabilities of adaptive optics enhanced indocyanine green (AO-ICG) imaging [4, 5] provided a view of heterogeneously-labeled retinal pigment epithelial (RPE) cells within the ASHS-LIA pattern (Fig. 2). Comparison of RPE cell density and spacing in five hypocyanescent and five normally cyanescent areas did not reveal any statistically significant differences (density: $p = 0.86$, spacing: $p = 0.78$; two-sample *t*-test). This suggests that the ASHS-LIA pattern does not arise due to differences in RPE structure or density and is supportive of the notion that the hypocyanescence could be due to lipids in Bruch's membrane impeding the passage of ICG to the RPE.

This additional data from our cohort, which includes healthy retinae, further strengthens the idea that ASHS-LIA may be associated with aging and lipoprotein accumulation manifesting as basal linear deposits, a thin layer of soft drusen material [1, 2]. The contribution of AO-ICG imaging indicates a pattern of reduced RPE late phase cyanescence in the setting of a structurally-normal RPE.

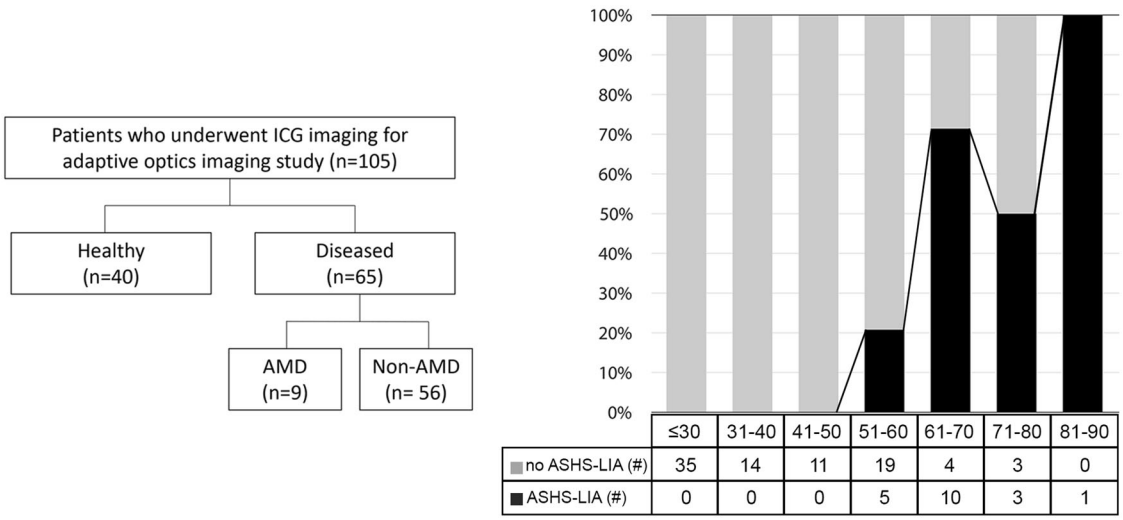

Fig. 1 Frequency of ASHS-LIA in our cohort. Similar to Chen et al. [1], an increase in occurence of the ASHS-LIA pattern is observed in our cohort starting in the fifth decade.

Received: 18 August 2022 Revised: 23 August 2022 Accepted: 30 August 2022
Published online: 17 September 2022

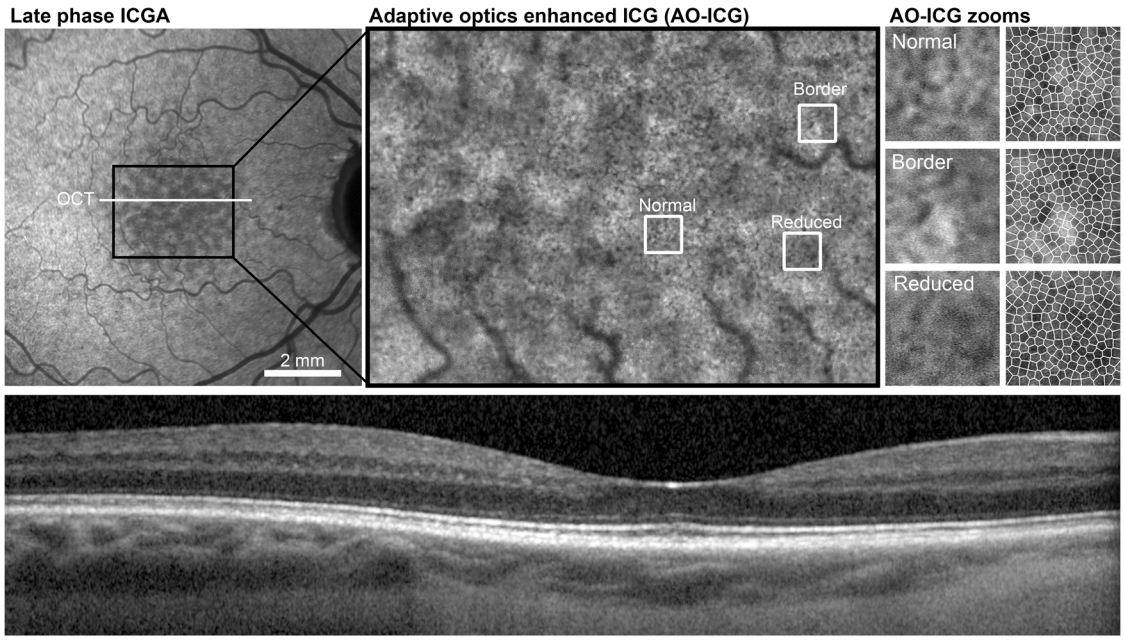

Fig. 2 The alternating bright and dark pattern (ASHS-LIA), not evident on optical coherence tomography (OCT), was visible using late phase ICGA in a healthy eye (63-year-old) in both conventional and adaptive optics imaging. Individual RPE cells (represented by Voronoi regions) can be discerned based on the heterogeneous pattern of cyanescence between neighboring cells.

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DATA AVAILABILITY

All data generated or analyzed during this study are included in this article.

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ACKNOWLEDGEMENTS

The authors would like to thank Alfredo Dubra for assistance with adaptive optics instrumentation and software, and Mike Arango, Denise Cunningham, HaeWon Jung, Jianfei Liu, Rongwen Lu, Christina Appleman, Jenny Suy, Sharon Yin, John Rowan, Patrick Lopez, Guy Foster, Gloria Babilonia-Ayukawa, Daniel Claus, and Angel Garced for assistance with study procedures. This work was supported by the Intramural Research Program of the National Institutes of Health, National Eye Institute.

AUTHOR CONTRIBUTIONS

JL and JT contributed to the design and writing of the letter. JL, NA, and JT contributed to data analysis and discussion. JL, NA, TL, AJB, JPG, and JT contributed to data collection. CC, TK, EC, BPB, WMZ, LAH, and RBH contributed to patient referral and clinical examination. All authors reviewed the final draft.

COMPETING INTERESTS

The authors declare no competing interests.

ADDITIONAL INFORMATION

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