

The Minnesota Eye Foundation
proudly presents

**PERSPECTIVES IN
EYE CARE**



MINNESOTA EYE FOUNDATION

Monday, May 19, 2025
The Metropolitan Ballroom & Clubroom

COPE Activity ID #
Asynchronous LIVE: 130700
Asynchronous Virtual: 130701

PERSPECTIVES IN
EYE CARE
2025
MINNESOTA EYE FOUNDATION

On behalf of the Minnesota Eye Foundation, welcome to the 2025 Perspectives in Eye Care program! We are grateful for the continued support and participation received over the past 31 years and are honored you chose to participate in today's event to receive your continuing professional education.

As you know, vision care has changed dramatically and evolved, and we have been right there providing insight, resources, and outstanding presenters from the community year in and out with this annual Perspectives in Eye Care event. Thank you for participating in this interactive, engaging, and informative forum covering important topics of today's vision care.

You will have a wide array of learning opportunities with our esteemed faculty, time to connect with colleagues, as well as learn more about the Minnesota Eye Foundation (MEF)'s outreach and mission.

MEF was established to enrich the quality of life of our community members through charitable outreach and continuing education in the field of vision care. Today, you will have the opportunity to hear more about the Foundation's work, specifically The Vision Project and Strides 4 Sight.

- Please 'save the date' for **Sunday, September 21, 2025**, for our 5K walk/run and kids fun run fundraising event, **Strides 4 Sight**, as we would welcome your participation and camaraderie outdoors at the Como Park Lakeside Pavilion in St. Paul, MN.

Thank you for attending today's Perspectives program, and we are grateful for your commitment to continuing education and the Minnesota Eye Foundation's mission.



Omar E. Awad, M.D., F.A.C.S
President, Minnesota Eye Foundation



COPE CREDITS

We are using the following to verify attendance for this program.

QR Code

During each session or presentation, a QR code sheet will be passed around. Please use ARBO's OE tracker app to scan this QR Code. If you're unable to scan for any reason, simply write your name, OE tracker # and email on the page behind the QR Code sheet.

COPE SURVEY

As in years past, you will receive an email following the event asking you to complete our online Post-Event Feedback Survey. Your feedback is incredibly important to us, so please take a few minutes to complete this.

OE TRACKER ACCOUNT

ARBO will update your OE Tracker account once these credits have been issued.

QUESTIONS?

Contact us at info@mneyefoundation.com.



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OE TRACKER® Mobile App by ARBO

Instructions for Optometrists Attending CE Courses
(for iOS and Android)

Optometrists can use the OE TRACKER mobile app to record attendance at continuing education courses and receive instant course credit. You can also review your CE transcript, change your license information, and submit CE certificates for ARBO to add to your account. Not only is it easy, but the OE TRACKER mobile app is FREE and can be used by any optometrist with an OE TRACKER number. The OE TRACKER mobile app is available for iPhones/iPads and Android phones/tablets.

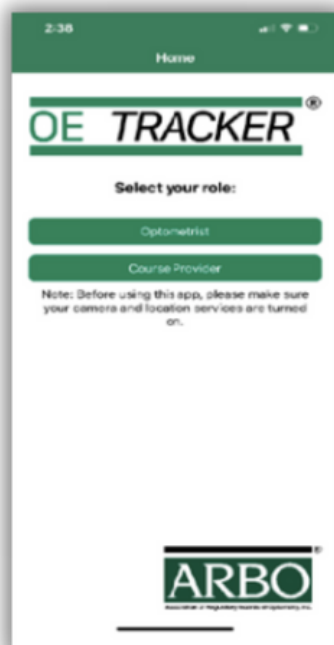
How to Get the OE TRACKER App:

iPhone/iPad: Go to the app store on your iPhone or iPad and search for “OE TRACKER.” Find the OE TRACKER app and touch to download.

Android Phone/tablet: Download the app from Google Play. Go to Google Play on your Android phone/tablet and search for “OE TRACKER.” Find the OE TRACKER app and touch the install button.

How to Use the OE TRACKER Mobile App:

Once you have downloaded the app, you will be asked you to select one of two roles to login: Optometrist or Course Provider.



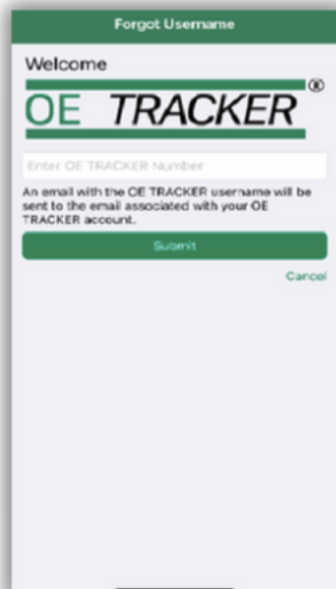
Logging into the OE TRACKER mobile app as a Course Attendee:

Step One: Tap “Optometrist” if you are an optometrist that wants to record and track your CE credits.

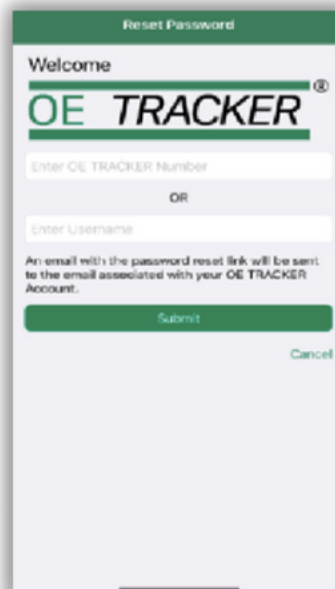
You will need your OE TRACKER username and password. If you don't remember them, touch Forgot Username or Reset Password at the bottom of the screen. If you don't have an OE TRACKER account you can go to www.arbo.org to set it up. Here is how: Click on the OE TRACKER tab. A drop-down menu will appear. Next, click “Create OE TRACKER account” and complete the required form. Once your request is approved, you will receive an email with a link to set your username and password. Please allow 24-48 hours for your request to be approved.



This screenshot shows the 'Attendee Log In' screen of the OE TRACKER app. At the top, there's a green header with a back arrow and the text 'Attendee Log In'. Below the header, the word 'Welcome' is displayed above the 'OE TRACKER' logo. There are two input fields: 'Username' and 'Password'. A green 'Log In' button is positioned below these fields. At the bottom, there are two links: 'Forgot Username ?' and 'Reset Password'.



This screenshot shows the 'Forgot Username' screen. It features a green header with the text 'Forgot Username'. Below the header, the word 'Welcome' is displayed above the 'OE TRACKER' logo. There is an input field labeled 'Enter OE TRACKER Number'. Below this field, a message states: 'An email with the OE TRACKER username will be sent to the email associated with your OE TRACKER account.' At the bottom, there are two buttons: a green 'Submit' button and a 'Cancel' link.



This screenshot shows the 'Reset Password' screen. It features a green header with the text 'Reset Password'. Below the header, the word 'Welcome' is displayed above the 'OE TRACKER' logo. There is an input field labeled 'Enter OE TRACKER Number'. Below this field, the text 'OR' is displayed, followed by an input field labeled 'Enter Username'. Below these fields, a message states: 'An email with the password reset link will be sent to the email associated with your OE TRACKER Account.' At the bottom, there are two buttons: a green 'Submit' button and a 'Cancel' link.

Step Two: After you log in, the screen will display the following options:

- **OE TRACKER #**
- **Email address:** Please make sure your email address is correct so you receive notifications when courses are added to your account. Tap here to change your email address.
- **Username:** Tap here to change your username.
- **Scan QR Code:** You will use this to record attendance in real time at a CE meeting. If you are unable to use this feature, please make sure you have enabled camera access in your Settings.
- **View Course History:** Tap here to view your CE course history/transcript.
- **Edit Profile:** Tap here to review your personal information, add or change a license or update your address.
- **Submit Certificates:** Tap here to submit credits to ARBO to add to your OE TRACKER account.
- **OE TRACKER Subscription:** Tap here to review your subscription information or pay for your OE TRACKER subscription.



