Ophthalmic Infections for Family Physicians

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Providence Health Care
How you want to be treated.

I acknowledge with gratitude that I live and work on the unceded homelands of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish), and sə̓lilwətaʔɬ (Tsleil Waututh) First Nations.

Financial Disclosures

Consultant for Alcon Canada

Advisory Board SUN Pharmaceuticals

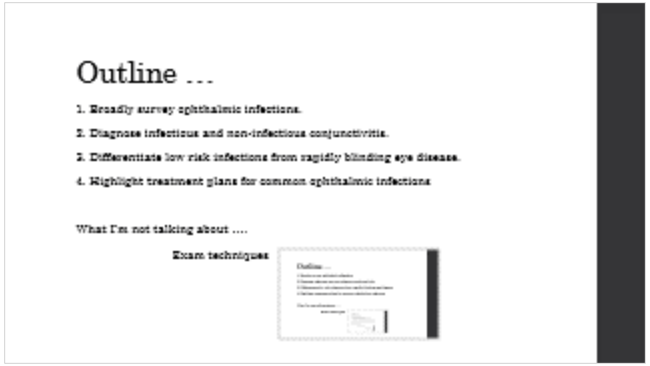
Neither Impact the content of todays presentation.

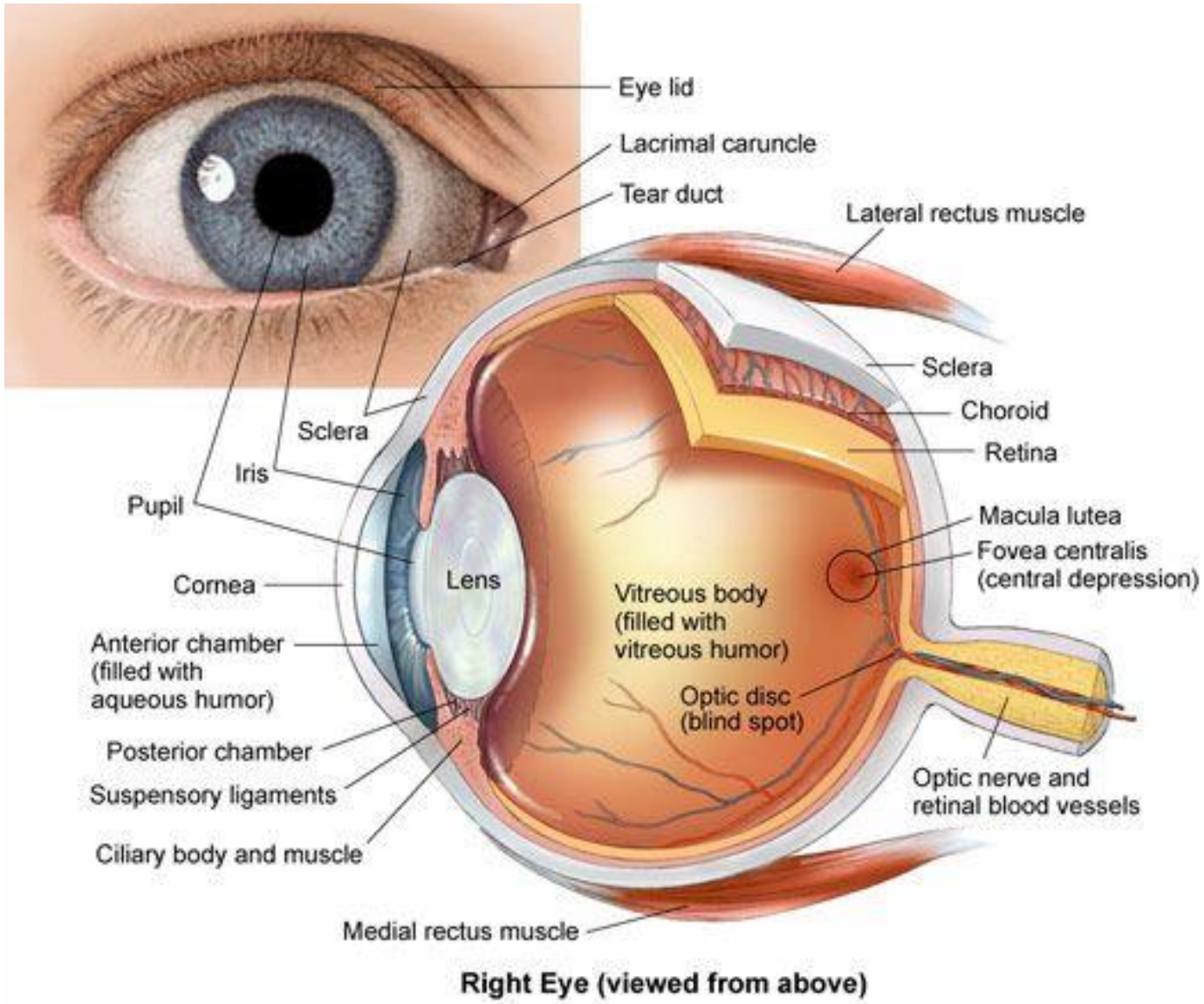
Outline …

1. Broadly survey ophthalmic infections.
2. Diagnose infectious and non-infectious conjunctivitis.
3. Differentiate low risk infections from rapidly blinding eye disease.
4. Highlight treatment plans for common ophthalmic infections

What I'm not talking about ….

