The 761st Meeting of
New England Ophthalmological Society
A Public Foundation for Education in Ophthalmology
SEPTEMBER 30, 2016

INTRODUCTION TO DMEK – THE THINNER FUTURE
Peter Rapoza, MD, Moderator
Jeremy Kieval, MD, Program Committee Coordinator

NEURO-OPHTHALMOLOGY: CORTICAL VISUAL DISORDERS
Sashank Prasad, MD, Moderator
Gena Heidary, MD, PhD, Program Committee Coordinator

DISTINGUISHED ACHIEVEMENT AWARD

Accreditation:
The New England Ophthalmological Society designates this live activity for a maximum of 7 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

The New England Ophthalmological Society is accredited by the Massachusetts Medical Society to provide continuing medical education for physicians.

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NEOS is one of, if not the, strongest local/regional ophthalmological societies in existence. Its remarkable success and longevity are the result of excellent foresight and direction from its earliest leaders, and strong and insightful leadership from its recent leaders. From the past presidents still on the Board (Joan Miller, Joel Geffin and David Lawlor) to those who have recently completed long and successful tenures (Paul Pender, Mitchell Gilbert, Jerry Spindel, Elliot Perlman and Shiyoung Roh), each has made important contributions to continue the Society’s success. With the invaluable guidance of Michael Bradbury, Executive Director and a Past President, and the never-ending support of Judy Cerone Keenan, Executive Assistant, NEOS continues to provide outstanding educational programs and numerous other avenues of support to ophthalmologists throughout New England. It is my hope and intent to continue the outstanding work of my predecessors in leading NEOS into the future.

Medicine, and the environment in which we practice, is constantly changing. We are forced to adapt rapidly, and frequently, to maintain successful practices. It is no different for NEOS. We are encountering numerous changes that must be addressed in order to continue to thrive and to provide our members with the outstanding programs and services to which they are accustomed. Priorities over the next year include the following:

1. Recruitment of new committee members interested in various challenging and rewarding service roles with NEOS
2. Recognition and guidance of committee members interested in leadership positions with NEOS
3. Ensuring compliance with the increasing CME requirements necessary to maintain accreditation
4. Continued recruitment of new members to the Society
5. Initiation of a new ad hoc committee, the NEOS Young Ophthalmologists Committee, a group of young NEOS members who will offer their insight and guidance

I look forward to working with the Executive Board to accomplish these goals. I am grateful for being given the opportunity to serve as this year’s NEOS President, and I am truly thankful to have the opportunity to continue the outstanding work of our Past Presidents, supported tremendously by the hard-working and selfless members of the past and present Executive Boards and NEOS Committees.

Jeffrey S. Heier, MD
President
Michael Straiko, MD

Board certified in Ophthalmology, Michael Straiko, MD, is a subspecialist in Cornea, External Disease and Refractive Surgery at Legacy Good Samaritan’s Devers Eye Institute. Dr. Straiko earned his medical degree from the University of Cincinnati College of Medicine and completed his ophthalmology residency at Washington University in St. Louis. He subsequently completed a fellowship in cornea and external disease at the Devers Eye Institute. Dr. Straiko cared for patients in a high-volume private practice for one year prior to returning to the Devers Eye Institute as the Associate Director of Corneal Services. His clinical and research interests include corneal transplantation surgery (DSEAK, DALK and DMEK), anterior segment reconstruction, keratoplasty, keratoprosthesis implantation and lens implantation as well as cataract and refractive (LASIK and PRK) surgery.

A main area of focus for Dr. Straiko is clinical education and especially surgical instruction. This teaches his corneal fellows, visiting surgeons, edits educational videos and leads DMEK educational seminars around the world. He has conducted DMEK courses in his home city of Portland, Oregon as well as Sevilla, Spain, Chennai, India, New York City in partnership with the Eye Bank for Sight Restoration, and most recently in Isfahan, Iran at the invitation of the Iranian Society of Ophthalmology.

In addition to helping his patients achieve their greatest visual potential, Dr. Straiko is involved in clinical research and shares the responsibility of training clinical and research fellows with his practice partner. He regularly teaches courses on corneal transplantation techniques both locally and at national and international meetings.

