786th meeting of the New England Ophthalmological Society

AM SESSION 1:
THE RETINA AND SYSTEMIC DISEASE
(with the Joan W. Miller, MD Lecture)
Moderator: Manju Subramanian, MD | PC Coordinator: Brian Kim, MD
Guest of Honor: Sophie Bakri, MD (Mayo Clinic, Rochester, MN)

AM SESSION 2:
OFFICE-BASED CORNEAL PROCEDURES
Moderator: Michael B. Raizman, MD | PC Coordinator: Fina Barouch, MD

PM SESSION:
ADVANCES IN CORNEAL AND ANTERIOR SEGMENT DIAGNOSTICS
(Guest of Honor sponsored by the New Hampshire Society of Eye Physicians and Surgeons)
Moderator: Nicoletta Fynn-Thompson, MD | PC Coordinator: Jeremy Kieval, MD
Guest of Honor: Deepinder K. Dhaliwal, MD, L.Ac. (The University of Pittsburgh, Pittsburgh, PA)

Friday, December 10, 2021
Hotel Commonwealth
500 Commonwealth Ave., Boston, MA
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Welcome to the 786th meeting of the New England Ophthalmological Society. Since 1884, our organization has been delivering superb education programs for our members to advance patient care into the future. It is an honor and a privilege to serve as your president. As you can see from the prior page, I have come to my presidency earlier than expected. I would like to thank Jay Duker for his help and leadership during his tenure on our board, and as president. As one of the oldest continuously operating medical societies, we have seen a myriad of changes in medicine, healthcare delivery, and medical education. One of the strengths of NEOS has been its resiliency in turbulent times, and the last few years have proven our strength in the face of significant adversity.

Our volunteer board and the many committee members who serve our mission are an integral part of how we shape the educational landscape. It is important to note that the planning and volunteerism is done despite busy clinical practices and family commitments. Please join me in thanking these volunteers who care so much for our organization. I would also like to thank our Executive Director Mike Bradbury and our Executive Assistant Miguel Ocque in helping coordinate programming and logistics as they are the glue that keeps the organization together and on track.

We have a great program for you today that includes Retina and Systemic Disease (including The Miller Lecture), Office Based Corneal Procedures, and Advances in Corneal and Anterior Segment Diagnostics. We are also honoring Dr. Ann Bajart today with the Distinguished Service Award for her contributions to our field and this organization.

I hope that you enjoy our program and I look forward to seeing you during the program breaks, or at our NEOS Social Hour at the conclusion of the program.

Brendan E. McCarthy M.D.
President
“To the Members of NEOS,

As some of you may be aware, after 21 years, I stepped down as Chair of Ophthalmology at Tufts as of November 1, 2021 and accepted a full-time position to be Chief Operating Officer of EyePoint Pharmaceuticals, a biotech company with two commercial products in the ophthalmology space. Because of my new position in industry and with NEOS being a provider of CME, my continuing as President through my full term was not tenable. Therefore I have voluntarily resigned as NEOS President.

NEOS is one of the best organizations that I have been involved with in my career. And serving as President, for even a half a term, has been a great honor. I hope in my short tenure I was able to make some positive contributions to the Society. I know the Society is in great hands with a fantastic Board, as well as Michael Bradbury, M.D. and Miguel Ocque at the helm.

I would like to personally thank Brendan McCarthy M.D. who has agreed to step up and assume the role of NEOS President 7 months early.

Thank you for granting me this brief tenure as your President.

Jay S. Duker, MD”
Ann Bajart, MD

It is a great privilege for NEOS to present the Distinguished Achievement Award to Ann Bajart, MD at our 786th meeting.

“There is an art to medicine as well as science, and warmth, sympathy, and understanding may outweigh the surgeon’s knife or the chemist’s drug.” Those are words from the original Hippocratic Oath, and continue on with, “If I do not violate this oath, may I enjoy life and art. May I long experience the joy of healing those who seek my help.”

Dr. Ann Bajart embodies those words. She is a patron of the arts and sciences, a sponsor of young people embarking on their careers. She has remarkably bridged the old guard with the new. She has celebrated tradition as well as change, and with the greatest of humility, she has supported so many. Dr. Bajart was one of the pioneers who broke the mold of the classic ophthalmologist when she became one of the first female residents not just at the Massachusetts Eye and Ear Infirmary, but in the field itself. Her ability to connect with different generations of ophthalmologists, past, present, and future is uncanny. Her generosity of spirit is unparalleled. Her entry onto the scene of Harvard Medical School and then at Mass Eye and Ear helped change the face of ophthalmology, and she did it in only the way Dr. Bajart could.

Dr. Bajart is a former president of this great Society. She received her training at Harvard Medical School. She completed her residency at the Massachusetts Eye & Ear Infirmary. She then went on to complete her Fellowship at Children’s Hospital Medical Center, in Pediatric Ophthalmology. She is a specialist in surgical and medical treatment of the cornea, and a partner at Ophthalmic Consultants of Boston where she has practiced for almost 30 years.