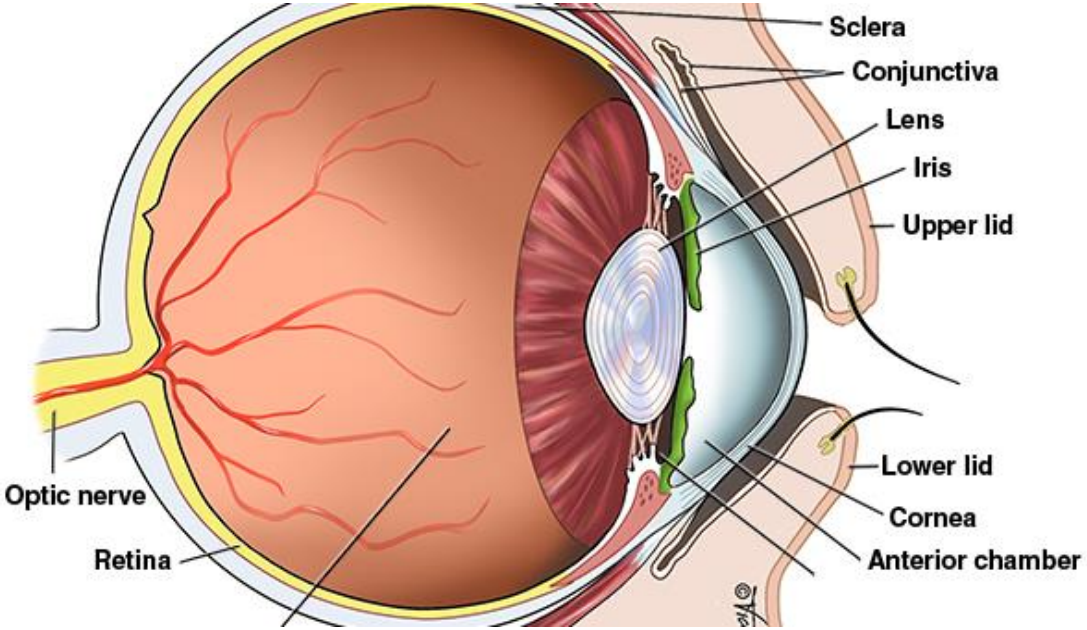
Exam techniques

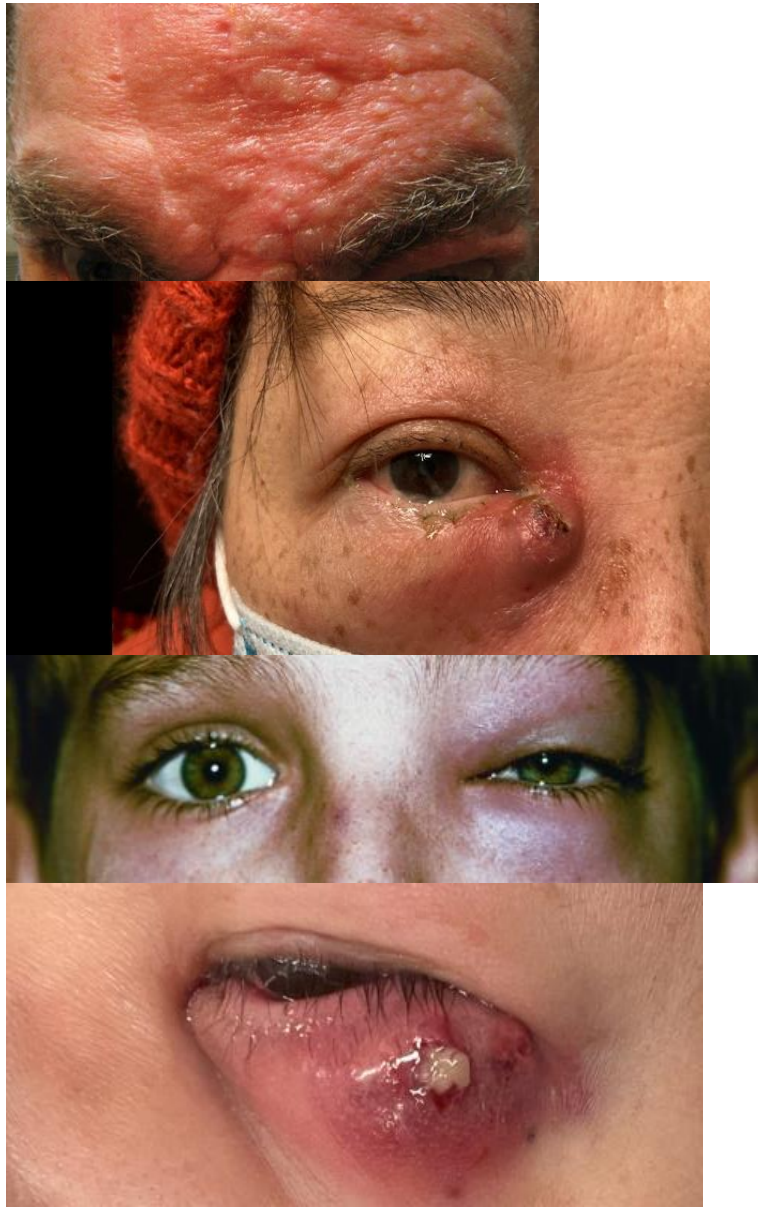



Eye lid
Lacrimal caruncle
Tear duct
Lateral rectus muscle
Sclera
Choroid
Retina
Macula lutea
Fovea centralis
(central depression)
Sclera
Iris
Pupil
Cornea
Lens
Vitreous body
(filled with
vitreous humor)
Anterior chamber
(filled with