Mike is a devoted husband and father and the favorite playmate of his five year old twin daughters. When away from the office and operating room, he may be found biking, hiking and exploring the outdoors.
Steven Galetta, MD

Steven Galetta, MD, is currently the Philip K. Moskowitz, MD, Professor of Neurology, and Chair of the Department of Neurology at the NYU Langone Medical Center. Formerly, he was the Associate Dean of Admissions for the University of Pennsylvania School of Medicine. He also served as the Director of Neurological Training and Neuro-ophthalmology at Penn for over two decades. Dr. Galetta received his MD from Cornell University Medical College. He then completed his neurology residency at the Hospital of the University of Pennsylvania and his neuro-ophthalmology fellowship at the Bascom Palmer Eye Institute, University of Miami.

Dr. Galetta currently serves on the editorial board for the journals Neurology, and the Journal of Neuro-ophthalmology. He is co-author of the textbook, Neuro-ophthalmology: Diagnosis and Management. In 2004, he was named the American Neurological Association’s distinguished teacher of the year. He was also named the Robert J. Glaser Alpha Omega Alpha distinguished teacher of the year by the Association of American Medical Colleges in 2004. In 2008, he received the Parker Palmer award from the ACGME for his contributions to graduate medical education. Dr. Galetta has been involved in various capacities in a large number of clinical trials and has over 275 original publications concerning clinical, radiologic and research aspects of multiple sclerosis, sports related concussion and neuro-ophthalmology.
Simmons Lessell was selected to receive the NEOS Distinguished Achievement award in early 2016, with the intention to present it to him at this meeting. Unfortunately, Dr. Lessell’s untimely death has given this event a memorial character. Dr. Lessell was one of the most well-known and beloved faculty members within the Department of Ophthalmology at Harvard Medical School. He graduated from Amherst College and then attended Cornell University Medical College, where he worked under Dr. Edward Norton, who was a retina specialist but also served as the neuro-ophthalmologist at Cornell. This experience motivated Dr. Lessell to become a neuro-ophthalmologist, which led to his training as a neurology resident at the University of Vermont and then two years of clinical practice and research within the National Institute of Health (Epidemiology and Genetics Branch). Dr. Lessell then performed two years of research at the Howe Laboratory at Massachusetts Eye and Ear with an emphasis on retinal microglia and histochemistry of the eye and retina. Dr. Lessell then entered Massachusetts Eye and Ear’s residency program, which he completed in 1966.

After residency, Dr. Lessell joined the new Department of Ophthalmology at Boston University Medical Center, attaining the rank of Professor of Ophthalmology, Neurology and Anatomy and serving as the Director of the Department of Ophthalmology at the Boston City Hospital. During his 18 year tenure, he was awarded the highly coveted Metcalf Cup and Prize as the outstanding teacher at BU. Dr. Lessell served as consultant to the VA Hospital in Jamaica Plains and at the New England Medical Center. Over these years, Dr. Lessell maintained continuous funding for research from the National Institutes of Health for 13 consecutive years.

In 1983, Dr. Lessell was recruited to Massachusetts Eye and Ear as Director of the Neuro-Ophthalmology service, where he built an outstanding clinical and teaching service. His exceptional teaching and mentoring continued to garner awards when in 2004 he received the 'Outstanding Teacher Award' from the residents at MEEI and in 2006 he was recognized as a 'Distinguished Alumnus' within the HMS Department of Ophthalmology. After stepping down as the Director of the Neuro-ophthalmology Service in 2004, Dr. Lessell continued to see patients and also became Director of Medical Student Education for the Department of Ophthalmology at HMS. Dr. Lessell transformed the HMS Ophthalmology curriculum with a radical redesign of the elective program.
Over his career, Dr. Lessell developed an international reputation for excellence and was widely recognized as a gifted clinician and superb teacher both in neuro-ophthalmology and in many aspects of general ophthalmology. Dr. Lessell was an extraordinary mentor, committed to rigorous training of the highest caliber. He trained countless medical students, residents and more than 40 fellows, more than 30 of whom work at academic medical centers and 4 of whom serve as chairs of department. These achievements were recognized by Harvard Medical School when in 2014 Dr. Lessell was bestowed the prestigious William Silen Lifetime Achievement in Mentoring Award, one of a small number of mentoring awards given across the roughly 11,000 HMS faculty members.

