THE ASPEN RETINAL DETACHMENT SOCIETY

"Oh vitreous where is thy humor"

ARDS2017

45th Annual

Aspen Retinal Detachment Society Meeting

MARCH 4–8, 2017 • SNOWMASS, COLORADO

Beaumont

ACCREDITATION AND CREDIT DESIGNATION

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education through the joint providership of William Beaumont Hospital, Medical Conference Planners, Inc. and the Aspen Retinal Detachment Society. William Beaumont Hospital is accredited by the ACCME to provide continuing medical education for physicians.

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New York-Presbyterian Hospital
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and Retina
Miami, FL

Founders

William O. Edward, MD
1930–2012

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Spokane, WA

Guest Faculty

Gary W. Abrams, MD
Kresge Eye Institute
Detroit, MI
TAYLOR SMITH AND
VICTOR CURTIN LECTURE

Pravin U. Dugel, MD
Retinal Consultants of Arizona
Phoenix, AZ

Debra A. Goldstein, MD, FRCSC
Northwestern University
Feinberg School of Medicine
Chicago, IL

Allen C. Ho, MD
Wills Eye Hospital
Philadelphia, PA

Mark S. Humayun, MD, PhD
USC Roski Eye Institute
Los Angeles, CA
FOUNDERS LECTURE

Ivana Kim, MD
Massachusetts Eye and Ear Infirmary
Boston, MA

Gregg T. Kokame, MD, MMM
Retina Consultants of Hawaii
Honolulu, HI

Hugo Quiroz-Mercado, MD
Asociación para Evitar la Ceguera en Mexico
Mexico City, Mexico

Charles Wykoff, MD, PhD
Retina Consultants of Houston
Houston, TX

Meeting Planner

Karen Baranick
Medical Conference Planners, Inc.
Scarsdale, NY

FOUNDERS LECTURE

MONDAY, MARCH 6, 2017 • 6:55 PM

The Road to Developing Bioelectronics for Ophthalmology

MARK S. HUMAYUN, MD, PhD

Mark S. Humayun, MD, PhD, is an ophthalmologist, engineer, scientist and inventor – the only ophthalmologist ever to be elected a member of both U.S. National Academies of Medicine and Engineering. He is a university professor with joint appointments at the Keck School of Medicine of USC and the USC Viterbi School of Engineering.

Dr. Humayun was named a recipient of the National Medal of Technology and Innovation in 2015 and received the award from U.S. President Barack Obama in 2016. The award recognizes "those who have made lasting contributions to America's competitiveness and quality of life and helped strengthen the Nation's technological workforce." Humayun co-invented the Argus Series retina implants, which are manufactured by Second Sight, and are intended to restore sight to the blind. The Argus Series implants were named by *Time Magazine* among the top 10 inventions of 2013.

He has more than 100 patents and patent applications, and was nominated by *R&D Magazine* as Innovator of the Year in 2005. He was recently nominated to the National Academy of Inventors, the highest professional distinction accorded to academic inventors.

Dr. Humayun was named Director of the USC Institute of Biomedical Therapeutics (IBT) in 2012, Director of the National Science Foundation BioMimetic MicroElectronic Systems Engineering Research Center, and Director of the Department of Energy Artificial Retina Project. He was also inaugural Director of the USC Eye Institute and interim Chair of the USC Department of Ophthalmology.

Founders Honorees

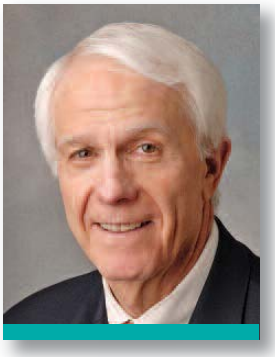
2012 Steve Charles, MD
2013 Joan W. Miller, MD
2014 Carl D. Regillo, MD
2015 Dean Eliott, MD
2016 Mark W. Johnson, MD

TAYLOR SMITH & VICTOR CURTIN LECTURE

TUESDAY, MARCH 7, 2017 • 6:50 PM

Optogenetic Vision Restoration

GARY W. ABRAMS, MD



Gary W. Abrams, MD received his medical education at the University of Oklahoma and completed an internship at the University of Oregon Hospitals and Clinics. Following a tour of duty in the U.S. Navy as a flight surgeon, he completed a residency in Ophthalmology at the MCW and a fellowship in vitreoretinal surgery at the BPEI. Following 2 years on the faculty at BPEI, he moved to The Eye Institute of MCW, where he was program director of the vitreoretinal fellowship and eventually became Professor and Director of the Retina Service.

