

# AMERICAN JOURNAL OF OPHTHALMOLOGY®

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### ORIGINAL ARTICLES

- **1 Prosthetic replacement of the ocular surface ecosystem treatment for ocular surface disease in pediatric patients with Stevens-Johnson syndrome.** *Yvonne Wang, Rohini Rao, Deborah S. Jacobs, and Hajirah N. Saeed*

Ocular surface disease is a significant complication of Stevens-Johnson syndrome / toxic epidermal necrolysis (SJS/TEN). Prosthetic replacement of the ocular surface ecosystem (PROSE) treatment has been reported in the chronic phase of SJS/TEN. This study reports outcomes of PROSE treatment in pediatric SJS/TEN. Treatment is feasible and can result in improved vision in children as young as age 4. Improvement in BCVA remains stable over a period of more than 5 years.

- **9 A deep learning algorithm to quantify neuroretinal rim loss from optic disc photographs.** *Atalie C. Thompson, Alessandro A. Jammal, and Felipe A. Medeiros*

This cross-sectional study applied a deep neural network to quantify glaucomatous neuroretinal damage on disc photographs. The algorithm was trained using the Bruch membrane opening relative to the minimum rim width from spectral-domain optical coherence tomography (SDOCT) as the reference standard. The algorithm's predictions were highly correlated with the observed SDOCT values, and showed an excellent ability to discriminate glaucomatous from healthy eyes on disc photographs.

- **19 Cataract surgery and rate of visual field progression in primary open-angle glaucoma.** *Ji Hyun Kim, Alessandro Rabiolo, Esteban Morales, Nima Fatehi, Wen-Shin Lee, Fei Yu, Abdelmonem A. Afifi, Kouros Nouri-Mahdavi, and Joseph Caprioli*

This study demonstrates that cataract surgery alone does not slow the rates of glaucomatous visual field decay, despite mild intraocular pressure reduction sustained over the long-term follow-up.

- **31 The *acanthamoeba*-fungal keratitis study.** *Anita Raghavan, Shaffie Baidwal, Narendran Venkatapathy, and Ram Rammohan*

*Acanthamoeba* coinfections should be anticipated in cases suspected to be recalcitrant *Acanthamoeba* or in medically unresponsive keratitis; and a vigorous evaluation comprising repeat microbiological evaluation, confocal microscopy, etc, should be undertaken to establish diagnosis. Anticipating such coinfections is necessary, both for establishing a diagnosis and for appropriate and timely therapeutic interventions. This first definitive study establishes the incidence of *Acanthamoeba* coinfections, with specific reference to coexistent *Acanthamoeba* and fungal keratitis.

- **37 Rectus extraocular muscle paths and staphylomata in high myopia.** *Yunping Li, Qi Wei, Alan Le, Bola Ayoub Gawargious, and Joseph L. Demer*

Magnetic resonance imaging demonstrates that local staphylomata in high myopia reflect ocular asphericity and correlate with extraocular muscle paths. Myopic staphylomata are associated with inferior displacement of the lateral rectus muscle and degeneration or rupture of the lateral rectus-superior rectus band ligament. Ligament degeneration may reflect local connective tissue weakness also affecting sclera, or alternatively permit staphyloma formation owing to loss of extraocular support that might in principle be therapeutically addressed for prevention and management of staphylomata.

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- **46 Distinguishing highly asymmetric keratoconus eyes using dual Scheimpflug/Placido analysis.** *Oren Golan, Andre L. Piccinini, Eric S. Hwang, Ildamaris Montes De Oca Gonzalez, Mark Krauthammer, Sumitra S. Khandelwal, David Smadja, and J. Bradley Randleman*

The study comprised 31 clinically unaffected eyes with highly asymmetric keratoconus and 178 eyes from 178 normal control patients. No individual metric achieved an area under the curve (AUC) greater than 0.79. A combined model consisting of 9 metrics yielded an AUC of 0.96, with 90.3% sensitivity and 92.6% specificity. Among those 9 metrics included, 5 related to corneal pachymetry, 2 were derived from the anterior surface, and 2 were derived from the posterior surface.

- **54 Deep anterior lamellar keratoplasty for keratoconus: Multisurgeon results.** *Kunal A. Gadhvi, Vito Romano, Luis Fernández-Vega Cueto, Francesco Aiello, Alexander C. Day, and Bruce D. Allan*

Deep anterior lamellar keratoplasty (DALK) preserves the host corneal endothelium, and should therefore improve long-term corneal transplant survival in keratoconus in comparison with penetrating keratoplasty (PK), but existing transplant registry studies suggest relatively poor results for DALK. Contemporary multisurgeon data presented here suggest that early graft survival in DALK for keratoconus is now similar to PK, and that intraoperative Descemet membrane perforation should be managed conservatively wherever possible rather than by conversion to PK.

- **63 The Lens Opacities Classification System iii grading in irradiated uveal melanomas to characterize proton therapy-induced cataracts.** *Thibaud Mathis, Laurence Rosier, Fatima Meniai, Stéphanie Baillif, Celia Maschi, Joël Herault,*

*Jean-Pierre Caujolle, Laurent Kodjikian, Julia Salleron, and Juliette Thariat*

The authors evaluated here the use of the Lens Opacities Classification System III (LOCS III) grading for the characterization of radiation-induced cataract. The study showed the feasibility of LOCS III grading and found a correlation between dose to the lens and occurrence, not only of posterior subcapsular subtype but also of nuclear color. The authors also reported that the severity of posterior subcapsular subtype correlated with irradiated lens volume.

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## AOS THESIS

- **72 Nuclear factor kappa-B is enriched in eyelid specimens of rosacea: implications for pathogenesis and therapy.** *Edward J. Wladis, Kevin W. Lau, and Alejandro P. Adam*

Nuclear factor kappa-B is enriched in eyelid specimens of rosacea. This finding further refines the understanding of the cellular biology of this disease, and interference with this transcription factor may be an important targeted strategy to suppress this disease.

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- **82 Optical coherence tomography angiography quantitative assessment of choriocapillaris blood flow in central serous chorioretinopathy.** *Cédric Rochepeau, Laurent Kodjikian, Max-Adrien Garcia, and Thibaud Mathis*
- **83 Long-term outcomes of globe-preserving surgery with proton beam radiation for adenoid cystic carcinoma of the lacrimal gland.** *Bitá Esmaeli and Steven J. Frank*
- **84 Long-term outcomes of globe-preserving surgery with proton beam radiation for adenoid cystic carcinoma of lacrimal**

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*Sarah Mrejen, Alain Gaudric, and Ramin Tadayoni* • 87 **Predictive factors of response to mineralocorticoid receptor antagonist in nonresolving central serous chorioretinopathy.** *Dan Călugăru and Mihai Călugăru* • 88 **Serum angiotensin-converting enzyme has a high negative predictive value in the investigation for systemic sarcoidosis.** *Fahriye Groen-Hakan and Laura Eurelings* • 89 **Serum angiotensin-converting enzyme has a high negative predictive value in the investigation for systemic sarcoidosis.** *Rachael L. Niederer, Ahmed Al-Janabi, Sue L. Lightman, and Oren Tomkins-Netzer*

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