Recording Your Attendance at a CE Course:

PLEASE NOTE: In order to record your attendance using the OE TRACKER mobile app, the provider of the CE course must supply a course-specific QR code. After the course has been presented, the provider will post the QR code for attendees to scan.

If you have difficulty using the app you can ask the Course Provider to record your attendance using the OE TRACKER app on their device.

On the Main screen, after you verify that your personal information is correct, touch “Scan QR Code” located below your e-mail address.



ARBO QR Code

(example)

COPE Course 48251-GO

COPE Event 110823



1. Your phone's camera will open and you will see “Scan QR Code” at the top of your screen.
2. Center the QR code on your screen and it will automatically scan. NOTE: If the code does not scan right away, try backing up your phone a little to make sure the entire QR code fits within the screen.
3. If you have scanned the QR code correctly, the Confirmation screen will appear, informing you that your attendance has been recorded in your OE TRACKER account.



4. You will also be sent an e-mail from OE TRACKER within the next few minutes advising you that your credit for the course has been entered into your account.

5. Touch "Done" at the top right side of the screen to return to the Main screen.

6. To exit, simply close the app. You will stay logged in to the app to scan another QR code. To log out of the app touch the "Logout" button.



AGENDA 2025

SESSION ONE

7:55 AM - Welcome & Announcements

8:00 AM - Updates in Adult Strabismus

Tanya Glaser, MD - Northwest Eye

8:50 AM - Stroke Management for Retinal Artery Occlusion

Anne Abel, MD - Hennepin Healthcare

9:40 AM - Break in Exhibit Area

10:00 AM - Post-Op Can't Misses: The Optometrist's Role in Ophthalmic Surgery

Johnna Hobbs, OD; Mark Buboltz, OD, FAAO; Karina Bement, OD; Patrick Schultz, OD; Katherine Simko, OD

11:00 AM - The Vision Project

Omar E. Awad, MD, FACS; Chad Serels, MD; Kiersten Snyder, MD

11:20 AM - Announcements

11:30 PM - Lunch in Exhibit Area

SESSION TWO

12:40 PM - Cornea Updates 2025

David Hardten, MD; Sherman Reeves, MD, MPH; Mark Hansen, MD; Omar Awad, MD

1:30 PM - Glaucoma Updates 2024

Thomas Samuelson, MD; Mark Hansen, MD; Clara M. Choo, MD; Chase A. Liaboe, MD

3:10 PM - Break in Exhibit Area

3:20 PM - Oculoplastics

William Lipham, MD, FACS; Jill Melicher, MD

4:10 PM - Case-Based Approaches to Cataract Diagnosis and Management

David Hardten, MD, FACS; Sherman Reeves, MD, MPH; Mark Hansen, MD; Omar Awad, MD

5:00 PM - Adjourn and Cocktail Reception



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Tanya Glaser, M.D.

Northwest Eye
Pediatric Ophthalmology and Pediatric
Eye Alignment Specialist

Updates in Adult Strabismus

COPE Course ID #

Synchronous-LIVE: 97346-FV

Synchronous-Virtual: 97347-FV

Course Description

Updates in adult strabismus, including new ways we think about causes of divergence insufficiency and its treatment (including sagging eye syndrome and heavy eye syndrome).

Course Objective

1. Discuss the incidence and risk factors for age-related distance esotropia.
2. Explore some proposed theories as to why the incidence of divergence insufficiency esotropia is increasing.
3. Outline the differential diagnosis for causes of strabismus with a divergence insufficiency pattern.
4. Will examine the differences between heavy eye and saggy eye syndromes.

Updates in Adult Strabismus

Tanya Glaser, M.D.

1. Case presentation:

- a. Patient history & clinical findings
- b. Differential diagnosis for esotropia with divergence insufficiency pattern
 - i. Age-related distance esotropia (Divergence Insufficiency Esotropia)
 - ii. Sagging Eye Syndrome (SES)
 - iii. Heavy Eye Syndrome (HES)
 - iv. Neurologic causes:
 - 1. Microvascular cranial nerve palsies
 - 2. Neurodegenerative conditions
 - v. Myasthenia gravis
 - vi. Restrictive strabismus
 - 1. Thyroid eye disease
 - 2. Orbital trauma

2. Divergence Insufficiency Esotropia

- a. Definition
 - i. Esotropia greater at distance than at near
 - ii. Typically seen in older adults
- b. Pathophysiology
 - i. Weakening of divergence mechanisms in the brainstem
- c. More appropriately called “Age-related Distance Esotropia”
- d. Incidence
 - i. Olmsted study
 - ii. Risk factors
 - 1. Advancing age
 - 2. Presbyopia and progressive lens use
 - 3. Orbital tissue degeneration

3. Increasing incidence of Divergence Insufficiency esotropia

- a. Review “Chen X, Marsh JD, Zafar S, Gerber EE, Guyton DL. Increasing incidence and risk factors for divergence insufficiency esotropia. J AAPOS. 2021 Oct;25(5):278.e1-278.e6. doi: 10.1016/j.jaapos.2021.05.013. Epub 2021 Sep 25. PMID: 34582959.”
- b. Associated with increasing age and progressive bifocal use
 - i. Relationship with accommodation changes
 - ii. Effect of lens adaptation on vergence
- c. Other theories (no data) on increasing incidence
 - i. Digital lifestyles
 - 1. Prolonged near work leading to vergence adaptations
 - ii. Progressive lens misuse
 - 1. Inappropriate reading distances causing altered vergence demand
 - iii. Myopia
 - 1. Axial elongation altering extraocular muscle pulley positions

4. Sagging Eye Syndrome (SES)

- a. Orbital pathology and anatomy review
- b. Age-related weakening/degeneration of orbital connective tissues
- c. Degeneration of the LT-SR band (ligament connecting the lateral and superior rectus pulleys)
 - i. Can lead to esotropia and/or vertical strabismus
- d. Bilateral symmetric inferior shift of the lateral rectus
 - i. Can result in an esotropia with a DI pattern
- 5. **Review of Key Study:** “Chaudhuri Z, Demer JL. Sagging eye syndrome: connective tissue involution as a cause of horizontal and vertical strabismus in older patients. JAMA Ophthalmol. 2013 May;131(5):619-25. doi: 10.1001/jamaophthalmol.2013.783. PMID: 23471194; PMCID: PMC3999699.”
- 6. **Case 2:**
 - a. Clinical presentation and diagnostic workup
 - b. Differential diagnosis considerations
- 7. **Heavy Eye Syndrome (HES)**
 - a. Progressive esotropia with or without hypotropia:
 - i. With limited abduction and supraduction which can develop in individuals with high myopia
 - b. Severe form called “Myopic Strabismus Fixus”
 - c. Review:
 - i. Papers
 - ii. MRI findings with Heavy Eye Syndrome
 - d. Discuss:
 - i. Differences in MRI findings and clinical presentation of HES versus SES
- 8. **Surgical procedure of choice for HES**
 - a. Surgical case and video
- 9. **Myopic strabismus fixus**
 - a. Surgical case and video
- 10. **Knobby Eye syndrome**
 - a. Definition and clinical relevance
 - b. Differentiation from SES and HES
- 11. **References**
- 12. **Q&A**



Notes:



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SESSION ONE



Anne Abel, M.D.

Anne Abel, MD
Hennepin Healthcare:
Neuro-Ophthalmologist and Cataract
Surgeon Department of Ophthalmology

Stroke Management for Retinal Artery Occlusion

COPE Course ID #

Synchronous LIVE: 97578-SD

Synchronous Virtual: 97579-SD

Course Description

An overview of the evaluation and management of acute retinal artery occlusion. You've made the diagnosis, now what?

Course Objective

1. Recognize that retinal artery occlusions are strokes, equivalent to strokes in the brain.
2. Recognize that amaurosis fugax is equivalent to a TIA in the brain.
3. Describe the current American Heart Association and American Stroke Association recommendations for the management of acute retinal artery occlusion.



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Stroke Management for Retinal Artery Occlusion

Anne Abel, M.D.

