dystrophy, its translational contribution would be strengthened by linking structural metrics to task-specific visual outcomes and therapeutic thresholds. Clarifying these relationships may inform individualized strategies for optimizing residual vision in young patients navigating educational and occupational demands.

Declarations

Authorship Contributions

Concept: S.S.S., Design: S.S.S., Data Collection or Processing: A.K., Analysis or Interpretation: A.K., Literature Search: A.K., Writing: S.S.S., A.K.

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Reply

We thank the correspondents for their thoughtful comments on our article and the opportunity to clarify several points regarding preferred retinal locus (PRL) location in juvenile macular dystrophy (JMD).

First, we agree that the age-related shift in PRL location should be interpreted cautiously. In our cohort, younger patients tended to have both larger lesions and nasally located PRLs farther from the fovea. Therefore, the observed shift from nasal to superior PRL locations may reflect, at least in part, anatomical constraints related to lesion geometry and the distribution of viable eccentric retina, rather than cortical adaptation alone. However, these mechanisms need not be mutually exclusive. In our data, PRL-fovea distance was positively correlated with lesion dimensions, whereas PRL location itself was not significantly associated with lesion size or PRL-lesion distance. This suggests that structural factors likely constrain PRL development, while the contribution of adaptive cortical mechanisms remains to be clarified. In this respect, our findings should be considered hypothesis-generating rather than mechanistic.[1]

Second, regarding the presumed functional advantage of superior PRLs, we agree that this interpretation should be framed cautiously. Our study did not directly assess task-based performance. Nevertheless, previous work suggests that some eccentric retinal locations may be more favorable than others for reading. Reading during eccentric viewing has been reported to be better with the superior retina than with the inferior retina, and reading has also been shown to be faster when text is presented in the inferior visual field than in the left visual field.[2,3] These findings are consistent with the possibility that, in some circumstances, a superior retinal PRL may be advantageous for horizontal reading. However, because our study did not include direct reading-related outcome measures, this interpretation remains inferential rather than directly demonstrated.

Third, we acknowledge that the clinical meaning of the measured fixation stability values remains limited in the absence of validated rehabilitation thresholds. Our study was retrospective and was designed primarily to describe fixation behavior at presentation rather than to predict responsiveness to rehabilitation.

Finally, we agree that the possibility of an eccentricity threshold beyond which perceptual and oculomotor recalibration becomes less effective is clinically relevant. However, our study was not designed to determine a critical angular limit for PRL relocation or trainability. Whether increasing eccentricity constrains later rehabilitation potential likely depends on multiple interacting factors, including residual retinal sensitivity, fixation stability, task demands, and individual neuroplastic capacity.[1,4]

We are grateful for these comments, which help refine the interpretation of our work. We agree that structural lesion characteristics, task-specific outcomes, and longitudinal behavioral adaptation should all be considered when evaluating PRL development in JMD.

Declarations

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Surgical and Medical Practices: M.E., Concept: M.E., Z.Ö.T., T.Ö., Design: M.E., Z.Ö.T., T.Ö., Data Collection or Processing: M.E., Z.Ö.T., T.Ö., Analysis or Interpretation: M.E., Z.Ö.T., T.Ö., Literature Search: M.E., Z.Ö.T., T.Ö., Writing: M.E., Z.Ö.T.

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