Dr. Bajart has served as a Diplomate for the National Board of Medical Examiners as well as the American Board of Ophthalmology. She is certified by the American Board of Ophthalmology and is a member of the American Academy of Ophthalmology, American Medical Association, Massachusetts Medical Society, American College of Surgeons and New England Ophthalmological Society. She has served as Medical Director of the New England Eye Bank for more than two decades.

Since 1950, NEOS has bestowed the Distinguished Achievement Award on a select few Ophthalmologists who have made valuable contributions to Ophthalmology and to NEOS. Dr. Bajart is the second woman to receive this award. It is an honor
for our Society to recognize the great impact Dr. Bajart has made on our field and in our community. Congratulations, Dr. Bajart. Well done and well deserved!

Mary K. Daly, MD
Chair, Education Endowment Fund
NEOS
Sophie J. Bakri, MD

Sophie J. Bakri, MD is Chair of the Department of Ophthalmology at Mayo Clinic Rochester, MN and holds the Whitney and Betty MacMillan Professorship in Ophthalmology in Honor of Robert R. Waller, M.D. Dr. Bakri is a specialist in diseases and surgery of the retina and vitreous, in particular, age-related macular degeneration, diabetic retinopathy, macular surgery, and repair of complex retinal detachments. She undertakes both clinical and translational research in the pathogenesis and treatment of retinal diseases. She is active in teaching residents and fellows and has served as Director of the Medical and Surgical Retina Fellowships at Mayo Clinic.

Dr. Bakri completed a vitreoretinal fellowship at the Cleveland Clinic Foundation and her residency at Albany Medical College, New York. She graduated from the University of Nottingham Medical School, England. She has authored over 200 peer-reviewed papers and 26 book chapters on retinal diseases. She is a principal investigator on numerous multicenter clinical trials on novel drugs for retinal disease. She is the Editor-in-Chief of the book “Mayo Clinic on Vision and Eye Health”, and is on the Editorial Board of the American Journal of Ophthalmology, Retina, Seminars in Ophthalmology and OSLI Retina. She is an active participant in several ophthalmic societies. She has served the Macula Society as Meeting Planning Chair and as an Executive Committee member, the American Society of Retinal Specialists as a Board member and member of the Program Committee. She is a member of the Retina Society, serving on the Nominating Committee. She has served the American Academy of Ophthalmology as an OTAC member, program committee for retina, committee on aging, and has participated in the AAO Leadership Development Program.

She has received numerous awards, including the Ophthalmologist Top 40 under 40 award, a Senior Achievement Award from the American Academy of Ophthalmology, a Senior Honor Award from the American Society of Retina Specialists and inducted into the Retina Hall of Fame. She has also been honored with receiving the Young Investigator Award from the American Society of Retina Specialists and is listed in Best Doctors in America and 135 Leading Ophthalmologists in America.
Joan W. Miller, MD, FARVO, is Henry Willard Williams Professor of Ophthalmology and Chair of the Department of Ophthalmology at Harvard Medical School (HMS). She also serves as Chief of Ophthalmology at both. A Massachusetts Eye and Ear and Massachusetts General Hospital (MGH) graduate of Massachusetts Institute of Technology, Dr. Miller received her MD and ophthalmology residency training at HMS. She completed a clinical and research fellowship in vitreoretinal disease at Mass. Eye and Ear. An internationally recognized expert on retinal disorders, Dr. Miller is credited with co-developing photodynamic therapy (PDT) with verteporfin (Visudyne®), the first pharmacologic treatment for age-related macular degeneration (AMD). She also co-discovered the role of vascular endothelial growth factor (VEGF) in eye disease, and demonstrated the therapeutic potential of VEGF inhibitors, forming the scientific basis of anti-VEGF therapy for neovascular AMD, diabetic retinopathy, and related conditions.

Ongoing investigations include the genetics and metabolomics of AMD, strategies for early intervention in AMD, and neuroprotective therapies for retinal disease. Her clinical and scientific innovations have resulted in 11 U.S. patents and 10 international patents to date. Dr. Miller is the first female physician to achieve the rank of Professor of Ophthalmology at HMS, the first woman to chair the HMS Department of Ophthalmology, and the first woman to serve as Chief of Ophthalmology at Mass. Eye and Ear and MGH. Her scholarly contributions include more than more than 150 original research articles, 20 clinical trial reports (as a member of the investigative team), 40 reviews, and 30 book chapters. Dr. Miller is an editor of the journal Ophthalmology and several textbooks, including the 3rd edition of Albert and Jakobiec’s Principles and Practice of Ophthalmology (Saunders), Retinal Disorders: Genetic Approaches to Diagnosis and Treatment (Cold Spring Harbor Laboratory Press), and Endophthalmitis (Springer, forthcoming). Among Dr. Miller’s numerous honors, she is a laureate of the 2014 António Champalimaud Vision Award, the highest distinction in ophthalmology and visual science. In 2015, Dr. Miller became the first woman to receive the Mildred Weisenfeld Award for Excellence in Ophthalmology from the Association for Research in Vision and Ophthalmology (ARVO), and was inducted into the prestigious National Academy of Medicine (formerly the Institute of Medicine).

