



Advanced Dry Eye Disease: New Levels, New Devils

Dr. Anne Zaki

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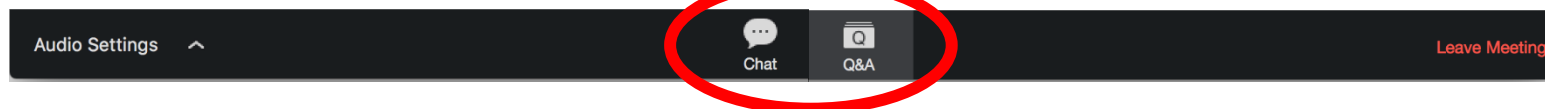
WELCOME!



Host: Dr. Stephanie Woo

Thank you to Bausch & Lomb,
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- For a 1-hour webinar attendees must be online for a minimum of 50 minutes
- For a COPE certificate, please fill out the survey link in the chat. Also, the survey link will appear when the webinar ends.
- CE certificates will be delivered by email and sent to ARBO with OE tracker numbers
- **CE certificates will be emailed within 4 weeks**
- Ask questions using the zoom on-screen floating panel





The image shows a Zoom meeting interface with two blue arrows pointing to specific elements. The top arrow points to the 'Leave' button in the top right corner. The bottom arrow points to the 'Share Content' button in the bottom toolbar.

Zoom Meeting Controls:

- Zoom (with shield icon)
- Q&A
- Leave
- REC

Opportunity to Partner

Optometrists are at the frontline to recommend treatment for cataract and glaucoma patients.

Established relationships with patients

- Ability to inform patients of the best technologies available
- Needs, wants, expectations, and lifestyle

Reduce patient and physician burden

- Cost/pharmacy visits and prior authorizations
- Ocular surface disease and potential effects on visual acuity

Ability to impact patients' post-operative lifestyle

- ONE TIME opportunity during cataract surgery to address a patient's cataract, refractive needs (astigmatism and presbyopia) as well as their glaucoma

Zoom Meeting Bottom Bar:

- Join Audio
- Start Video
- Share Content
- Participants
- More

Speaker Bio

Dr. Anne Zaki is a board certified, fellowship trained Eye Physician and Surgeon who specializes in Cornea, Cataract and Ocular Surface Disease. She is well versed in Laser Assisted Cataract Surgery, advanced technology lens implants, presbyopia correcting lens implants and the Light Adjustable Lens. She routinely handles complex surgical cases.

Dr. Zaki received her medical degree from the George Washington University School of Medicine in Washington, D.C. She completed her internship at Saint Elizabeth's Medical Center in Brighton, Mass., and her residency at Boston University Medical Center. Dr. Zaki then completed an ophthalmology fellowship at the Baylor College of Medicine in Houston.

She is currently the President of the Phoenix Ophthalmological Society and an Assistant Clinical Professor of Ophthalmology at the University of Arizona, Phoenix campus.

Dr. Zaki routinely speaks to other eye care providers on various topics across the United States.

Dr. Zaki is a Partner at Desert Eye Specialists in Arizona.



Financial Disclosures

Consultant and speaker for Allergan
Consultant and speaker for Kala
Consultant and speaker for
Speaker for Sun pharmacies

***Advanced
Dry Eye:
New Levels,
New Devils***

Anne M. Zaki, MD

Partner, Desert Eye Specialists

Asst Clinical Professor of Ophthalmology, U of A, Phoenix



ROAD MAP



THE EXAM

THERAPIES & TREATMENTS

CASE STUDIES

WHAT TO DO

**Your patient is
already on
various artificial
tears and gels.**

**They don't feel
better and
appear clinically
worse.**

WHAT NEXT??

THERE ARE SO MANY OPTIONS

**Punctal Plugs:
Temporary, Semi-
Permanent,
Permanent**

**Artificial Tears, Gels
and other Lubricants**

Where do we begin?