Dr. Abrams was with Associated Retinal Consultants of Royal Oak, MI in 1992-93 before becoming Professor and Chair of the Department of Ophthalmology of Wayne State University at the Kresge Eye Institute from 1994-2011. He founded and remains the Director of the Ligon Research Center of Vision, dedicated to research to restore vision in the blind and currently focuses on optogenetic strategies for vision restoration. He remains Professor of Ophthalmology at Wayne State University and continues to teach residents and fellows, manage complicated retinal diseases and pursue research activities. Dr. Abrams is most proud of the 60+ vitreoretinal fellows he has trained in Miami, Royal Oak and Detroit.

He has more than 200 articles and book chapters in the field of vitreoretinal surgery. He has received numerous awards including the Paul Kayser International Award in Retina Research and the Pyron Award in Retina Research, both from the Retina Research Foundation. In addition, he received the Secretariat and Life Achievement Honor Awards from the AAO. He has held and numerous leadership positions at ARVO and AUPO. He currently is a member of the Executive Committee of the Club Jules Gonin, serves on the Editorial Board of the journal *Retina*, and is a member of the Data and Safety Monitoring Committee of the Diabetic Retinopathy Clinical Research Network.

Taylor Smith & Victor Curtin Honorees*

1983	Thomas M. Aaberg, Sr., MD	1992	Stephen J. Ryan, MD	2001	Thomas R. Friberg, MD	2009	Alexander R. Gaudio, MD
1984	Robert E. Morris, MD	1993	Wayne E. Fung, MD	2002	William S. Tasman, MD	2010	Carmen A. Puliafito, MD, MBA
1985	Michael Shea, MD	1994	Charles P. Wilkinson, MD	2003	Evangelos S. Gragoudas, MD	2011	David W. Parke, II, MD
1986	Alexander Ray Irvine, Jr., MD	1995	George W. Blankenship, MD	2004	Steve Charles, MD	2012	J. Brooks Crawford, MD
1987	William H. Spencer, MD	1996	Mary Lou Lewis, MD	2005	Thaddeus P. Dryja, MD	2013	Michael T. Trese, MD
1988	Victor T. Curtin, MD	1997	Donald J. D'Amico, MD	2006	Jerry A. Shields, MD	2014	Julia A. Haller, MD
1989	Alan Bird, MD	1998	Stanley Chang, MD	2007	Mark S. Blumenkranz, MD	2015	George A. Williams, MD
1990	J. Donald M. Gass, MD	1999	Harry W. Flynn, Jr., MD	2008	Allan E. Kreiger, MD	2016	Neil M. Bressler, MD
1991	Robert J. Brockhurst, MD	2000	Ian J. Constable, MD				

* *Prior to 2017, this lecture was known as the Taylor Smith Lecture.*

ARDS2017

PROGRAM AT A GLANCE

Saturday

MARCH 4

4:00-9:00 PM
Registration
Viceroy Snowmass
(Spa Level – Salon 2)

6:00-9:00 PM
Welcome Dinner
Viceroy Snowmass
(Spa Level – Salon 2)

Sunday

MARCH 5

3:30-4:00 PM
Break

3:30-7:30 PM
Exhibits

4:00-4:20 PM
Treatment of DME and DR: A Paradigm Shift
Pravin U. Dugel, MD

4:20-4:35 PM
Discussion

4:35-4:55 PM
Outcomes with As-Needed Aflibercept in the VISTA Extension Study: ENDURANCE 1 Year Results
Charles C. Wykoff, MD, PhD