Since 2006, Dr. Miller has served in several leadership capacities for the New England Ophthalmological Society, including: Program Committee member, Admissions Committee member, Vice President, and President (2013-2014).

Previous Miller Lecturers
2016 – David Brown, MD, FACS
2018 – Peter K. Kaiser, MD
2020 - Steve Charles, MD
Deepinder K. Dhaliwal, MD, L.Ac

Deepinder K. Dhaliwal, MD, L.Ac, is a professor of ophthalmology at the University of Pittsburgh School of Medicine, Director of Refractive Surgery and the director of the Cornea Service at the UPMC Eye Center. Dr. Dhaliwal also serves as the director of the UPMC Laser Vision Center, the associate medical director of the Campbell Ophthalmic Microbiology Laboratory, and has recently been appointed as the director of the Corneal Stem Cell Task Force at the University of Pittsburgh.

Dr. Dhaliwal earned her medical degree from Northwestern University and completed her residency in ophthalmology at the University of Pittsburgh Medical Center. She completed a fellowship in cornea and refractive surgery at the University of Utah. She became a licensed acupuncturist in 2006 and founded the Center for Integrative Eye Care at the University of Pittsburgh to systematically research alternative treatments for eye disease.

Dr. Dhaliwal holds leadership positions in the Cornea Society, the International Society of Refractive Surgery of the American Academy of Ophthalmology, and the Eye and Contact Lens Association/CLAO. Dr. Dhaliwal is a recognized expert in her field and teaches corneal and refractive surgical techniques to other ophthalmologists globally. In addition to teaching and research activities, she has authored several book chapters, numerous journal articles, and serves on the editorial board of several ophthalmology journals. In recognition of her clinical and surgical skills, she has been selected as a “Top Doctor” by her peers every year since 2006.
AM SESSION 1

THE RETINA AND SYSTEMIC DISEASE (WITH MILLER LECTURE)

Room: Fenway
Moderator: Manju Subramanian, MD / PC Coordinator: Brian Kim, MD
Guest of Honor: Sophie J. Bakri, MD

Program Objectives:
1. Improve ability to diagnose medical retina diseases
2. Improve the ability to appropriately refer complex medical retina diseases requiring subspecialty care
3. Increase understanding and knowledge of how systemic disease impact the retina

7:30 am Registration / Exhibits / Continental Breakfast
7:30 am NEOS Grand Rounds .......................................... Commonwealth Room
8:30 Introduction .................................................. Manju Subramanian, MD
8:35 Changing Landscape of Imaging for Diagnosis and Management of Diabetic Retinopathy ................. Nadia Waheed, MD
8:45 Alzheimer’s Disease and the Eye............................. John Miller, MD
8:55 Impact of the COVID19 Pandemic on the Practice of Retina Specialists ............................................ Xuejing Chen, MD
9:05 The Synergistic Effects of Hypertension and Diabetes on the Posterior Segment
Dimosthenis Mantopoulos, MD, PhD
9:15 Introduction of Guest of Honor .................. Manju Subramanian, MD
9:20 Systemic Associations of Central Serous Retinopathy....................................................... Sophie J. Bakri, MD
9:45 How to Diagnose and Refer Metastatic Choroidal Lesions................................................. Renelle Lim, MD
9:55 The Utility of Anti-VEGF therapy for Retinopathy of Prematurity ..................................................... Efren Gonzalez, MD
10:05 Refreshments (break) / Exhibits
10:35 Distinguished Achievement Award Presentation,
Ann Bajart, MD ....................................................... Mary Daly, MD
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<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
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<tr>
<td>10:45</td>
<td>Introduction Miller Lecture</td>
<td>Mary Daly, MD</td>
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<td>10:50</td>
<td>Miller Lecture - Submacular Hemorrhage: What is the Best Treatment?</td>
<td>Sophie J. Bakri, MD</td>
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<td>11:15</td>
<td>Sickle Cell Retinopathy: Is it a Thing of the Past?</td>
<td>Jeffrey Moore, MD</td>
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<td>11:25</td>
<td>Retinal Manifestations of COVID19</td>
<td>Steven Ness, MD</td>
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<td>11:35</td>
<td>Panel Discussion / Q&amp;A</td>
<td>Manju Subramanian, MD</td>
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<td>Sophie J. Bakri, MD</td>
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<td>12:00</td>
<td>Lunch (included for all attendees)</td>
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<td>4:00</td>
<td>NEOS Social Hour / Cocktail</td>
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**BE SURE TO SCAN IN AT REGISTRATION FOR AFTERNOON SESSION TO RECEIVE CREDIT**
OFFICE-BASED CORNEAL PROCEDURES
Room: Esplanade
Moderator: Michael B. Raizman, MD / PC Coordinator: Fina Barouch, MD

7:30 am Registration / Exhibits / Continental Breakfast
7:30 am Grand Rounds (Room: Commonwealth)

Program Objectives:
1. Providing a range of procedural tools for treating the cornea in the office.
2. Allowing the ophthalmologist to determine when operating room procedures are not in the patient’s best interest.
3. Training the ophthalmologist to improve on established procedural techniques with recent innovations.

