

# Anterior Chamber Depth After Phacovitrectomy [Letter]

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## Dear editor

We were very interested in the paper by Katz et al<sup>1</sup> concerning the role of anterior chamber depth (ACD) on post-operative refractive error after phacovitrectomy, published in your journal, because in the past we published some studies concerning the ACD changes after surgery, mostly after refractive surgery.<sup>2</sup>

For this reason, we would like to make some comments on two findings of this paper, namely the significant ACD increase after phacovitrectomy and the non-significant axial length (AL) increase.

Regarding the ACD increase, it could be speculated that, as the IOLMaster measures from the corneal epithelium to the retinal pigmented epithelium, the increase could be related to a corneal thickness increase due to a subclinical edema.<sup>3-5</sup>

We do not think this could be the case, as it is well known that in all patients after cataract surgery an increase in ACD occurs, due to the difference in thickness between the natural lens and the intraocular lens, and the phacoemulsification is also suggested to improve the aqueous drainage in patients with narrow angle glaucoma, so it is not the vitrectomy which gives the ACD increase, but the change in lens thickness.<sup>6</sup> To prove that the increase is vitrectomy-related, a comparison with non vitrectomized eyes should have been performed, but unfortunately this comparison was not done.

However, the ACD measurements should have been performed with other instruments too, because in clinical practice such measurements in pseudophakic eyes can be challenging.

Concerning the AL changes, it has been widely shown that after cataract surgery, both in patients measured with ultrasound and IOLMaster, a significant AL decrease has been detected.<sup>7</sup> Four hypotheses could explain these differences in AL: the reduction in Km after the surgery could flatten the anterior chamber and consequently reduce the AL; the lens extraction causes a decrease in the volume of the eye, with a subsequent decrease in the AL; incorrect estimation in pseudophakic eyes, despite the change in AL measurement modality from phakic to pseudophakic; and the last hypothesis could be that the incorrect measurement is the preoperative one because the real refractive index of the implanted lens is known, whereas the refractive index of the human lens is not.<sup>7</sup>

In our opinion the non-significant decrease found in the study by Katz et al could be explained by the limited number of examined patients.

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In conclusion, further studies with larger numbers of patients, comparing phaco-technique versus phacovitrectomy, are needed before concluding that the increase in refractive error in these patients in the combined surgery is related to the ACD changes.

## Disclosure

The authors report no conflicts of interest in this communication.

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