4:55-5:10 PM
Discussion

5:10-5:30 PM
Reoperations in Vitreoretinal Surgery
Hugo Quiroz-Mercado, MD

5:30-5:45 PM
Discussion

5:45-6:15 PM
Break

6:15-6:35 PM
The Potential of Stem Cells Based Therapies for Retinal Diseases
Mark S. Humayun, MD, PhD

6:35-6:50 PM
Discussion

6:50-7:30 PM
PANEL 1:
Advanced Management of Diabetic Macular Edema
Moderator: Pravin U. Dugel, MD
Panelists: Mark S. Humayun, MD, PhD
Hugo Quiroz-Mercado, MD
Charles C. Wykoff, MD, PhD

7:30 PM
Adjourn/Free Evening

Monday

MARCH 6

3:30-4:00 PM
Break

3:30-7:30 PM
Exhibits

4:00-4:20 PM
New Drugs and Targets for Neovascular AMD
Pravin U. Dugel, MD

4:20-4:35 PM
Discussion

4:35-4:55 PM
Polypoidal Choroidal Vasculopathy – A Variant of Type I CNV – Implications for Diagnosis and Management
Gregg T. Kokame, MD, MMM

4:55-5:10 PM
Discussion

5:10-5:30 PM
Peripheral Targeted Laser: WAVE and DAVE Trials
Charles C. Wykoff, MD, PhD

5:30-5:45 PM
Discussion

5:45-6:15 PM
Break

6:15-6:55 PM
PANEL 2:
Advanced Pharmacotherapy and Surgical Management for Complex Retinal Disease
Moderator: Timothy G. Murray, MD, MBA
Panelists: Pravin U. Dugel, MD
Gregg T. Kokame, MD, MMM
Charles C. Wykoff, MD, PhD

6:55-7:00 PM
Introduction of Founders Lecturer
Timothy G. Murray, MD, MBA

7:00-7:20 PM
FOUNDERS LECTURE
The Road to Developing Bioelectronics for Ophthalmology
Mark S. Humayun, MD, PhD

7:20-7:30 PM
Discussion

8:00-10:00 PM
Faculty Dinner

Tuesday
MARCH 7

11:00 AM-2:00 PM
NASTAR Ski Race and Lunch

3:30-4:00 PM
Break

3:30-7:30 PM
Exhibits

4:00-4:20 PM
Common Infectious Posterior Uveitides
Debra A. Goldstein, MD, FRCSC

4:20-4:35 PM
Discussion

4:35-4:55 PM
Toward More Precise Subretinal Therapeutic Delivery: New Techniques and Instrumentation
Allen C. Ho, MD

4:55-5:10 PM
Discussion

5:10-5:30 PM
Management of Radiation Retinopathy
Ivana Kim, MD

5:30-5:45 PM
Discussion

5:45-6:15 PM
Break

6:15-6:35 PM
Update on Eylea for AMD and Retinal Vascular Disease
Gregg T. Kokame, MD, MMM

6:35-6:50 PM
Discussion

6:50-6:55 PM
Introduction of Taylor Smith & Victor Curtin Lecturer
Donald J. D'Amico, MD

6:55-7:20 PM
TAYLOR SMITH & VICTOR CURTIN LECTURE
Optogenetic Vision Restoration
Gary W. Abrams, MD

7:20-7:30 PM
Discussion

8:00-10:00 PM
Closing Dinner
Viceroy Snowmass

Wednesday
MARCH 8

3:30-4:00 PM
Break

3:30-7:30 PM
Exhibits

4:00-4:20 PM
Retinopathy of Prematurity and Associated Diseases
Hugo Quiroz-Mercado, MD

4:20-4:35 PM
Discussion

4:35-4:55 PM
Role of Vitreoretinal Surgery in Patients with Choroidal Melanoma
Ivana Kim, MD

4:55-5:10 PM
Discussion

5:10-5:30 PM
3D Viewing and the Future of Vitreoretinal Surgery
Allen C. Ho, MD

5:30-5:45 PM
Discussion

5:45-6:15 PM
Break

6:15-6:35 PM
Masquerades of Posterior Uveitis
Debra A. Goldstein, MD, FRCSC

6:35-6:50 PM
Discussion

6:50-7:30 PM
PANEL 3:
Surgical Approaches, Advanced Viewing and Instrumentation. Case Presentation.
Moderator: Allen C. Ho, MD
Panelists: Ivana Kim, MD
Hugo Quiroz-Mercado, MD
Timothy G. Murray, MD, MBA

