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Abstract Information

Abstract Title:
Is central corneal thickness associated to the development of hypotonous maculopathy?

Purpose:
To investigate risk factors for the development of maculopathy in eyes with hypotony following glaucoma filtering surgery (GFS), with particular emphasis to the role of central corneal thickness (CCT).

Design:
Consecutive case series.

Participants:
Consecutive patients presenting with ocular hypotony without maculopathy (OHWM) following GFS (defined as intraocular pressure < 6 mmHg persisting at least 1 month after surgery) or with hypotonous maculopathy (HM; defined as presence of macular folds, usually with vessel tortuosity and edematous optic disc, independent of the IOP level) were included in this series.

Main Outcome Measures:
Presence of hypotonous maculopathy.

Methods:
Eligible patients had their CCT measured with an ultrasonic pachymeter at the time of inclusion in this series. Apart from CCT, the association of other factors (demographic factors, type of surgery, use of mitomycin, IOP prior to surgery, IOP during hypotony, refractive error, among others) with presence of maculopathy were

investigated by univariate analysis and by multivariate logistic regression analysis.

Results:
15 eyes with HM and 25 eyes with OHWM were included. Among the factors evaluated, a significant difference between the two groups was observed only in age (patients with HM being younger; 55.9 ± 19.2 versus 72.4 ± 9.9 years; p = 0.004) and CCT (eyes that developed HM having thicker cornea; 562 ± 48 μm versus 507 ± 32 μm; p = 0.001). Both groups had the same proportion of phaco-trabeculectomies (40%) and trabeculectomies (60%), the vast majority performed with mitomycin C. The IOP at the time maculopathy was diagnosed did not differ significantly from the IOP of eyes with OHWM (5.4 ± 3.6 and 4.2 ± 1.4 mmHg, respectively, p = 0.412). Younger age and thicker CCT persisted as significant predictive factors of development of maculopathy in the multivariate logistic regression analysis ($p < 0.05$).

Conclusion:
To the best of our knowledge, this is the first report of an association of thicker CCT and development of HM. This association might be the result of the influence of CCT on applanation tonometry, but we cannot rule out that thicker cornea might be a risk factor for maculopathy independently of its effect on the measurement of IOP. This study also confirms younger age as a risk factor for the development of HM. We believe that CCT should be taken in consideration when setting target IOP after GFS, particularly when the target is very low.