aqueous humor)
Optic disc
(blind spot)
Posterior chamber
Suspensory ligaments
Ciliary body and muscle
Optic nerve and
retinal blood vessels
Medial rectus muscle
Right Eye (viewed from above)

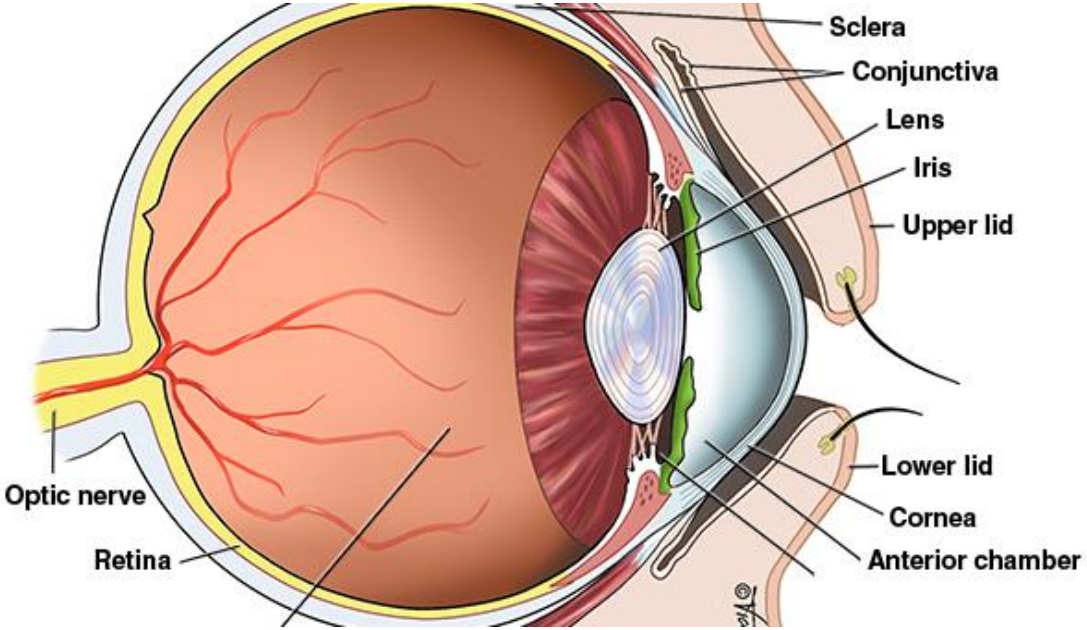
Anatomy

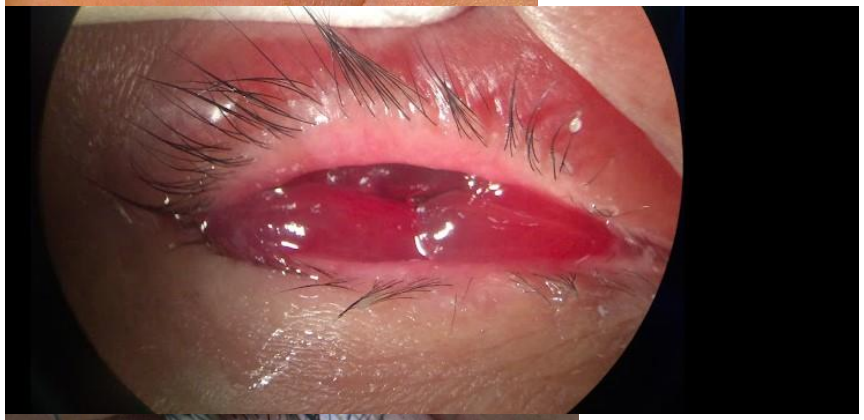
Ocular Adnexa (all the stuff that's not the eye and nerve)