7:30 PM
Adjourn

Sunday | MARCH 5

4:00-4:20 PM

Treatment of DME and DR: A Paradigm Shift

PRAVIN U. DUGEL, MD

New data suggests that roughly half the patients with DME treated with anti-VEGFA mono therapy do not respond satisfactorily. Recent analyses of the DRCRnet Protocol I (the EARLY study) will be presented to enable clinicians to identify such inadequately responsive patients. In addition, alternative treatment strategies for such patients will be discussed. Finally, drugs in the pipeline for DME and DR will be presented.

4:35-4:55 PM

Outcomes with As-Needed Aflibercept in the VISTA Extension Study: ENDURANCE 1 Year Results

CHARLES C. WYKOFF, MD, PhD

PURPOSE: To investigate the long-term dosing requirements of patients managed with aflibercept for center-involved DME causing visual acuity loss.

METHODS AND RESULTS: All patients completing the phase 3 VISTA trial at 4 clinical trial sites in 3 states were offered enrollment in the phase 4 ENDURANCE extension study. Sixty patients enrolled in ENDURANCE. All patients received aflibercept in the presence of clinically relevant DME, inclusively defined as DME limiting visual function per the treating investigator in attempt to assess real-world aflibercept use. Main outcome measures were mean aflibercept injections given through month 12 (M12), proportion of patients receiving no aflibercept, and the role of macular laser in decreasing treatment burden among patients requiring on-going treatments.

A mean of 4.5 aflibercept treatments were administered through M12. Eighteen (30%) patients required no aflibercept. BCVA gains achieved during VISTA were maintained and stable with individualized dosing during ENDURANCE, fluctuating by less than 1.5 mean letters from baseline at all time points. Likewise, mean central retinal thickness remained relatively stable during ENDURANCE. Thirty-seven (62%) patients met macular laser criteria at a mean of 19.5 weeks with no significant difference in the frequency of aflibercept treatments before or after macular laser.

CONCLUSION: Vision gains achieved during the 3-year VISTA trial were maintained through 12 months of the ENDURANCE extension study with a reduced treatment frequency, with 30% of patients receiving no IAI. No significant reduction in IAI frequency was observed after macular laser application.

5:10-5:30 PM

Reoperations in Vitreoretinal Surgery

HUGO QUIROZ-MERCADO, MD

Reoperations are surgeries that may be unplanned return to the operating room that frequently occurs within 30 to 90 days after first surgery or planned surgery as a second step or complication after first surgery. We will discuss several approaches in several pathologies either on planned or no planned surgeries.

Association to Prevent Blindness in Mexico City is an ophthalmological referral center in which 2,400 vitreo-retinal surgeries are performed annually. Based on some research and anecdotal experiences from our hospital we will discuss several approaches to resolve reoperations, ways to prevent complications, interesting cases and personal view to improve better outcomes.

Main topics will include: PPV vs SB for primary RRD, management of submacular fluid, macular folds, sub-macular hemorrhage during surgery, phaco-vitrectomy, MH reoperation, severe bleeding during TRD surgery, among others.

Finally I will discuss some things out of the box. Is there room for new vitreo-retinal surgeries? Can we work together with anterior segment surgeons to improve outcomes after cataract surgery?

6:15-6:35 PM

The Potential of Stem Cells Based Therapies for Retinal Diseases

MARK S. HUMAYUN, MD, PhD

The talk will cover a novel approach to transplant a stem cell derived monolayer of RPE in dry AMD. Preclinical results leading to the approval of the phase 1 study and some of the phase 1 results will be discussed.