8:30 am Introduction .................................................Michael B. Raizman, MD
8:35 Corneal Glue ............................................................Jessica Chow, MD
8:48 EDTA Chelation: New Techniques ............................Naveen Rao, MD
9:01 Amniotic Membrane .............................................Laura Voicu, MD
9:14 In-Office Corneal Procedures: Culture and Biopsy for Microbial Keratitis ................................. Yvonne Wang, MD
9:27 Tumor Imaging .................................................. Melina Morkin, MD
9:40 Phototherapeutic Keratectomy (PTK) .................. Roberto Pineda, MD
9:53 Q&A
10:00 Refreshments (break) / Exhibits
10:30 NEOS Annual Meeting (@ Fenway Room)
10:40 Miller Lecture (@ Fenway Room)
11:15 Superficial Keratectomy: Nodules and Epithelial Basement Membrane Dystrophy ...................... Purak Parikh, MD
11:28 Recurrent Erosions Treatment .......................... Sarkis Soukiasian, MD
11:41 Blephartitis Office Procedures ......................... Erin Fogel, MD
11:54 Q&A, Final Comments and Adjourn
12:00pm Lunch (included for all attendees)
4:00 pm NEOS Social Hour / Cocktail
BE SURE TO SCAN IN AT REGISTRATION FOR AFTERNOON SESSION TO RECEIVE CREDIT
ADVANCES IN CORNEAL AND ANTERIOR SEGMENT DIAGNOSTICS

Room: Fenway

Moderator: Nicoletta Fynn-Thompson, MD / PC Coordinator: Jeremy Kieval, MD
Guest of Honor: Deepinder J. Dhaliwal, MD, L.Ac

“NEOS recognizes the NH Society of Eye Physicians and Surgeons for their generous contribution in sponsoring this Guest of Honor”

Program Objectives:

1. Increasing the competence of the audience in cornea and anterior segment diagnostics
2. Improving the performance of the audience in clinical practice
3. Improving the outcome in diagnostic testing

1:00 pm  Introduction ............................................ Nicoletta Fynn-Thompson, MD
1:05  Tools for Diagnosing and Treating Endothelial Dysfunction .............................. Hyunjoo Lee, MD
1:15  Dry Eye Diagnostics: Meibography and Tear Film Testing ..................................... Mina Farahani, MD
1:25  OCT in evaluation OSSN ................................. Jeremy Kieval, MD
1:35  Introduction of Guest of Honor ............ Nicoletta Fynn-Thompson, MD
1:40  Corneal Imaging Pearls in Keratoplasty Cases ................................................ Deepinder K. Dhaliwal, MD, L.Ac
2:10  PCR Role in Infectious Keratitis ....................... Sarkis Soukiasian, MD
2:20  Intraoperative Management of Corneal Astigmatism ........................................ JoAnn Chang, MD
2:30  Refreshments (break) / Exhibits
3:00  Confocal Imaging in Infectious Keratitis .......... Pedram Hamrah, MD
3:10  Corneal Mapping with Anterior Corneal Dystrophy/Degeneration ....................... Narae Ko, MD
3:20  Corneal Imaging Pearls in Refractive Surgery Cases ........................................ Deepinder K. Dhaliwal, MD, L.Ac
3:45  Panel Discussion ................... Moderator: Nicoletta Fynn-Thompson, MD
Panelists:
JoAnn Chang, MD
Deepinder K. Dhaliwal, MD, L.Ac
Mina Farahani, MD
Pedram Hamrah, MD
Jeremy Kieval, MD
Narae Ko, MD
Hyunjoo Lee, MD
Sarkis Soukiasian, MD

4:00 pm  NEOS Social Hour / Cocktail

BE SURE TO SCAN IN AT REGISTRATION FOR AFTERNOON SESSION TO RECEIVE CREDIT
THE IMPACT OF THE COVID-19 PANDEMIC ON THE PRACTICE OF U.S. RETINA SPECIALISTS

Xuejing Chen, MD

BOSTON UNIVERSITY SCHOOL OF MEDICINE, BOSTON, MASSACHUSETTS

Objective: The COVID-19 Pandemic has broadly affected clinical care across the world. This talk will provide an overview of issues affecting U.S. based vitreoretinal care.

