

WHEN IT'S NOT DRY EYE..

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Disclosures

- Alcon-Consultant, Speaker
- Allergan-Consultant, Speaker
- Bausch & Lomb-Consultant, Speaker
- Dompe-Consultant
- Tarsus-Consultant
- Ocuphire-Consultant
- Oyster Point Pharma-Consultant
- Eyeovia-Consultant
- Orasis-Consultant



TO THE POINT
AN Ocular SURVIVAL ORBENSE PODCAST



Dry Eye

- Impacts 49 million Americans (>15% of the population)
- Google trends for “dry eye syndrome” have doubled between since December 2010
- In 2020: \$5 Million USD to products to relieve dry eye
- More public & ECP awareness
- “Hot Ticket” category for Research & Development
- Growing Market
- Nonspecific Signs & Symptoms



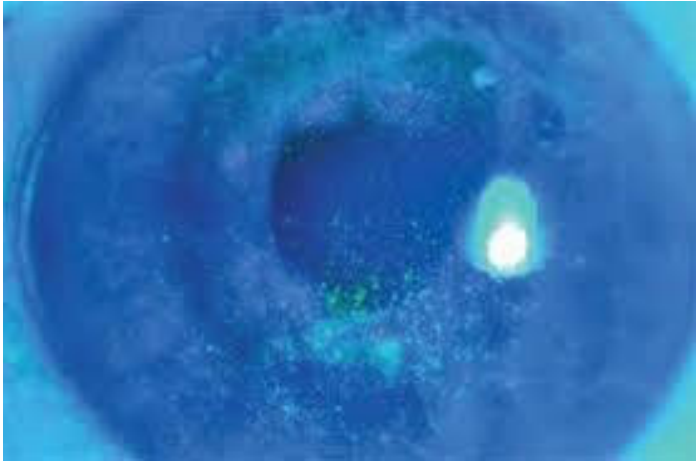
...but what if it
isn't always
“dry eye”?

Case # 1

- 89 yo Female referred to Dry Eye Clinic
- Frustrated with her eyes, “has tried everything” and still has unstable vision & discomfort
- (+)irritation, blurry vision
- Denies watering, burning, redness
- SPEED: 4/28
- BCVA 20/40 OD, 20/80 OS
- Previous Treatments: Blephex, IPL X 4, Tear Care, Restasis, Xiidra, various topical steroids, Bruder mask, various Artificial Tears, eye lid scrubs/wipes/foams, various eye ointments
- Doesn't wear makeup, uses Cetaphil face wash
- Denies h/x of injectables in face/eye

Case #1

- History of HTN and depression
- History of cataract surgery
- Medication for HTN & depression
- No allergies
- Fhx: unremarkable
- Exam :
 - PERRLA
 - EOM Smooth & Full, (-)pain, (-)diplopia
 - VF-FTFC
 - Goldmann applanation: 17mmHg OD, 17mmHG OS



What would you do?

Corneal Sensitivity

Reduced or Absent

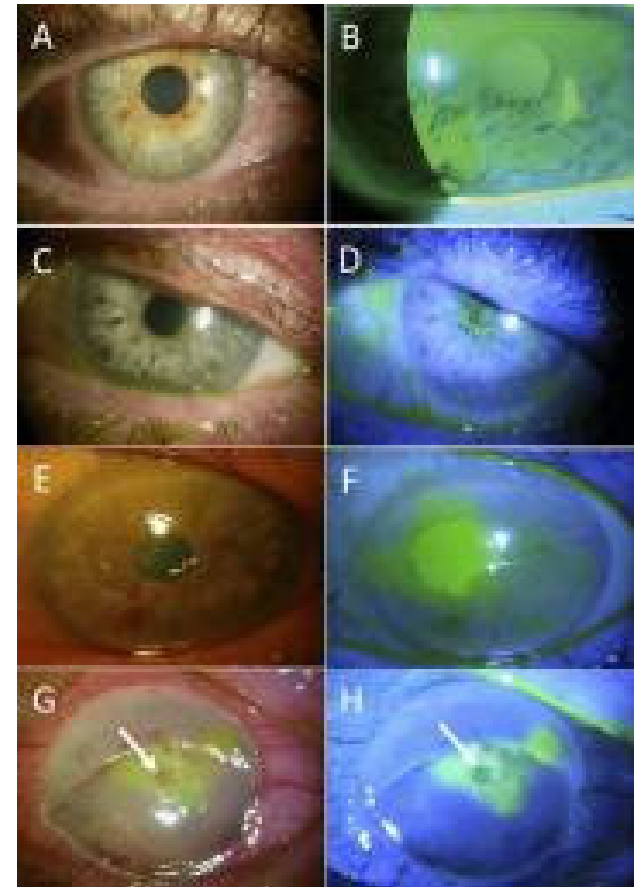


Neurotrophic Keratitis (NK)

- “Stain without Pain” → significant discrepancy between clinical findings & symptoms
- Degenerative corneal condition due to reduced neural innervation
- Risk Factors: infection, injury, or inflammation → trauma, tumors, inflammatory lesions, herpetic infections, chronic corneal exposure, surgical, damage to trigeminal nerve
- Disease progression often unnoticed by the patient

Neurotrophic Keratitis Stages

- Stages I – III
 - Stage 1=general epithelial alterations (A & B)
 - Stage 2=persistent epithelial defects (C & D)
 - Stage 3=corneal ulceration (E & F)
 - Perforation (G & H)




NK Treatment Options

- Amniotic Membranes
- Topical Insulin (1UL/ml)
- Cenergemin-bkby (0.02%)- Oxervate
- Matrix Therapy Agent
- Surgical Management

Case #1

- Corneal Sensitivity: absent in every quadrant & centrally both eyes
- Treatment: Oxervate
- Overview of Office Process

 | CONNECT to *Care*

OXERVATE® PATIENT ENROLLMENT FORM

INSTRUCTIONS:

- Complete all pages of this form for each new prescription. Please print.
- Please fax completed form to Dompé CONNECT to Care at 1-888-383-1778, phone 1-877-432-4412.
- Please provide copies of front and back of all insurance cards.