6:50-7:30 PM

PANEL 1: Advanced Management of Diabetic Macular Edema

MODERATOR: PRAVIN U. DUGEL, MD

Panelists: Mark S. Humayun, MD, PhD
Hugo Quiroz-Mercado, MD
Charles C. Wykoff, MD, PhD

Recent studies have suggested that we are on the precipice of a monumental paradigm shift in the management of the leading cause of blindness in the world, diabetic related vision loss. This expert panel will discuss the clinical implications of recent clinical trials in the management of patients with DME and DR. Representative cases will be presented. This will be a clinical discussion emphasizing both the physiologic and logistic implications to the community physician of a strategic shift in treatment.

Monday | MARCH 6

4:00-4:20 PM

New Drugs and Targets for Neovascular AMD

PRAVIN U. DUGEL, MD

The widening gap between clinical trial results and real life data in nvAMD is alarming. The logistic and physiologic considerations for this gap will be discussed. Recent clinical trial results for anti-PDGF drugs has been disappointing. The latest data analysis of the Fovista trials will be presented. Finally, promising new drugs in the pipeline will be discussed.

4:35-4:55 PM

Polypoidal Choroidal Vasculopathy – A Variant of Type I CNV – Implications for Diagnosis and Management

GREGG T. KOKAME, MD, MMM

Polypoidal choroidal vasculopathy (PCV) is a variant of subretinal neovascularization, which presents with signs and symptoms commonly seen in exudative age-related macular degeneration (AMD). PCV is much more common than has previously been recognized. Although more common in Asian populations, it also makes up a significant portion of what has been diagnosed as exudative AMD in Caucasian populations.

PCV is localized between the retinal pigment epithelium (RPE) and above Bruch's membrane. ICG angiography shows polyps with or without a branching vascular network (BVN), which correlate on optical coherence tomography (OCT) B scans to a inverted U-shaped elevation of the RPE as the polyp, and a low-lying elevation of the RPE (double line sign) as the BVN. The PCV lesion anatomically is thus not truly in the choroid, and is really a variant of type I subretinal neovascularization. Perhaps a better term for this lesion is Polypoidal Subretinal Neovascularization (PSN).

The most important diagnostic modality to evaluate for PCV is indocyanine green (ICG) angiography. ICG angiography is not always available in many clinics. Fluorescein angiography is not a reliable means of

diagnosing PCV with the majority of cases showing occult leakage or hemorrhagic retinal pigment epithelial detachment. Alternative ways to diagnose PCV include en face OCT, which images PCV as a hyperechogenic vascular lesion with polypoidal dilations with slabs located at the level of the RPE. OCT angiography (OCTa) is a noninvasive technology to image vascular structures, and vascular flow through the PCV complex does show potential to produce imaging.

5:10-5:30 PM

Peripheral Targeted Laser: WAVE and DAVE trials.

CHARLES C. WYKOFF, MD, PhD

PURPOSE: To investigate the effect of wide-field fluorescein-angiography (WF-FA) guided peripheral photocoagulation on treatment burden in eyes with recalcitrant cystoid macular edema (CME) secondary to ischemic retinal vein occlusion (RVO).

METHODS AND RESULTS: Patients with center-involving CME secondary to RVO incompletely responsive to at least 2 previous monthly anti-vascular endothelial growth factor (VEGF) injections were enrolled in the WAVE phase IV clinical trial. Thirty eyes with ETDRS BCVA of 20/25-20/800 and retinal non-perfusion outside of the macular arcade vasculature amenable to photocoagulation were randomized 1:4 to monotherapy (n=6) with ranibizumab or combination therapy (n=24) with ranibizumab and targeted peripheral retinal photocoagulation (TRP). All patients received 6 monthly ranibizumab injections followed by 6 months of pro re nata (PRN) re-treatment; patients in the combination therapy cohort received TRP to areas of peripheral retinal non-perfusion at week 1 and month 4.

At baseline, patients had received a mean of 10.1 prior anti-VEGF injections. Twenty-nine eyes (97%) completed month 12 (M12), at which point mean BCVA improved 10.7 and 14.9 ETDRS letters (P=0.46) and mean CRT improved 186 µm and 188 µm (P=0.99) in the monotherapy and combination therapy cohorts respectively. The mean number of injections administered through M12 was 9.5 (range 7-12) and 8.7 (range 5-12) in the monotherapy and combination therapy cohorts respectively, with 3.7 and 3.1 given during the 6-month PRN re-treatment period. Both cohorts demonstrated progressive decline in visual field through M12.