Abstract: During the start of the COVID-19 pandemic, the American Academy of Ophthalmology recommended all ophthalmologists cease non-essential care, and the American Society of Retinal Specialists followed with a similar recommendation and guidance on the types of patients and surgeries that are considered essential. Not-unexpectedly, intravitreal injections and retinal surgery rates dramatically decreased. A number of alterations to clinical and surgical care followed, including PPE, social distancing, pre-procedural COVID-19 testing. Various models of telemedicine use increased, and clinical trials were either halted or underwent protocol modifications.

References:
THE SYNERGISTIC EFFECTS OF HYPERTENSION AND DIABETES ON THE POSTERIOR SEGMENT

Dimosthenis Mantopoulos, MD, PhD
DARTMOUTH- HITCHCOCK, LEBANON, NH

Objective: To review the literature about the combined effect of diabetic retinopathy and hypertensive retinopathy in human retina.

Abstract Methods: Review of the literature. Results: Numerous multicenter, prospective and cross-sectional, control studies have provided strong evidence that uncontrolled hypertension increases the risk for vision-threatening diabetic retinopathy, while pharmacologic control the blood pressure decreases the risk. Conclusions: The ophthalmologists should educate the patients with diabetic retinopathy about the importance of good blood pressure control.

References:
1. UK Prospective Diabetes Study Group BMJ Vol 317 12, SEPTEMBER 1998
2. Hypertension, blood pressure control and diabetic retinopathy in a large population based study, Liu et al. PLoS ONE 2020
3. Diabetic retinopathy and blockade of the renin-angiotensin system: new data from the DIRECT study programme, Wright and Dodson, Eye, 2010
SYSTEMIC ASSOCIATIONS OF CENTRAL SEROUS RETINOPATHY

Sophie Bakri, MD
MAYO CLINIC, ROCHESTER, MN

Objective: Discuss the evidence on clinical co-morbidities as risk factors for CSR and steroid use as a risk factor for CSR.

Abstract: Central serous retinopathy is a retinal condition with some underlying risk factors. We highlight epidemiologic studies discussing systemic risk factors, as well as steroid use. Using national insurance databases, we conducted a case-control study of beneficiaries with an incident diagnosis of CSR between 2007 and 2015 (n=35,492) and randomly selected controls matched on age-based and sex-based propensity scores (n=177,460). We discuss the hypothesized risk factors and evidence.

References:
HOW TO DIAGNOSE AND REFER METASTATIC LESIONS

Renelle Lim, MD
YALE UNIVERSITY, NEW HAVEN, CT

Objective: Describe the clinical presentation and fundoscopic, OCT, ultrasound characteristics of Choroidal Metastasis

Abstract: Choroidal Metastasis are the most common intraocular tumors. There are varied clinical presentations. Ancillary testing like OCT and Bscan can be helpful in making the diagnosis.

References:
THE UTILITY OF ANTI-VEGF THERAPY FOR RETINOPATHY OF PREMATURITY

Efren Gonzalez, MD
BOSTON CHILDREN’S HOSPITAL/DANA FARBER CANCER INSTITUTE, WELLESLEY, MA

Objective: To review the current and upcoming anti VEGF therapies used in ROP

Abstract: Eye care providers are seeing an increase in ROP due to the advances in neonatal care that allows for the survival of extreme premature babies. The use of Anti-VEGF therapy has proven to be effective and its use has increased during the past years. Anti-VEGF injections are helpful to stabilize/save the eye in unstable babies. Recent studies have shown us that there is no evidence of severe neurodevelopmental side effects after using this drugs and that they are a good alternative in the treatment of severe ROP.

References:
SUBMACULAR HEMORRHAGE: WHAT IS THE BEST TREATMENT

(MILLER LECTURE)

Sophie Bakri, MD

MAYO CLINIC, ROCHESTER, MN

Objective: To describe the evidence and outcomes of treatments for submacular hemorrhage

Abstract: Submacular hemorrhage occurs, despite regular anti-VEGF injections. The goal of this presentation is to discuss therapy for submacular hemorrhage, as well as surgical treatment options, including evolution of vitrectomy techniques, and in-office pneumatic techniques.

References:
RETINAL MANIFESTATIONS OF COVID-19

Steven Ness, MD
BOSTON MEDICAL CENTER, BOSTON, MA

Objective: To discuss potential posterior segment manifestations if COVID-19

Abstract: While multiple studies have reported ocular involvement in COVID-19 as well as the detection of SARS-CoV-2 in ocular swabs, evidence for posterior segment involvement is less robust. COVID-19 is known to involve endothelial cells in organs including the lung, heart, kidney and brain, and the ACE-2 receptor is present in multiple retinal cell types. Both the cytokine storm and coagulopathy induced by COVID infection can be postulated to effect the retina, and multiple case reports of posterior segment inflammatory and vascular disease following both COVID infection and vaccination have been published. It must be noted, however, that systemic conditions including diabetes and hypertension that are recognized risk factors for severe COVID infection may contribute to the retinal hemorrhages, cotton wool spots, and vessel caliber alterations that have been reported as potential manifestations of COVID-19 in case-control studies. Due to the current lack of high-level evidence, ophthalmologists should take caution before attributing new onset posterior segment disease to COVID infection or vaccination.

