Secondary Ectasia Due to Forceps Injury at Childbirth: Management With Combined Topography-guided Partial PRK and Collagen Cross-linking (Athens Protocol) and Subsequent Phakic IOL Implantation

To the Editor:

A 23-year-old man, previously diagnosed with “progressive keratoconus” in his left eye, presented with uncorrected distance visual acuity (UDVA) of 20/20 in the right eye and counting fingers in the left eye, with 20/100 pinhole refraction. Refraction in the left eye was −9.50 −5.00 × 155° with corrected distance visual acuity (CDVA) of 20/100. Keratometry was 43.00/43.50 @ 95° and 51.00/56.80 @ 60° in the right and left eyes, respectively. Potential acuity measurement in the left eye (used to exclude severe amblyopia in that eye) was 20/60. Slit-lamp microscopy examination of the cornea revealed an oblique Descemet membrane split just temporal to the corneal center (Fig. image A), suggesting forceps injury at childbirth as the etiology of the ectasia.1

Tomographic pachymetry evaluation (Oculyzer; Wavelight AG, Erlangen, Germany) was normal in the right eye with thinnest cornea of 530 µm, and severe inferior steepening in the left eye with thinnest cornea of 438 µm. Endothelial cell counts were 2242 cells/mm² and 1628 cells/mm² in the right and left eyes, respectively. Corneal cross-linking (CXL) was recommended for the left eye, but the patient opted to wait.

Over the next 2 years, without intervention, the right eye remained stable. The left eye demonstrated progression of the ectasia and refraction changed to −11.50 −7.00 × 155° with CDVA of 20/150 and keratometry of 56.60/51.20 @ 147.5°.

Tomography showed significant deterioration in the left eye in inferior steepening (Fig, image D). The patient denied any eye rubbing during this interval.

The Athens Protocol (combined topography-guided partial photorefractive keratectomy [PRK] and CXL)² was applied in the left eye. This technique has been reported previously.²-⁵ The treatment plan with the WaveLight excimer laser platform is demonstrated in the Figure (image F). One year postoperatively, the cornea appeared to be stable with refraction of −9.00 −2.00 × 160° and CDVA of 20/40 (soft contact lens of −9.50 diopters [D]). As the patient became contact lens–intolerant, phakic intraocular lens (PIOL) implantation was performed in the left eye. A single-piece, polymethylmethacrylate, −11.50-D lens with a 6-mm optical zone and 8.5-mm total diameter (Verisyse; AMO, Dublin, Ireland) was chosen. The endothelial cell count at the time of implantation was 1628 cells/mm².

The patient was followed for an additional 3 years after PIOL implantation with UDVA of 20/25, pin-
Letters to the Editor

Vincenz Fukala (1847-1911) and the Early History of Clear-lens Surgery in High Myopia

To the Editor:

Vincenz (Wincenty) Fukala was an important pioneer in systematically performing clear-lens extraction in patients with high myopia. Due to his thorough knowledge of theory and positive experiences in many patients, he demonstrated the benefit of clear-lens removal in young patients with high myopia.

Fukala was born in 1847 in a Polish family in Zóllkiew near Lviv at Galicia. He studied medicine in Vienna and specialized in ophthalmology in 1871. He demonstrated the benefit of clear-lens removal in young persons with high degrees of myopia. He persisted despite opposition of several authorities, including Donders, Fuchs, and von Graefe. Thanks to this determination, he convinced the skeptics of the efficacy of lens dissection. Ophthalmologists gradually began to carry out surgery in high myopic patients worldwide.

Fukala’s procedure consisted of discission of the clear lens with subsequent needling and extraction of swollen lens material. Postoperatively, most patients had good visual acuity and enjoyed working for the first time in their lives. The surgical goal was to observe a clear pupil at the end of surgery. Casey A. Wood translated Fukala’s publication from Graefe’s Archive of Ophthalmology for the American Journal of Ophthalmology.1 In this comprehensive article, Fukala reported having treated 19 eyes with myopia ≥13.00 diopters during the previous 3 years. Fukala only treated young people aged ≤24 years whose fundus revealed no retinal or choroidal disease. Patients had relatively good visual acuity. Patients on whom Fukala operated showed at least a four-fold improvement in vision.

In 1894, Fukala reported 44 patients who successfully underwent surgery from 1887 to 1894. In 1896, Fukala reported that several surgeons had also routinely operated on highly myopic patients, namely Schweigger in Berlin, Pflüger in Bern, Thier in Aachen (each approximately 100 patients), and v. Hippel in Halle and Sattler in Leipzig (each approximately 80 patients).2

Barnes wrote: “Up to this writing, there have been about 2500 of the operations reported from abroad…”3 However, after statistical evaluation of surgical results in the first decades of the 20th century, ophthalmologists no longer performed clear-lens extraction because they feared complications. Retinal detachment was recognized as a major sight-threatening complication of the surgery. Fischer indicated
an 11-fold higher risk of blindness in patients who underwent clear-lens surgery. Other complications of clear-lens surgery in high myopia included corneal opacifications after secondary cataract surgery, incarceration of parts of the capsule or vitreous in the corneal wound, vitreous prolapse, and increased intraocular pressure.

At the end of the 20th century, clear-lens excision in high myopes was rediscovered, likely due to the fact that the risk of complications decreased significantly compared to 100 years prior. A more detailed review is available elsewhere.5

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REFERENCES