**Lid Hygiene and
Heated Lid Treatments**

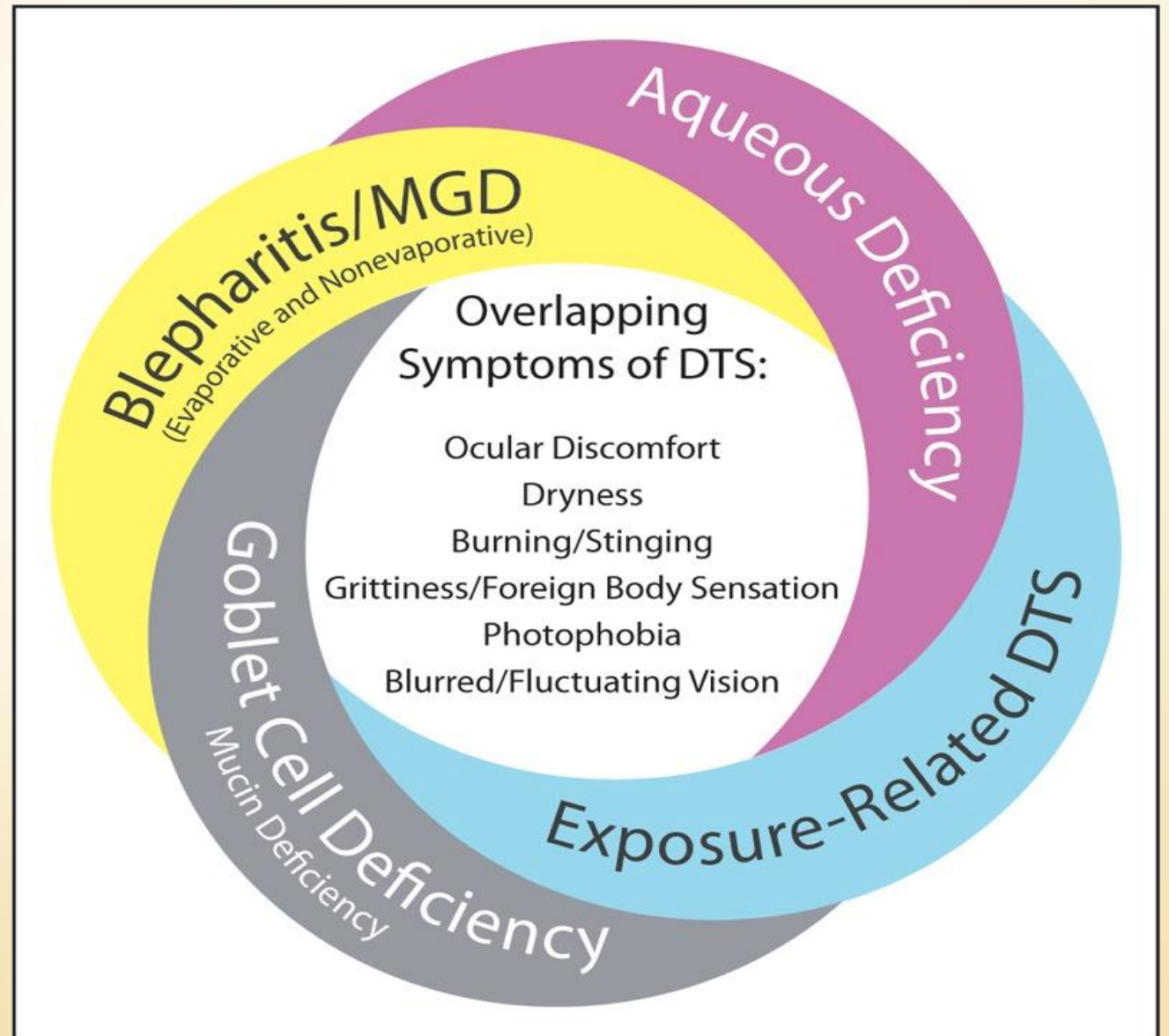
**Compounded Topical
and Oral Medications**