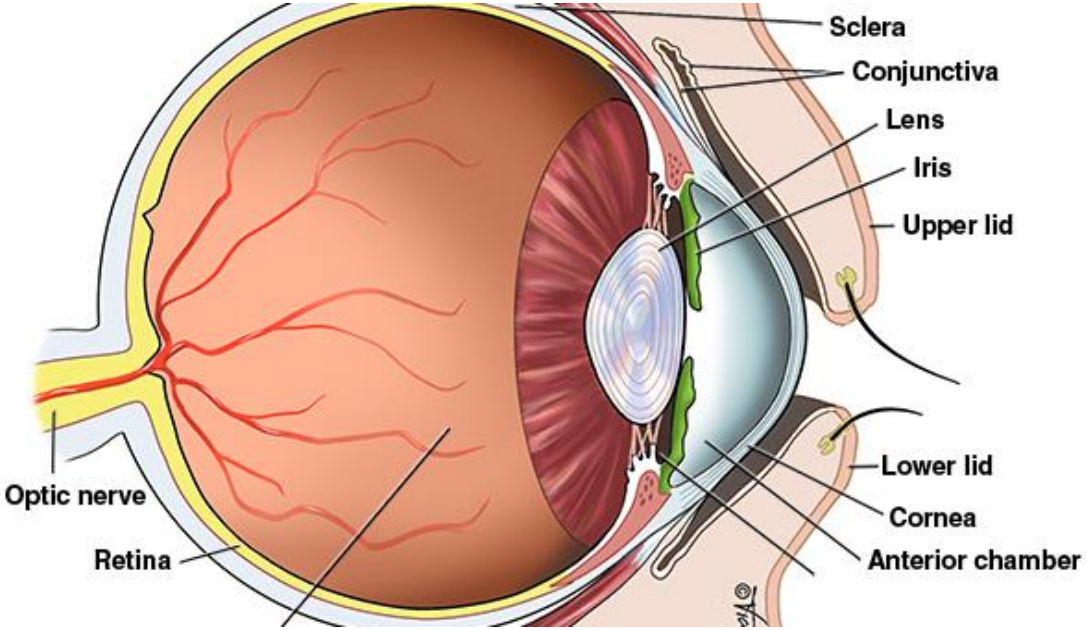


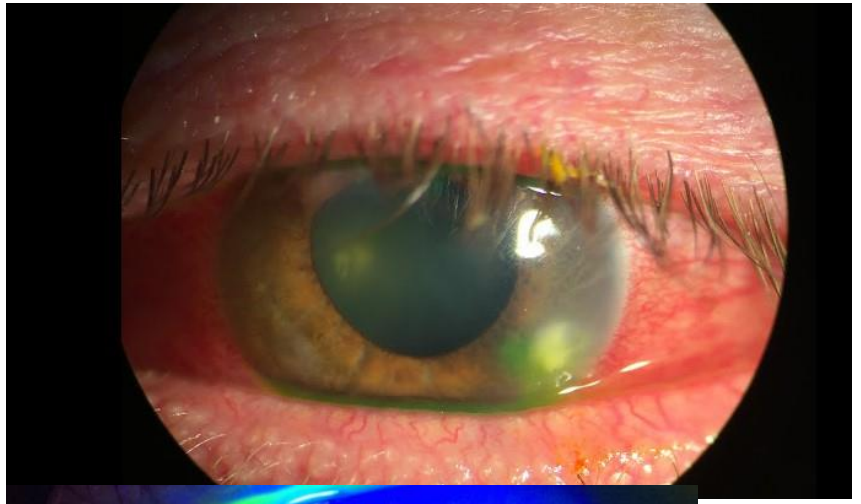
Conjunctiva

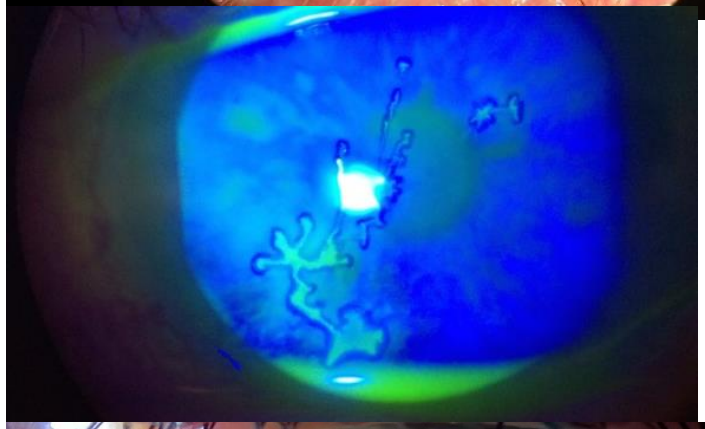


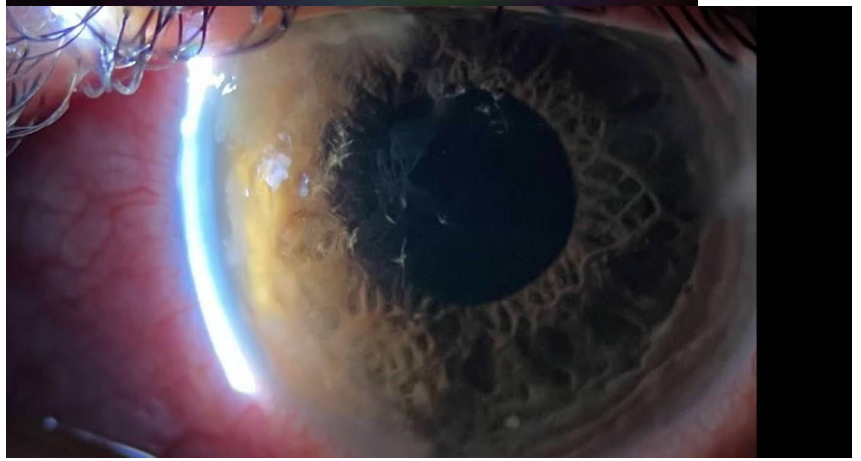


