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*Flora Lum, MD, Robert S. Feder, MD, Stephen D. McLeod, MD, David W. Parke II, MD*

### Original Articles



**Can Automated Imaging for Optic Disc and Retinal Nerve Fiber Layer Analysis Aid Glaucoma Detection?** 930  
*Katie Banister, PhD, Charles Boachie, BSc (Hons), Rupert Bourne, FRCOphth, Jonathan Cook, PhD, Jennifer M. Burr, MD, Craig Ramsay, PhD, David Garway-Heath, MD, Joanne Gray, MSc, Peter McMeekin, PhD, Rodolfo Hernández, MSc, Augusto Azuara-Blanco, FRCOphth*

Automated imaging technologies can aid clinicians in diagnosing glaucoma, but no technology was able to detect all cases of severe glaucoma in this study.



**Macular versus Retinal Nerve Fiber Layer Parameters for Diagnosing Manifest Glaucoma: A Systematic Review of Diagnostic Accuracy Studies** 939  
*Francesco Oddone, MD, Ersilia Lucenteforte, ScD, PhD, Manuele Michelessi, MD, Stanislao Rizzo, MD, Simone Donati, MD, Mariacristina Parravano, MD, Gianni Virgili, MD*

Our meta-analysis included 34 studies using optical coherence tomography and assessing macular parameters for diagnosing manifest glaucoma. Compared with retinal nerve fiber layer thickness, macular parameters were similarly or slightly less accurate for detecting glaucoma.

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**On the cover:** “Double Bubble Trouble.” Intravitreal live dual. Cysticercus cysts with scolex protruding out of the cyst along with total retinal detachment. Submitted by Dr Ravi Bypareddy and Rohan Chawla; Photographer: Kabiruddin Molla, Bsc (Optometry) and Dr. Karthikeyan Mahalingam. Affiliation: Dr Rajendra Prasad Centre for Ophthalmology, All India Institute of Medical Sciences, New Delhi, India 110029. Equipment: Optos 200Tx.



0161-6420(201605)123:5;1-E

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- Segmentation Errors in Macular Ganglion Cell Analysis as Determined by Optical Coherence Tomography** 950  
*Young Hoon Hwang, MD, Min Kyung Kim, MD, Dai Woo Kim, MD*  
Errors in segmentation of the macular ganglion cell layer—as automatically determined by optical coherence tomography—were found in glaucomatous and healthy eyes without macular disorders, particularly in eyes with high myopia.
-  **Association between Corneal Deformation Amplitude and Posterior Pole Profiles in Primary Open-Angle Glaucoma** 959  
*Younheea Jung, MD, Hae-Young L. Park, MD, PhD, Chan Kee Park, MD, PhD*  
Corneal deformation amplitude is associated with  $\beta$ -zone parapapillary atrophy ( $\beta$ PPA) area and tilt ratio in patients with glaucoma, although in our data set,  $\beta$ PPA area and tilt ratio were not associated with mean deviation.
- Latanoprostene Bunod 0.024% versus Timolol Maleate 0.5% in Subjects with Open-Angle Glaucoma or Ocular Hypertension: The APOLLO Study** 965  
*Robert N. Weinreb, MD, Baldo Scassellati Sforzolini, PhD, Jason Vittitow, PhD, Jeffrey Liebmann, MD*  
In adults with open-angle glaucoma or ocular hypertension, once-daily administration of latanoprostene bunod 0.024% lowered intraocular pressure to a significantly greater extent than twice-daily timolol 0.5% over a period of 3 months.
- Long-Term Comparison of Simultaneous Topography-Guided Photorefractive Keratectomy Followed by Corneal Cross-linking versus Corneal Cross-linking Alone** 974  
*Georgios A. Kontadakis, MD, MSc, Vardhaman P. Kankariya, MD, Konstantinos Tsoulnaras, MD, Aristofanis I. Pallikaris, PhD, Argyro Plaka, MD, MSc, George D. Kymionis, MD, PhD*  
Simultaneous topography-guided photorefractive keratectomy followed by corneal crosslinking improved patients' vision and topography significantly more than corneal crosslinking with Dresden protocol without compromising stability. Confocal microscopy demonstrated a more potent effect of combined procedure.
- The Impact of Topical Corticosteroids Used in Conjunction with Antiamoebic Therapy on the Outcome of *Acanthamoeba* Keratitis** 984  
*Nicole Carnt, PhD, B.Optom, Dana Robaei, PhD, FRANZCO, Stephanie L. Watson, PhD, FRANZCO, Darwin C. Minassian, FRCOphth, MSc(Epidem), John K.G. Dart, DM, FRCOphth*  
This study demonstrates that adjunctive topical corticosteroid therapy, for treating the pain and discomfort of *Acanthamoeba* keratitis, is not associated with worse outcomes when corticosteroid therapy is initiated after the start of modern antiamoebic treatment.