**Amniotic
Membranes**

**Steroids and other
anti-inflammatories**



OSD IS OFTEN MULTIFACTORIAL



OSD IS OFTEN MULTIFACTORIAL

Need Systematic Approach

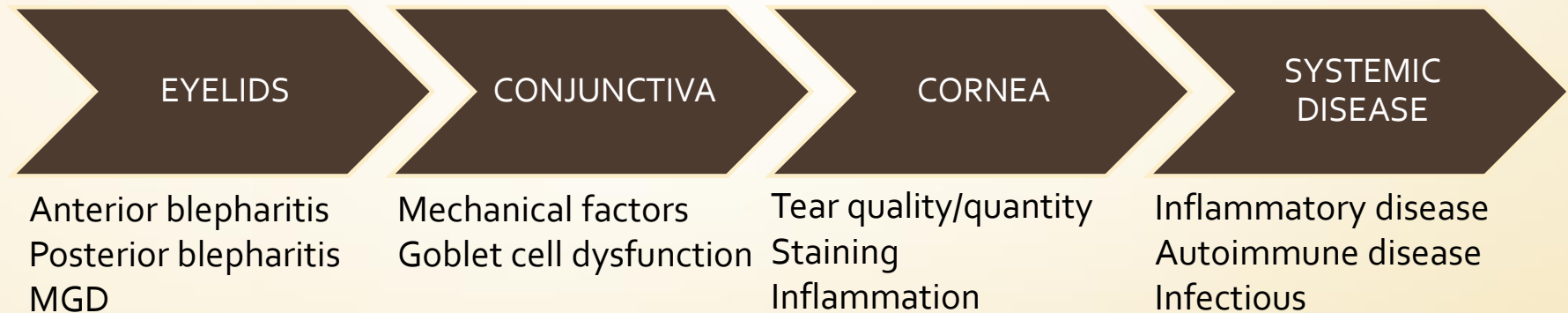
Look from the OUTSIDE to INSIDE:

Face/Lids

Conjunctiva / Cornea

Systemic Disease

APPROACH THE EYE SYSTEMATICALLY





LIDS

A stylized graphic of a human eye in shades of yellow and gold, positioned on the left side of the slide. The eye is partially obscured by a dark grey and orange geometric shape that frames the text area.

EYELID EVALUATION - POSITION

Lagophthalmos, Nocturnal Lagophthalmos

Ectropion

Entropion

Lower Lid Laxity and Retraction

Floppy Eyelid Syndrome

Mechanical Causes for Malposition

ALL OF THESE CAN RESULT IN EXPOSURE RELATED
OCULAR SURFACE DISEASE

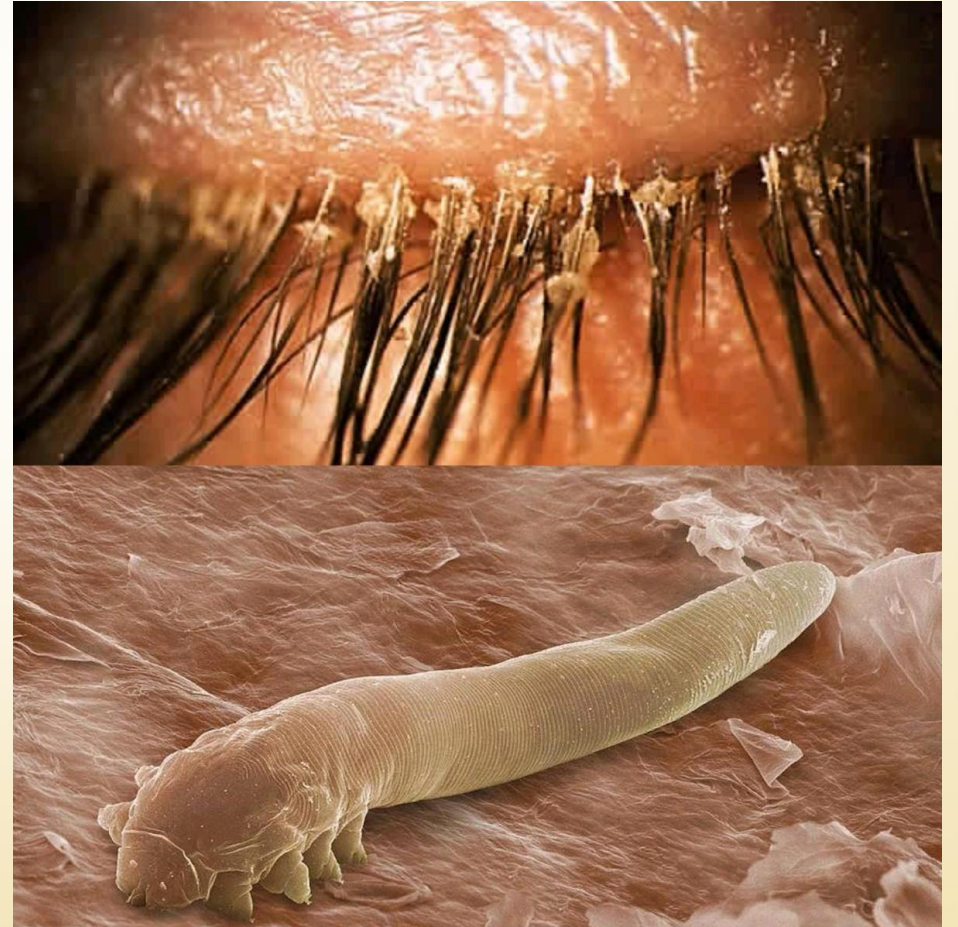
ANTERIOR BLEPHARITIS

- CLINICAL FINDINGS
 - Lid Margin Erythema
 - Scurf
 - Collarettes
 - Cylindrical Sleeves at Base of Lashes (Demodex)