Cornea

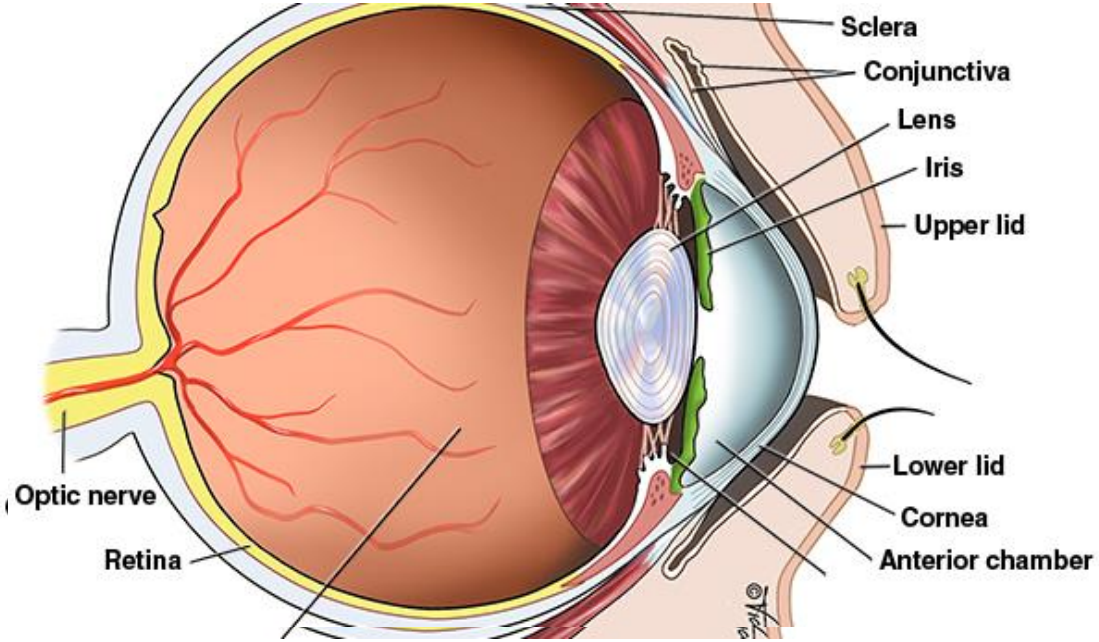

Sclera
Conjunctiva
Lens
Iris
Upper lid
Lower lid
Cornea
Anterior chamber
Optic nerve
Retina