PATIENT INFORMATION

Name (Last, First, Middle Initial): _____ Date of Birth: _____

Address: _____ City: _____ State: _____ ZIP: _____

Preferred Phone: _____ Alternative Phone: _____ Best Time to Call: Day Evening

Patient Email: _____ Preferred Language: _____

SSN (last 4 digits): _____ Gender: Male Female

Caregiver Contact Name: _____ Caregiver Contact Phone Number: _____

Okay to leave message with alternate caregiver/contact? Yes No

TREATMENT INFORMATION/PRESCRIPTION (physician to fill out)

Treated Eye (select one): Left Right Both eyes

Stage- Left Eye (select one): Mild (Stage 1) Moderate (Stage 2) Severe (Stage 3)

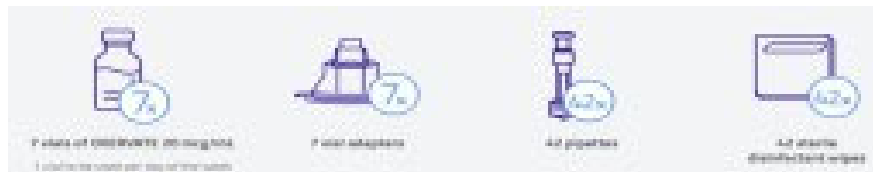
Stage- Right Eye (select one): Mild (Stage 1) Moderate (Stage 2) Severe (Stage 3)

Check all ICD-10 codes that apply to the treated eye(s):

ICD-10 Codes- Check all that apply	Central corneal ulcer	Unspecified corneal ulcer	Neurotrophic Keratoconjunctivitis	Anesthesia and hypoaesthesia of cornea	Other
Right eye	<input type="checkbox"/> H16.011	<input type="checkbox"/> H16.001	<input type="checkbox"/> H16.231	<input type="checkbox"/> H16.811	<input type="checkbox"/>
Left eye	<input type="checkbox"/> H16.012	<input type="checkbox"/> H16.002	<input type="checkbox"/> H16.232	<input type="checkbox"/> H16.812	<input type="checkbox"/>

Oxervate (cenegermin-bkbj)

- FDA approved in 2018
- cenegermin-bkbj is structurally identical to human Nerve Growth Factor protein made in ocular tissue
- It is a recombinant nerve growth factor (protein) → this protein activates receptors that allow for differentiation & maintenance of neurons that support the innervation of the cornea
- Dosing: 6Xday (2hr Intervals) for 8 weeks
- Apply 1st if using ung/gel after
- Wait 15minutes CL insertion
- Can do another round if needed



Case # 1

- Before:
 - SPEED 4/28
 - BCVA 20/40 OD, 20/80 OS
- AFTER
 - Speed: 0/28
 - BCVA 20/25 OD & OS

**Sometimes patients can feel “worse” if treatment works

Clinical Pearl → Corneal Sensitivity

- Always test Corneal Sensitivity for “dry eye” patients
- If reduced or absent, assume NK
- May need multiple “rounds” of treatment
- Beware of “stain without pain”

Case #2

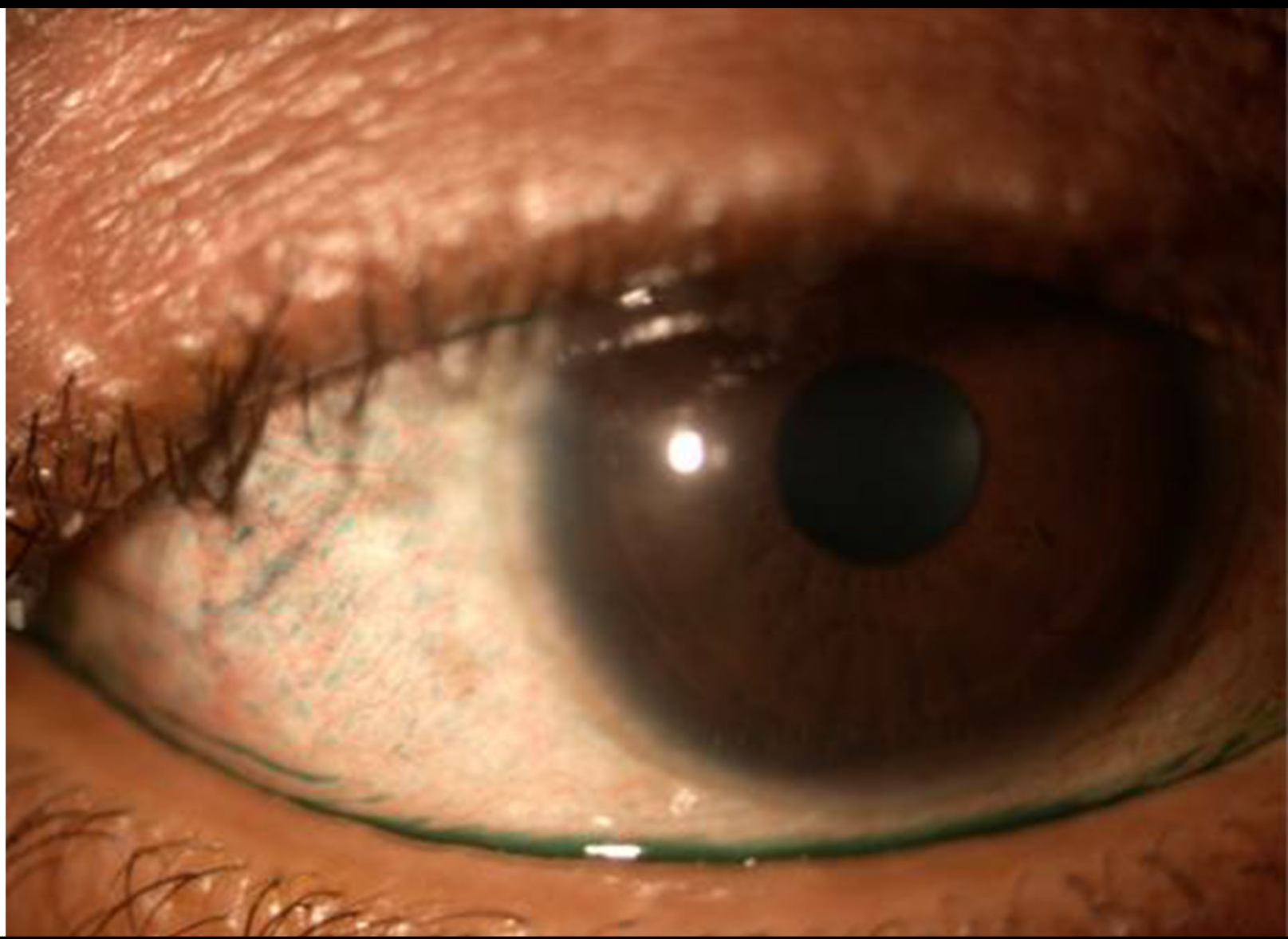
- 37yo male presents to Dry Eye Clinic for “red & irritated eyes”
- Left eye is worse, started 1mo ago but both eyes have had chronic irritation for years
- (+)clear discharge
- Denies photophobia, itching, blurry vision
- Multiple exams with other providers: given “unknown antibiotic gtts” for pink eye
- SPEED : 18/28