TREATMENT FOR ANTERIOR BLEPHARITIS

- Treat the Root Causes
 - Infectious
 - Hypochlorous acid
 - Antibacterial Therapy
 - Antibiotic/Steroid Combo
 - Antiviral Therapy
 - Tea Tree Oil
 - Atopic/Allergic
 - Steroid Cream
 - Topical Tacrolimus



POSTERIOR BLEPHARITIS

- Often more chronic
- Meibomian Gland Disease
- Don't overlook the big picture
 - Look at the face (Rosacea)
- Carefully evaluate lid margin irregularities
 - Thickening, thinning, telangectasia, inspissation of glands, gland position, appearance and position of the puncta
 - Mechanical factors
 - Tattoo liners
 - Poor makeup removal



POSTERIOR BLEPHARITIS

Diagnose and assess status of glands

Meibography

Express glands manually

Look at quality of meibum



BLEPHARITIS TREATMENT OPTIONS

Superficial lid cleansers

Warm compresses:
Bruder Mask, Plug in
heated masks

Massage, Blinking
Exercises

Nutritional Supplements

Topical Treatments:
Artificial Tears, Steroids,
Steroid/antibiotic
combo

Cyclosporine,
Lifitegrast, topical
Azithromycin

Oral Medication:
Doxycycline,
Minocycline,
Tetracycline

IN OFFICE TREATMENTS



THERMOCOMPRESSSION

**DEBRIDEMENT OF
EYELID MARGIN**

GLAND EXPRESSION



GLAND PROBING

FRACTIONAL LASER

IPL

INNOVATIVE BLEPHARITIS TREATMENTS

METRONIDAZOLE

-Ophthalmic Ointment
0.375 – 0.75% QHS
-Drops 0.5% QHS to BID

DOXYCYCLINE DROPS