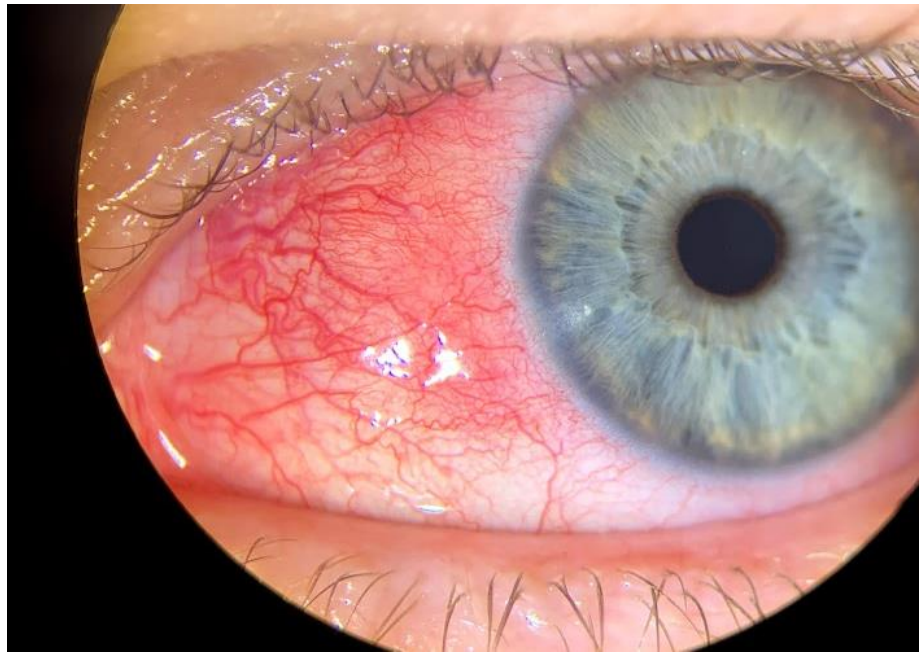




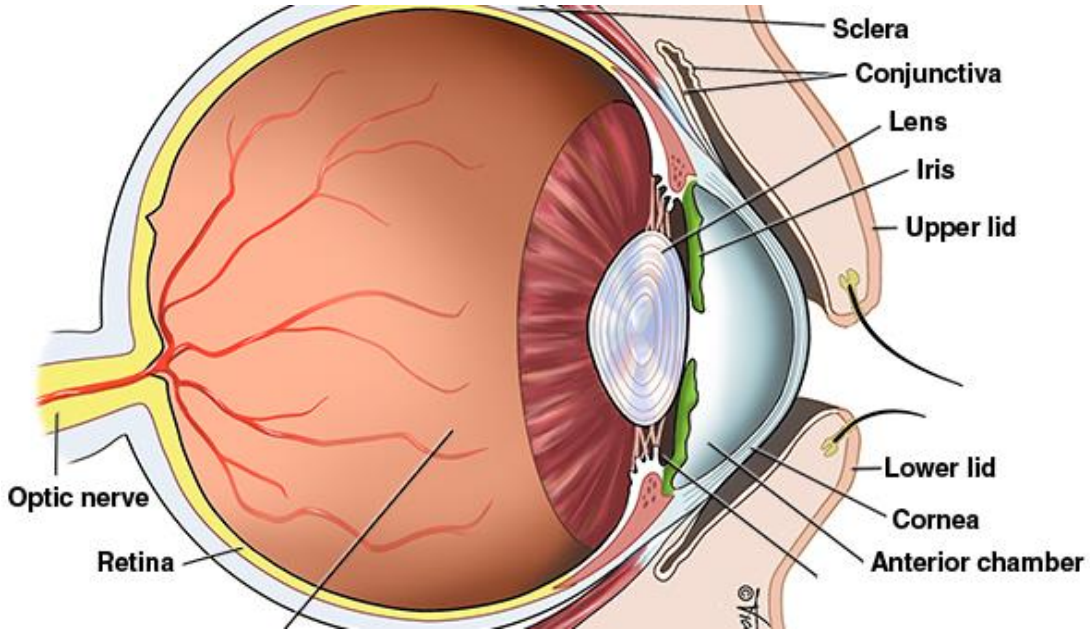


Episclera and Sclera