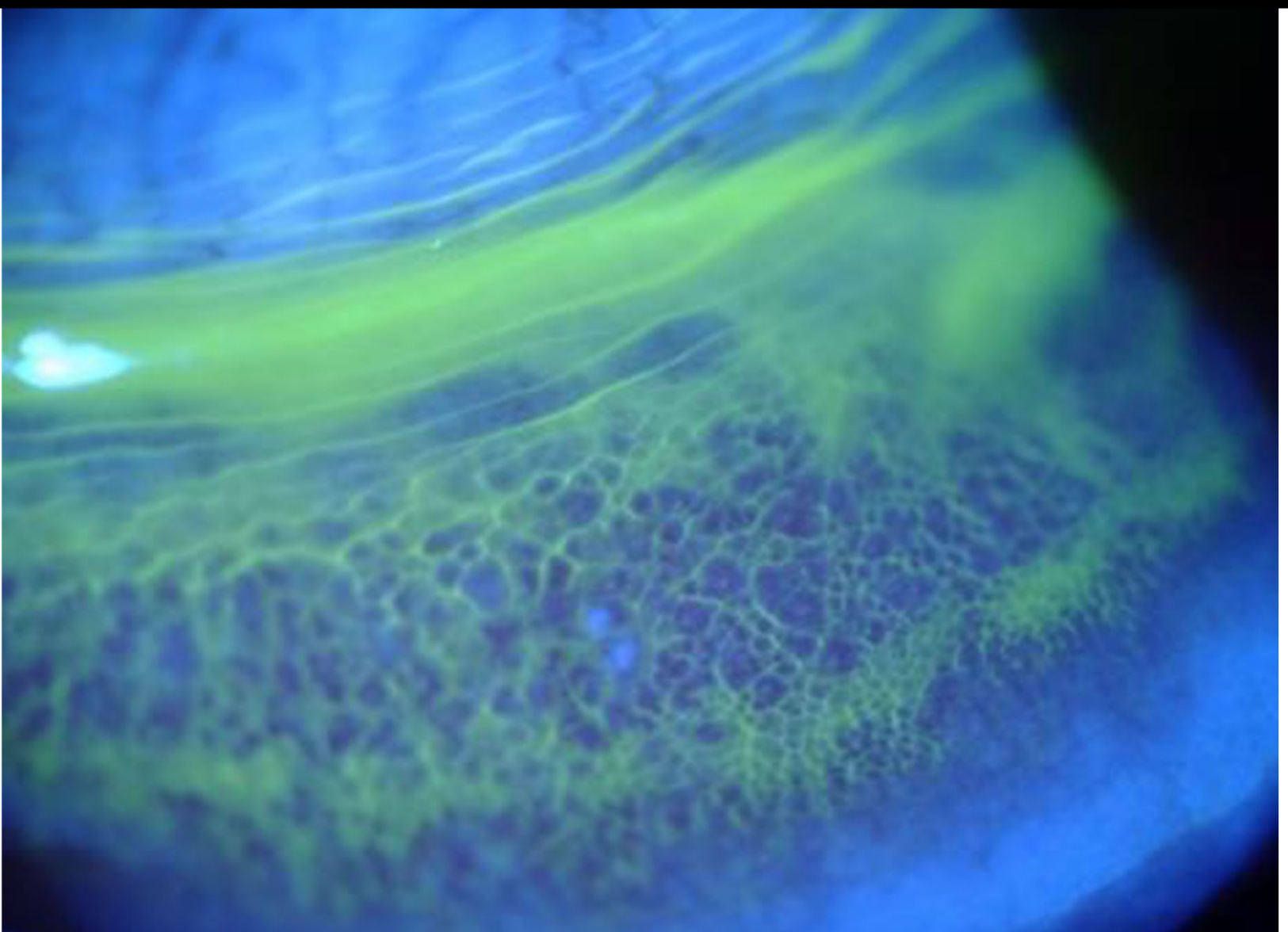
Case #2

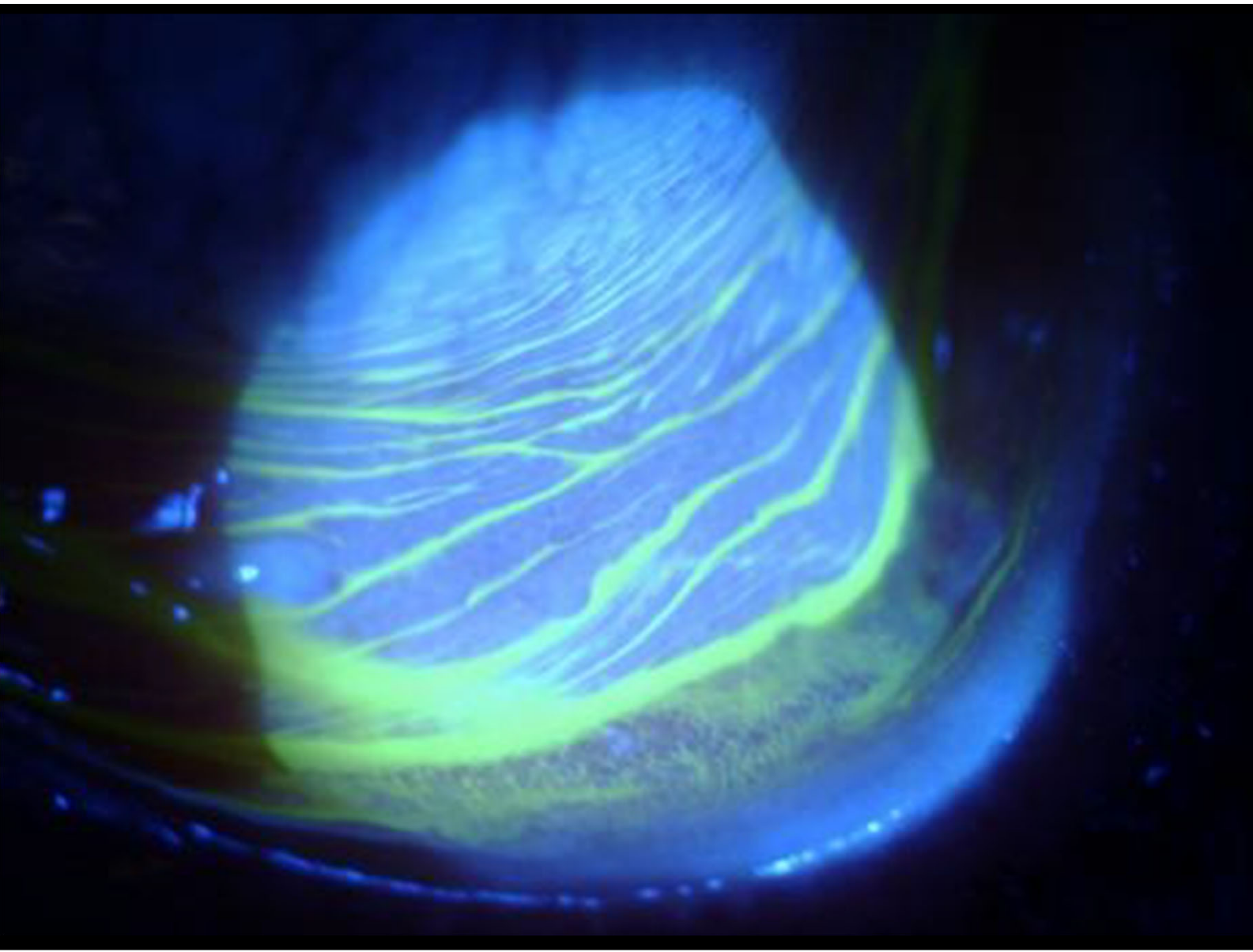
- Denied systemic conditions
- Denied previous ocular/systemic surgeries
- BMI: 42.7
- No medications or allergies
- Fhx: unremarkable