Dr. Lessell had been a member of NEOS since 1968. Over these years, he presented numerous talks and served on many panels for our neuro-ophthalmology programs. Through his training of a large number of New England Ophthalmologists who provide care to countless patients, he had a profound impact on the delivery of eye care in New England. By every measure, Dr. Lessell exemplified the highest standards of professionalism achievable in our field. He continued to be a productive member of the New England ophthalmic community and his absence will be widely felt. Our condolences go out to his family and many colleagues who mourn his loss.
Beginning with this meeting, the "Best of the NEOS Hal Freeman Video Library" will be streamed before the first session, during the breaks, during lunch, and after the afternoon session. We hope you enjoy this addition to the program.

Morning Session

INTRODUCTION TO DMEK – THE THINNER FUTURE
Peter Rapoza, MD, Moderator

Professional Practice Gaps: Using feedback from NEOS members and discussion by the Program Committee, the rapidly advancing field of endothelial keratoplasty with attention to DMEK and ocular surface/refractive surgical pearls for improving visual outcomes for premium IOL patients were identified as significant professional practice gaps in our membership.

Program Objectives: The content and format of this educational activity has been specifically designed to fill the identified practice gaps in our membership's current and potential scope of professional activities in a way that focuses on education, while managing commercial support and maintaining independence from promotional activities and commercial proprietary interests.

This program seeks to:

1. Present an overview of DMEK including surgical indications, tissue preparation by eye banks, anterior segment imaging technology, surgical techniques, management of intraocular complications and post-operative management to optimize visual outcomes and patient satisfaction.
2. Present the corneal specialist’s approach to minimizing the impact of ocular surface disorders and means of improving refractive outcomes for unsatisfied patients having undergone prior premium IOL implantation.

8:30 am Introduction and Welcome..............................Peter Rapoza, MD
8:35 Eye Banking for Posterior Lamellar Procedures:
How to Slice, Strip and Stamp Them..........................Peter Veldman, MD
8:45 What Can and Cannot be Treated with DMEK...........Adam Sise, MD
8:55 Application of Anterior Segment Imaging to
Corneal Transplantation............................................Pedram Hamrah, MD
9:05 Introduction of Guest of Honor, Michael Straiko, MD ....Peter Rapoza, MD
9:10 DMEK: Comprehensive Review of Surgical Techniques with
Management of Intraocular Complications....................Michael Straiko, MD
9:40 Business Meeting
9:55 Refreshment Break and Exhibits
10:25 DMEK: Management of Postoperative
Course and Complications.................................Michael Straiko, MD
10:55 Introduction of How the Corneal Specialist Can “Rescue” the Unsatisfied Premium IOL Patient.......................... *Peter Rapoza, MD*

11:00 Management of the Ocular Surface .......................... *Jason Rothman, MD*

11:10 Surgical Strategies for Improving Outcomes after Premium IOL Implantation .......................... *Paul Koch, MD*

11:20 Panel Discussion/Questions .......................... *Peter Rapoza, MD, Moderator*

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\begin{align*}
&\text{Pedram Hamrah, MD} \\
&\text{Paul Koch, MD} \\
&\text{Jason Rothman, MD} \\
&\text{Adam Sise, MD} \\
&\text{Michael Straiko, MD} \\
&\text{Peter Veldman, MD}
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11:45 Luncheon Seminars

I. Why Vision is Important to Sports Related Concussion.
   Steven Galetta, MD ......................................................... Room 301

II. Let the Force be With You. Lessons from the Dark Side Moving You to the Light. Michael Straiko, MD ................. Room 303

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**BE SURE TO SCAN IN FOR LUNCH BEFORE GOING TO ROOM TO RECEIVE CREDIT**

**BE SURE TO RETURN YOUR AUDIENCE RESPONSE UNIT BEFORE LEAVING THE BUILDING!**
Professional practice gaps: The content and format of this educational activity has been specifically designed to fill the practice gaps in the audience’s current and potential scope of professional activities by:

1. Increasing the competence of the audience regarding the recognition and diagnosis of key cortical visual syndromes.
2. Improving the performance of the audience in participating in collaborative management of various neurological disorders that affect vision.
3. Improving outcomes in the area of patient care, specifically for complex patients with visual impairment resulting from specific cognitive neurological disorders.

