Ocular Conformer Therapy in Microphthalmia With Hypoplastic Orbit and Periocular Tissues

Kelly H. Yom, B.A.* and Audrey C. Ko, M.D.*†

*Department of Ophthalmology and Visual Sciences, University of Iowa, Iowa City; and †Wolfe Eye Clinic, West Des Moines, Iowa, U.S.A.

A 7-day-old female infant presented for evaluation of right microphthalmia. The right globe could not be visualized externally and was associated with ipsilateral hypoplastic orbit, shortened eyebrow, narrow horizontal palpebral fissure, and decreased orbital volume (A). Coronal fat-saturated T2 weighted magnetic resonance imaging of the orbits revealed a right microphthalmic globe (arrow, B). A series of custom-fitted pressure conformers (C) were used to progressively expand the hypoplastic orbit, stimulating orbital bone and soft tissue development. After a year of conformer therapy, the patient had significant improvement in orbital volume and symmetry of the periocular tissues (D). She subsequently underwent surgical placement of an orbital implant and was later fitted with an ocular prosthesis. Intraoperatively, a markedly microphthalmic globe (asterisk, E) with an attached underdeveloped extraocular muscle (arrow, E) was visualized. Microphthalmia is a congenital malformation resulting in an abnormally small ocular globe. Environmental and heritable causes are contributing factors and approximately a third of cases present as syndromic cases. Management is focused on amblyopia management if there is vision potential; otherwise, early orbital volume expansion is implemented to stimulate growth of the orbit and periocular tissues to minimize future hemifacial asymmetry.