



AB028. Corneal endothelium decompensation in patients with chronic hypotony after glaucoma surgery

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Background: To describe and discuss four cases of corneal endothelial decompensation secondary to chronic hypotony after glaucoma surgery.

Methods: A retrospective case review was undertaken for four patients over a 20-year period from a single glaucoma surgeon. These data were collected from the clinical records of each subject included in the study: (I) patient demographic characteristics; (II) past ocular history and indication for surgery; (III) ocular vitals; (IV) complications from glaucoma surgery; (V) corneal exam and pathology and the indication for corneal transplant; (VI) surgical

interventions during the period of follow-up.

Results: Four patients sustained chronic hypotony (range, 3–18 years) after glaucoma surgery. In most of these eyes during relative hypotony, long thin vertical folds were often noted in the superficial cornea (possibly involving Bowman's layer and the epithelium), leading to fluorescein pooling. They subsequently developed marked corneal pathologies including stromal edema, diminished endothelial density, microcyst formation, corneal erosion, Descemet folds, superficial punctate keratitis and bullous keratopathy. Three of them received Descemet stripping automated endothelial keratoplasty (DSAEK) and regained functional vision.

Conclusions: This case series demonstrates a unique clinical entity in which corneal endothelial demise developed in the context of chronic hypotony. The mechanism underlying this entity, which we term “chronic hypotony corneal endotheliopathy (CHCE)”, remains unclear. We hypothesize that it can be due to a combination of tectonic instability and energy disturbance of the cornea. In clinical practice, it is important to monitor endothelial cell count in patients with persistent hypotony, especially those who had procedures such as glaucoma surgery that can precipitate endothelial injury.

Keywords: Hypotony; glaucoma; corneal decompensation

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