CONCLUSION: In this randomized trial of 30 eyes with CME secondary to ischemic RVO incompletely responsive to anti-VEGF injections, comparable visual and anatomic outcomes were demonstrated in both the monotherapy and combination therapy cohorts. TRP did not significantly impact treatment burden, with 0.6 fewer mean injections compared to monotherapy during 6 months of PRN re-treatment.

6:15-6:55 PM

PANEL 2: Advanced Pharmacotherapy and Surgical Management for Complex Retinal Disease

MODERATOR: TIMOTHY G. MURRAY, MD, MBA

Panelists: Pravin U. Dugel, MD
Gregg T. Kokame, MD, MMM
Charles C. Wykoff, MD, PhD

This panel will discuss complex pharmacotherapy targeted to improve outcomes for macular edema, vascular occlusion, severe diabetic retinopathy and tractional pathologies. The focus will include advanced diagnostic studies, incorporation of anti-VEGF and steroid deliveries. Finally, the impact of surgical management to improve visual functional and anatomic outcomes will be explored through surgical video and discussion. Decision making for combined treatments will be explored with active audience participation.

7:00-7:20 PM

FOUNDERS LECTURE The Road to Developing Bioelectronics for Ophthalmology

MARK S. HUMAYUN, MD, PHD

The talk will cover the development of an epiretinal prosthesis to restore useful visual input to patients with end-stage loss of photoreceptors such as in Retinitis Pigementosa. Clinical results leading to the approval of the retinal implant and post approval results will be discussed.

Tuesday | MARCH 7

4:00-4:20 PM

Common Infectious Posterior Uveitides

DEBRA A. GOLDSTEIN, MD, FRCSC

One of the biggest mistakes in the treatment of uveitis is missing infectious causes of inflammation, and assuming that all uveitis is treated with corticosteroids. Another error is assuming that inflammation in the anterior chamber equates to a diagnosis of anterior uveitis. In fact, many forms of infectious retinitis present with significant anterior segment inflammation, therefore any patient with ocular inflammation needs a dilated fundus examination. The most common causes of infectious posterior uveitis are toxoplasmosis and necrotizing herpetic retinitis, although syphilis must be in the differential of any patient with uveitis. The focus of this talk will be on clinical clues to aid in the diagnosis of infectious causes of uveitis, through presentation of both classic and atypical cases of these conditions, as well as other infectious posterior uveitides such as DUSN, Bartonella and tuberculosis.

4:35-4:55 PM

Toward More Precise Subretinal Therapeutic Delivery: New Techniques and Instrumentation

ALLEN C. HO, MD

Cell therapies for atrophic AMD and other new potential retinal therapeutics such as gene therapy for neovascular AMD require safe, controlled and reproducible subretinal delivery techniques and potentially new instrumentation. We will review the current status of the cell therapy trials for atrophic AMD and report on the phase 1/2a Janssen cell therapy program and status of the phase 2 trial.

Although transvitreal approaches in subretinal delivery are most familiar, a retinotomy to access the subretinal space may permit egress of therapeutics into the vitreous cavity reducing precision in therapeutic delivery. A potential solution is therapeutic subretinal delivery without retinotomy. We have developed new microcatheters and other instrumentation that permit a suprachoroidal and then transchoroidal approach to the subretinal space without retinotomy in the macula. In preclinical and clinical testing in the Janssen CNTO 2476 phase 2 trial, we have refined and tested these instruments and techniques and will present the surgical technique and instrumentation via surgical video.

5:10-5:30 PM

Management of Radiation Retinopathy

IVANA KIM, MD

Radiotherapy provides excellent local control for choroidal melanoma. However, significant visual loss occurs due to radiation retinopathy. Various treatment approaches for radiation retinopathy have been attempted, including laser and intravitreal pharmacotherapy with steroids and anti-VEGF agents. Results have been variable, but generally, earlier treatment may be more efficacious. Some cases that have been recalcitrant to anti-VEGF therapy may response to intravitreal steroid.