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**The Frequency of Signs of Meibomian Gland Dysfunction in Children with Epidermolysis Bullosa** 991

*Sophie M. Jones, FRCOphth, MD(Res), Kate A. Smith, BMedSci(Hons), Minakshi Jain, BSc, Jemima E. Mellerio, MD, FRCP, Anna Martinez, FRCP, Ken K. Nischal, FRCOphth*

This prospective ocular surface evaluation in children with epidermolysis bullosa demonstrated a high frequency of meibomian gland dysfunction. Findings have important implications regarding management strategies for these children's eyes.



**Simple Limbal Epithelial Transplantation: Long-Term Clinical Outcomes in 125 Cases of Unilateral Chronic Ocular Surface Burns** 1000

*Sayan Basu, MBBS, MS, Shraddha P. Sureka, MBBS, MS, Swapna S. Shanbhag, MBBS, MS, Abhinav R. Kethiri, MS, Vivek Singh, PhD, Virender S. Sangwan, MBBS, MS*

Simple limbal epithelial transplantation is an effective and reliable technique of limbal epithelial stem cell transplantation that restores a normal corneal surface and improves vision in eyes with chronic ocular surface burns.



**Pupillary Reconstruction and Outcome after Artificial Iris Implantation** 1011

*Christian S. Mayer, MD, Lukas Reznicek, MD, Andrea E. Hoffmann, MD*

The artificial iris silicone implant is a feasible and effective therapeutic option for patients with various iris defects, resulting in an improvement of contrast sensitivity and an appealing outcome with high patient satisfaction.



**Cataract Surgery and Mortality in the United States Medicare Population** 1019

*Victoria L. Tseng, MD, Fei Yu, PhD, Flora Lum, MD, Anne L. Coleman, MD, PhD*

Medicare patients with cataract showed a protective association between cataract surgery and all-cause mortality that was modified by the effects of age, gender, region, systemic disease, and cataract severity ( $P < 0.0001$  for all interactions).

**Correction of Moderate to High Myopia with a Foldable, Angle-Supported Phakic Intraocular Lens: Results from a 5-Year Open-Label Trial** 1027

*Thomas Kohnen, MD, PhD, W. Andrew Maxwell, MD, PhD, Simon Holland, MD*

A foldable, angle-supported phakic intraocular lens was effective in the correction of moderate to high myopia for up to 5 years.

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### **Global Prevalence of Myopia and High Myopia and Temporal Trends from 2000 through 2050** 1036

*Brien A. Holden, PhD, DSc, Timothy R. Fricke, MSc, David A. Wilson, PhD, Monica Jong, PhD, Kovin S. Naidoo, PhD, Padmaja Sankaridurg, PhD, Tien Y. Wong, MD, Thomas J. Naduvilath, PhD, Serge Resnikoff, MD*

A systematic review found that the global prevalence of myopia and high myopia were 22.9% and 2.7%, respectively, in the year 2000 and estimated that this will rise to 49.8% and 9.8%, respectively, by 2050.