References:
**Objective:**
To review indications for in-office corneal gluing procedures
To discuss techniques for using various types of adhesives for corneal perforations and wound leaks

**Abstract:**
Corneal perforations are ophthalmic emergencies that may present in the office setting. Cyanoacrylate, hydrogel sealant, and fibrin adhesives can be used for small corneal perforations or leaking corneal wounds. In many cases, corneal adhesives are a temporizing measure until definitive repair in the operating room can be performed, but if the underlying condition is treated, corneal gluing can be sufficient to prevent need for more invasive procedures such as corneal patch grafts or corneal transplants to restore globe integrity. New technologies such as engineered bioadhesive hydrogels may be an alternative in the future to current corneal adhesives and offer potential advantages such as the ability to support tissue regeneration.

**References:**
EDTA CHELATION FOR CALCIFIC BAND KERATOPATHY

Naveen Rao, MD
LAHEY HOSPITAL & MEDICAL CENTER, BURLINGTON, MA

Objective: To provide an update on EDTA chelation for calcific band keratopathy and to introduce a recently published technique which makes this procedure significantly easier and faster.

Abstract: Calcific band keratopathy is a degenerative disorder of the cornea which leads to deposition of calcium hydroxyapatite crystals in the corneal epithelium and in Bowman’s layer. When peripheral and mild, this condition may be asymptomatic, but as the calcific material accumulates in the central cornea, it can become visually significant and can result in foreign body sensation and pain. Disodium ethylenediaminetetraacetic acid (Na2EDTA) has traditionally been used to chelate and remove this calcium hydroxyapatite material from the cornea after epithelial debridement. However, cost and availability of Na2EDTA have become significant issues in recent years. Na2EDTA must be ordered in advance from a compounding pharmacy, which can be logistically difficult in many practice settings and when the procedure must be performed in resource-limited environments. A new technique published in 2018 utilizes dipotassium EDTA, which can be easily prepared using the sterile K2EDTA spray-dried in lavender-top blood collection tubes, which are widely available and inexpensive. This talk will provide step-by-step video-based instruction to help surgeons learn how to prepare and utilize K2EDTA in the clinic and operating room settings. Please note, this technique is off-label.

References:
AMNIOTIC MEMBRANES - IN-OFFICE PROCEDURES

Laura Voicu, MD, MA
OPHTHALMIC CONSULTANTS OF BOSTON, BOSTON, MA

Objective: To discuss and review the indications and methods for use of amniotic membrane treatments in the office setting.

Abstract: Amniotic membranes, both cryopreserved and dehydrated, have become readily available for use in the ophthalmology clinic. Multiple products are available from various different vendors. Approaches to the use of amniotic membranes in the clinic varies among ophthalmologists. Reported indications include dry eye, neurotrophic ulceration of the cornea, infectious corneal ulceration, delayed healing of the ocular surface after procedures such as surface ablation, and sealing of corneal perforation, among others. This talk will review the principles behind amniotic membrane use in ophthalmology and present a summary of the available evidence for its use in various clinical applications, as well as the different products available.

References:
N/A
IMAGING OF OCULAR SURFACE TUMORS

Melina Morkin, MD
NEW ENGLAND EYE CENTER - TUFTS MEDICAL CENTER, BOSTON, MASSACHUSETTS

Objective: Identify key diagnostic findings on high-resolution optical coherence tomography that aid in the diagnosis of ocular surface tumors.

Abstract: High-resolution optical coherence tomography (HR-OCT) serves as a powerful tool for non-invasive in-clinic diagnosis of ocular surface tumors, especially in subtle cases or in the setting of coexisting ocular surface disease. Additionally, HR-OCT helps clinicians monitor medically and surgically treated lesions such as OSSN, and avoid premature termination of therapy to prevent recurrences.

References:
PHOTOTHERAPEUTIC KERATECTOMY (PTK)

Roberto Pineda, MD
MEEI, BOSTON, MA

Objective: To provide an overview of phototherapeutic keratectomy

Abstract: Phototherapeutic keratectomy (PTK) was approved by the U.S. Food and Drug Administration in 1995 for use in removing anterior corneal scars or to treat recurrent corneal erosion. The 193 nm ultraviolet light (excimer laser) separates and splits molecules in biological tissue, thereby ablating it. PTK is frequently used as a method for eliminating opacities that affect the visual acuity and can create a more regular and stable surface. PTK has proven very successful in several clinical scenarios. PTK can be considered a bridge between medical and surgical management of different corneal diseases. A corneal graft can be avoided using PTK treatment to ablate superficial opacities (typically less than 100um). In addition, regrafting can be avoided by ablating recurrent pathology in the graft by excimer laser. This talk will provide an overview of the PTK procedure including indications, technique, management, outcomes as well as complications. Lastly, by optimizing PTK utilizing refractive principles, superior optical results can be achieved as opposed to conventional PTK. Cases will be shown to demonstrate the benefit of “refractive PTK”.