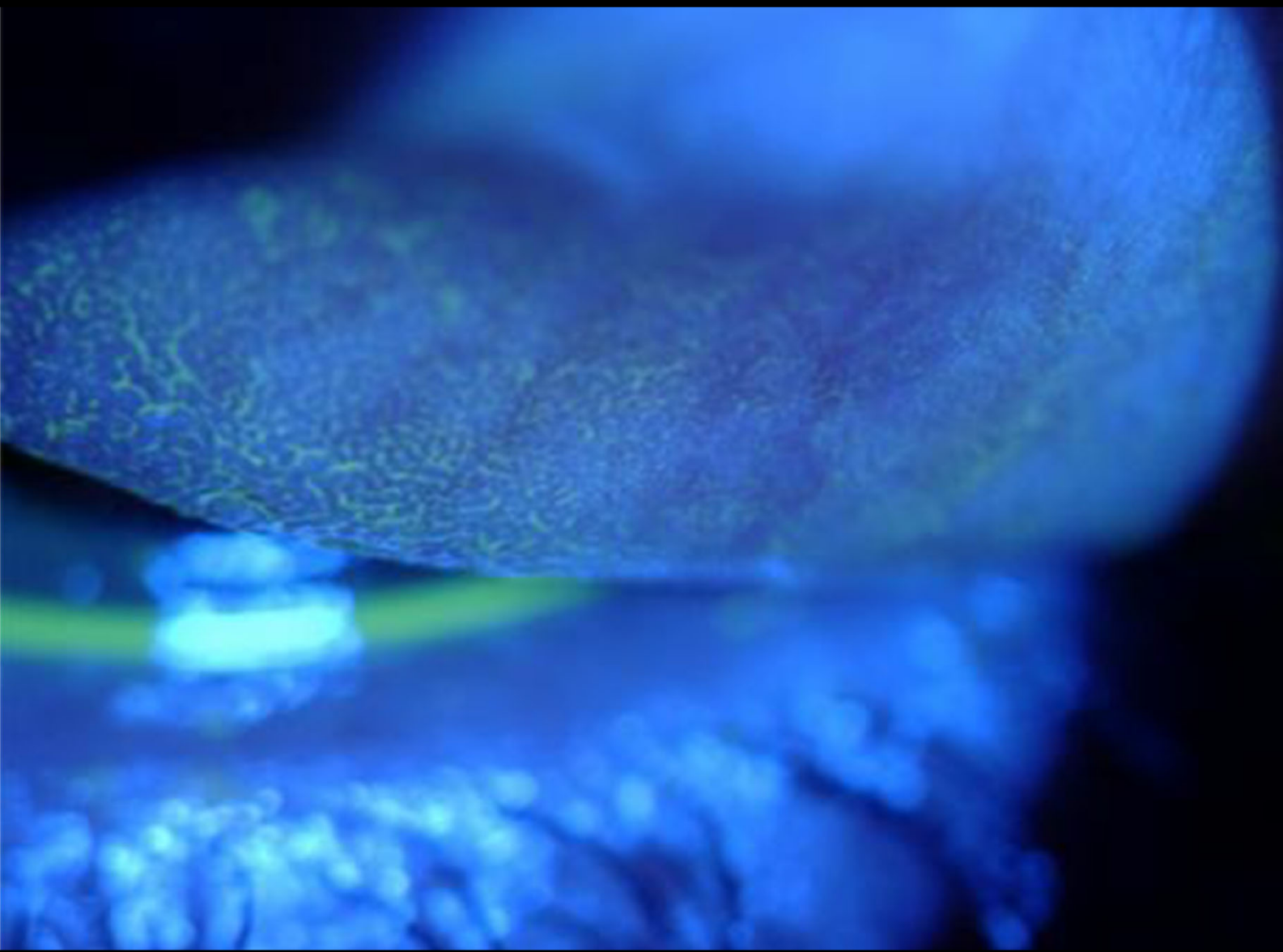
EYE EXAM

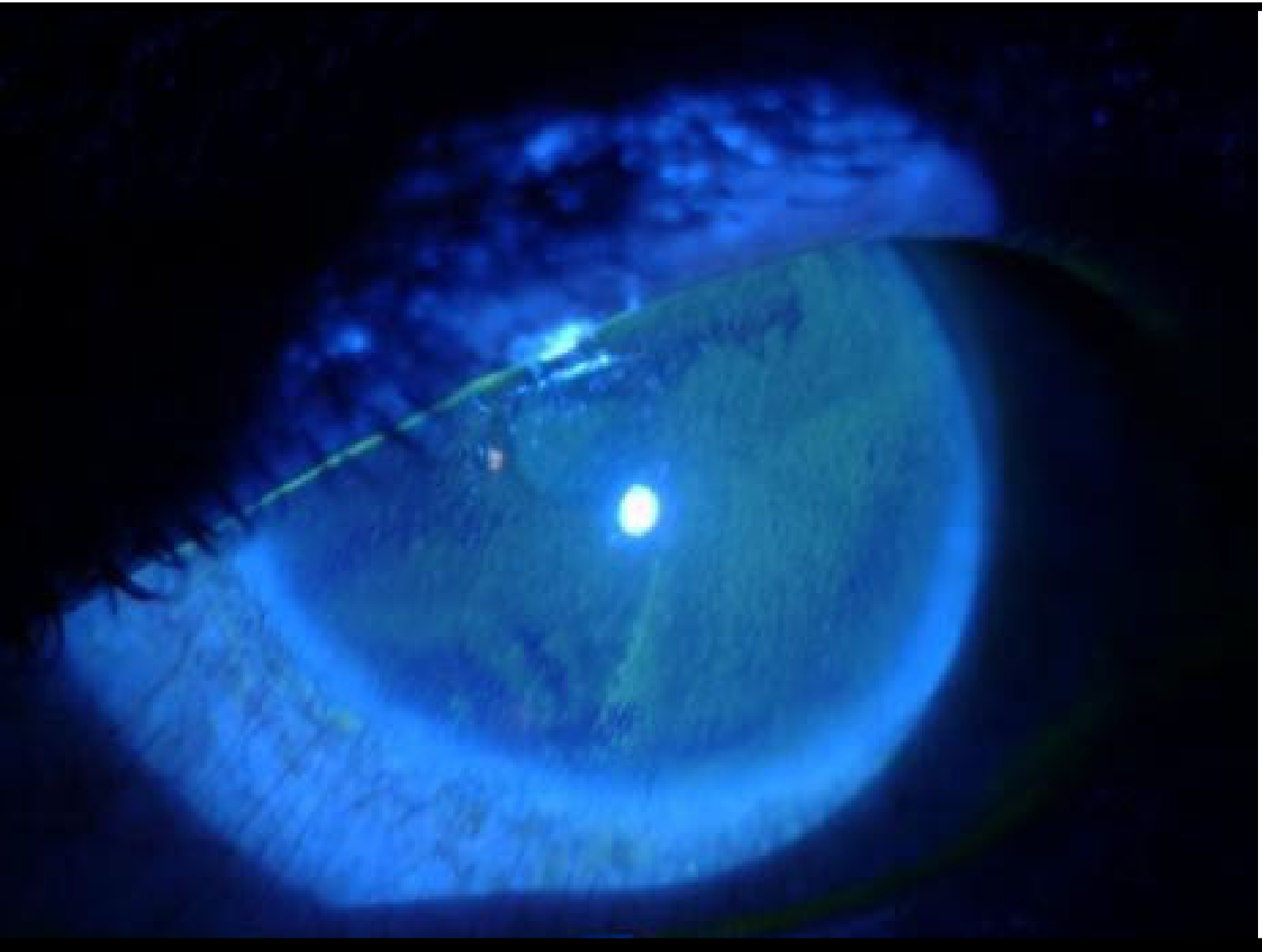
- VA sc: 20/20 OD, 20/40 OS (PH 20/25)
- PERRLA
- EOM Smooth & Full, (-)pain, (-)diplopia
- VF-FTFC
- Goldmann applanation: 12mmHg OD, 11mmHG OS