1. Retinal Artery Occlusion

a. Pathophysiology:

i. Vascular supply to the retina

1. Retina circulation
2. Choroidal circulation

ii. Etiology:

1. Embolic

- a. Carotid
- b. Cardiac

2. Thrombotic

3. Inflammatory

a. Giant Cell Arteritis (GCA)

- i. Central Retinal Artery Occlusion (CRAO) vs. Arteritic Anterior Ischemic Optic Neuropathy (AAION) vs. Partial Infarction of the Optic Nerve (PION)

1. Incidence

2. Diagnosis

- a. Labs
- b. Imaging
- c. Acute Treatment
- d. Chronic Treatment

ii. Diagnostic Clues

iii. Age Predilection

iv. Review of Symptoms

v. Occult GCA

vi. Natural History

b. Other

iii. Risk of recurrent stroke

1. Timeline/Urgency
2. Subclinical concurrent stroke

b. Diagnosis:

i. Fundus appearance

ii. Imaging

1. Fluorescein Angiography
2. Optical Coherence Tomography (OCT)
3. Optical Coherence Tomography Angiography (OCTA)

c. Management:

- i. Conservative therapy
 - 1. Ocular massage
 - 2. Carbon dioxide
 - 3. Lower IOP topically
 - 4. Anterior chamber paracentesis
 - 5. ASA
- ii. Intra-arterial tPA
 - 1. Tissue Plasminogen activator (tPA) overview
 - 2. Eagle Study
- iii. Hyperbaric Oxygen Therapy
 - 1. Literature review
 - 2. Hennepin Experience & Protocol
- iv. Intravenous tPA
 - 1. Retrospective Data
 - a. Kaiser experience
 - 2. American Heart Association (AHA) & American Stroke Association (ASA) Guidelines
 - 3. Current Prospective Trials
 - a. France
 - b. Germany
 - c. Norway
- d. Public Health Implications:
 - i. Current Minnesota Experience
 - 1. Stroke Centers
 - 2. Hyperbaric Oxygen Sites
 - ii. ED Fundus Cameras & OCT
 - 1. Remote Interpretation/Telehealth
 - iii. Artificial Intelligence
 - 1. Papilledema
 - 2. AION
 - 3. CRAO
- e. Recommendations:
 - i. Emergency Department (ED)
 - ii. Stroke Center
 - iii. Communication with Accepting Team
 - 1. In writing
 - 2. Phone call
- f. Future Implications:

- i. Time is Brain = Time is Retina
- ii. tPA
- iii. Hyperbaric Oxygen

2. Q&A



Notes:



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SESSION ONE

Instructor:



Mark Buboltz, M.D.

Minnesota Eye Consultants
Primary Eye Care, Specialty
Contact Lenses, and Dry Eye
Specialist

Co-Instructors:



Johnna Hobbs, O.D.

Minnesota Eye Consultants
Primary Eye Care and Dry
Eye Specialist



Karina Bement, O.D.

Minnesota Eye Consultants
Primary Eye Care



Patrick Schultz, O.D.

Minnesota Eye Consultants
Primary Eye Care,
Optometric Fellow



Katherine Simko, O.D.

Minnesota Eye Consultants
Primary Eye Care,
Optometric Fellow

Glaucoma Updates 2024

COPE Course ID #

Synchronous-LIVE: 97437-PO

Synchronous-Virtual: 97438-PO

Course Description

This course will help equip optometrists with the skills to identify and manage post-operative complications. Learn to recognize urgent cases, understand key recovery timelines, and determine when to treat in-office or refer back to the surgeon.

Course Objective

1. Identify irregular/urgent post-operative complications.
2. Understanding what to look for in post-op encounters to maximize outcomes.
3. Know what you can treat in your office and what needs to be sent back to surgeon.
4. Understanding timelines and presentation expectations for success of a procedure.



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Post-Op Can't Misses: The Optometrist's Role in Ophthalmic Surgery

Instructor:

Mark Buboltz, OD

Co-Instructors:

Johnna Hobbs, OD; Karina Bement, OD;

Patrick Schultz, OD; Katherine Simko, OD

1. Wound leak after incisional surgery (Siedel sign)

- a. Types of surgeries prone to wound leaks:
 - i. Cataract
 - ii. Trabeculectomy
 - iii. Other ocular surgeries
- b. Typical post-op course
- c. Management & treatment
 - i. When observation is appropriate
 - ii. Conservative management
- d. Case studies

2. Hypotony- Dr. Patrick Schultz

- a. Recognizing Hypotony
 - i. Common presentations post-surgery
- b. Surgical procedures associated with hypotony
 - i. MIGS procedures
 - ii. Trabeculectomy and tube shunts
- c. Managing choroidal effusion
 - i. Identifying mild vs. severe cases
 - ii. Treatment approaches (medical vs. surgical)
- d. Urgency of care & guidelines

3. Blebitis- Dr. Katherine Simko

- a. Urgency of initial visit
 - i. Key symptoms to recognize
 - ii. Differentiating early infection from inflammation
- b. Concern for severe infection
 - i. Early vs. late-stage presentations
 - ii. Initial treatment considerations

4. Tube Exposure- Dr. Mark Buboltz

- a. Recognizing tube exposure
 - i. Signs and symptoms of tube erosion
 - ii. Diagnostic approaches
- b. Risk of infections & inflammation
- c. Case studies

5. Cornea Graft Rejection- Dr. Mark Buboltz

- a. Differentiating Rejections vs. Graft Failure
 - i. Signs of immune rejection

- ii. Long-term graft health monitoring
- b. Treatment strategies
 - i. Role of aggressive steroid therapy
 - ii. Additional medications
 - 1. Glaucoma drops, etc.

6. DSEK/DMEK graft attachment- Dr. Johnna Hobbs

- a. Assessing graft alignment
 - i. Normal post-op findings vs. graft malalignment
- b. Timelines for challenges:
 - i. Early vs. Late detachment signs
- c. Management & Intervention:
 - i. Long term expectations of graft function
- d. Case studies

7. Ulcer after epi-off procedures- Dr. Karina Bement

- a. Recognizing Early signs and Symptoms
 - i. Differentiating between inflammatory response and infection
- b. Importance of early culturing
 - i. Identifying causative organisms
- c. Treatment considerations
 - i. Aggressive vs. conservative approaches

8. Endophthalmitis- Dr. Johnna Hobbs

- a. Clinical presentation based on timing
 - i. Early, typical and late presentation
- b. Timing and typical treatment
 - i. Intravitreal antibiotics vs. systemic therapy
- c. Prognosis
- d. Case studies

9. Broken Sutures- Dr. Johnna Hobbs

- a. Recognizing broken sutures in post-op exams
- b. Managing foreign body sensation & infection risk
 - i. When to remove vs. when to leave in place
- c. Suture removal best practices
- d. Case studies

10. Retained lens fragments- Dr. Karina Bement

- a. Assessing clinical significance
 - i. Small, asymptomatic fragments vs. large inflammatory-inducing fragments
- b. Which to leave vs. refer back for Anterior Chamber Washout (AC washout)

11. Oculoplastic procedures- Dr. Johnna Hobbs

- a. Post-op considerations for common procedures
 - i. Blepharoplasty
 - ii. Nasolacrimal tube management
- b. Lesion excision and monitoring
- c. Case studies

12. Pupillary block- Dr. Johnna Hobbs

- a. Post-surgical risks & identification
 - i. Common surgeries leading to pupillary block
- b. Typical presentations & symptoms
- c. Best practices for early recognition & treatment

13. Q&A Session



Notes:



STRIDES 4 SIGHT

5K & KIDS FUN RUN



SUNDAY, SEPTEMBER 21ST

COMO PARK LAKESIDE PAVILION

1360 LEXINGTON PARKWAY NORTH, ST. PAUL, MN 55103

Minnesota Eye Foundation's community fundraiser benefitting The Vision Project.

5K Run/ Walk

\$35

- Day of Event Registration Fee for 5K Run/Walk is \$45/person
- Participants over 12 and older are considered an adult.
- Processing fee will apply for all registrants.

Kids Fun Run

\$15

- Day of Event Registration Fee for 5K Run/Walk is \$25/child
- Processing fee will apply for all registrants.

8:30 AM - Check In/Registration

9:00 AM - Kids Fun Run

Silent Auction Opens

9:30 AM - 5K Run/Walk

10:30 AM - Awards

- Silent Auction will place **onsite & online** to raise additional funds for the Minnesota Eye Foundation's Vision Project.