Uvea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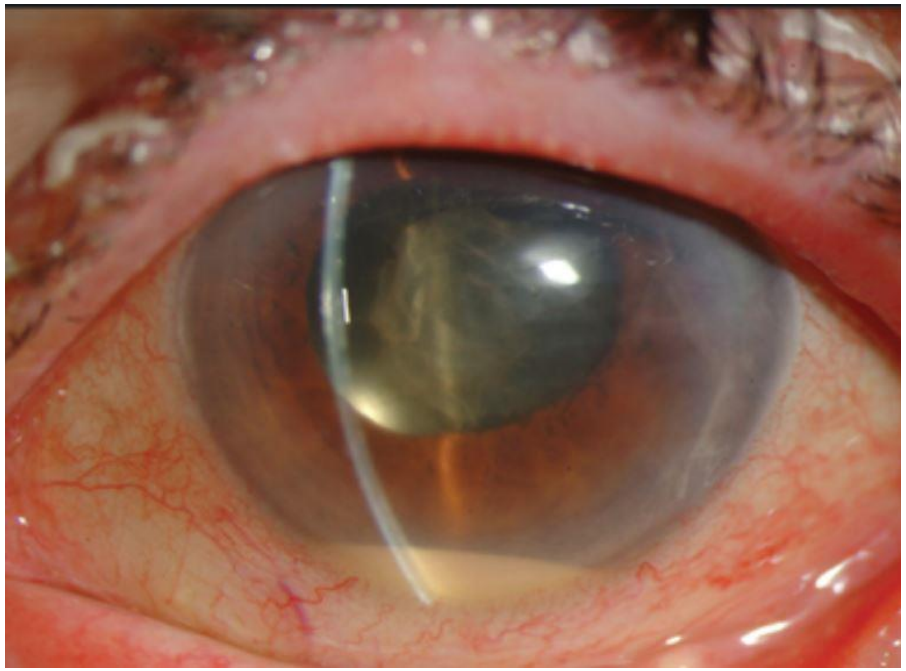
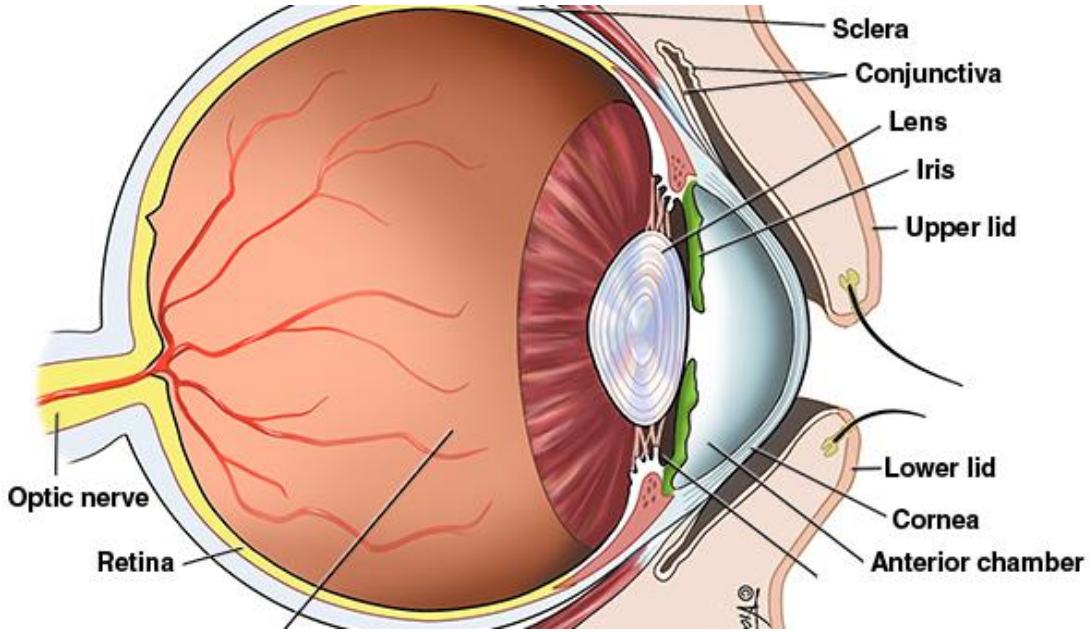


