

## POST-LASIK ECTASIA

### Topo-guided PRK and CXL effective for progressive cases



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Topography-guided partial photorefractive keratectomy (PRK) combined with corneal crosslinking (CXL) has proven an effective treatment for progressive post-LASIK ectasia and visual rehabilitation over 12 years, A John Kanellopoulos MD told Refractive Surgery Day at the 2016 American Academy of Ophthalmology Annual Meeting in Chicago, USA.

Known as the Athens Protocol, the combined procedure is therapeutic rather than corrective for refractive error. It commonly has minimal refraction added as the normalisation alone reaches the 50µm maximum tissue removal from the cone apex, said Dr Kanellopoulos, of Athens, Greece, and New York City, USA. Over the past 12 years, he and his colleagues have treated more than 3000 keratoconus and post-LASIK ectasia patients with the Athens Protocol, and have trained hundreds of surgeons globally on technique and potential complications management.

#### REVISED PROTOCOL

Dr Kanellopoulos now performs the customised partial-PRK first, because it is cyclorotation-sensitive. Phototherapeutic keratectomy (PTK) is then performed second to remove the tissue amount relating to the epithelium (this is not cyclorotation-sensitive), followed by application of mitomycin-C, and 15 minutes of accelerated CXL at 6mW/cm<sup>2</sup>.

The Athens Protocol has advantages over alternatives such as CXL alone, which does little to address corneal aberrations, thus a great and growing number of surgeons have adapted it globally, Dr Kanellopoulos added. "We have reported detailed outcomes for over 1000 cases so far, both short term and long term, along with potential complications of delayed epithelialization, overcorrection and scarring," he said. "However, it should be optimally used in progressive ectasia patients intolerant to contact lenses, and preferably not in stable patients successfully managed with gas-permeable, and/or scleral contact lenses," said Dr Kanellopoulos.

Post-LASIK ectasia can appear years after corneal refractive surgery and can progress at any age in contrast to keratoconus that usually slows down after 40. Dr Kanellopoulos credits screening criteria, including the Randelman ectasia risk score, for reducing ectasia rates. "Proper screening is the best management, hands down," he said. "We have additionally reported some more complex screening landmarks that derive from corneal epithelial mapping and anterior corneal power asymmetry indices." However, some patients with no risk factors develop ectasia, which is puzzling. "There is a lot we don't know about corneal biomechanics especially after laser vision correction," Dr Kanellopoulos said.

Eye-rubbing may be an under-appreciated cause. "In my personal experience of over 100 post-LASIK ectasia cases evaluated, it's almost always associated with eye-rubbing. We have to caution patients that eye rubbing is a strict contraindication for laser refractive surgery, and for LASIK in particular," he said.

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