Register Today!

WWW.Strides4Sight.com

For more information, questions, or sponsorship opportunities contact:

INFO@MNEYEFOUNDATION.COM

WWW.STRIDES4SIGHT.COM



SESSION TWO



**David Hardten,
M.D., F.A.C.S.**

Minnesota Eye Consultants
Cornea, Cataract &
Refractive Specialist



**Sherman Reeves,
M.D., M.P.H.**

Minnesota Eye Consultants
Cornea, Cataract
& Refractive Specialist



Mark Hansen, M.D.

Minnesota Eye Consultants
Cornea, Glaucoma, Cataract
& Refractive Specialist



**Omar Awad,
M.D., F.A.C.S**

Minnesota Eye Consultants
Cornea, Cataract
& Refractive Specialist

Cornea Updates 2025

COPE Course ID #

Synchronous-LIVE: 97440-PO

Synchronous-Virtual: 97441-PO

Course Description

This course will present a variety of diagnostic and therapeutic problems regarding the patient presenting with cornea related problems such as Fuchs' Dystrophy, Corneal Scars, Epithelial Basement Membrane Dystrophy and Keratoconus in a case-based, panel discussion format.

Course Objective

1. Case-based diagnosis of corneal issues, perioperative concerns and surgical dilemmas for the cornea patient will be presented.
2. The therapeutic and management options of these conditions will be discussed.
3. After attending this course, the participant will have improved knowledge in diagnosis and management of these conditions.



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Cornea Updates 2025

David Hardten, M.D., F.A.C.S.

Sherman Reeves, M.D., M.P.H.

Mark Hansen, M.D.

Omar Awad, M.D., F.A.C.S

1. Cornea Panel

- a. Faculty Disclosures
- b. Overview

2. Case 1 – Phakic IOL, Endothelial Concerns & Cataract

- a. Presentation:
 - b. 68-year-old female, now with night driving halos
 - c. BCVA 20/40 OD (20/30 OS) with BAT to 20/60 OU
 - d. 3+ NS and 1+PSC OU on exam
 - e. Prior Verisyse IOL and doesn't want to wear glasses for distance or near vision after surgery.
- f. Pre-operative history concerns:
 - i. Type of Phakic IOL?
 - ii. Endothelial health?
 - iii. Retinal concerns?
- g. Exam findings & special testing:
 - i. Role of corneal topography & tomography
 - ii. IOL calculations
 - iii. Specular microscopy
- h. IOL Options & counseling:
 - i. Testing
 - ii. IOL choice
- i. Post-operative concerns:
 - i. Staged Approach or same setting
 - ii. Endothelial Keratoplasty timing if needed
- j. Panel Discussion
- k. Audience Questions



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3. Case 2 - Keratoconus

- a. Presentation: 21-year-old male
 - i. OS: UDVA: 20/250; $-6.75+3.75 \times 063 = 20/40$
 - ii. No prior CL
 - iii. Exam 3 years ago: mild myopia, minimal astigmatism
- b. Pre-operative history concerns:
 - i. Family history
 - 1. Any family history of keratoconus?
 - ii. Environmental concerns:
- c. Exam findings & special testing
 - 1. Allergies?
 - 2. Rubbing?
 - 3. Sleep Position?
 - i. Role of topography & tomography
 - ii. Tear film analysis
- d. Surgical intervention options:
 - i. Crosslinking Alone?
 - ii. Corneal Transplant?
 - 1. DALK vs. PK
 - iii. Intacs?
 - iv. ALKRS (CAIRS/CTAK)?
- e. Post-operative concerns
 - i. Medications & drops
 - ii. Contacts?
- f. Panel
- Discussion g. Audience
- Questions

4. Case 3 – Corneal Edema

- a. Presentation:
 - i. 62-year-old female with gradual blur over the last 3-4 years.
- b. Pre-operative history:
 - i. More blur in the AM
- c. Exam findings:

- i. Vision OD: 20/30--. OS: 20/25--
 - ii. Corneal edema
 - iii. Cataract
- d. Management approach:
 - i. Procedure choices
 - ii. Combination surgical approaches
 - iii. What if other conditions exist?
- e. Potential complications
- f. Panel discussion
- g. Audience Questions

5. Case 4-Iris Defect & Cataract Management

- a. Presentation:
 - i. 74-year-old male
 - ii. 1 year post cataract surgery
 - iii. Glare OS
 - iv. Moderate cataract OD
- b. Iris loss temporally
- c. Cause of Loss
- d. Management options:
 - i. Pupilloplasty?
 - ii. Contact Lens?
 - iii. Artificial Iris?
 - iv. Go ahead with Cataract Surgery on other eye?
- e. Options for missing iris:
 - i. Cosmetic vs. functional considerations
- f. Management strategies for IFIS
 - i. Pre-operative preparation
 - ii. Intra-operative techniques
- g. Panel Discussion



Notes:



MINNESOTA EYE
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SESSION TWO

Instructor:



Thomas W. Samuelson, M.D.

Minnesota Eye Consultants
Cornea, Cataract
& Refractive Specialist

Co-Instructors:



Clara M. Choo, M.D.

Minnesota Eye Consultants
Glaucoma & Cataract
Specialist



Mark Hansen, M.D.

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Chase A. Liaboe, M.D.

Minnesota Eye Consultants
Glaucoma & Cataract
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Glaucoma Updates 2025

COPE Course ID #

Synchronous LIVE: 97502-GL

Synchronous Virtual: 97503-GL

Course Description

This course will provide an overview of Selective Laser Trabeculoplasty (SLT) and Direct Selective Laser Trabeculoplasty (DSLT), including their mechanisms, clinical applications and evolving role in glaucoma management. Attendees will explore the latest research supporting SLT/DSLST use, with a focus on key findings from trials. Attendees will also gain knowledge to optimize patient care and the latest surgical considerations. This course will discuss how to evaluate and treat both the dry eye and glaucoma.

Course Objective

1. Understand the mechanism of action and the use of the SLT laser.
2. Describe how glaucoma and its treatments can impact the pathophysiology underlying dry eye disease
3. Have a basic understanding of the introduction to direct SLT (DSLST).
4. Understand the latest surgical and non-surgical options available to patients today.
5. Through the use of case-based discussion, the audience will understand when a referral for SLT/DSLST is appropriate.



**MINNESOTA EYE
FOUNDATION**

Glaucoma Updates 2025

Thomas W. Samuelson, M.D.

Clara M. Choo, M.D.

Mark Hansen, M.D.

Chase A. Liaboe, M.D.

1. MIGS, Meds, Surgery- When? In Whom? -Dr. Thomas Samuelson

2. Initial glaucoma treatment – Laser and drugs

a. Laser trabeculoplasty: SLT / DSLT

b. Topical medical therapy:

i. LiGHT trial: Data supporting SLT as initial treatment. SLT has become the recommended initial glaucoma treatment in UK and Europe

ii. COAST trial: Further delineation of the optimum laser dosing profile and role of repeat SLT treatments

c. Depot delivery medical therapy & Procedural therapeutics:

i. Intracameral bimatoprost – slit lamp delivery.

1. Label limits to one administration

ii. Intracameral travoprost. Device anchored in angle, gonioscopic surgical procedure.