0.025% or 0.1% BID

CLINDAMYCIN
OINTMENT 1.0%

TETRACYCLINE
OINTMENT 1.0%

TOPICAL ANDROGEN
THERAPY – DHEA
DROPS

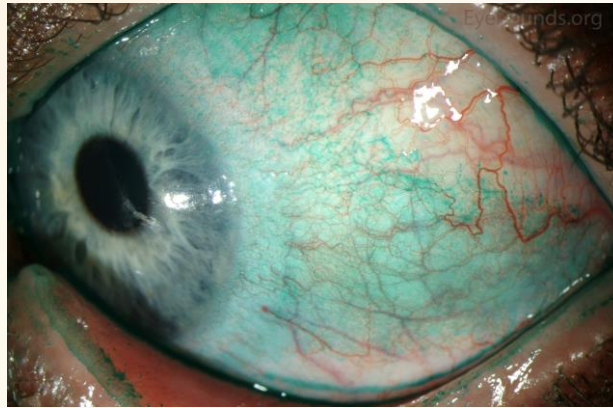
SPIRONOLACTONE
DROPS – 0.005 mg/cc

DAPSONE DROPS
0.25%



CONJUNCTIVA

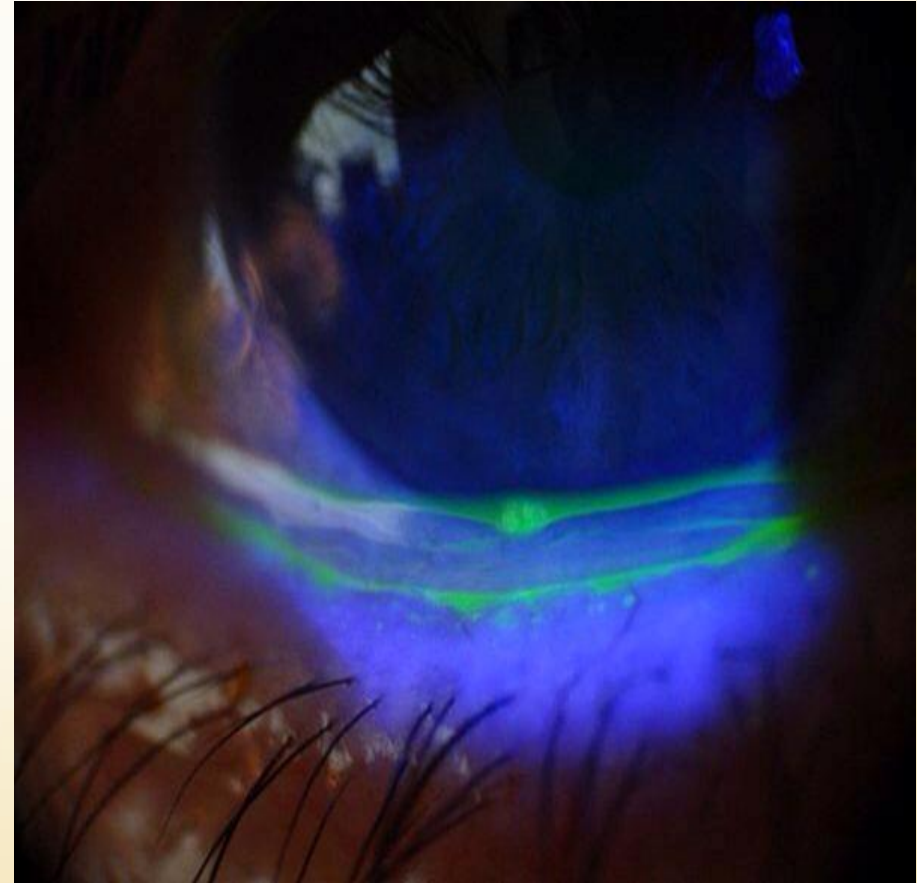
CONJUNCTIVA



- Best evaluated with Lissamine Green
- Goblet Cell Functionality
 - The more the stain?
 - The fewer the goblet cells, cells may have lost their mucous coating
 - Cyclosporine A can increase goblet cell density
 - Vitamin A ointment QHS

CONJUNCTIVA

- Assess for mechanical dry eye!
- Conjunctivochalasis
 - Alters tear distribution which can lead to worsening MGD
- Treatment Options
 - Topical Anti-inflammatory therapy
 - Conjunctival Cauterization
 - Surgical removal
 - Paste and Snip
 - Reconstruction with Amniotic Membrane



CONJUNCTIVAL WATCH OUTS

ETIOLOGY

MANAGEMENT

Allergic/ AKC

Needs
assessment
and treatment

Pterygium

ATs, UV
Protection,
Excision

Superior Limbic
Keratoconjunctivitis

Treat topically with
anti-inflammatory
drops, BLC, and/or
thermocautery

Ocular
Cicatricial
Pemphigoid

Complex – refer out for
biopsy, management
and systemic
treatment... This is a
blinding disease!!!



CORNEA

CORNEA

**NOTHING IS
MORE
IMPORTANT
THAN YOUR SLE**

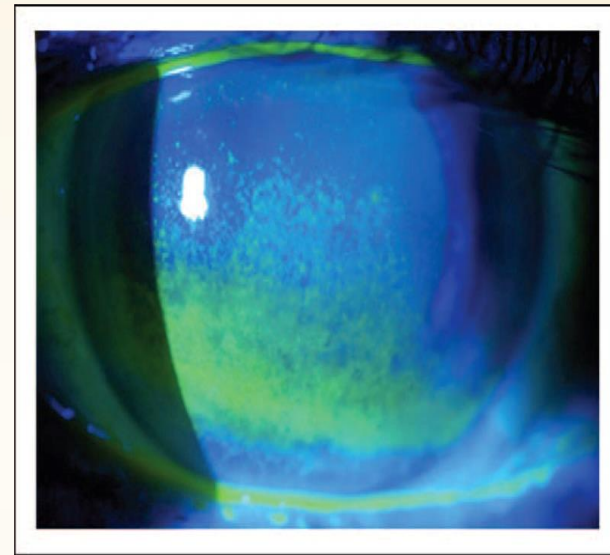


Image courtesy of
Karl Stonecipher, MD.