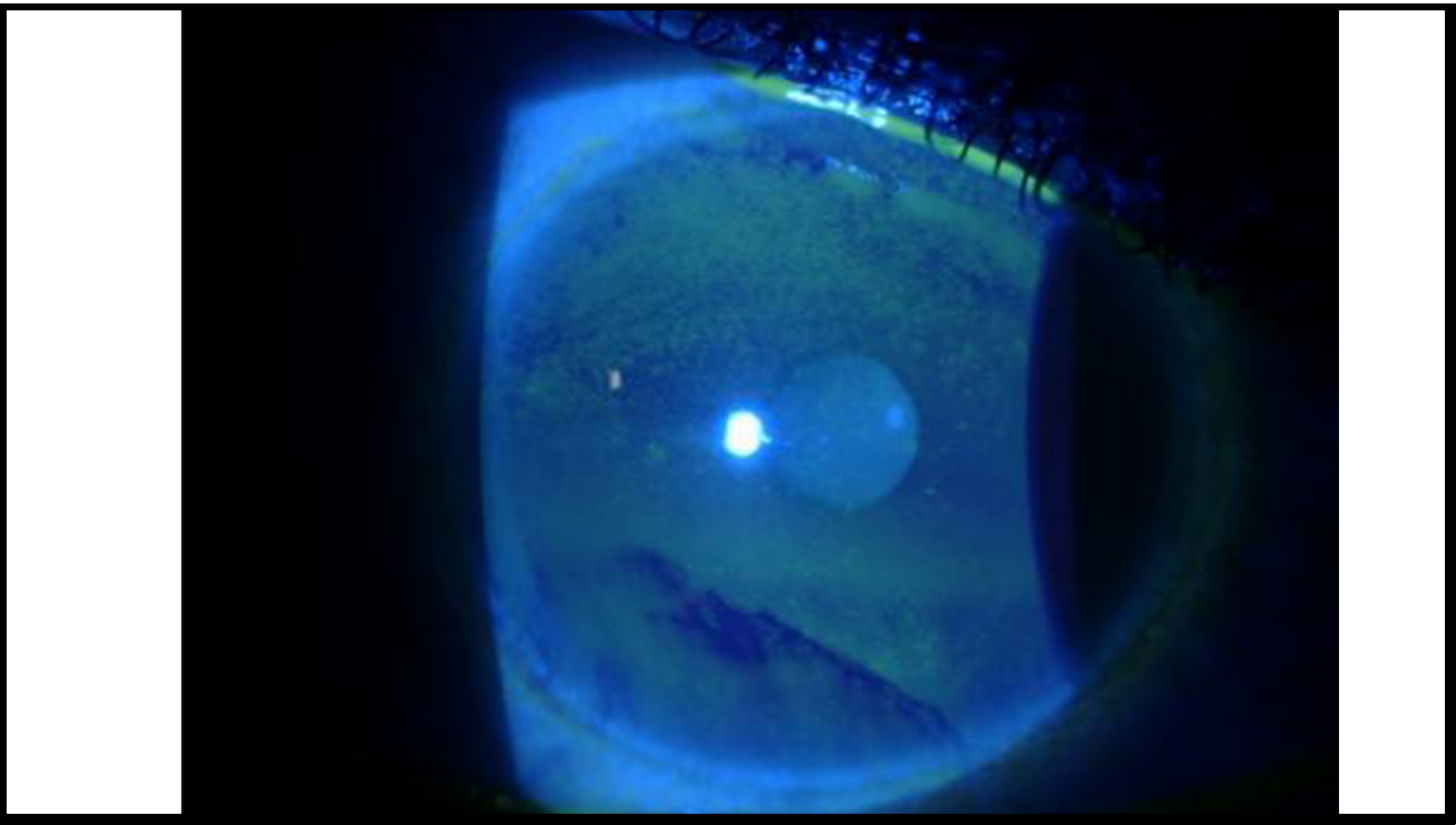




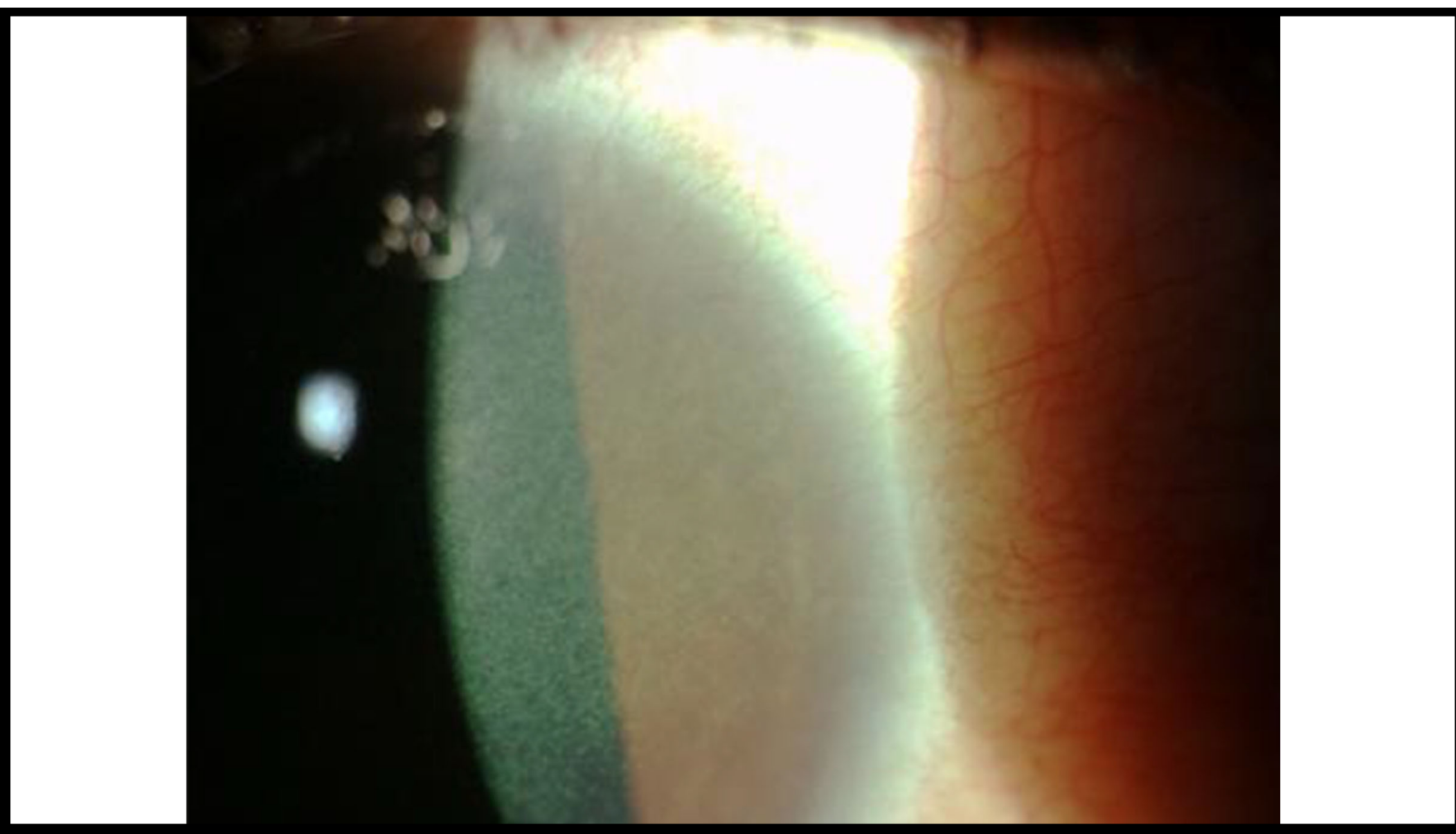












What would you do?





30

What is the diagnosis?

- Floppy Eyelid Syndrome (FES)

CASE MANAGEMENT



EYE SHIELD

When sleeping



PFATS

q1hr



CELLUVISC

When sleeping



SLEEP APNEA

PCP Referral



TOPICAL STEROID

BID-QID

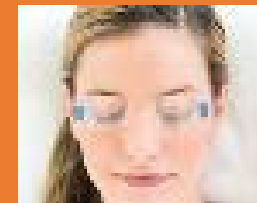


AMNIOTIC
MEMBRANE



REFERRAL

EYELID SURGERY



WHEN SLEEPING

EYELID TAPING

ETIOLOGICAL THEORY

Recurrent mechanical stress



Decrease in elastic fibers in tarsal plate



Eyelid laxity



Mechanical Theory

Upper eyelid becomes ischemic while laying on one side



Sudden reperfusion causes damage to tarsal plate & papillary reaction



Eyelid laxity



Ischemia Theory

FES Signs & Symptoms

- Signs:
 - SPK
 - Papillae
 - Easily everted, loose lids
- Symptoms:
 - Irritation
 - Redness
 - Foreign body sensation
 - Dry eye/allergy symptoms

Ocular & Systemic Associations

- Keratoconus
- Ptosis
- Glaucoma (25-27% prevalence)
- Blepharitis
- MGD
- Obstructive Sleep Apnea
- HTN
- Diabetes
- Down Syndrome
- Ischemic Heart Disease



A photograph of a person sleeping in a bed, wearing a clear CPAP mask. The person is wearing a white t-shirt and a blue headband. A CPAP machine is visible in the foreground on the right side of the frame. The background is a wooden headboard.