References:
SUPERFICIAL KERATECTOMY: EPITHELIAL BASEMENT MEMBRANE DYSTROPHY AND SALZMANN’S NODULES

Purak Parikh, MD
NASHUA EYE ASSOCIATES, NASHUA, NH

Objective: Detail the role of superficial keratectomy for EBMD and Salzmann’s Nodules

Abstract: Epithelial Basement Membrane Dystrophy (EBMD) and Salzmann’s Nodular Degeneration are both very common conditions seen in the clinic. They are both frequent causes of foreign body sensation, irregular astigmatism, and decreased vision. Superficial keratectomy is often performed to improve these conditions if patients suffer from recurrent corneal erosions, foreign body sensation, or have a decrease in their best spectacle corrected visual acuity. Additionally, superficial keratectomy is also often performed prior to refractive surgery to achieve a more predictable and reliable refractive endpoint. This lecture will detail some of the subtleties to consider when performing superficial keratectomy for this population of patients.

References:
Objective: To define blepharitis and discuss new office-based procedures for treatment

Abstract: Blepharitis is an inflammatory condition of the eyelid margins that affects an estimated 20 million people in the US. It is recognized as a contributing factor to dry eye and other ocular surface diseases. Current medical treatments, including hot compresses, eyelid scrubs, hypochlorous acid sprays, and topical and oral antibiotics, are often limited in efficacy and result in poor patient compliance. Newer office-based treatments are available that offer significant benefit for relief of symptoms and improvement in meibomian gland health and eyelid appearance. This is accompanied by an overall reduction in inflammation of the ocular surface. I will discuss the most popular procedures available today and detail the benefits and barriers to adopting these modalities for an office-based practice.

References:
TOOLS FOR DIAGNOSING AND TREATING ENDOTHELIAL DYSFUNCTION

Hyunjoo Lee, MD/PHD
BOSTON UNIVERSITY, BOSTON, MA

Objective: To improve understanding of how various imaging tools can be used in the diagnosis and management of diseases of endothelial dysfunction.

Abstract: Corneal endothelial cell dysfunction can result from corneal dystrophies or from damage due to direct trauma, intraocular surgery, inflammation, or toxic insults. The resulting corneal edema leads to decreased vision, and in the case of Fuchs’ Endothelial Corneal Dystrophy, the formation of guttae can also cause glare symptoms and worsening of vision. Advanced cases of corneal edema are easily recognized at the slit lamp, but imaging tools can be useful in the detection of early corneal edema, and for the differential diagnosis of corneal endothelial cell dysfunction. Historically, central corneal thickness measurements and endothelial cell density were promoted as a means of predicting the need for corneal transplantation after cataract surgery. However, given differences in baseline central corneal thickness between individuals and populations, and local differences in endothelial cell density in the presence of guttae, these variables are likely not as predictive as some studies may suggest. Recently, Scheimpflug tomography has been shown to detect changes in corneal shape that are associated with early corneal edema and the risk of needing corneal transplantation after cataract surgery. Anterior segment optical coherence tomography (AS-OCT) is particularly useful for detecting Descemet membrane detachments and endothelial keratoplasty graft position, and is a valuable tool for confirming successful re-attachment of the Descemet membrane or Descemet Stripping Automated Endothelial Keratoplasty (DSAFEK) and Descemet Membrane Endothelial Keratoplasty (DMEK) grafts. With the advent of intra-operative OCT surgeons can also ensure full adherence of endothelial keratoplasty grafts before the end of a case, and confirm the correct orientation of DMEK grafts, which could be particularly advantageous during challenging cases with poor visibility.

References:
Objective: To review the utility of dry eye diagnostic testing

Abstract: This presentation will discuss the practical benefits of incorporating meibography, tear film osmolarity, and matrix metalloproteinase 9 testing into clinical practice. These tools can be used to quantify the severity of dry eye disease, a disorder when the symptoms and exam findings often do not correlate. These tools can also be used for patient education and monitoring of response to treatment.

References:
OPTICAL BIOPSIES: OCT IN THE EVALUATION OF OCULAR SURFACE SQUAMOUS NEOPLASIA

Jeremy Kieval, M.D.
LEXINGTON EYE ASSOCIATES, LEXINGTON, MA

Objective: To understand the diagnostic utility of anterior segment optical coherence tomography as a means of evaluating ocular surface squamous neoplasia.