**Look at the stain
pattern**

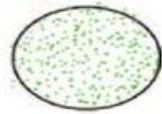
**Can use
Fluorescein,
Lissamine Green
or Rose Bengal**

**Any obvious surface
abnormality?**

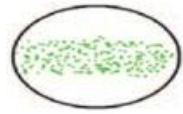
**Amount and location of
stain**

**Tear film quantity and
quality (TBUT)**

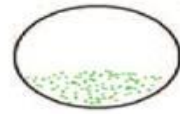
CORNEA



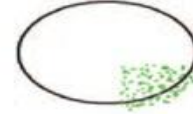
Severe
keratoconjunctivitis sicca
 Severe blepharitis
 Chemical injury
 Severe medication toxicity
 Contact lens-related keratitis due to hypoxia, solution toxicity (i.e., H₂O₂), and cracked contact lens
 Infectious keratitis
 Neurotrophic keratitis
 Ultraviolet exposure keratitis/arc welding keratitis
 Trichiasis
 Filamentary keratitis
 Conjunctival concretions



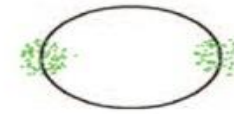
Moderate
keratoconjunctivitis sicca
 Blepharitis
 Chemical injury (hairspray keratopathy)
 Ultraviolet exposure keratitis/arc welding keratitis
 Medication toxicity
 Contact lens-related keratitis
 Infectious keratitis
 Thyroid eye disease/exposure keratopathy
 Neurotrophic keratitis
 Trichiasis



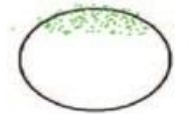
Blepharitis
Exposure keratopathy (thyroid eye disease, lagophthalmos, inferior lid lagophthalmos, scleral show, ectropion, partial or incomplete blink, and conjunctivochalasis)
 Keratoconjunctivitis sicca (less likely, but possible)
 Chemical injury
 Entropion
 Trichiasis
 Medication toxicity
 Infectious keratitis



(right eye)
Medication toxicity
 Keratoconjunctivitis sicca (less likely, but possible)
 Blepharitis
 Entropion
 Trichiasis
 Infectious keratitis
 Exposure keratopathy (thyroid eye disease, lagophthalmos, inferior lid lagophthalmos/scleral show, ectropion, and partial or incomplete blink)



Contact lens-related keratitis (especially likely in a rigid gas permeable contact lens wearer)
 Keratoconjunctivitis sicca
 Blepharitis
 Chemical injury (hairspray toxicity)
 Ultraviolet exposure keratitis/arc welding keratitis
 Medication toxicity
 Infectious keratitis
 Exposure keratopathy (thyroid eye disease, trichiasis, pterygium, pinguecula, and band keratopathy)



Superior limbic keratitis
Foreign body under lid
 Blepharitis
 Floppy lid syndrome
 Conjunctival concretions
 Vernal keratoconjunctivitis
 Infectious keratitis
 Superior entropion
 Atopic keratoconjunctivitis
 Trichiasis

^aConditions listed in bold are considered more likely and/or high on the differential list.

^bCharacteristic corneal staining patterns indicative of particular conditions affecting the ocular surface may be observed following application of fluorescein dye.

CORNEA

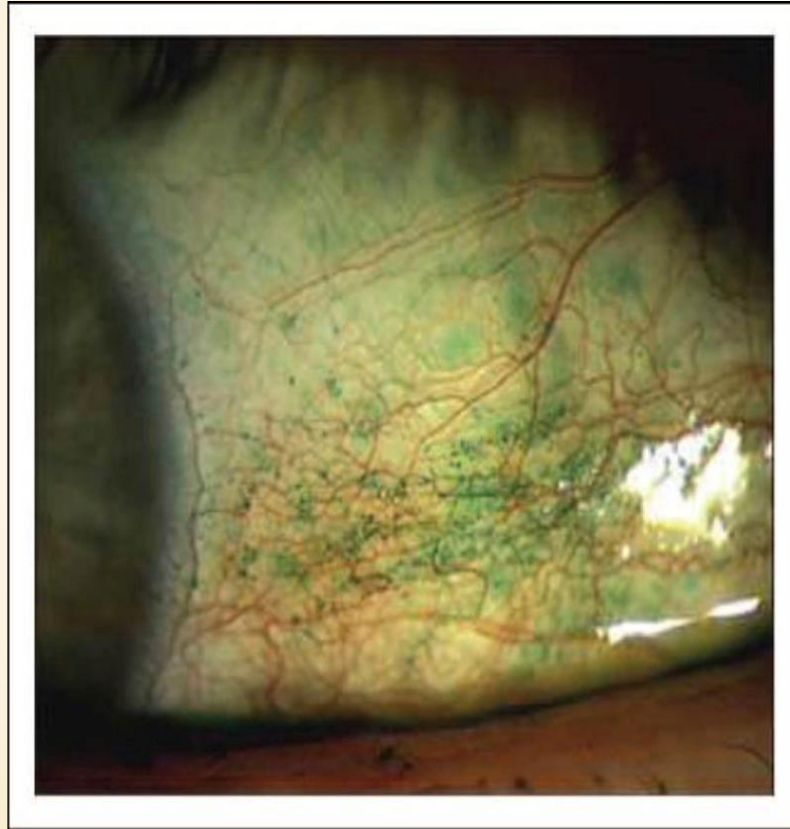
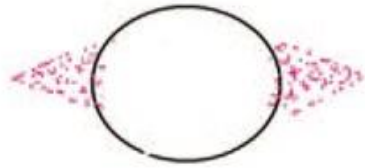