<5% OSA
PATIENTS HAVE
FES

BUT

~100% FES HAVE
OSA

OSA TREATMENT

BEWARE OF ILL FIT MASK → MASK GAPS FORCE AIR TO EYES



FULL FACE MASK



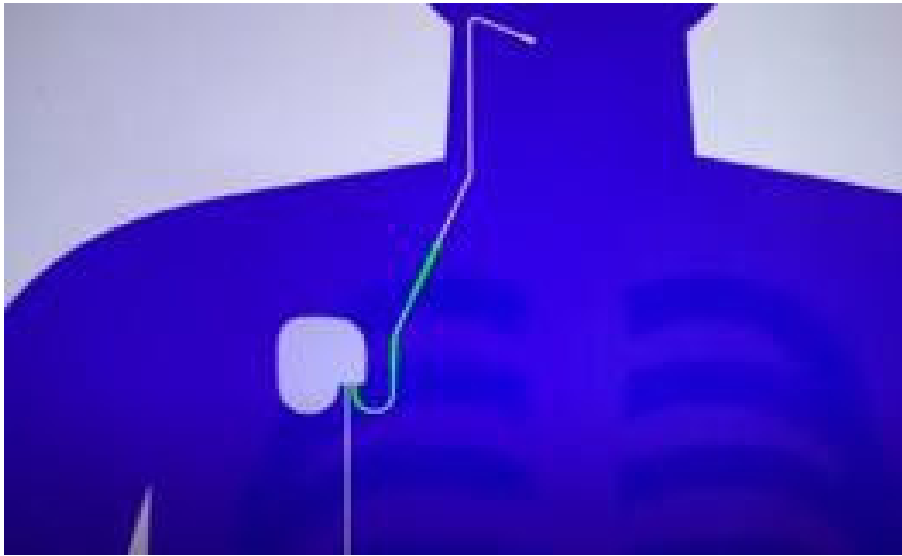
NASAL MASK



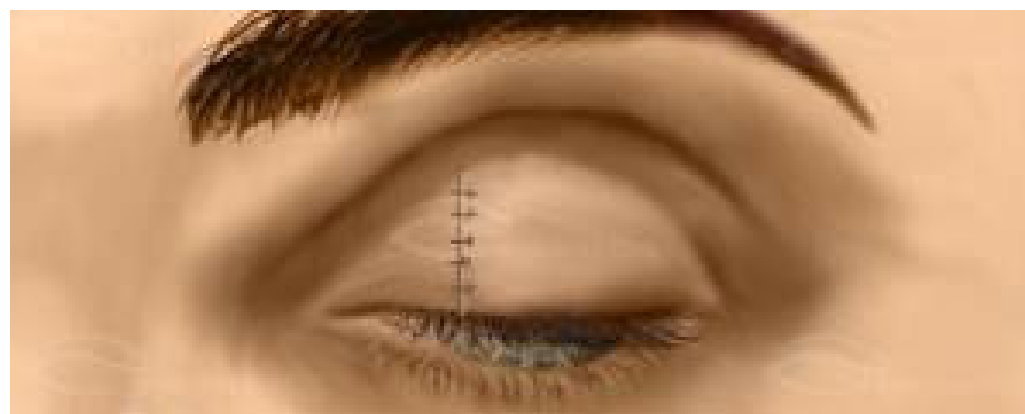
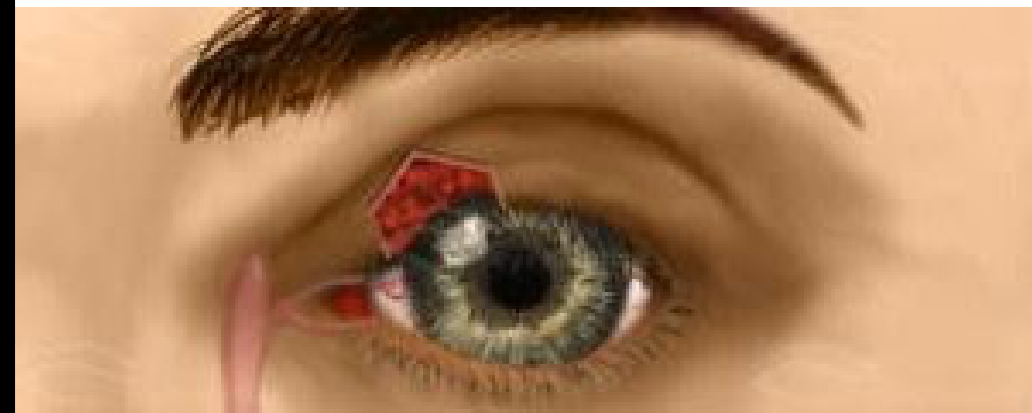
NASAL PILLOW MASK

Inspire Sleep Apnea Innovation

- “Pace maker for your tongue”
- Implant sends signal to hypoglossal nerve to move tongue forward



COMMON SURGICAL APPROACH



Case #2 Treatment

- Steroid & amniotic membrane
- Eyeseal, PF ATs, ung at night
- Oculoplastic & sleep apnea referral

Clinical Pearl → Don't forget about the eyelids

- Floppy Eyelids → R/O Sleep Apnea

Case # 3

- 46yo female presents to Dry Eye Clinic because “eyes are irritated and painful”
- (+)discomfort, watering, irritation
- Speed: 25/28
- BCVA 20/20
- Previous treatments: artificial tears, cyclosporine, lifitegrast, topical steroids, hot compresses, IPL, Lipiflow
- Doesn't wear CLs or makeup
- No systemic medications or known conditions

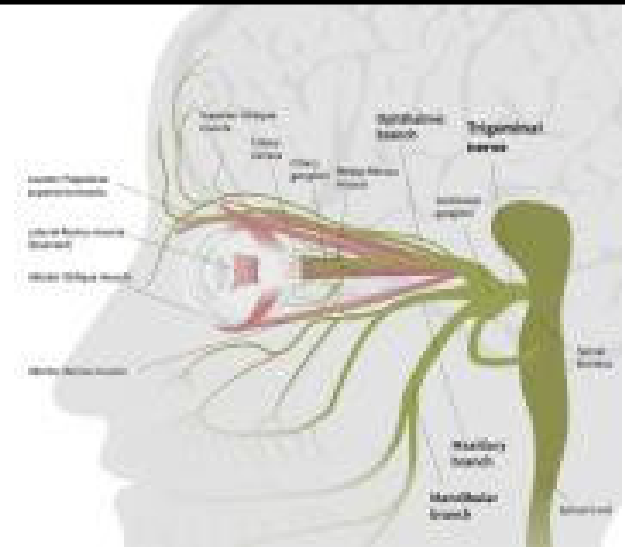
Case # 3 exam

- PERRLA, EOM smooth & full
- IOP GAT: 11mmHG OD, 12 OS
- Corneal: no staining
- Conjunctiva: no staining
- TBUT 12 seconds
- Full corneal sensitivity OU
- No collarettes, no telangiectasia, no biofilm
- Sebum clear & oily with manual MG expression

What would you do?

Ask More History Questions...

- History of TBI? Neck Pain?
- Trigeminal dysphoria vs Neuropathic Pain
 - Trigeminal dysphoria-binocular misalignment issue
 - Neuropathic Pain is diagnosis of exclusion-heightened perception of pain in response to non-painful stimuli
- Proparacaine Test
- Treatment
 - Neuropathic Pain: Exhaust all dry eye options 1st → Pain management referral
 - Trigeminal Dysphoria: NeuroLens/BI prism lens
 - Refer to OD who specializes in this area



Case # 4

- 56yo female presents to Dry Eye Clinic because “eyes are always red and irritated”
- (+)redness, itching
- Speed: 20/28
- BCVA 20/20
- Previous treatments: artificial tears, cyclosporine, lifitegrast, topical steroids, hot compresses
- (+)HTN - lisinopril medication
- Glasses full time, drug store makeup & skincare

Case # 4 exam

- PERRLA, EOM smooth & full
- IOP GAT: 14mmHG OD, 16 OS
- Corneal: no staining
- Conjunctiva: no staining
- TBUT 10 seconds