### **Retinal and Optic Nerve Hemorrhages in the Newborn Infant: One-Year Results of the Newborn Eye Screen Test Study** 1043

*Natalia F. Callaway, MD, MS, Cassie A. Ludwig, BS, Mark S. Blumenkranz, MD, Jennifer Michelle Jones, RN, Douglas R. Fredrick, MD, Darius M. Moshfeghi, MD*

Newborn fundus hemorrhages often are multilaminar and arise in multiple areas of the retina. Vaginal delivery is associated with a significantly increased risk of fundus hemorrhages, whereas self-identified Hispanic or Latino ethnicity may be protective.

### **Ultra-widefield Imaging of the Peripheral Retinal Vasculature in Normal Subjects** 1053

*Michael Singer, MD, PhD, Min Sagong, MD, PhD, Jano van Hemert, PhD, Laura Kuehlewein, MD, Darren Bell, MD, Srinivas R. Sadda, MD*

Using a stereographic projection algorithm on montages from wide-field images, the extent of normal peripheral retinal vasculature was defined, providing a potentially useful reference when assessing the pathologic significance of nonperfusion in retinal vascular diseases.

### **Anatomic Clinical Trial Endpoints for Nonexudative Age-Related Macular Degeneration** 1060

*Karen B. Schaal, MD, Philip J. Rosenfeld, MD, PhD, Giovanni Gregori, PhD, Zohar Yehoshua, MD, MHA, William J. Feuer, MS*

Anatomic clinical trial endpoints to study therapies for nonexudative age-related macular degeneration (AMD) include the growth of geographic atrophy for late AMD and optical coherence tomography changes in drusen morphology and progression for intermediate AMD.

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**Single-Chain Antibody Fragment VEGF Inhibitor RTH258 for Neovascular Age-Related Macular Degeneration: A Randomized Controlled Study** 1080

*Frank G. Holz, MD, FEBO, Pravin U. Dugel, MD, Georges Weissgerber, MD, Robin Hamilton, MB BS DM(dist), FRCOphth, Rufino Silva, MD, PhD, Francesco Bandello, MD, FEBO, Michael Larsen, MD, DMSc, Andreas Weichselberger, PhD, Andreas Wenzel, PhD, Anne Schmidt, PhD, Dominik Escher, PhD, Laura Sararols, MD, Eric Souied, MD, PhD*

RTH258, a single-chain anti-vascular endothelial growth factor antibody fragment, demonstrated noninferiority in the change in central subfield thickness (noninferiority margin: 40  $\mu\text{m}$ ) at 1 month versus ranibizumab for the treatment of neovascular age-related macular degeneration.



**Prevalence of Subretinal Drusenoid Deposits in Older Persons with and without Age-Related Macular Degeneration, by Multimodal Imaging** 1090

*Anna V. Zarubina, MD, David C. Neely, MD, Mark E. Clark, BS, Carrie E. Husingh, MPH, Brian C. Samuels, MD, PhD, Yuhua Zhang, PhD, Gerald McGwin, Jr., MS, PhD, Cynthia Owsley, PhD, MSPH, Christine A. Curcio, PhD*

Subretinal drusenoid deposits are present in approximately 1 in 4 older adults with maculas considered normal by color fundus photography, and the prevalence increases with age and age-related macular degeneration presence and severity.



**Individualized Ranibizumab Regimen Driven by Stabilization Criteria for Central Retinal Vein Occlusion: Twelve-Month Results of the CRYSTAL Study** 1101

*Michael Larsen, MD, Sebastian M. Waldstein, MD, Francesco Boscia, MD, Heinrich Gerding, MD, Jordi Monés, MD, PhD, Ramin Tadayoni, MD, PhD, Siegfried Priglinger, MD, Andreas Wenzel, PhD, Elizabeth Barnes, PhD, Stefan Pilz, PhD, William Stubbings, PhD, Ian Pearce, MD, on behalf of the CRYSTAL Study Group*

Individualized, stabilization criteria-driven dosing of ranibizumab 0.5 mg was followed by a 12-month 12.3-letter best-corrected visual acuity gain in central retinal vein occlusion, including eyes with macular ischemia or long disease duration at baseline.