1. On label for all stages of glaucoma and ocular hypertension

i. Strengths

ii. Limitations

2. Surgical considerations

a. Phakic patient without surgical cataract:

i. Traditional strategy has been to treat such patients with laser and medications – topical or intracameral, until patient develops surgical cataract.

ii. For phakic eyes that cannot be controlled with drugs and lasers, surgery may be required

b. Canal-based surgery:

i. Preferred if damage is mild to moderate and IOP not extreme

ii. incisional /excisional canal procedures

iii. viscodilation of canal (canaloplasty)

iv. canal stenting procedures

c. Transscleral bleb forming procedures:

i. Generally applicable if damage is severe, IOP extreme, or if chronic steroid is required

ii. Transscleral surgery with gel stent device

iii. Traditional trabeculectomy

iv. Tube procedures

3. Phakic patient with surgical cataract

a. Canal surgeries:

- i. The vast majority of glaucoma procedures are performed as part of “combined cataract and glaucoma surgery”, most often involving a canal based MIGS procedure
- ii. Canal stenting procedures
- iii. Incisional /excisional canal surgery – trabeculotomy, GATT (gonioscopic assisted transluminal trabeculotomy), goniotomy
- iv. Viscodilation of the canal (canaloplasty)
- v. While “combining MIGS” is discouraged by coding and coverage governance.
- vi. Combining a MIGS procedure with a therapeutic pharmaceutical has a strong scientific basis and appears poised to have a favorable coverage outlook as well

b. Transscleral bleb forming procedures:

- i. Far less common than combined
- ii. Canal based, phaco + MIGS procedures and are generally reserved for severe disease, extremes of IOP, or when canal-based surgeries have failed

c. Tube procedures:

- i. Generally reserved for severe disease and those not candidates for trabeculectomy or transscleral gel stent

4. Pseudophakic patient

a. Canal surgery:

- i. While canal surgery is most commonly performed as part of a combined procedure with cataract surgery, the popularity of canal surgery in pseudophakic eyes has increased in recent years, especially GATT, and more recently procedures involving multiple stents (ex. iStent Infinite).

ii. Incisional /excisional canal surgery

iii. Viscodilation of the canal

b. Transscleral bleb forming procedures:

- i. More common in pseudophakic eyes than in phakic eyes given that the favorable effects of cataract surgery have already been realized.

ii. Transscleral surgery with gel stent device

iii. Traditional trabeculectomy

c. Tube procedures

5. Cilioablative, diode laser procedures

6. Non-pharmacologic, non-surgical option: The Multi-Pressure Dial

- a. Theoretical considerations
- b. FDA Pivotal trial results

7. Overview/Q&A

8. Glaucoma and Dry Eye- Dr. Clara Choo

9. What is Glaucoma?

- a. Glaucoma is a progressive optic neuropathy characterized by a typical vision loss pattern often associated with elevated intraocular pressure
- b. Current treatments that aim to lower these pressures:
 - i. Topical
 - ii. Intracameral
 - iii. Lasers
 - iv. Incisional surgeries

10. Dry Eye Disease (DED):

- a. Characterized by an unstable tear film and hyperosmolar tear composition, which can lead to fluctuations in vision and discomfort
- b. Both dry eye disease and glaucoma can negatively impact the quality of life, so it is important to assess the impact of both diseases on the patient and to strategize how to treat each in a complementary fashion
- c. After symptom severity is quantified by the DEQ-5 and OSDI, an in-office assessment should include:
 - i. The tear breakup time
 - ii. Osmolarity measurements
 - iii. Ocular surface staining
- d. Co-located diseases like blepharitis should also be identified
- e. Depending on if the patient has an evaporative or an aqueous deficiency, appropriate dry eye therapies can be offered
 - i. Drops:
 - 1. Artificial lubricants
 - 2. Serum tears
 - 3. Cyclosporines
 - 4. Lifitegrast
 - 5. Varenicline
 - 6. Perfluorohexyloctane
 - ii. Devices:
 - 1. Compresses/heat masks
 - 2. Punctal plugs
 - iii. Procedures:

1. Intense pulse light therapy
 2. Low level light therapy
 3. Radiofrequency
 4. Meibomian gland expression
- f. Glaucoma drops can increase the severity of dry eye disease
- i. Traditional glaucoma drops use benzalkonium chloride to prevent the growth of bacteria and to enhance drug penetration by disrupting tight junctions through corneal epithelium
 - ii. Both BAK and active components of glaucoma drops can lead to decreased:
 1. Goblet cell density
 2. Conjunctival hyperemia
 3. Meibomian gland dropout
 4. Increased expression of inflammatory markers and toxicity to epithelial cells of the conjunctiva/cornea as well as deeper structures
 - iii. These changes can be long term, amplify DED symptoms and potentially increase the failure risk of future glaucoma surgeries
 - iv. Increased expression of inflammatory markers and toxicity to epithelial cells of the conjunctiva/cornea as well as deeper structure
- g. These changes can be long term, amplify DED symptoms and potentially increase the failure risk of future glaucoma surgeries

11. Alternative glaucoma therapies:

- a. Should be considered to control the intraocular pressure while minimizing the impact on dry eye.
- b. Topical medications can be formulated with alternative preservatives avoiding BAK or be preservative free all together.
- c. Topical medications can also be combined or compounded to decrease the drop burden.

12. Medications could be given intracamerally:

- a. Bimatoprost
- b. Travoprost

13. Laser therapy can be considered:

- a. Selective Laser Trabeculoplasty in most cases
- b. Cyclophotocoagulation in select cases

14. Surgical therapies include:

- a. Cataract surgery
- b. +/- trabecular bypass stents
- c. Goniotomy/canaloplasty

- d. Small bleb forming procedures

15. Traditional filtering procedures including:

- a. Trabeculectomy
- b. Glaucoma drainage devices

16. Overview/Q&A

17. Updates in SLT and Introduction to DSLT- Dr. Chase Liaboe

18. Overview of SLT:

- a. Indications and patient selection
- b. Comparison to other glaucoma treatments
- c. Benefits and limitations
- d. Introduction to the DSLT laser
- e. Literature update

19. Introduction to the DSLT laser:

- a. Evolution of DLST technology
- b. Differences between SLT and DSLT
- c. Clinical applications and efficacy
- d. Safety considerations

20. SLT & DSLT based on etiology:

- a. Primary open-angle glaucoma (POAG)
- b. Ocular hypertension (OHT)
- c. Pseudo exfoliation and pigmentary glaucoma
- d. Secondary glaucoma's and special considerations

21. Literature update on SLT & DSLT:

- a. Recent advances and emerging research
- b. Key studies & outcomes
- c. Key clinical trials
 - i. LiGHT Trial
 - ii. COAST trial
- d. Case-based learning for use of SLT/DSLTL:
 - i. Patient assessment and decision-making
 - ii. Hands-on approach to treatment selection
- e. Conclusion:
 - i. Future directions in SLT & DSLT

22. Overview/Q&A



SESSION TWO



William J. Lipham, M.D.

Minnesota Eye Consultants
Ophthalmic Plastics, Orbit
and Reconstructive Surgery



Jill S. Melicher, M.D.

Minnesota Eye Consultants
Ophthalmic Plastics, Orbit
and Reconstructive Surgery

Oculoplastics 2025

COPE Course ID #

Synchronous-LIVE: 97615-TD

Synchronous-Virtual: 97617-TD

Course Description

This lecture will discuss the pathophysiology, etiology, epidemiology, prognosis, patient education, clinical presentation, physical exam findings, associated disorders and treatment and management of ectropion, entropion and lower eyelid retraction. It will also focus on severe lower eyelid retraction due to negative vector anatomy that require correction with orbital decompression surgery.

Course Objective

1. The audience will gain an understanding of the pathophysiology etiology, epidemiology and prognosis of ectropion, entropion and lower eyelid retraction.
2. They will learn to recognize how patients present clinically as well as other conditions associated with lower eyelid malposition's.
3. The optometrists will learn how to best educate your patients with these conditions and understand when it is appropriate to refer them to an oculoplastic surgeon for surgical correction of their condition.
4. They will understand that "Negative vector" lower eyelid anatomy can cause severe lower eyelid retraction and ectropion that may need to be corrected with orbital decompression surgery combined with a lower eyelid recession and lateral tarsal strip procedure.