- Full corneal sensitivity OU

Collarettes



Demodex

- *Demodex folliculorum* & *Demodex brevis*: saprophytic mites
- Typically harmless but play pathogenic role in high densities (>5 mites per lash)
- 14 day life cycle → lay eggs inside hair follicle or sebaceous gland
- Nourishment comes from epidermis & sebum
- One opening



Demodex

- Incidence increase with age (73% in age 60+)
- Causes inflammation by:
 - destroying epithelial cells & exudation of digestive waste material when they die
 - 8 legs that scrape the lash/lid margin leads to mechanical damage that triggers inflammation
 - Carry bacteria that contributes to inflammation
- Symptoms: Itching
 - Types of itching



“Demodex Blepharitis”

- Treatment
 - TTO/lid wipes/Hypochlorus Spray
 - ZEST/Blephex Treatments
 - IPL
 - Ivermectin
 - Lotilaner ophthalmic solution



Demodex

Resistant to wide range of antiseptic agents including 75% alcohol, 10% povidone-iodine, and erythromycin

-studies have demonstrated that as low as 5% concentration (when applied to the lids twice daily) and as high as 50% concentration (when applied once weekly) of tea tree oil are effective

-high concentrations cause irritation, dermatitis, allergy

Xdemvy (0.25% lotilaner ophthalmic solution)

- ◆ Eye drop to eradicate demodex and treat demodex blepharitis
- ◆ Lotilaner: potent non-competitive antagonist of insect and arachnid GABA-Cl channels
 - ◆ Mechanism of Action: paralysis & death of demodex mites
- ◆ BID dosing X 6 weeks



Xdemvy (0.25% lotilaner ophthalmic solution)

- ◆ Efficacy: collarette cure rate, mite eradication, lid erythema (redness) cure
- ◆ Clinical Trial Data (Saturn-1 and Saturn-2):
 - >800 patients
 - Similar results in both trials
 - A/E: stinging & burning, punctate keratitis, chalazion/hordeolum
 - 91% patients reported drop to be neutral & comfortable
 - Cannot use with CL (contains potassium sorbate may discolor lenses)
 - 50% of patients exhibited reduction of collarettes & 60% showed no demodex mites following treatment

Xdemvy (0.25% lotilaner ophthalmic solution)

- 1gtt BID for 6 weeks (42 days)
- ICD 10 to use:
 - H01.00 (unspecified blepharitis)
 - B88.0 (other acariasis)
- Pharmacy: AllianceRx Walgreens, BlinkRx, Carepoint, CVS Specialty

Clinical Pearl → “Look Down”

- What type of itching?

