



LETTER TO THE EDITOR

Corneal tomography in children and adolescents with systemic allergy

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Dear Editor,

We read with great interest the study by Flügel et al.⁽¹⁾, which evaluated corneal tomography patterns in children and adolescents with systemic allergy using allergological classification based on the International Study of Asthma and Allergies in Childhood questionnaire and prick testing in combination with Dual-Scheimpflug tomographic assessment. The inclusion of behavioral variables such as sleeping position and hand dominance adds clinical relevance to a field in which pediatric susceptibility to ectatic disease remains incompletely understood. The study is particularly valuable because 25 of 158 children demonstrated altered tomography findings, among whom 22 were classified as having subclinical or forme fruste keratoconus and only three as having clinical keratoconus. These findings suggest that most abnormalities identified in this cohort were concentrated at the earliest detectable stage of the ectatic spectrum. Nevertheless, several aspects of the analytical framework may limit the translational applicability of the findings.

A major concern relates to the tomographic classification strategy. Although the cohort included both subclinical/forme fruste keratoconus and clinical keratoconus, these phenotypes were combined into a single “altered tomography” category for the primary comparative analyses. In pediatric populations, in which structurally susceptible corneas may not yet exhibit overt ectatic morphology, combining distinct phenotypes into a binary normal-versus-abnormal outcome may obscure clinically meaningful risk gradients⁽²⁾. This issue is particularly relevant because the authors’ data demonstrated directional differences in parameters such as K Steep, asphericity, posterior elevation indices, AAI, CLMIx, and KPI despite the absence of conventional statistical significance. Preservation of ordinal or continuous tomographic data may have provided a more informative analytical approach by enabling detection of subtle alterations in corneal architecture before the development of overt keratoconus⁽³⁾.

A second issue concerns the interpretation of ocular itching as a surrogate marker for friction-related corneal stress. The authors defined allergic conjunctivitis as the occurrence of more than three episodes of itchy eyes during the preceding 12 months and subsequently restricted one analysis to participants reporting either ≥ 4 episodes or none. Although this operational definition creates a contrast in symptom frequency, it does not directly quantify the mechanical exposure most relevant to ectatic remodeling, namely the frequency, duration, laterality, and intensity of eye rubbing. This distinction is important because symptom burden and biomechanical insult are not equivalent constructs. Consequently, the absence of an association between itching frequency and tomographic classification, or between itching frequency and individual tomographic parameters, should be interpreted with caution because the evaluated variable reflects self-reported symptoms rather than objectively assessed rubbing behavior. This limitation may be particularly relevant in atopic children, in whom

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low-grade ocular surface inflammation and intermittent eye rubbing may coexist without being adequately captured through episodic symptom recall⁽⁴⁾.

The method used for eye selection also warrants further consideration. The authors analyzed only one eye per participant, selecting the eye with the highest K Steep value and using the inferior-superior index to resolve similarity when necessary. Although operationally practical, this approach may reduce the ability to evaluate inter-eye asymmetry as a clinically meaningful marker rather than merely a selection criterion. In early ectatic disease, asymmetry itself may provide important diagnostic information, particularly when assessing whether laterality patterns correspond to behavioral factors such as sleeping side or hand dominance⁽⁵⁾. Because the study hypotheses regarding behavior were inherently lateralized, a paired-eye analytical framework may have provided a more direct assessment of whether systemic allergy interacts with side-specific mechanical influences rather than solely with the characteristics of the steeper eye.

We commend the authors for investigating an understudied pediatric population and for integrating ophthalmologic and immunologic assessments within a clinically relevant study design. Future investigations in this area may benefit from risk models that preserve tomographic variables as continuous measures and integrate them with contemporary corneal biomechanical assessments, thereby facilitating earlier identification of structurally susceptible corneas before categorical ectatic diagnoses are established. Such refinements may improve individualized surveillance strategies for allergic children, particularly those with borderline tomographic findings in the absence of overt keratoconus.

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Significant contribution to conception and design: Kishankumar Mahida.

Data Acquisition: Kishankumar Mahida.

Data Analysis and Interpretation: Kishankumar Mahida, Snehal Rajendra Jagtap.

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