**MINNESOTA EYE
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Lower Eyelid Ectropion, Entropion and Retraction: Understanding Lower Eyelid Malposition's

William Lipham, MD, FACS

1. Financial Disclosures:
 - a. None, I do not have any financial interest associated with anything discussed in this talk
2. Evaluating the Eyelid as a Two-layered structure:
 - a. Anterior lamella
 - b. Posterior lamella
 - c. Intermediate Zone
3. Fascial Eyelid Anatomy:
 - a. Tarsal plates
 - b. Whitnall's and Lockwood's ligaments
 - c. Medial and lateral canthal tendons
 - d. Mueller's muscle and lower eyelid retractors
4. Lower Eyelid Anatomy:
 - a. Lower Eyelid Retractors
 - i. Analogous to Mueller's muscle of the upper eyelid
 - ii. Vertically stabilizes the lower lid
 - b. If too tight or fibrotic
 - i. Lower eyelid retraction
 - ii. Ectropion
 - c. If disinserted: Entropion
 - i. Lid becomes unstable and rotates toward the globe when orbicularis contracts
5. Etiology of Eyelid Malpositions:
 - a. Cicatrizing
 - i. Trauma/Surgery
 - ii. Burns
 - b. Neurogenic
 - i. Ectropion only
 - ii. 7th nerve palsy
 - c. Involutional
 - i. Horizontal lid laxity
 - ii. Retractor disinsertion
6. Evaluating Involutional Change:
 - a. Ectropion
 - i. Medial/Lateral/Total
 - ii. Canthal tendon laxity

- iii. Pinch and snap test
 - b. Entropion
 - i. Over-riding orbicularis
 - 1. Retractor disinsertion
 - 2. Forced lid closure
- 7. Procedure Selection:
 - a. Involutional/Neurogenic:
 - i. Full thickness sutures
 - ii. Wedge resection
 - iii. Lateral Tarsal Strip (LTS)
 - iv. Retractor reinsertion
 - v. Medial Spindle
- 8. Suture Eversion/Entropion:
 - a. Advantages:
 - i. Fast
 - ii. Easy
 - b. Disadvantages:
 - i. Temporary
 - ii. Only works in mild cases
- 9. Wedge Resection:
 - a. Advantages:
 - i. Useful in long-standing total tarsal eversion
 - b. Disadvantages:
 - i. Lid notch
 - ii. Can induce trichiasis
 - iii. Permanent scar
- 10. Lateral Tarsal Strip (LTS):
 - a. Advantages:
 - i. Addresses canthal tendon laxity
 - ii. Permits lateral canthal elevation
 - iii. Easily combined with other procedures
 - b. Disadvantages:
 - i. “Beer belly” dystopia if globe prominent, shallow inferior orbital rim
- 11. LTS “Plus” Procedures:
 - a. Medial Ectropion:
 - i. Medial Spindle
 - ii. May be combined with punctoplasty
 - b. Involutional Entropion:

- i. Retractor Reinsertion
 - ii. Improves tarsal stability
- 12. Lower Eyelid Retraction:
 - a. LTS combined with:
 - i. Cheek elevation and interpositional grafts to the anterior or posterior lamellae
 - b. Interpositional Grafts:
 - i. Sclera
 - ii. Banked Human Dermis
 - iii. Hard Plate Grafts
 - iv. Ear Cartilage Grafts
- 13. Severe Lower Eyelid Retraction:
 - a. Associated with a “Negative Anatomical Vector”:
 - i. Physiologic proptosis
 - ii. Hypoplastic/recessed inferior orbital rim
 - iii. Globe is thereby anteriorly displaced over a limited inferior orbital rim
- 14. Orbital Decompression for Severe Lower Eyelid Retraction:
 - a. To properly address the anatomy, the globe needs to be repositioned
 - b. An orbital floor and medial wall orbital decompression will re-orient the globe both posteriorly and inferiorly
 - c. Typically used in only severe cases of lower lid retraction/ectropion with negative vector anatomy
- 15. Case: Severe “Negative Vector” Lower Eyelid Retraction/Ectropion:
 - a. Discuss initial presentation
 - b. 6 weeks post-op BLL recession with TSE sutures and temporal tarsorrhaphy
 - c. 9 months following lower eyelid recession
 - d. 6 weeks s/p lower lid recession and aborted cheek elevation
 - e. 3 months s/p lower lid recession and aborted cheek elevation
 - f. 1 month s/p left orbital decompression
 - i. Right orbital decompression
- 16. Sensory Nerves:
 - a. Trigeminal nerve (Fifth cranial nerve)
 - b. Ophthalmic division V1:
 - i. Upper eyelid
 - ii. Medial canthus
 - iii. Lateral canthus
 - c. Maxillary division V2:
 - i. Lower eyelid

17. Take Home Lessons:

- a. Analyze the etiology of lid malposition
- b. Etiology and location determine choice of procedure
- c. Lateral Tarsal Strip Procedure:
 - i. Is a nice foundation for additional procedures
- d. Orbital Decompression:
 - i. For severe lower eyelid retraction/ectropion

18. Q&A

Grand Rounds: Ophthalmic Plastic, Orbit and Reconstructive Surgery Cases for the Comprehensive Optometrists

Jill Melicher, MD

Case 1:

- a. 15-year-old male sustained a knee to the eye while wrestling 11 days prior to presentation. He was seen the day of the injury in the ED and underwent CT imaging; he had minimal headache and was nauseous. He was diagnosed with a concussion and placed on bedrest/minimal activity. His CT at the time was read as normal. His vision, pressure and extraocular motility was noted to be normal at that time as well, but his lid was swollen.
- b. 9 days following injury, he was seen in follow-up due to the presence of double vision. He presented to me for consultation.

2. Orbital Fracture:

a. White-eyed blow out fracture:

- i. Children, less commonly adults
 - 1. Nausea
 - 2. Vomiting
 - 3. Pain worse than external findings
 - 4. *Orbital urgency/emergency*

3. Forced Duction Testing:

- a. Anesthetized conjunctiva at inferior limbus both eyes
 - i. 4% topical Lidocaine
- b. Grasp the conjunctiva at the limbus (do not grasp the IR insertion)
- c. Ask the patient to look up
- d. Manually elevate the globe
- e. *****True positive forced ductions need urgent or emergent surgical intervention*****

4. Oculocardiac Reflex:

- a. Definition:
 - i. Decrease in heart rate by over 20% following globe pressure or extraocular muscle traction

- ii. Leads to sinus bradycardia, arrhythmia, asystole and even cardiac arrest

b. Incidence:

- i. 55% of Pediatric and Adult orbital fractures develop OCR
- ii. 63-68% of patients undergoing Ophthalmic procedures develop OCR
- iii. Occurs in 85% of poststrabismus surgery unless the reflex is blocked, leading cause of admission following strabismus repair

c. Treatment:

- i. Removing the triggering stimuli
- ii. Pretreatment with anticholinergics (atropine and glycopyrrolate) decreases incidence
 - 1. Anticholinergics block the peripheral cardiac muscarinic receptors \rightarrow increasing sinoatrial node firing and atrioventricular node conduction minimizing bradycardia

5. Oculocardiac Reflex:

a. Sinus bradycardia

- i. Arrhythmia
- ii. Reduced atrial pressure
- iii. Ventricular tachycardia
- iv. Ventricular fibrillation
- v. Multifocal premature ventricular contractions
- vi. Ventricular bigeminy
- vii. Asystole
- viii. Cardiac arrest

b. Dizziness

c. Lightheadedness

d. Nausea

e. Weakness

6. White-eyed Blowout Fracture:

- a. OCR should be taken seriously
- b. Look for the fracture in the radiology films yourself if you see clinical signs of entrapment
- c. Although the recovery rate is not related to either surgical timing or entrapment content (soft tissue or muscle), early intervention should be conducted to lower the risks of potential complications, improve outcomes, and enhance faster recovery.