1:00 pm  Introduction .......................................................... Sashank Prasad, MD
1:05  Distinguishing a Cortical Visual Disorder from Diseases of the Anterior Visual Pathway ......................... Joseph Rizzo, MD
1:15  Introduction of Guest of Honor, Steven Galetta, MD ................................. Sashank Prasad, MD
1:20  Clinical Cases I
(Anton Syndrome, Riddoch Syndrome) ....................... Steven Galetta, MD
1:35  Management of Stroke .................................................. Adam Cohen, MD
1:45  Patterns of Visual Loss with Cortical Lesions ............. Robert Mallery, MD
1:55  Clinical Cases 2
(Alexia without Agraphia, Prosopagnosia) ..................... Steven Galetta, MD
2:10  NEOS Distinguished Achievement Award Presentation .................................. Joseph Rizzo, MD
2:15  Refreshment Break/Exhibits
2:45  Management of Cerebral Neoplasms ...................... Ivana Vodopivec, MD
2:55  Clinical Cases 3
(Balint Syndrome, Charles Bonnet Syndrome) ............. Steven Galetta, MD
3:10  Visual Deficits in Neurodegenerative Diseases .......... Nurhan Torun, MD
3:20  Cortical Visual Improvement in Children ............... Gena Heidary, MD, PhD
3:30  Rehabilitative Therapy for Visual Field Deficits and other Cortical Visual Disorders ..................... Lotfi Merabet, MD
3:40  Panel Discussion/Questions ....................... Sashank Prasad, MD, Moderator
4:00  Adjourn

Adam Cohen, MD  Robert Mallery, MD
Steven Galetta, MD  Lotfi Merabet, MD
Gena Heidary, MD, PhD  Nurhan Torun, MD
Ivana Vodopivec, MD
**Objective:** Review current tissue preparation techniques utilized in posterior lamellar corneal transplantation procedures.

This talk will review the progression of eye bank posterior lamellar corneal graft preparation, beginning with the introduction of eye bank based microkeratome assisted DSAEK graft preparation, through the most recent graft preparation techniques for DMEK. Trends in posterior lamellar corneal transplant tissue utilization will be reviewed, with emphasis toward future demands on eye banks, potential limitations to the allogeneic transplant tissue supply (domestically and internationally), as well as potential measures and developments that may expand the available tissue pool. Emphasis will be given to the importance of rigorous validation of corneal graft preparation techniques, including in depth description of the development, validation and subsequent incorporation of the S-Stamp for DMEK.

**References:**


WHAT CAN AND CANNOT BE TREATED WITH DMEK

Adam Sise, MD
Portland, ME

Objective: To review indications for Descemet Membrane Endothelial Keratoplasty (DMEK) and provide an overview of which patients are best and least suited to undergo this procedure.

DMEK is a partial thickness corneal transplant involving selective removal and replacement of Descemet’s Membrane and endothelium. It is indicated when vision is decreased due to endothelial cell dysfunction. The most common conditions treated with DMEK are Fuchs’ Dystrophy and Pseudophakic Bullous Keratopathy. Successful unrolling and centration of the graft tissue is achieved using pneumatic and/or fluid manipulation under a shallow anterior chamber. The presence of anterior chamber lenses and tube shunts will significantly hinder proper graft positioning. Eyes with a history of vitrectomy, trabeculectomy, iris defects, or aphakia will raise additional obstacles for graft handling and successful outcomes. Patients that are ideally suited to undergo DMEK are those that have good potential postoperative visual acuity, are already pseudophakic, and have minimal other ocular comorbidities. Patient selection for DMEK will depend on the patient’s presenting history and the individual surgeon’s comfort with the procedure.

References:


APPLICATION OF ANTERIOR SEGMENT IMAGING TO CORNEAL TRANSPLANTATION

Pedram Hamrah, MD
Tufts Medical Center
Boston, MA

Objective: To discuss intra-operative and post-operative applications of anterior segment OCT for full thickness and endothelial keratoplasty

Anterior segment optical coherence tomography (AS-OCT) is becoming an integral part in post-operative and intra-operative management in patients undergoing corneal transplantations, in particular in patients with endothelial keratoplasties. Endothelial keratoplasties are evolving techniques to selectively replace diseased endothelial layers of the cornea. In recent years the popularity of endothelial keratoplasties, especially Descemet Membrane Endothelial Keratoplasty (DMEK), Descemet Stripping Automated Endothelial Keratoplasty (DSAEK) have increased significantly, as these procedures result in the reduction of intra- and postoperative complications and achieve faster visual recovery. Nevertheless, these surgical procedures are delicate, not standardized and corneal edema may result in poor visualization of the graft in the anterior chamber. Novel AS-OCT imaging devices may substantially aid in the standardization of these procedures intra-operatively and in post-operative management, and may further reduce both intra- and postoperative complications and potentially improve outcomes. This review summarizes use of intra-operative and post-operative AS-OCT imaging for corneal transplantation.

