Phakic foldable intraocular lens implantation for the visual rehabilitation of residual significant anisometropia following the stabilization of keratoconus with the Athens Protocol

Carolyn P. Graeber[1] & A. John Kanellopoulos, MD[1,2]

[1]Ophthalmology, New York University Langone Medical Center, New York, NY, [2]LaserVision.gr Institute, Athens, Greece

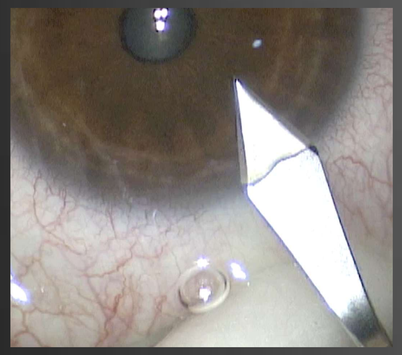
Purpose

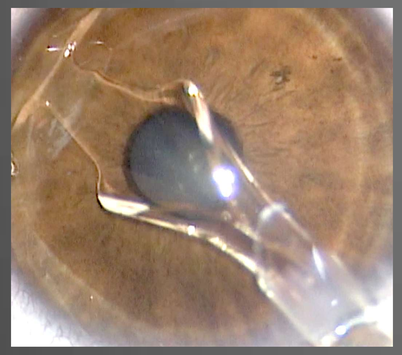
To evaluate the safety and efficacy of phakic intraocular lens implantation for the visual rehabilitation of residual significant anisometropia following the stabilization of keratoconus with the Athens Protocol.

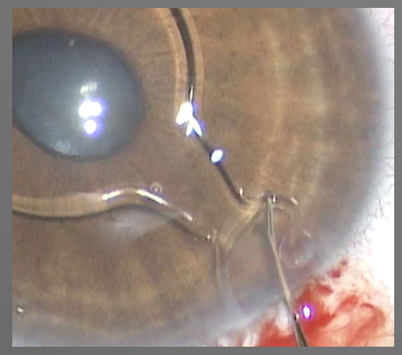
Methods

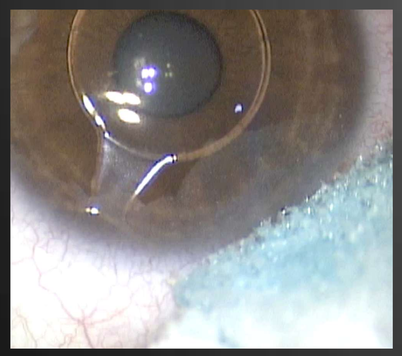
Consecutive eyes with keratoconus treated with the Athens Protocol (photorefractive keratectomy with collagen cross-linking) with residual significant anisometropia (greater than 6 diopters) and with contact lens intolerance were implanted with phakic intraocular lenses (AcrySof® Cachet® Phakic Lens) for visual rehabilitation over a period of 2 years. The preoperative versus postoperative uncorrected visual acuity (UCVA), best spectacle-corrected visual acuity (BSCVA), refractive error, keratometry (K), corneal topography (T), pachymetry (P), and endothelial cell count (ECC) were compared. Signs of progression of corneal ectasia were assessed using sequential corneal topography and tomography. Any change in keratometry greater than one diopter was considered to be progression of ectasia.

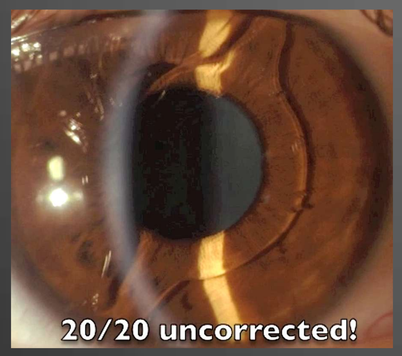
Insertion of AcrySof® Cachet® Phakic Intraocular Lens





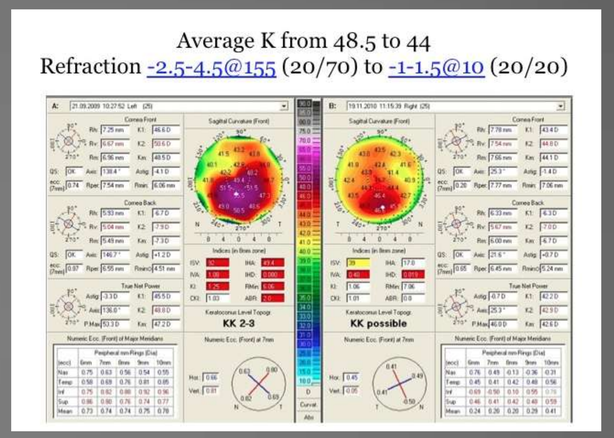


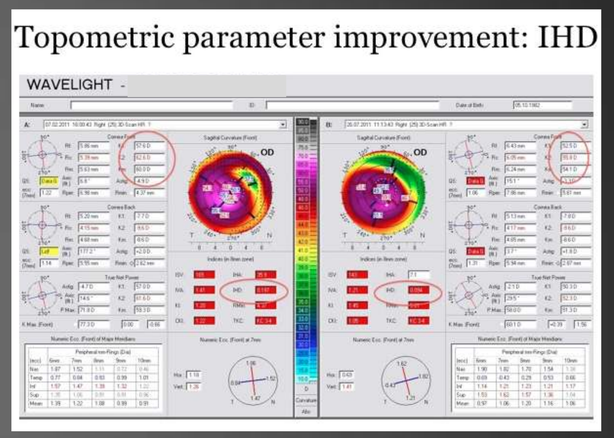




Results

12 cases of keratoconus that were previously treated with the Athens Protocol were included. The mean follow-up was 0.9 years (range 3 months to-1.5 years). UCVA changed from 0.2 to 0.7. BSCVA improved from 0.6 to 0.8. Mean refractive spherical equivalent decreased from -8.25D to +0.5D. ECC stayed relatively stable (2750 versus 2800) as did corneal P, T and K. None of the eyes developed signs of ectasia progression.





Conclusions

Phakic intraocular lens implantation for the improvement of residual significant anisometropia following the stabilization of keratoconus with the Athens Protocol is a safe and effective adjunctive treatment. This form of refractive surgery does not appear to cause progression of corneal ectasia in this high-risk group of individuals.

References

1.)Stability of simultaneous topography-guided photorefractive keratectomy and riboflavin/UVA cross-linking for progressive keratoconus: case reports.
Krueger RR, Kanellopoulos AJ. J Refract Surg. 2010 Oct;26(10):S827-32

2.) Management of corneal ectasia after LASIK with combined, same-day, topography-guided partial transepithelial PRK and collagen cross-linking: the athens protocol. Kanellopoulos AJ, Binder PS. J Refract Surg. 2011 May;27(5):323-31.

3.) AcrySof Cachet Phakic Intraocular Lens in Myopic Patients: Visual Performance, Wavefront Error, and Lens Position. Mastropasqua L, Toto L, Vecchiarino L, Doronzo E, Mastropasqua R, Di Nicola M. J Refract Surg. 2012 Apr;28(4):267-74.

NYU Langone Medical Center

LaserVision.gr

Eye Institute for Laser
17 Tsocha str, Athens, GREECE 11521
Tel. +30 210 7472-777 Fax +30 210 7472-789
www.laservision.gr