Image courtesy of Elizabeth Yeu, MD.

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CORNEA



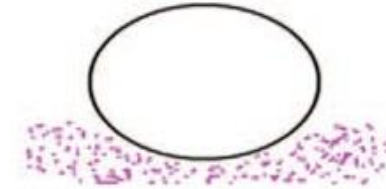
Mild presentation of:
Keratoconjunctivitis sicca (classic pattern)
 Blepharitis
 Chemical injury
 (hairspray keratopathy)
 Ultraviolet exposure
 keratitis/arc welding
 keratitis
 Medication toxicity



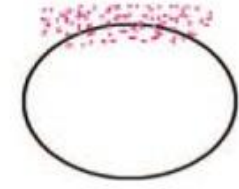
Moderate presentation of:
Keratoconjunctivitis sicca (classic pattern)
 Blepharitis
 Chemical injury
 (hairspray keratopathy)
 Ultraviolet exposure
 keratitis/arc
 welding keratitis
 Medication toxicity



Severe presentation with
 filaments (noted in green)
 of:
Keratoconjunctivitis sicca (classic pattern)
 Blepharitis
 Chemical injury (hairspray
 keratopathy)
 Ultraviolet exposure
 keratitis/arc welding
 keratitis
 Medication toxicity



Mucus fishing syndrome
 Chemical injury
 Medication toxicity
 Inferior ectropion
 Entropion
 Trichiasis
 Conjunctivochalasis



Superior limbic keratoconjunctivitis
 Foreign body under lid
 Atopic
 keratoconjunctivitis
 Floppy lid syndrome
 Conjunctival concretions
 Vernal
 keratoconjunctivitis
 Infectious keratitis
 Superior entropion

^aConditions listed in bold are considered more likely and/or high on the differential list.

^bCharacteristic conjunctival staining patterns indicative of particular conditions affecting the ocular surface may be observed following application of lissamine green or rose bengal dye.

CORNEA

WHAT ELSE MAY BE CAUSING FOREIGN BODY SENSATION?

Look for other subtle or obvious cases for foreign body sensation

Nodular Degeneration



Epithelial Basement Membrane Dystrophy

Pterygium



Address the pathology and remove it!!!

INFLAMMATION UNDER CONTROL - NO OBVIOUS PATHOLOGY, NOW WHAT?

PUNCTAL PLUGS

- Temporary
- Semi-permanent
- Permanent w/ punctal cautery

OINTMENTS AT NIGHT

- Hylo night – Vitamin A
- Commercial preps

AMNIOTIC MEMBRANE

- Freeze dried and cryopreserved
- Good adjunct therapy, but effects may be temporary
- Filamentary keratitis
- Surgical anterior surface reconstruction with sutured AMT

MOISTURE GOGGLES

- 7eye by Panoptix glasses in optical
- Need to be fitted

BANDAGE AND SCLERAL LENSES

- Therapeutic value with potential for visual improvement

NASAL STIMULANT FOR TEAR PRODUCTION

INFLAMMATION UNDER CONTROL - NO OBVIOUS PATHOLOGY, NOW WHAT?