7. References:

- a. Kim J, Lee H, Chi M, Park M, Lee J, Baek S. Endoscope-assisted repair of pediatric trapdoor fractures of the orbital floor: characterization and management. *J Craniofac Surg*. 2010 Jan;21(1):101-5. doi: 10.1097/SCS.0b013e3181c466e2. PMID: 20061963.
- b. Hsieh P-J, Liao H-T. Outcome Analysis of Surgical Timing in Pediatric Orbital Trapdoor Fracture with Different Entrapment Contents: A Retrospective Study. *Children*. 2022; 9(3):398. <https://doi.org/10.3390/children9030398>
- c. Oppenheimer AJ, Monson LA, Buchman SR. Pediatric orbital fractures. *Craniofac Trauma Reconstr*. 2013 Mar;6(1):9-20. doi: 10.1055/s-0032-1332213. Epub 2013 Jan 16. PMID: 24436730; PMCID: PMC3699236.
- d. Bora V, Sood G, Dunville LM, et al. Oculocardiac Reflex. [Updated 2024 May 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK499832/>

8. Case 2:

- a. 56-year-old female with 5-month history of right lower eyelid chronic chalazion.
 - i. Treated with all the usual suspects...
 - 1. Warm Compresses
 - 2. Eyelid massage
 - 3. Maxitrol
 - 4. Fish oil supplements
 - 5. Doxycycline 50 mg PO BID x 6 weeks x 2

6. Amoxicillin 500 mg PO TID x 10 days x 1

- ii. After no significant improvement he was referred for incision and drainage

9. Chalazion vs. Hordeolum:

- a. Nomenclature
- b. Chalazion:
 - i. Involving the Tarsal Meibomian Glands the Glands of Zeiss
- c. Hordeolum:
 - i. Suppurative infection of a Gland of Zeiss
- d. Chronic granulomatous reaction induced by retained sebaceous secretions
- e. Chronic blepharitis, seborrheic dermatitis, rosacea, demodex, low Vitamin A, dyslipidemia, H pylori gastritis, smoking

10. Hormonal Effect on Sebaceous Secretion:

- a. Androgens induce the growth of sebaceous glands and sebum production
- b. We see a cluster of chalazion development in toddlers, puberty, pregnancy and menopause- likely due to the role of androgens on the pilosebaceous unit and the increase in sebum viscosity

11. Case 3:

- a. Due to the vascularity and madarosis at the lid margin, I recommended external tissue biopsy

b. BASAL CELL CARCINOMA

- i. Characteristics of Malignancy
 - 1. Painless
 - 2. Ulceration” Eater”
 - 3. Irregular “pearly” borders
 - 4. Induration
 - 5. Telangiectasias

- 6. Alteration of normal eyelid anatomy
 - a. (i.e. lash loss, lid margin notching)
 - b. “Eaters”
- 7. Asymmetry
- 8. Variable coloration

12. Types of eyelid malignancies eyelid malignancies:

- 87% Basal Cell Carcinoma
- 8% Squamous Cell Carcinoma
- 1% Malignant Melanoma
- 0.5% Other Adnexal Tumors

13. Basal cell carcinoma

- a. Most common periocular malignancy
- b. Lower eyelid > medial canthus > upper eyelid > lateral canthus
- c. Locally aggressive
- d. Pearly borders with telangiectasias
- e. Treatment: Excision with reconstruction

14. Mohs Micrographic Surgery:

- a. Developed in the 1930s by Dr. Fredrick Mohs
- b. Tissue-sparing technique performed by removing a thin margin of tissue circumferentially around and deep to the clinical margins of a skin tumor
- c. The specimen is rapidly frozen and sectioned (15-30 min)
- d. The tissue margin is examined under the microscope
- e. This process is repeated until the tumor has negative histologic margins

15. Mohs Micrographic Surgery:

- a. 5-year cure rates for non-melanoma skin cancers

- i. Primary BCC- 99%
 - ii. Recurrent BCC- 94.4%
 - iii. Primary SCC- 92-99%
 - iv. Recurrent SCC- 90%
- b. Less common tumors can be treated:
 - i. Merkel cell carcinoma
 - ii. Sebaceous gland carcinoma
 - iii. Slow Mohs for malignant melanoma and lentigo maligna

16. References:

- a. aao.org
 - b. Erripi, Kalliopi & Paussen, Daniel & Svedberg, Karin. (2024). Results of Mohs' Micrographic Surgery of Periocular Basal Cell Carcinoma: The Swedish Experience. Acta dermato-venereologica. 104. 15765. 10.2340/actadv.v104.15765.
17. Mohs Surgery Diagram Contributed by Kyle Prickett, MD, and Michael Ramsey, MD. Geisinger Medical Center.

18. Case 3:

- a. 46 year-old male presents with chronic ocular irritation, multiple trichiatric lashes and recurrent corneal erosions, both eyes
 - i. Past ocular history: Orbital fracture with entrapment in 2016, status post repair.....
 - ii. Allergies: Penicillin and Sulfamide.....
- b. On further questioning, he had a history of a severe systemic allergic reaction resulting in hospitalization due to Sulfa.....
- c. On further questioning, he had a history of a severe systemic allergic reaction resulting in hospitalization due to Sulfa.....

19. STEVENS JOHNSONS SYNDROME

- a. Medication commonly implicated in SJS:

20. SJS/TENS:

- a. 75% of cases are attributed to delayed drug hypersensitivity reactions to a medication or medication metabolite
 - i. The responsible drug or drug metabolite is processed by keratinocytes and presented via the major histocompatibility Class I complex to cytotoxic T cells
 - ii. This results in the proliferation of cytotoxic T-cell primed against the offending agent and initiates the signaling cascade that recruits additional cytotoxic T cells and natural killer cells to the epidermis
 - iii. Once recruited to the epidermis, cytotoxic T-cells and natural killer cells release granulysin, a cationic cytolytic protein. Granulysin disrupts the cellular membrane of target cells, allowing the influx of ions into the target cell
 - iv. This causes mitochondrial damage and results in keratinocyte apoptosis

21. Phases of SJS/TENS:

- a. Prodromal phase:
 - i. high fever (>102.2), malaise, myalgia, arthralgia and keratoconjunctivitis
- b. Acute phase: 8-12 days
 - i. Rash will develop as ill-defined tender macules on the trunk and face, coalesce to form exquisitely tender skin → confluent macules then transition to vesicles and bullae → skin becomes necrotic and sloughs
- c. Re-epithelialization process: 2-4 weeks
 - i. Patients are most high risk for developing bacterial infection at this point in time
- d. Chronic phase: 4 weeks+
 - i. Ocular sequelae are arguably some of the most difficult for SJS survivors of all ages (chronic ocular surface changes occur in nearly 21-29% of pediatric cases and 27-59% of adults)

22. Acute Phase Management:

- a. Rapid discontinuation of inciting agent leads to a 30% reduction in mortality for each day the drug was discontinued prior to the macular rash converting to bullae.
- b. These patients need admission to a tertiary burn center for evaporative fluid loss management and sterile wound care

23. Acute Phase Ocular Management:

- a. Daily ophthalmic examination for disease progression
- b. Normal saline rinses to free the eye of epithelial debris
- c. Frequent preservative free lubrication to reduce epithelial injury
- d. Prophylactic topical antibiotic (4th generation fluoroquinolone)
- e. Lysis of adhesions and pseudomembranes to decrease the risk of symblepharon formation
- f. Placement of AMT sutured into the fornices and at the lid margin to reduce epithelial injury

24. Chronic Phase Ocular Management:

- a. Late ocular surface disease is universally due to repetitive microtrauma resulting in longstanding inflammation
- b. Systemic immune modulatory medication can be very helpful to reduce long term inflammation (Heme Onc referral)
- c. Posterior lid margin keratinization can be treated with topical all-trans retinoic acid, autologous mucous membrane grafting, and therapeutic scleral contact lenses

25. Case 3: PLOT TWIST

- a. Patient presents to clinic for electrohyfrecaction.....
- b. Essentially immediately upon injection of the right upper eyelid, the patient became dusky in color, lips blue, eyes rolled back, I was able to find a slow thready pulse.....

