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ORIGINAL PAPER

A possible role of ocular wall stretch in offsetting intraocular pressure rise in early primary congenital glaucoma

Ahmad K. Khalil

Glaucoma Unit, Research Institute of Ophthalmology, Giza, Egypt

ABSTRACT

Aim of the study: To describe cases of primary congenital glaucoma (PCG) in patients who presented with a low intraocular pressure (IOP), which did not show a noticeable change postoperatively or during follow-up despite resolution of other PCG signs.

Material and methods: This is a retrospective clinical study. Records of infants who presented to a congenital glaucoma clinic with IOP readings ≤ 20 mmHg who were operated on by adjusted trabeculotomy were reviewed. Cases which did not demonstrate a change of more than 4 mmHg in their IOP between preoperative values and the mean IOP value of the first postoperative year, despite improvement of other signs of PCG, were further evaluated.

Results: Out of 85 eyes (54 infants) that presented with PCG with an IOP of 20 mmHg or less, 12 eyes (10 patients, age range at surgery: 0.3-22 weeks) exhibited an IOP change ≤ 4 from preoperative to postoperative values and during the follow-up course, despite regression of other PCG signs, including resolution of corneal edema, and optic disc cupping regression.

Conclusions: Due to the immaturity of collagen of the cornea and sclera in young infant eyes, ocular wall stretching seems to deflect IOP rise in some early PCG cases. These eyes respond to the impeded ocular outflow by globe enlargement, and mechanical disc cupping, rather than IOP rise. Releasing this impedance surgically leads to reduction of this stretch in the form of cupping and HCD regression, clearing of corneal cloudiness, but not a noticeable reduction in IOP.

KEY WORDS: congenital glaucoma, trabeculotomy, ocular stretch, cupping reversal.