SERUM TEARS

- Various concentrations
- Partner w/ local lab or compounding pharmacy
- VitalTears

PROTEIN RICH PLASMA

- Partner w/ a lab (not as readily available)

REGENEREYES DROPS

- Commercially available
- 2 Types – Regular and Lite

SERUM ALBUMIN

- Alternative to serum tears
- Compounded 5%

TARSORRHAPHY

Permanent way to decrease exposure if severe and patient is agreeable

WHAT TO DO WITH A FLARE

Low Dose Steroid Therapy for Longer Term

- Eysuvis, FML
- Monitor closely to ensure no IOP spike or abuse
- Some patients just need more

Compounded PF Formulations

- Low dose Dexamethasone
- Topical medroxyprogesterone 1.0%

Amniotic Membranes

- Anti-inflammatory component
- Effect may be temporary
- Can help in a flare



DON'T MISS THESE!

BE CAREFUL OF THE MASQUERADERS

- MEDICAMENTOSA
 - Topical toxicity from drops
 - Too much preservatives
 - > 4-5x per day
 - Multiple glaucoma meds
- NEUROTROPHIC KERATITIS
 - Check corneal sensitivity
 - 3 stages → important to catch at Stage 1
 - Be suspicious with other risk factors
 - Longstanding DM
 - Multiple ocular surgeries
 - Post refractive
 - Treatment
 - Oxervate recombinant nerve growth factor
 - Treatment course 8 weeks
 - 6X a day
 - Corneal neuronitization
 - Surgical
 - Variable outcomes

BE CAREFUL OF THE MASQUERADERS

- LIMBAL STEM CELL DEFICIENCY/DYSFUNCTION
 - Unique appearance – epitheliopathy
 - Look at the limbus and stain pattern
 - Whorl-like
 - General
 - Sectoral
 - Patient types
 - Long term CL wearers
 - Non-healing epi defects
 - Multiple eye surgeries
 - Glaucoma with anti-metabolites
- SYSTEMIC AUTOIMMUNE DISEASE
 - Undiagnosed or undertreated
 - Partner with Rheumatologist or PCP
 - Systemic biologics/anti-inflammatory therapy
 - Systemic secretagogues



CASE STUDIES

CASE 1

PATIENT PRESENTS WITH:

Right-sided Bell's palsy

Choroidal melanoma s/p proton beam therapy

And now, cataract

TREATMENT
PLAN

OXERVATE
(CENEGERMIN)

SERUM TEARS

CYCLOSPORINE

STEROIDS

PUNCTAL
OCCLUSION

CRYOPRESERVED
AMT FOR
MEASUREMENTS

POST-SURGICAL
SCLERAL CL'S

OUTCOME

VA 20/25 AFTER
SURGERY

CASE 2: STAGE 3 NK

PATIENT PRESENTS WITH:

Ulcerative Colitis in flare

Bilateral Stage 3 NK

Spontaneous Perforation

Patient was last seen 2 weeks prior with NO e/o problems

TREATMENT
PLAN

SYSTEMIC WITH
RHEUMATOLOGY:
ORAL
PREDNISOLONE,
SYSTEM BIOLOGICS

CYCLOSPORINE

GLUE

BCL

SERUM TEARS

PUNCTAL CAUTERY

WHEN QUIET....
HAD PKP

OUTCOME

WHEN QUIET....
HAD PKP

CASE 3: SLK

PATIENT PRESENTS WITH:

Chronic discomfort

FBS under both eyelids

Unable to tolerate light and severe pain

TREATMENT
PLAN

TOPICAL STEROIDS

CYCLOSPORINE

PUNCTAL PLUGS

CONJUNCTIVAL
CAUTERY



Thank You!



[Linkedin.com/in/AnneZakiMD](https://www.linkedin.com/in/AnneZakiMD)





Thank you! Please join us for our Woos Who in Glaucoma Event Series



Date: March 9, 2022 | Time: 5:30pm - 6:30 pm PST

Date: March 9, 2022

Time: 5:30 PM – 6:30 PM Pacific Time

Speaker: Dr. Elizabeth Muckley

Topic: The Nuts and Bolts of Interpreting the Visual Field in Glaucoma: What Do I Really Need to Know

COPE: One hour live CE



Date: March 16, 2022
Time: 5:30pm -6:30 pm PST

Date: March 16, 2022

Time: 5:30 PM – 6:30 PM Pacific Time

Speaker: Dr. Justin Schweitzer

Topic: Innovations in Glaucoma Drug Delivery: What the Future Holds

COPE: One hour live CE

Visit WooU.org for a full list of upcoming CE events!



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