References:


DESEMET MEMBRANE ENDOTHELIAL KERATOPLASTY (DMEK): COMPREHENSIVE REVIEW OF SURGICAL TECHNIQUE WITH MANAGEMENT OF INTRAOCULAR COMPLICATIONS

Michael Straiko, MD
Devers Eye Institute
Portland, OR

Objective: To review the surgical techniques of my standardized technique of DMEK for good results with a low complication rate. Emphasis will be placed on key steps to prevent and manage intraoperative complications.

My presentation will review the surgical techniques of my standardized technique of DMEK for good results with a low complication rate. Results of the technique will be reviewed and emphasis will be placed on key steps to prevent and manage intraoperative complications. Surgical video will be shown to illustrate key talking points.

References:


Off-label use: Trypan blue – using to stain corneal grafts Jones Tube – approved for lacrimal surgery but I will present use for DMEK Keratoplasty
**Objective:** DMEK is a relatively new procedure with a novel postoperative course; management of common complications as well as standard post op management will be reviewed.

DMEK is a relatively new procedure with a novel postoperative course; management of common complications as well as standard post op management will be reviewed. Emphasis will be placed on patient positioning, posted medications, and dealing with graft detachments. Strategies to achieve an optimal outcome and maintain clinical efficiency will be emphasized.

**Reference:**
Price MO, Price FW, Kruse FE, et al. Randomized Comparison of Topical Prednisolone Acetate 1% Versus Fluoromethalone 0.1% in the First Year After Descemet Membrane Endothelial Keratoplasty. Cornea, 2014.


Objective: Learn methods to accurately diagnose ocular surface disease and target therapy to improve postoperative outcomes and patient satisfaction.

Optimizing the ocular surface prior to cataract surgery can improve the postoperative outcome and patient satisfaction. Diagnosing the dry eye patient can be challenging as signs and symptoms often times do not correlate. Some patients may be asymptomatic or only experience vision fluctuation. Utilizing a questionnaire, such as the Ocular Surface Disease Index (OSDI), along with a careful examination of blink dynamics, the lids, tear film and use of vital dyes are important. Point of care testing may improve diagnostic accuracy and some allow for a metric to determine therapeutic efficacy. Tear film interferometry and meibography are useful for both diagnosis and patient education. Strategic use of tear supplements, lacrimal occlusion, topical and systemic anti-inflammatory therapies, as well as improved treatments for meibomian gland dysfunction can improve both preoperative measurements and postoperative outcome. Awareness of its high prevalence, advances in diagnostics and better classifications of dry eye and blepharitis continue to allow for more effective and directed management of our dry eye patients.

Reference:


11:10 AM

SURGICAL STRATEGIES FOR IMPROVING OUTCOMES AFTER PREMIUM IOL IMPLANTATION

Paul Koch, MD
Warwick, RI

Objective: At the conclusion of this talk the participant will be able to determine the most commons reasons for visual dissatisfaction, define strategies for adjusting refractive outcomes, understand the pitfalls of relying on the Angle Kappa, and recognize when to recommend IOL adjustment versus laser correction.

The introduction of presbyopia-correcting and toric IOLs provided a learning curve during which we had the opportunity to gain experience with unexpected visual results and patient disappointment. One way to resolve those problems has been better patient selection and pre-operative analysis, including especially the Angle Alpha. However, there is still a cadre of patients who despite excellent preparation have vision challenges and seek improvement. The cause of many of these problems is refractive in nature begging the question whether we can resolve them with exchanging the multifocal implant, modifying it with a piggyback, or adjusting the vision with laser correction. When a toric IOL is involved the optics are more complicated and considerations must be given to limbal relaxing incisions, laser correction and lens rotation.

References:


DISTINGUISHING A CORTICAL VISUAL DISORDER FROM DISEASES OF THE ANTERIOR VISUAL PATHWAY

Joseph Rizzo, MD
Massachusetts Eye and Ear Infirmary
Boston, MA

Objective: This presentation will review the clinical features that distinguish visual loss from anterior vs. posterior lesions along the afferent visual pathway.