**BAP1 Germline Mutations in Finnish Patients with Uveal Melanoma** 1112

*Joni A. Turunen, MD, PhD, Salla Markkinen, MSc, Rosi Wilska, MD, Silva Saarinen, MD, PhD, Virpi Raivio, MD, PhD, Martin Täll, MD, Anna-Elina Lehesjoki, MD, PhD, Tero T. Kivelä, MD, PhD*

The population-based frequency of germline mutations of the *BAP1* gene in Finnish patients with uveal melanoma was 2.0%.

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### **Uveal Melanomas with *SF3B1* Mutations: A Distinct Subclass Associated with Late-Onset Metastases** 1118

*Serdar Yavuziyigitoglu, MD, Anna E. Koopmans, MD, PhD, Robert M. Verdijk, MD, PhD, Jolanda Vaarwater, BSc, Bert Eussen, BSc, Alice van Bodegom, BSc, Dion Paridaens, MD, PhD, Emine Kiliç, MD, PhD, Annelies de Klein, PhD, on behalf of the Rotterdam Ocular Melanoma Study Group*

Uveal melanoma patients with *SF3B1* mutations have a better prognosis than patients with *BAP1* mutations; however, they are still at risk for late-onset metastases.



### **The Effect of Postoperative Face-Down Positioning and of Long- versus Short-Acting Gas in Macular Hole Surgery: Results of a Registry-Based Study** 1129

*Rohan W. Essex, MBBS, MBIostat, Zabrina S. Kingston, BBioMedSc, MBBS, Margarita Moreno-Betancur, PhD, Bruce Shadbolt, PhD, Alex P. Hunyor, MBBS, William G. Campbell, MBChB, Paul P. Connell, MBBCHBAO, MD, Ian L. McAllister, MBBS, DM, for the Australian and New Zealand Society of Retinal Specialists Macular Hole Study Group*

Sulfur hexafluoride gas was noninferior to longer-acting gases. Withholding face-down positioning (FDP) was noninferior to FDP in holes  $\leq 400$   $\mu\text{m}$  in diameter, but not in larger holes.



### **Outcomes after Failed Pneumatic Retinopexy for Retinal Detachment** 1137

*Joseph A. Anaya, BA, Chirag P. Shah, MD, MPH, Jeffrey S. Heier, MD, Michael G. Morley, MD, ScM*

After failed pneumatic retinopexy (PR) for retinal detachment (RD), anatomic success rates for secondary PR (63%), pars plana vitrectomy (PPV; 76%), and scleral buckle plus PPV (88%) were lower than published rates for primary RD.



### **Whole Genome Sequencing Increases Molecular Diagnostic Yield Compared with Current Diagnostic Testing for Inherited Retinal Disease** 1143

*Jamie M. Ellingford, MRes, Stephanie Barton, BSc, Sanjeev Bhaskar, MSc, Simon G. Williams, PhD, Panagiotis I. Sergouniotis, PhD, James O'Sullivan, BSc, Janine A. Lamb, DPhil, Rahat Perveen, BSc, Georgina Hall, MSc, William G. Newman, PhD, Paul N. Bishop, PhD, Stephen A. Roberts, PhD, Rick Leach, PhD, Rick Tearle, PhD, Stuart Bayliss, BSc, Simon C. Ramsden, PhD, Andrea H. Nemeth, DPhil, Graeme C.M. Black, DPhil*

Whole genome sequencing (WGS) identified a molecular diagnosis in 11 of the 33 individuals referred for WGS who had not obtained a molecular diagnosis through currently delivered targeted next-generation sequencing (NGS) diagnostic testing.