Abstract: Ocular surface squamous neoplasia (OSSN) is the most common type of malignant ocular surface lesions. The characteristic appearance of a gelatinous or leukoplakic lesion with feeder vessels makes diagnosis by clinical exam relatively straightforward. However, many lesions may have more subtle features complicating the diagnostic considerations of a benign versus malignant ocular surface lesion. Incisional or excisional biopsy with cryotherapy may be necessary in such cases to obtain a pathological diagnosis, carrying the risk of conjunctival scarring or limbal stem cell deficiency. The introduction of anterior segment optical coherence tomography (AS-OCT) has enabled assessment of the conjunctiva and cornea with high axial resolution of tissue planes. Several recent studies have demonstrated the diagnostic capabilities of AS-OCT in evaluation of OSSN with high correlation of optical images to histopathologic specimens. The use of OCT has also been studied in other applications outside of ophthalmology as a means of providing an in vivo diagnosis of carcinomas. Although histopathologic analysis remains the gold standard for diagnosis for ocular surface lesions, the application of AS-OCT as a diagnostic tool can potentially enable a non-invasive, optical biopsy for OSSN.

References:
INTRAOPERATIVE MANAGEMENT OF CORNEAL ASTIGMATISM

JOANN CHANG, MD
D’AMBROSIO EYECARE, LANCASTER, MASSACHUSETTS

Objective: Review options for managing astigmatism in conjunction with intraocular surgery

Abstract: With increasing patient expectations, refractive outcomes after cataract surgery have become a critical factor in the successful treatment of patients with cataracts. Cataract surgeons need to be familiar with the correction of astigmatism. There are several options available for intraoperative treatment of astigmatism at the time of cataract surgery. Corneal astigmatic incisions (CAI), including limbal relaxing incisions (LRI) and astigmatic keratotomy (AK) are used to correct low levels of astigmatism. CAI’s can either be performed with a blade or with a femtosecond laser. Toric intraocular lens is an excellent option for correction of lower and higher levels of astigmatism. Other technology such as intraoperative aberrometry, VERION image guided system (Alcon), or CALLISTO eye markerless system (Carl Zeiss Meditec) will also be reviewed.

References:
CONFOCAL IMAGING IN INFECTIOUS KERATITIS

Pedram Hamrah, MD
TUFTS, BOSTON, MA

Objective: To discuss the role of in vivo confocal microscopy in the management of infectious keratitis

Abstract: In vivo confocal microscopy (IVCM) is an emerging technology that provides minimally invasive, high resolution, assessment of the ocular surface at the cellular level. Several challenges still remain but, at present, IVCM may be considered a promising technique for clinical diagnosis and management of infectious keratitis that will be reviewed in this presentation. Delayed diagnosis of Acanthamoeba and fungal keratitis is typical, resulting in significant vision loss. This is partially due to the low sensitivity and time delay of corneal cultures. IVCM allows prompt diagnosis, disease course follow-up, and management of potentially blinding atypical forms of infectious processes, such as Acanthamoeba and fungal keratitis, among others. IVCM is emerging as a tool for rapid diagnoses in severe infectious keratitis with high sensitivity. In addition, it can be used to monitor treatment response, allowing guidance to clinicians for medical or surgical management.

References:
N/A
ANTERIOR SEGMENT IMAGING IN CORNEAL ECTASIA

Narae Ko, MD

NEW ENGLAND EYE CENTER, BOSTON, MA- MASSACHUSETTS

**Objective**: Understand the basic concepts of elevation-based scheimpflug topography and corneal epithelium mapping and their clinical applications

**Abstract**: Elevation-based Scheimpflug topography is an important diagnostic tool in managing corneal ectasia and screening laser refractive candidates. Additional features, such as Belin ABCD Classification in Topometric/Keratoconus Display, and Beiln Ambrosio Enhanced Ectasia Display Cornea, can provide helpful analysis in assessing keratoconus progression and subclinical keratoconus. Epithelial imaging has allowed significant improvements in our understanding of corneal remodeling. It is becoming increasingly useful in the diagnosis of subclinical keratoconus and assessing refractive surgery candidates.

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<td>Alison Callahan, MD</td>
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<td>PM – Ethics</td>
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Accent Eyewear
James Bernson
Dr. Charles Beyer-Machule
Philip Cacciatore
Eye Health Services
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Dr. Ernest Kornmehl
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Dr. Stephen Poor, III
Eileen Rafferty
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Dr. Ann Stromberg
Elizabeth Sullivan
Andrienne Tashjian
The Rivers School

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Dr. Andrew Gillies
In memory of Dr. Moshe Lahav
Dr. Timber Gorman
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Dr. Amy Gregory
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Dr. Michelle Liang
Dr. Clifford Michaelson
In memory of Dr. Behrooz Koleini
Dr. Lawrence Piazza
Dr. Theodore Renna
Molly-Jane Isaacson Rubinger
In honor of Trexler Topping
Dr. Donna Siracuse-Lee
Alice Sarno
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Dr. Domenic M. Strazzulla
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In Memory of Dr. Peter Gudas:
Naomi Litrowinik
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Needham Psychotherapy Associates
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James and Jean Twyning
Jacqueline Pepper
Jeannie Smith
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Dr. David Corbit
Dr. Paul Cotran
In memory of Dr. Mariana Mead
Dr. Peter Donshik
Dr. Stuart Fay
In honor of Dr. Michael Bradbury and
Dr. Tuck
Melvyn and Eleanor Galin Foundation