

Subspecialty – Cornea and External Eye Disease



Dr Bennie Jeng (USA)

- **Novel treatments for persistent epithelial defects**

A/Prof Bennie Jeng is Associate Professor of Ophthalmology, Department of Ophthalmology and Francis I Proctor Foundation, University of California San Francisco (UCSF). He is Co-Director, UCSF Cornea Service, and Chief, Department of Ophthalmology, San Francisco General Hospital.

Persistent epithelial defects are what many ophthalmologists, even corneal specialists, consider “a most vexing” condition. There are standard modalities for treatment, no real “magic bullet” for treating these patients.

“Standard management has focused on what can be done medically to try to prevent people from needing surgery. Common medical treatments include topical lubricants (such as artificial tears and ointments), bandage contact lenses, and pressure patching. Surgical modalities include tarsorrhaphies and amniotic-membrane grafts. A lot of the newer medical modalities are either hard to come by or haven’t really shown great efficacy.”

“We don’t have a good therapy for treating these non-healing epithelial defects on the cornea. It’s particularly frustrating and perplexing for us sub-specialists because we’re the ones who end up with these patients, and we don’t always have the answers.”

A/Prof Jeng will talk about some of the new interventions to try to heal these defects. “There are a couple of compounds that doctors have used for healing the skin, such as Thymosin beta-4 and Nexagon. Ophthalmologists have now started looking at these compounds for healing the eye.”



Dr Ashish Nagpal (India)

- **The cornea after retinal surgery**

Dr Ashish Nagpal is from the Cornea and External Disease Services, Retina Foundation & Eye Research Centre in Gujarat, India. He is also the Medical Director of WaveLase Eye Centre for Refractive Surgery, Gujarat, India and visiting faculty at National Institute of Ophthalmology, Pune, India. His area of interest is corneal complications after ocular surgery.

Dr Nagpal will talk about corneal changes occurring after routine, uneventful retinal surgery – including scleral buckling and vitrectomy. “The effects of intraoperative epithelium debridement, persistent epithelial defects, corneal changes related to silicon oil, corneal infections and post-operative corneal oedema will be discussed.”

Dr Nagpal’s presentation will also include a brief review and comparison of the effects of standard 20-gauge and the newer 23 and 25-gauge micro-incisional vitrectomy systems on corneal changes in topography, endothelium and the ocular surface.

Corneal changes in eyes which undergo retinal surgery after refractive corneal surgery (like LASIK and PRK) will be also be discussed.



A/Prof Mark Rosenblatt (USA)

- **Corneal nerves in health and disease**

A/Prof Mark Rosenblatt is Assistant Professor and Director of the Margaret M Dyson Vision Research Institute at Weill Cornell Medical College, New York. During the APAO Congress he will present an overview of the role of corneal nerves in maintaining corneal health and potential interventions to increase the repair of these nerves following injury.

“The cornea is the most densely innervated sensory part of the body. The diminution or absence of nerves can cause a variety of conditions ranging from minor alterations in the corneal epithelium to frank corneal ulceration. There are a variety of diseases such as herpes virus infection or dry eye syndrome, and interventions such LASIK surgery or corneal transplantation that can damage the nerves.

A/Prof Rosenblatt’s work explores mechanisms which mediate corneal nerve repair following injury. Some of the things his laboratory is investigating include nerve growth factor (NGF) and vascular endothelial growth factor (VEGF) which can directly stimulate damaged nerves to regenerate.

“VEGF is a very potent angiogenic substance and over the past several years anti-VEGF therapies have become a mainstay of the treatment of retinal vascular disease. More recently there has been a focus on its use in the cornea – for instance, how it might be useful in corneal transplants. There have been some reports, however, that with chronic use of anti-VEGF there can be ‘melting’ of the cornea and poor healing of the cornea. So our hypothesis is that if you were giving these agents for a prolonged time and in the wrong situation, you may actually be creating a neurotrophic condition which could cause the eye to actually do worse instead of better.”

Note: All effort has been made to check facts with each presenter. The writer accepts responsibility for any inadvertent errors in transcript.

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Dr Stephanie Watson (Australia)

- **Stem Cell Therapies: From the lab to the clinic**

Dr Stephanie Watson is senior lecturer at the University of New South Wales' School of Medical Sciences and an ophthalmologist at Sydney's Prince of Wales Hospital. During APAO, she will present on breakthrough research in which transplanted limbal stem cells are used to improve corneal health.

In a world first, Dr Watson and research colleague, A/Prof Nick Di Girolamo, used a completely autologous system and successfully transplanted limbal stem cells into the eyes of a number of patients resulting in improved vision and corneal health.

“The technique involves using an FDA-approved contact lens to culture and transfer ocular surface progenitor cells to patients with reduced vision and ocular discomfort from limbal stem cell failure,” says Dr Watson. “The patient’s own stem cells are cultured using their own blood, and the transfer procedure is simple and rapid.”

Dr Watson and Dr Di Girolamo's breakthrough has received worldwide media attention. In 2009, they were invited on Australia's ABC TV's New Inventors program and became 'episode winners' in recognition of their discovery. Their research has been published in transplant journal 'Transplantation', and featured on BBC media, Reuters internationally, and will be featured on the ABC television program, Catalyst, in March 2011.

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