

Comment on “The Role of the Vitreous Zonule in Preoperative Diagnosis of Zonular Laxity in Primary Angle-Closure Disease” [Letter]

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Dear editor

We read with interest the prospective study by Liang et al evaluating the number of visible vitreous zonule (VZ) quadrants on ultrasound biomicroscopy (UBM) as a preoperative marker of zonular laxity in primary angle-closure disease (PACD).¹ The focus on an objective imaging sign for zonular problems in PACD is clinically relevant and builds on prior work linking VZ status to anterior segment configuration in these eyes.² However, several methodological issues limit how confidently surgeons can use VZ quadrant counts for individual risk stratification.

First, the definition of zonular laxity is overly broad and partly circular. Laxity was considered present if any among several clinical or intraoperative signs were seen, ranging from subtle capsular folds to marked bag decentration or the need for capsular support devices, and including preoperative features such as phacodonesis and anterior chamber depth asymmetry.¹ This composite mixes very different severities and incorporates screening markers into the reference standard itself. Such a definition risks misclassification, inflates apparent sensitivity and specificity, and makes it difficult to translate the reported performance into concrete surgical decisions. Future work should separate preoperative suspicion from intraoperative confirmation, use an ordinal intraoperative grading scale based on masked video review, and analyze hard endpoints such as the need for a capsular tension ring or segment or alternative intraocular lens fixation, similar to recent CASIA2-based and surgical PACD zonulopathy series.^{3,4}

Second, the handling of VZ quadrants and the statistical analysis are suboptimal. The number of quadrants with visible VZ (0–4) was mainly assessed with nonparametric comparisons and multiple dichotomies (<2, <3, <4 quadrants) without multivariable modeling or a clearly prespecified primary cut-off. 1 Dichotomizing an ordered predictor wastes information and increases multiplicity, while unadjusted analyses cannot show whether VZ adds value beyond established PACD risk factors such as axial length, lens vault, lens thickness, and prior acute attacks, as highlighted in recent PACD imaging and zonulopathy reports.^{4,5} A more rigorous approach would treat VZ quadrant count as a continuous predictor in logistic regression, adjust for relevant covariates, report adjusted odds ratios per one-quadrant decrease in visibility, and then justify any chosen threshold in prespecified sensitivity analyses.

Third, potential confounding and lack of masking are insufficiently controlled. The authors do not report adjustment for lens morphology, anterior chamber depth, prior acute angle-closure or laser procedures, all of which may influence both VZ visibility and zonular integrity.⁵ In addition, it is not stated whether UBM readers were masked to clinical data or whether surgeons were masked to UBM findings when assessing laxity. If eyes with high-risk biometry and history are more likely to have both absent VZ and zonular damage, and if surgeons know the UBM result, the association between VZ quadrants and laxity may be substantially biased. Future studies should incorporate comprehensive biometry into multivariable models, account for prior events and procedures, and enforce strict masking between imaging graders and surgeons.

Addressing these points would not diminish the authors' observation that VZ visibility is a promising adjunctive sign. Rather, it would help define the incremental value of VZ-based imaging as part of an integrated preoperative strategy for PACD eyes at risk of zonular failure.

Data Sharing Statement

No new data were generated or analyzed in this communication.

Author Contributions

Luxing Xu and Yonggang Duan: Conceptualization; Writing – original draft.

Xueling Wang: Writing – review and editing; Supervision.

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Disclosure

The authors declare no conflicts of interest in this communication.

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