vascularization had proceeded anteriorly. Expression of VEGF in the retina and other ocular tissues was detected at both protein and messenger RNA levels (Figure 2).

**Comment.** Bevacizumab in this patient was shown to be well tolerated without any signs of toxic effects; in particular, no inflammation, degeneration, or necrosis was observed. Furthermore, the results show that bevacizumab effectively controlled the neovascularization in zone 1, stage 2+/ROP. Vascular endothelial growth factor is a survival factor for retinal neurons and a critical neuroprotectant during the adaptive response to ischemic injury. The retina and the proliferating abnormal vessels showed high levels of VEGF expression at both messenger RNA and protein levels. Vascular endothelial growth factor has recently been shown to influence neuronal growth, differentiation, and survival owing to its neurotrophic effects. Therefore, the dosage of bevacizumab is critical to preserve this effect on the neuroretina for adequate development. In our case, we administered 40% of the adult dose twice. Our results show preservation of morphology and expression of VEGF in the retina.

**Correspondence:** Dr Chévez-Barrios, Ophthalmic Pathology Program, Department of Pathology, The Methodist Hospital, 6565 Fannin St, MS205, Houston, TX 77030 (pchevez-barrios@tmhs.org).

**Financial Disclosure:** None reported.

**Funding/Support:** This work was supported by core grant EY10608 from the National Eye Institute, Bethesda, Maryland, Research to Prevent Blindness, New York, New York, and the Hermann Eye Fund, Houston, Texas.


**Descemet Membrane Rupture Accompanied by Stromal Clefting in Congenital Glaucoma**

In congenital glaucoma, larger degrees of corneal distortion are better tolerated by the epithelium and stroma than by the Descemet membrane. A sequential ultrasound biomicroscopical (UBM) examination of the cornea helps demonstrate both the pathophysiologic mechanism for the development of breaks in the Descemet membrane as well as an accompanying clefting of stromal tissue causing acute corneal hydrops. Such examinations can provide warning of impending ruptures affecting visual prognosis.

As recently demonstrated via UBM by Nakagawa and colleagues, rupture of the Descemet membrane in keratoconus is also often accompanied by clefting of the stroma.

---

**Figure 1.** The corneal epithelium, Bowman membrane, stroma, Descemet membrane, and corneal endothelium are all clearly delineated. Note the significant epithelial edema at age 2 weeks without any detachment of the Descemet membrane or endothelial layer. A trabeculectomy procedure was then performed.

**Figure 2.** Visible separation of the Descemet membrane 5 weeks later during a standard follow-up examination reveals decreased extensibility of the Descemet membrane vis-à-vis the stroma and anterior corneal tissue layers. Centered beneath where the overlying epithelium edema is greatest, there appears to be a decreased reflectivity of both the posterior stromal surface (arrow) and the endothelium with the Descemet membrane. Topical pressure-lowering medications were prescribed while the contralateral eye underwent a trabeculectomy procedure.
mal tissue. This leads to acute corneal opacification as well as a permanent scar after healing by secondary intention. A similar final pathway, but with minimal stromal cicatrization due to healing by primary intention, may be present in congenital glaucoma with megalocornea. Imaging with UBM has proved reliable in delineating different corneal layers when compared with histopathological sections and allows for in vivo anatomical studies. We performed UBM image acquisition under general anesthesia in a patient with congenital glaucoma, both prior to surgical treatment and during routine follow-up. Images obtained (Figures 1, 2, 3, 4, and 5) demonstrate mechanical stretching of the cornea leading to rupture of the Descemet membrane accompanied by heretofore unrecorded clefting of the stromal tissue. Imaging of the cornea with UBM can provide information regarding the presence, position, and evolution of potential breaks in the Descemet membrane along with clefting of the stromal tissue in congenital glaucoma.

Olivier Roche, MD
Francis Beby, MD
Jean-Louis Dufier, MD
Cameron F. Parsa, MD

Correspondence: Dr Parsa, MD, Wilmer Ophthalmological Institute, Johns Hopkins University School of Medicine, 600 N Wolfe St, Wilmer 233, Baltimore, MD 21287-9028 (cparsa@jhmi.edu).

Financial Disclosure: None reported.

Additional Information: Drs Roche and Dufier are with the Hôpital Necker-Enfants Malades, Paris, France, and

Dr Beby is with the Service d’Ophtalmologie, Hôpital Edouard Herriot, Lyon, France.