26. Vasovagal Syncope:

- a. Overreaction of the nervous system secondary to anxiety or exhaustion
- b. Stress response resulting in severe hypotension
- c. One in 3 people experience vasovagal syncope at least one time in their life
- d. More common in younger females

27. Vasovagal Syncope:

- a. A total of 78 independent VVS were recorded in 60 patients of which 24% were not preceded by presyncope (nausea, light headedness, blurry vision, or pallor).
 - i. Most common type of VVS is Vasodepressor (45%)
 - ii. 23% had complex VVS
 - 1. 6% had an associated seizure (SySz)
 - 2. 12% were accompanied by asystole (SyAs)
 - iii. Males were significantly more likely to have complex VVS.
 - iv. Mean asystole duration was somewhat longer in the SyAsSz group.
 - v. The severity of bradycardia significantly correlated with complex VVS and was a predictor of SySz
 - vi. 91% of individuals with syncope may develop a rigid posture and have myoclonic jerking activity
 - 1. 6– 25% of individuals with vasodepressive syncope may have convulsive episodes

28. Vasovagal Syncope Treatment:

- a. Avoiding triggers
- b. Encouraging eating and drinking prior to procedures
- c. Pretreatment with atropine or glycopyrrolate to block the response
- d. Counterpressure techniques in the lower extremities (legs crossing)
- e. Inhalational ammonia ampules are helpful to have in your office
 - i. Inhalational ammonia causes irritation to the nasal and lung mucosa, resulting quick fast breaths and an increase in heart rate

29. References:

- a. https://eyewiki.org/Stevens-Johnson_Syndrome
- b. Koduri MA, Pingali T, Prasad D, et al. Neutrophil-driven and interleukin-36γ-associated ocular surface inflammation in chronic Stevens–Johnson syndrome. *Allergy*. 2024; 79: 2128-2143. doi:[10.1111/all.16126](https://doi.org/10.1111/all.16126)
- c. Pushker, N., Gorimanipalli, B., Sharma, N. *et al.* Mucous membrane grafting (fibrin glue vs. suture) for lid margin pathologies in Stevens–Johnson syndrome: randomized comparative study. *Eye* **35**, 1985–1992 (2021). <https://doi.org/10.1038/s41433-020-01203-4>
- d. Siddiqi AZ, Blackmore D, Siddiqi ZA. "Complex" Vasovagal Syncope: A Zebra Among Horses. *Front Neurol*. 2020 Dec 16;11:550982. doi: 10.3389/fneur.2020.550982. PMID: 33391141; PMCID: PMC7772312.
- e. <https://www.ciccenters.com/vasovagal-syncope/>
- f. Malave B, Vrooman B. Vasovagal Reactions during Interventional Pain Management Procedures-A Review of Pathophysiology, Incidence, Risk Factors, Prevention, and Management. *Med Sci (Basel)*. 2022 Jul 25;10(3):39. doi: 10.3390/medsci10030039. PMID: 35893121; PMCID: PMC9332485.

30. Case 4:

- a. 13-year-old male with history of congenital ptosis on the left upper eyelid. Resulting in difficulty with peripheral vision, head tilt, ocular torticollis.
- b. Congenital Ptosis:
 - i. Maldevelopment of the levator palpebrae superioris muscle
 - ii. Simple Congenital Ptosis (81%)
 - 1. Male preponderance (57%)
 - iii. 11.7% have positive family history
 - iv. More common in the left eye (68%)
 - v. Universally associated with lash ptosis
- c. Other etiologies of ptosis:
 - i. Double elevator palsy

- ii. MGJW
- iii. Blepharophimosis Syndrome (AD)
- d. Levator muscle dysgenesis
 - i. Muscle fibers are replaced by thick, fatty fibrous tissue
 - ii. Not able to contract or nor relax properly (lid lag in downgaze)

31. “Refurbished” Ptosis Repair Technique:

The Frontalis Muscle Flap

- a. First reported in 1901 by Freeland Fergus, MD to repair a single case of utilizing the frontalis muscle for repair of congenital ptosis
- b. Fergus’ method was not well accepted until 1982, when Dr. Song modified his technique and reported his case series
- c. Since then, multiple iterations of frontalis muscle flap congenital ptosis repair have been reported, and the technique has caught on in Europe and the United States.

32. References:

- a. Hou D, Li G, Fang L, Li B. Frontalis muscle flap suspension for the correction of congenital blepharoptosis in early age children. PLoS One. 2013;8(1):e53185. doi: 10.1371/journal.pone.0053185. Epub 2013 Jan 7. PMID: 23308158; PMCID: PMC3538777.
- b. <https://my.clevelandclinic.org/health/body/21672-facial-muscles>
- c. Diab, M.M.M., Abd-Elaziz, K. & Allen, R.C. Combined levator and frontalis muscle advancement flaps for recurrent severe congenital ptosis. *Eye* **37**, 1100–1106 (2023). <https://doi.org/10.1038/s41433-022-02071-w> Park, David and Ramadhan, Anwar and Han, Dong and Shim, Jeongsu and Lee, Yong Jig and Ha, Won and Lee, Byung, 2014/08, e200, Comparison of Blepharoptosis Correction Using Müller-aponeurosis Composite Flap Advancement and Frontalis Muscle Transfer,2, Plastic and reconstructive surgery. 10.1097/GOX.0000000000000094

33. THANK YOU!



SESSION TWO

Instructor:



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Case-Based Approaches to Cataract Diagnosis and Management

COPE Course ID #

Synchronous-LIVE:97443-PO

Synchronous-Virtual: 97446-PO

Course Description

This course is designed to enhance optometrists' understanding and clinical approach to managing patients with cataract symptoms. It will cover a broad range of diagnostic and therapeutic challenges associated with cataracts, with a special focus on how to identify, assess, and manage cataract-related issues, all discussed in a collaborative panel format.

Course Objective

1. Case-based diagnosis of cataracts, perioperative concerns and intraocular lens options for the cataract patient will be presented.
2. The therapeutic and management options of these conditions will be discussed.



**MINNESOTA EYE
FOUNDATION**

Case-Based Approaches to Cataract Diagnosis and Management

Sherman Reeves, M.D., MPH

David Hardten, M.D., F.A.C.S

Omar Awad, M.D., F.A.C.S

Mark Hansen, M.D.

1. Cataract Panel

- a. Faculty Disclosures
- b. Overview

2. Case 1:

- a. Cataract patient desires spectacle independence
- b. Presentation:
 - i. 62-year-old female
 - ii. Symptoms:
 - 1. Night driving halos
 - 2. BCVA 20/30 OU, BAT 20/60 OU, 1+ PSC OU
- c. Patient goal:
 - i. Doesn't want to wear glasses for distance or near vision
 - ii. Audience Response Questions
 - 1. Assess initial management approach
- d. Pre-operative history concerns:
 - i. Prior refractive surgery?
 - ii. History of monovision or other vision correction strategies?
- e. Exam Findings & Special Testing:
 - i. Role of corneal topography/tomography
 - ii. IOL calculations
- f. IOL Options and Counseling:
 - i. Standard vs. Premium options
 - ii. Which premium IOL to use
 - 1. Pros/Cons
- g. Post-Operative Concerns:
 - i. Managing residual refractive error
 - 1. Overview of how to manage residual refractive error
 - ii. Enhancement strategies
 - 1. Overview of enhancement strategies
 - iii. Panel discussion
 - 1. Experts discuss their ideal surgical approach and IOL selection

3. Case 2:

a. Cataract with concurrent corneal disease

b. Presentation:

i. 66-year-old male

ii. Symptoms:

1. Worsening vision blur and gritty ocular irritation
2. BCVA 20/50, +3 NS and pterygia OU

a. Audience Response Questions

- i. How to prioritize treatment?

c. Pre-operative history concerns:

i. Ocular surface symptoms

1. History of dry eye?
2. Blepharitis?
3. Or any other ocular surface disease?

ii. Environmental exposures

1. UV light?
2. Wind?
3. Dust?

d. Exam findings:

i. Role of corneal topography/tomography

ii. Tear film analysis

e. IOL Options and counseling:

i. Cataract surgery alone?

ii. Pterygium excision?

1. Timing?

iii. What IOL's to offer?

1. What are the best IOL choices considering corneal irregularities?

f. Post-operative concerns:

i. Approach residual astigmatism

g. Panel Discussion:

- i. Optimal treatment sequencing for better patient outcomes

4. Case 3: Post-operative vision complaints:

- a. Presentation:
 - i. 78-year-old female
 - ii. Uncomplicated cataract surgery one month ago
 - iii. Symptoms:
 - 1. Shadow in vision in surgical eye
- b. Audience response questions:
 - i. What is most likely the cause?
- c. Pre-operative history d. Stratifying concerns by history
- i. Infection/inflammation
 - ii. Corneal causes
 - iii. Retinal causes
 - iv. IOL causes
- e. Exam findings:
 - i. Key findings of above conditions
- f. Management approach:
 - i. Infection/Inflammation
 - ii. Corneal causes
 - iii. Retinal causes
 - iv. IOL causes
- g. Panel Discussion
- h. Audience Questions

5. Open Q&A with panelists on cataract cases and surgical management

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