Neural forms of blindness can occur from lesions anywhere along the retino-calcarine visual pathway or even beyond into the visual association cortices. Specific case examples will be discussed to exemplify the clinical features that enable a clinician to distinguish blindness caused by lesions at different sites along the visual pathway. The clinical cases will be supported by neuroimaging of various disorders. With the clinical tools in hand to distinguish different forms of visual loss, the presentation will then include a discussion about the most appropriate management.

References:

Objective: The diagnosis of higher visual processing disorders often poses a considerable clinical challenge. Routine evaluations of visual function may not readily yield a diagnosis; a refined examination of visual function is necessary to correctly localize and identify these otherwise elusive syndromes.

Anton Syndrome refers to cortical blindness without awareness of the deficit. Patients have complete visual loss from bilateral occipital lesions, yet they do not directly complain of the deficit. They often confabulate answers when asked about their visual experience. The profound denial is usually transient, and recovery of vision depends upon the underlying etiology.

The Riddoch Syndrome describes preserved ability to detect motion in an otherwise blind visual field. There is ‘statokinetic dissociation,’ in which the patient can perceive an object only if it is moving. Form and color cannot be appreciated. The cortical area specialized for processing motion is called V5 and is situated dorsal to the primary visual cortex in the occipital lobe. This area is spared in patients with Riddoch Syndrome, although it remains controversial how visual inputs may arrive there.

Alexia Without Agraphia refers to the loss of the ability to read, although the ability to write remains spared. Remarkably, patients will not be able to read a sentence that they have written themselves. This defect is limited to the perception of written language; production and comprehension of spoken language is fully preserved. Prosopagnosia Human beings are expert at extracting information from a face in order to accurately and effortlessly identify it. This expertise is the result of a specialized group of neurons in the ventral processing stream, known as the Fusiform Face Area. Prosopagnosia is a specific form of visual agnosia in which face perception is impaired, while other aspects of vision are intact. It results from lesions affecting both (or sometimes just the right) occipital-temporal lobes (specifically the FFA). Patients may be unable to recognize even their own face when looking at a photograph or in the mirror. Typically, patients identify individuals using other clues, such as gait, physical mannerisms, clothing, or voice.
The Balint Syndrome is a profound disruption of visual attentional mechanisms resulting from bilateral parietal lesions. Although elementary aspects of vision, including acuity and object recognition, remain preserved, patients are profoundly affected by an inability to disengage and shift their attention to various parts of a visual scene. The features of Balint syndrome include optic ataxia (impaired reaching under visual guidance); ocular apraxia (poorly coordinated saccades when shifting gaze between targets); and simultanagnosia (inability to perceive its global elements of a scene, or “missing the forest for the trees.”)

Charles Bonnet Syndrome refers to “release” hallucinations that occur in the context of visual loss. The hallucinations are typically nonthreatening, and patients often describe seeing small people, animals, or flowers. Functional imaging studies have shown spontaneous increases in activity in visual association areas in the ventral extrastriate cortex that temporally correlate with the reported hallucinations. These findings lend credence to the idea that in the absence of receiving external sensory information (deafferentation), the visual system can generate internally formed hallucinations instead.

References:


MANAGEMENT OF STROKE

Adam Cohen, MD
Massachusetts General Hospital
Providence, Rhode Island

Objective: To understand the available primary and secondary management strategies for ischemic stroke and their time pressures with acute management.

Ischemic stroke commonly affects afferent and efferent visual pathways of the cerebral hemispheres and brainstem. Particularly in the setting of acute stroke, if visual symptoms are dominant, ophthalmologists may be the first to evaluate, triage, and manage such patients. The management of ischemic stroke is separated into primary treatment and secondary prevention strategies.

References:
http://stroke.ahajournals.org/content/37/2/577.full
http://stroke.ahajournals.org/content/34/4/1056.full
PATTERNS OF VISUAL LOSS WITH CORTICAL LESIONS

Robert Mallery, MD
Brigham and Women's Hospital
Boston, MA

Objective: Cortical lesions characteristically result in homonymous visual field loss occurring in both eyes. Axons from retinal ganglion cells (RGCs) in each nasal hemiretina cross in the optic chiasm to join fibers from the temporal RGCs of the contralateral eye in the optic tract. Second order neurons of the lateral geniculate nuclei (LGN) project to primary visual cortex (V1) in the occipital lobe by the temporal and parietal optic radiations. Thus, lesions posterior to the optic chiasm cause homonymous visual field defects, which become more congruous as affected fibers approach V1.