Case #5

- 62yo male presents to Dry Eye Clinic with complaints of dryness, scratchiness, and blurry vision
- BCVA 20/60, PH to 20/30
- “glasses never work”
- Previous Dry Eye treatments: IPL, TearCare topical steroids, cyclosporine, PF ATs, hot compresses
- SPEED: 26/28
- TBUT 8 seconds
- No collates, no biofilm, no telangiectasia
- No conjunctiva staining
- Corneal staining (see photo)



EBMD: Epithelial Basement Membrane Dystrophy

- Map-dot- fingerprint dystrophy
- Symptoms: photophobia, FBS, fluctuating vision, “ghosting” of images
- Dystrophy vs Corneal Degeneration
- NaFL staining can help detect
- Risk factors: trauma, insult, surgery

EBMD Treatment

- Lubrication
- Hypertonic agents → enhance cellular adhesion between epithelial cells & underlying stroma
- FreshKote → non-prescription ocular lubricant containing colloidal particles that impact high oncotic pressure
- Bandage contact lenses
- Amniotic Membrane
- Autologous serum tears
- Surgical Options: stromal puncture, superficial keratectomy (diamond burr), excimer laser phototherapeutic keratectomy

Clinical Pearl → assess staining patterns

Case #6

- 43yo female presents to Dry Eye Clinic with complaints of “red, burning, irritated eyes”
- SPEED: 24/28
- (+)mild photophobia, mild watering
- Denies itching or blurry vision
- Previous Dry Eye Treatments: Lipiflow, Bruder mask, cyclosporine, Tyrvaya, lifitgrast, topical steroids, artificial tears
- BCVA 20/20
- No systemic conditions or medications
- Wears glasses prn for reading
- Uses Mary Kay makeup & skin care

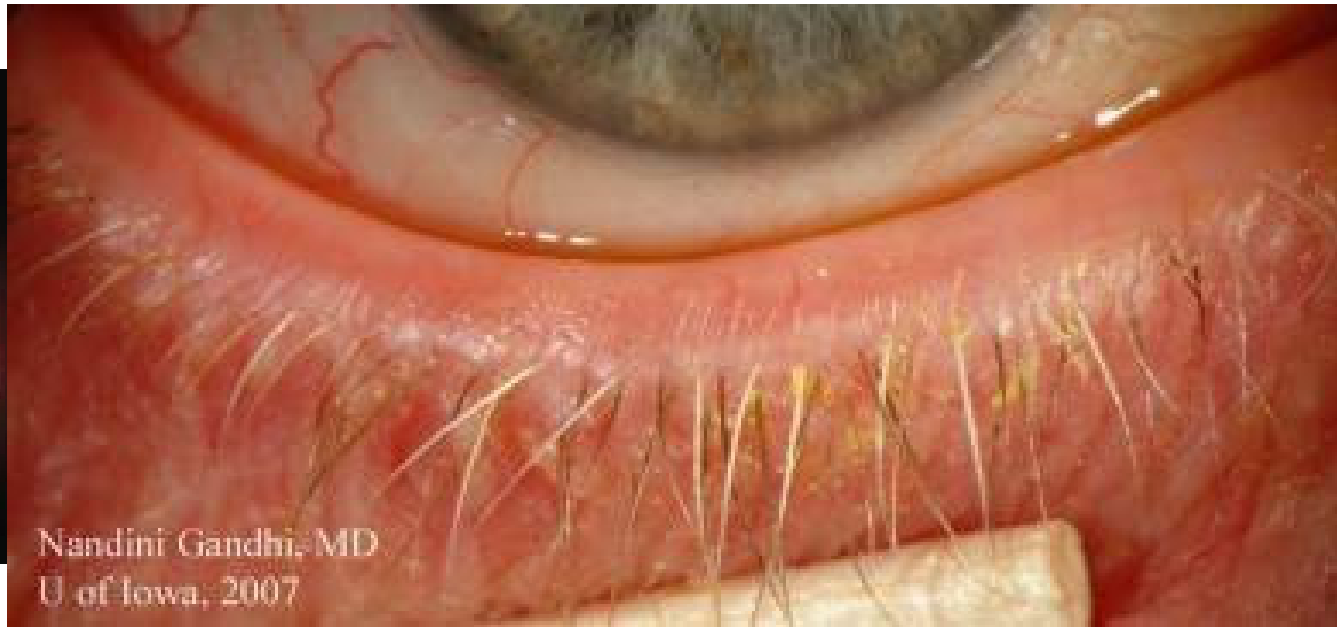
Exam

- TBUT 8 seconds
- No corneal or Lissamine staining on conjunctiva or cornea
- Corneal Sensitivity: full in every quadrant & centrally



Ocular Rosacea

- 50% have ocular symptoms: tearing, FBS, itching, photophobia, blurry vision, dry eye



Rosacea

- Chronic Inflammatory Skin Disease
- 4 Historical Clinical Subtypes
 - Erythematotelangiectatic
 - Papulopustular
 - Phymatous
 - Ocular



Rosacea

- Poorly understood etiology & pathophysiology
- 16 million Americans impacted
- “Celtic”/Northern European heritage most common
- Females = Males
- *Demodex* infestation increased in patients with rosacea
 - Eradication of demodex seems to alleviate rosacea symptoms

Rosacea Triggers

- Heat/cold extremes
- UV radiation
- Alcohol & coffee
- Spicy food
- Any event/ingredient that triggers inflammation
- Clinical Signs: flushing, erythema, telangiectasia, pustules

Ocular Rosacea Treatment

- Oral Doxycycline
- IPL
- Topical Creams
- Ivermectin
- Avoid Triggers

Case #6 Treatment

- IPL X 4 with single maintenance treatment q4-6mo
- Cyclosporine bid OU, lubrication
- Avoid ingredient, food, & environmental triggers
- SPEED: 2/28

Clinical Pearl → don't miss telangiectasia

Conditions Not to Miss

1. Neurotrophic Keratitis
2. Floppy Eyelid Syndrome
3. Neuro “Dry Eye”
4. Demodex Blepharitis
5. EBMD
6. Ocular Rosacea

Thank you!

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