More recently, prophylactic approaches have been investigated utilizing steroids, anti-VEGF agents, and even vitrectomy with silicone oil. A prospective investigator-sponsored clinical trial was performed at our center evaluating the use of ranibizumab given every 2 months for 2 years after proton irradiation for small/medium choroidal melanomas close to the fovea and/or optic disc. At two years, 88% of patients treated with ranibizumab had visual acuity of 20/40 or better compared to 47% of historical controls ($p<.001$). Further details of this study will be discussed.

6:15-6:35 PM

Update on Eylea for AMD and Retinal Vascular Disease

GREGG T. KOKAME, MD, MMM

Antiangiogenic therapy has revolutionized the treatment of exudative age related macular degeneration (AMD) over the past 15 years. Staging of exudative AMD introduced by Gass is based on location, including type I subretinal neovascularization (sub RPE), type II subretinal neovascularization (above the RPE) and type III neovascularization (neovascularization within the retina with subretinal neovascularization).

However, another variant of subretinal neovascularization is polypoidal choroidal vasculopathy (PCV). This variant is a type I subretinal neovascularization lying beneath the RPE and above Bruch's membrane, and is NOT in the choroid. The importance of this variant is that the diagnosis of PCV may affect therapy and even change decisions in regards to therapy.

Treatment with antiangiogenic injections are important at decreasing exudation and bleeding in PCV. However, there is a higher incidence of resistance to antiangiogenic injections with PCV. The Everest II study is a multi-centered trial done in Asia (Singapore, Japan, South Korea, Taiwan, Hong Kong, Malaysia). This study compared monthly ranibizumab to combination photodynamic therapy (PDT) and ranibizumab with 2 subsequent loading doses of ranibizumab in a multi-centered randomized clinical trial involving 322 patients. After the first 3 months treatment was PRN for both groups. Combining PDT with 3 ranibizumab loading doses resulted in better vision, less residual fluid, and more polyp regression than ranizumab monotherapy alone.

This trial emphasizes that PDT is still important, and that combination PDT should be considered even as primary therapy, and not only as rescue therapy. This is especially considered when vision is significantly decreased (worse than 20/40) and when ICG angiography is able to localize the lesion to a non-foveal area and when frequent doctor visits are not possible.

6:55-7:20 PM

TAYLOR SMITH & VICTOR CURTIN LECTURE

Optogenetic Vision Restoration

GARY W. ABRAMS, MD

Inherited retinal degenerations (IRGs) are a significant cause of blindness. In most IRGs, the connections to the visual cortex remain intact and a common characteristic of many IRGs is retention of functioning inner retinal neurons, including ganglion cells and bipolar cells, in spite of loss of photoreceptors. There are a number of exciting new strategies under investigation to restore vision in patients blind from IRGs including bioelectric stimulation, gene therapy, retinal stem cell transplantation and optopharmacology (administration of light responsive drugs).

Optogenetics is the introduction of a gene for a light-sensitive protein into the cell membrane of a light insensitive cell such as a ganglion cell or a bipolar cell to make the neuron respond to light. Optogenetics was made possible by the discovery of Channelrhodopsin 2 (CHR2) by Nagel in 2003. Pan first showed the possibility of optogenetic vision restoration in 2006 when he delivered a precursor gene for CHR2 with a viral vector into the vitreous of blind retinal degenerate mice and demonstrated a light response in the ganglion cells and a visually evoked response in the primary visual cortex. CHR2 is activated by bright blue light and recent work has produced newer channelrhodopsins that have greater light sensitivity and that respond to light in a more natural red spectrum. Initial clinical studies in humans using CHR2 have recently commenced.

Wednesday | MARCH 8

4:00-4:20 PM

Retinopathy of Prematurity and Associated Diseases

HUGO QUIROZ-MERCADO, MD

About 400 to 600 infants each year in the US become legally blind from ROP. In September 2005 we performed anti-Angiogenic therapy in a very low weigh premature baby having bilateral VH and bilateral persistent fetal vasculature which prevent laser treatment. Based on a bilateral remarkable improvement 48 hours after treatment we started exploring and collecting data on this therapy.

