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CONFLICT OF INTEREST DISCLOSURES: SEE THE ORIGINAL article for any disclosures of the authors.

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Comment On: Predictors of Bubble Formation and Type Obtained With Pneumatic Dissection During Deep Anterior Lamellar Keratoplasty in Keratoconus

EDITOR:

WE READ WITH GREAT INTEREST THE RECENT REPORT BY Scorcia and associates[1] titled "Predictors of bubble formation and type obtained with pneumatic dissection during deep anterior lamellar keratoplasty in keratoconus." The investigators aimed to study the predictors of type 2 big bubble (BB) during BB deep anterior lamellar keratoplasty. They concluded that older age and advanced stages of keratoconus are predictors of type 2 bubble formation during BB deep anterior lamellar keratoplasty, based on their case series of 11 eyes with type 2 BB and 2 eyes with mixed bubble.[1] This study follows our review published in 2015—although not cited in their article—describing risk factors for the formation of type 2 BB in 134 eyes, among which 14 eyes (8 keratoconus and 6 corneal scars) had type 2 BB and 2 eyes with mixed bubble. The mean age for the formation of type 2 BB was 41.9 ± 10.3 years compared with 27.5 ± 9 years for type 1 BB ($P = .001$). Pentacam-based central corneal thickness was statistically significantly lower in eyes with type 2 bubble compared with type 1 bubble ($P = .021$). Our conclusion was that type 2 bubble is more likely to form in elderly patients and those with deep corneal scars and thin corneas.[2]

The authors claim in the third paragraph in the discussion the novelty of the work: "This correlation between age and bubble type occurrence, here reported for the first time, may suggest that the pre-Descemet layer may undergo changes with aging."[1] This is similarly stated clearly in the fifth paragraph in the discussion of our previously published article: "…also old age and scarring may be associated with the structural difference of the pre-Descemet stroma that may not allow easy separation from the overlying stroma." We previously demonstrated the strong correlation between type 2 BB and both old age and the advanced form of stromal diseases.[2]

The authors also highlight the increased risk of double anterior chamber in eyes with type 2 BB, which was first described in another publication by our team[3] and later confirmed by a letter to the editor.[4] To our surprise, the authors cited the letter to the editor (reference 16) as the source of this observation and not the original study.

We would like to congratulate the authors for their well-designed study that confirms our previously published findings.

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Reply To Comment on Predictors of Bubble Formation and Type Obtained With Pneumatic Dissection During Deep Anterior Lamellar Keratoplasty in Keratoconus

EDITOR:

WE THANK GOWEIDA AND ASSOCIATES FOR THEIR INTEREST in our recent article[1] in which we analyzed the predictors of bubble formation and bubble type in 155 eyes with keratoconus (KC) that underwent big-bubble deep anterior lamellar keratoplasty. Our main finding was the strong correlation between type 2 bubble formation and either older age or advance stage of KC, as detected by anterior segment optical coherence tomography (AS-OCT). Goweida and associates[2] also reported the higher rate of type 2 bubble formation in older patients and in eyes with thin corneas and deep scars. However, the 2 studies differ in several substantial aspects, thus hampering a reliable comparison.

First, the success rate of bubble formation is very different, with 41% in Goweida and associates[2] vs 73% in our study. Several factors can explain the lower percentage reported in the former, such as the heterogenicity of corneal diseases included in the study, the different surgical technique used, and the presumably earlier phase of the surgeon's learning curve. We believe that all these factors may affect also other outcomes, including the occurrence of bubble type 2.

Second, in our series we graded the progression of KC not only by measuring the corneal thinnest point, as done by Goweida and associates,[2] but instead also evaluating the changes in corneal architecture by means of AS-OCT. In particular, we found that staging of KC based on AS-OCT analysis had a higher diagnostic power for the predictability of the type of bubble (type 1 vs type 2) obtained with pneumatic dissection. This correlation was not possible for Goweida and associates,[2] who included in their study eyes with postinfectious scars in addition to keratoconic eyes.

Finally, we acknowledge that Goweida and associates[2] described for the first time a higher risk of double chamber occurrence after type 2 bubble formation, even in the absence of microperforation.[3] However, in our study we could not confirm this finding.

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