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**Visual Prognosis in *USH2A*-Associated Retinitis Pigmentosa Is Worse for Patients with Usher Syndrome Type IIa Than for Those with Nonsyndromic Retinitis Pigmentosa** 1151

*Laurence H.M. Pierrache, MD, Bas P. Hartel, MD, Erwin van Wijk, PhD, Magda A. Meester-Smoor, PhD, Frans P.M. Cremers, PhD, Elfride de Baere, MD, PhD, Julie de Zaeytijd, MD, Mary J. van Schooneveld, MD, PhD, Cor W.R.J. Cremers, MD, PhD, Gislin Dagnelie, PhD, Carel B. Hoyng, MD, PhD, Arthur A. Bergen, PhD, Bart P. Leroy, MD, PhD, Ronald J.E. Pennings, MD, PhD, L. Ingeborgh van den Born, MD, PhD, Caroline C.W. Klaver, MD, PhD*

Comparison of disease course and genetic constitution in a large cohort of participants (n = 225) with nonsyndromic retinitis pigmentosa and Usher syndrome type IIa caused by Usher syndrome type 2A (*USH2A*) mutations.

### Reports



**Impact of Surgery on the Quality of Life of Caregivers of Children with Congenital Glaucoma** 1161

*Vijaya K. Gothwal, PhD, Seelam Bharani, BSOpt, Anil K. Mandal, MD*



**Five-Year Incidence and Visual Outcomes in Postintravitreal Injection Endophthalmitis** 1162

*Rajiv Raman, MS, DNB, Sumeer Singh H, BSOpt, Ramya Appanraj, MD, Malathi Jambulingam, PhD, Muna Bhende, MS, Rupak Roy, MS, Tarun Sharma, MD, FRCSEd, For the Sankara Nethralaya Vitreoretinal Study Group (SNVR-Study Group)*



**Validated Prediction Model of Depression in Visually Impaired Older Adults** 1164

*Hilde P.A. van der Aa, MSc, Jing Xie, PhD, Gwyneth Rees, PhD, Eva Fenwick, PhD, Edith E. Holloway, MSc, Ger H.M.B. van Rens, Prof, Ruth M.A. van Nispen, PhD*



**Conjunctival Stromal Tumor: Expansion of Findings in a Newly Described Entity** 1166

*Claudia Auw-Haedrich, MD, Katarzyna D. Danielewicz, MD, Pia R. Mendoza, MD, Thomas Reinhard, MD, Hans E. Grossniklaus, MD*

### Corrigenda

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**Correspondence** (available at [www.aajournal.org/current](http://www.aajournal.org/current))

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**RE: Campochiaro et al.: Scatter photocoagulation does not reduce macular edema or treatment burden in patients with retinal vein occlusion (Ophthalmology 2014;121:209-19)**

*Brijesh Takkar, MD, Shorya Azad, MS*



### Reply

*Peter A. Campochiaro, MD, Gulnar Hafiz, MD, Tahreem A. Mir, MD, Adrienne W. Scott, MD, Sharon Solomon, MD, Ingrid Zimmer-Galler, MD, Akrit Sodhi, MD, Elia Duh, MD, Howard S. Ying, MD, PhD, Adam S. Wenick, MD, PhD, Syed Mahmood Shah, MD, Diana V. Do, MD, Quan D. Nguyen, MD, Saleema Kherani, MD, Raafay Sophie, MD*

**Re: Wang et al.: Acute peripapillary retinal pigment epithelium changes associated with acute intraocular pressure elevation (Ophthalmology 2015;122:2022-8)**

*Gema Rebolleda, MD, Javier García-Montesinos, MD, Francisco José Muñoz-Negrete, MD, Julio José González-López, MD*



### Reply

*Ya Xing Wang, MD, Jost B. Jonas, MD*

**Re: Freitas-Neto et al.: Increased submacular choroidal thickness in active, isolated, extramacular toxoplasmosis (Ophthalmology 2016;123:222-4)**

*Philemon Huang, MBBS, Rupesh Agrawal, MMED*



**Re: Yonekawa et al.: Familial exudative vitreoretinopathy: spectral-domain optical coherence tomography of the vitreoretinal interface, retina, and choroid (Ophthalmology 2015;122:2270-7)**

*Takkar Brijesh, MD, Shorya Azad, MS*



### Reply

*Yoshihiro Yonekawa, MD, Antonio Capone, Jr., MD*

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