Anti-VEGF treatment is considered in some centers as an effective alternative to laser surgery however laser is still considered a standard of care for some researchers. We will present our personal experience, we will discuss risks and complications and other issues like neuro-development. Advantages of this treatment mainly in hospitals where laser machine is not available is an important indication to prevent blindness in ROP.

Interesting cases associated to ROP and differential diagnosis will be presented.

4:35-4:55 PM

Role of Vitreoretinal Surgery in Patients with Choroidal Melanoma

IVANA KIM, MD

Vitreoretinal surgical techniques are playing a growing role in the management of patients with choroidal melanoma. At the time of primary treatment, trans-vitreal biopsy is often performed for prognostic and sometimes diagnostic purposes. More controversial surgical interventions for primary treatment include vitrectomy with silicone oil and primary endoresection.

Following radiotherapy, the most common indications for vitrectomy include vitreous hemorrhage and exudative retinal detachment. Considerations regarding the surgical approach in these patients will be discussed and results of a small series of patients who underwent vitrectomy for these indications will be reviewed. Patients with vitreous hemorrhage after radiation for choroidal melanoma may have significant visual acuity improvements after vitrectomy. However, recurrent hemorrhages are common. Vision improvement is seen in a minority of patients after vitrectomy for exudative retinal detachment. Earlier intervention may improve outcomes.

5:10-5:30 PM

3D Viewing and the Future of Vitreoretinal Surgery

ALLEN C. HO, MD

Our tools and technologies to manipulate tissue in the posterior segment of the eye and our ability to create a controlled surgical environment are highly evolved; however, surgical visualization and pharmacosurgical therapy has lagged. The optical microscope is based on 300-year-old principles of the Galilean telescope and has evolved in limited fashion from its initiation in ocular surgery in the 1950s; furthermore, the optical microscope is more suited for anterior segment surgery than it is for posterior segment vitreoretinal surgery.

Vitreoretinal surgery has different imaging requirements and the future of vitreoretinal surgical video imaging will be digital. Digitally assisted vitreoretinal surgery has evolved from substandard surgical displays and video with image lag to full immersion 3 dimension 4K ultra high definition display monitors with enhanced depth of focus and virtually no perceptible video display lag during live surgery. Surgeons are freed from the microscope oculars and can enjoy real time surgical display with their surgical assistants and trainees.

Digital imaging affords high definition and magnification, enhanced depth of field and focus, and peripheral acuity. A reduction in endo illumination and 3D digital guidance systems may also afford improved safety. Other digital imaging input can be displayed simultaneously with the traditional surgeon's view display to improve surgical facility and techniques.

6:15-6:35 PM

Masquerades of Posterior Uveitis

DEBRA A. GOLDSTEIN, MD, FRCSC

Many cancers can present in the eye, sometimes as obvious tumors and in other cases as mimickers of other ocular conditions. The most common malignant masquerader of uveitis is lymphoma. Lymphoma in the eye can be broadly characterized as systemic lymphoma, with ocular metastases, typically to the choroid, and primary vitreoretinal (or primary intraocular) lymphoma, which is related to primary CNS lymphoma. Both types may present to the retinal specialist prior to a known diagnosis of cancer. Timely diagnosis is important both for preservation of visual function, but also to allow for appropriate systemic diagnosis and management. This talk will focus on clinical and imaging clues to the diagnosis of intraocular lymphoma and other masqueraders of uveitis.

6:50-7:30 PM

PANEL 3: Surgical Approaches, Advanced Viewing and Instrumentation. Case Presentation.

MODERATOR: ALLEN C. HO, MD

Panelists: Ivana Kim, MD
Hugo Quiroz-Mercado, MD
Timothy G. Murray, MD, MBA

Drs. Kim, Quiroz-Mercado and Murray, MD will discuss their surgical approaches, advanced viewing techniques and use of instrumentation in various vitreoretinal conditions including PVR, dislocated IOL, macular hemorrhage and macular hole, surgical complications and more. The discussion will be focused on current surgical techniques and instrumentation.

EXHIBITORS

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