Vascular LGN lesions produce unique patterns of visual field loss: sector-sparing homonymous hemianopia from occlusion of the anterior choroidal artery and horizontal sectoranopia from occlusion of the posterior choroidal artery. Temporal lobe lesions produce homonymous superior quadrant defects, and lesions of the parietal lobe produce homonymous inferior quadrant defects. Occipital lobe injury may produce superior, inferior, or complete hemianopic defects, but vascular etiologies may result in macular sparing due to redundant supply of the occipital tip by middle cerebral artery branches.

Unique visual phenomena are encountered with involvement of the occipital and higher-order cortical visual areas. In Riddoch phenomena, caused by occipital lobe lesions, only moving objects in the blind visual field are visible. Stationary objects, but not moving objects, are perceived in akinetopsia, or motion blindness, due to unilateral or bilateral damage to V5 in the ventrolateral temporal lobe. Cerebral achromatopsia may occur with inferior occipital lobe injury affecting V4, and is characterized by a superior homonymous visual field defect on the contralateral side due to concurrent injury to inferior V1, with an inferior contralateral loss of color perception.

References:


1:50 PM

CLINICAL CASES 2
(ALEXIA WITHOUT AGRAPHIA; PROSOPAGNOSIA)

Steven Galetta, MD
NYU Langone Medical Center
New York, NY

Please see pages 18 and 19.
MANAGEMENT OF CEREBRAL NEOPLASMS

Ivana Vodopivec, MD PhD
Brigham and Women’s Hospital
Boston, Massachusetts

Objective: This presentation focuses on multimodal management of cerebral neoplasms, including surgical resection, chemotherapy, radiation therapy, supportive medical management, and symptom palliation. In addition, it reviews adverse effects of the listed therapeutic modalities and their management.

Neoplasms of the central nervous system can compromise the afferent and the efferent function of the visual system. Their management is dependent on the type of tumor and its location in the nervous system. The management is often multimodal and includes surgical resection, chemotherapy, radiation therapy, supportive medical management, and symptom palliation. Adverse effects of chemotherapy such as toxic optic neuropathy, stroke, venous sinus thrombosis with resulting papilledema, and sequelae of radiation such as radiation retinopathy and optic neuropathy, vascular disease, cavernous angiomas, and secondary tumors may also affect the visual system. Attention to their prophylaxis and monitoring is an important part of the ophthalmologist’s role throughout the course of a cerebral tumor management.

References:


2:45 PM

CLINICAL CASES 3
(BALINT SYNDROME, CHARLES BONNET SYNDROME)

Steven Galetta, MD
NYU Langone Medical Center
New York, NY

Please see pages 18 and 19.
VISUAL DEFICITS IN NEURODEGENERATIVE DISEASES

Nurhan Torun, MD
Chestnut Hill, MA

Objective: To review symptoms and findings in patients with neurodegenerative disorders affecting predominantly the centers for visual processing.

Patients with neurodegenerative disorders which affect cortical centers that are involved in processing vision may present with vague visual complaints. Though these patients describe major difficulty with vision, they may have relatively intact visual acuities and a seemingly unremarkable examination. As these patients are often initially seen by eye care professionals, it is important for ophthalmologists to be familiar with different manifestations of these visual integrative disorders.

References:


**Objective:** To discuss cortical visual impairment as a disease process and its impact on visual development in children.

Cortical visual impairment (CVI) is characterized by dysfunction of visual processing due to an injury of the visual pathways. Common etiologies include perinatal events which result in hypoxic injury to the visual system that result in periventricular leukomalacia to insults of the visual cortex and beyond. Increasingly, CVI is emerging as one of the most common causes of significant visual impairment in children and yet continues to remain undiagnosed as an entity. The goals of this talk will be to present the salient clinical characteristics of CVI, discuss recent endeavors towards understanding the neuroanatomic basis of CVI, and review recent revisions made by the MA Commission for the Blind to recognize CVI in children as a cause of legal blindness.

**References:**


**Objective:** To review current rehabilitative therapy strategies for visual field deficits and other cortical visual disorders.

Visual field defects often result from stroke and brain injury. The resulting visual impairment can be debilitating for patients, impeding daily activities like reading and mobility. Historically, it was believed that there was little opportunity for restoration of function following visual system damage. However, development of various visual rehabilitative strategies suggests that visual field defects are partially repairable and a certain degree of function can be improved. While this provides hope for patients, many of these strategies have been met with skepticism within the clinical and scientific community. Further development of these strategies through carefully designed studies could validate their efficacy and reveal underlying mechanisms.

**References:**


FINANCIAL DISCLOSURE INFORMATION

As a provider accredited by the Massachusetts Medical Society, NEOS must ensure balance, independence, objectivity, and scientific rigor in all its individually and jointly provided educational activities. All individuals in a position/role to control the content of an activity are expected to disclose to NEOS any relevant financial relationships they and their spouse/partner have with commercial interests.

The ACCME defines a commercial interest as any entity producing, marketing, reselling or distributing health care goods or services consumed by, or used on, patients. Relevant financial relationships are financial relationships in any amount, which occurred in the twelve-month period preceding the time that the individual was asked to assume a role controlling content of the CME activity, and which relate to the content of the educational activity.

Financial relationships are those relationships in which the individual benefits by receiving a salary, royalty, intellectual property rights, consulting fee, honoraria, ownership interest (e.g., stocks, stock options or other ownership interest, excluding diversified mutual funds), or other financial benefit. Financial benefits are usually associated with roles such as independent contractor (including contracted research), consulting, promotional speaking and teaching, membership on advisory committees or review panels, board membership, and other activities for which remuneration is received or expected. The MMS/ACCME considers relationships of the person involved in the CME activity to also include financial relationships of a spouse or partner.

Bradbury, Michael:
Ownership Interest: Regeneron, Chase and Associates, Inc
(Iviews imaging system)

Duker, Jay:
Consulting Fees: Alcon/Novartis, CoDa Therapeutics, Thrombogenics, Allergan, Lumenis, Santen
Contracted Research: Carl Zeiss Meditec, Optovue
Ownership Interest: Hemera Biosciences, EyeNetra, Ophthotech
Other Types - Eleven Biotherapeutics (Board of Directors)

Heier, Jeffrey
**Contracted Research:** Acucela, Alcon/LPath, Allergan, Astellas, Corcept, Genentech, Kala Pharmaceuticals, Kato Pharmaceuticals, Novartis, Ohr Pharmaceuticals, Ophthotech, QLT, Quantel, Regeneron, Sanofi/Genzyme, Stealth Biotherapeutics, Thrombogenics

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**Miller, Joan**

**Royalty:** Valeant Pharmaceuticals (licensee); Massachusetts Eye and Ear Infirmary (assignee): Royalties related to photodynamic therapy for conditions involving unwanted ocular neovascularization. Elsevier: Royalties related to textbook

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**Contracted Research:** Lowy Medical Research, Ltd., A natural history observation and registry study for macular telangiectasia type 2: The Mactel Study

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**Noecker, Robert**

**Consulting Fees:** Allergan, Alcon, Inotek, Aerie, Ocular Therapeutics, Kateena, EndoOptiks, Iridex, Quantel

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**NO FINANCIAL INTEREST**

None of the other individuals in a position to control the content of this activity, including planners, CME Review Committee members, faculty presenters, moderators, panelists and reviewers have any relevant financial relationship with an ACCME-defined commercial interest to disclose.
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At the Annual Business meeting on December 2, 2016, the following nominations recommended by the Nominating Committee will be voted:

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<tbody>
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<td>Donna Siracusa-Lee, MD</td>
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<td>Treasurer</td>
<td>Joseph Levy, MD</td>
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### 2016

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<th>December 2</th>
<th>Ethics and Risk Management</th>
<th>Oren Weisberg, MD</th>
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<td>John Papale, MD</td>
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<th>Retina</th>
<th>Jennifer Sun, MD</th>
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<td>Jeffrey Moore, MD Susan Tucker, MD Sarkis Soukiasian</td>
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<th>Imaging</th>
<th>Theresa Chen, MD Elias Reichel, MD</th>
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<td>Bonnie Henderson, MD Joan Miller, MD Dean Eliott, MD</td>
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<td>Subspecialties: Neuro-ophthalmology Oculoplastics Uveitis</td>
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