Retina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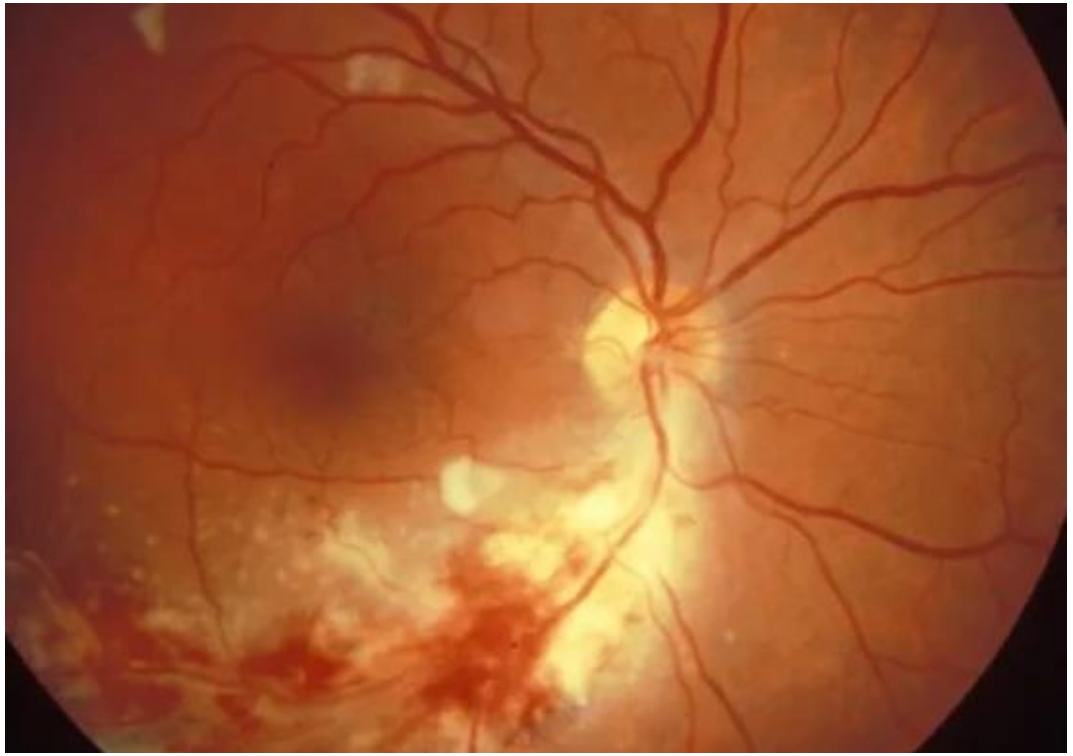
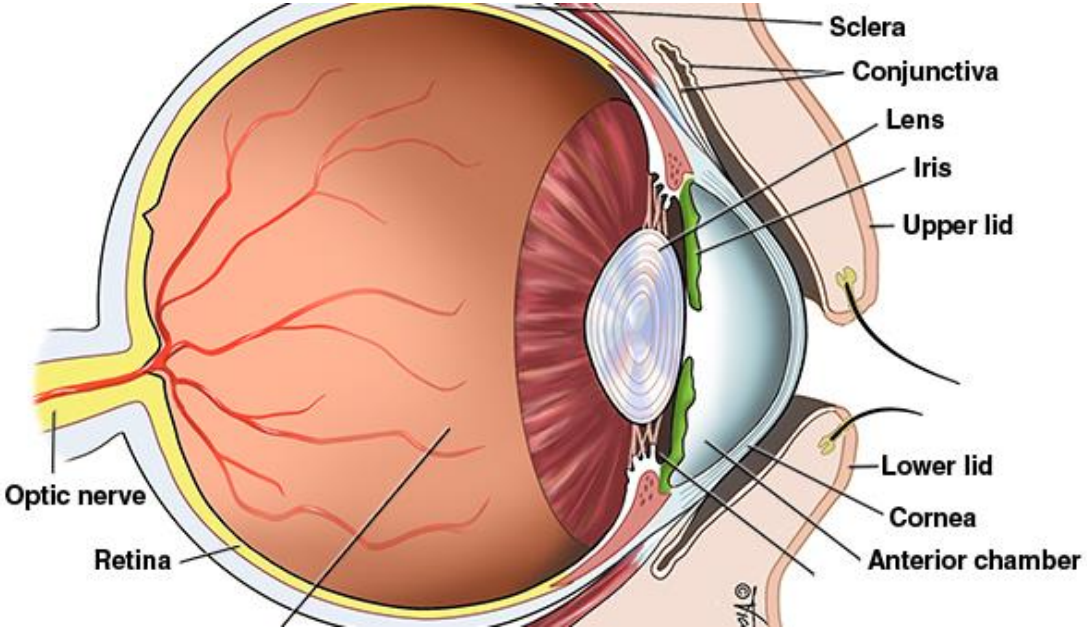


Optic Nerve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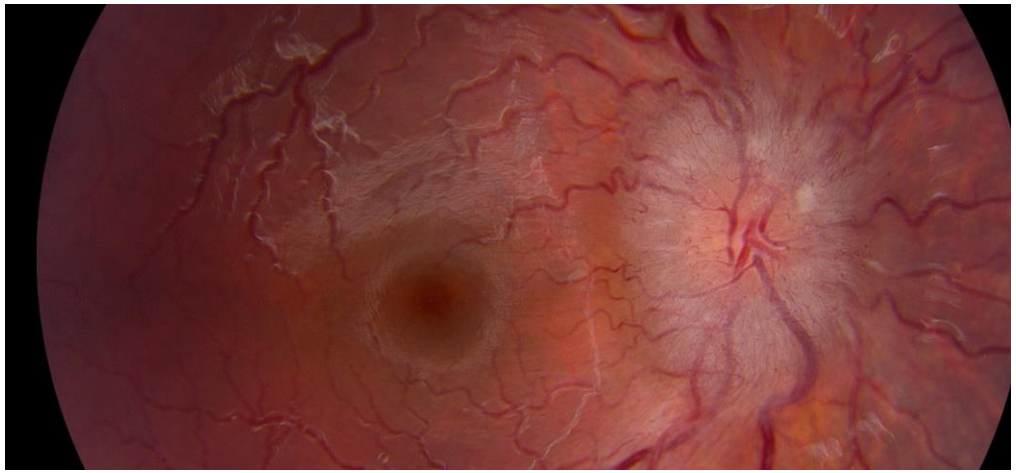
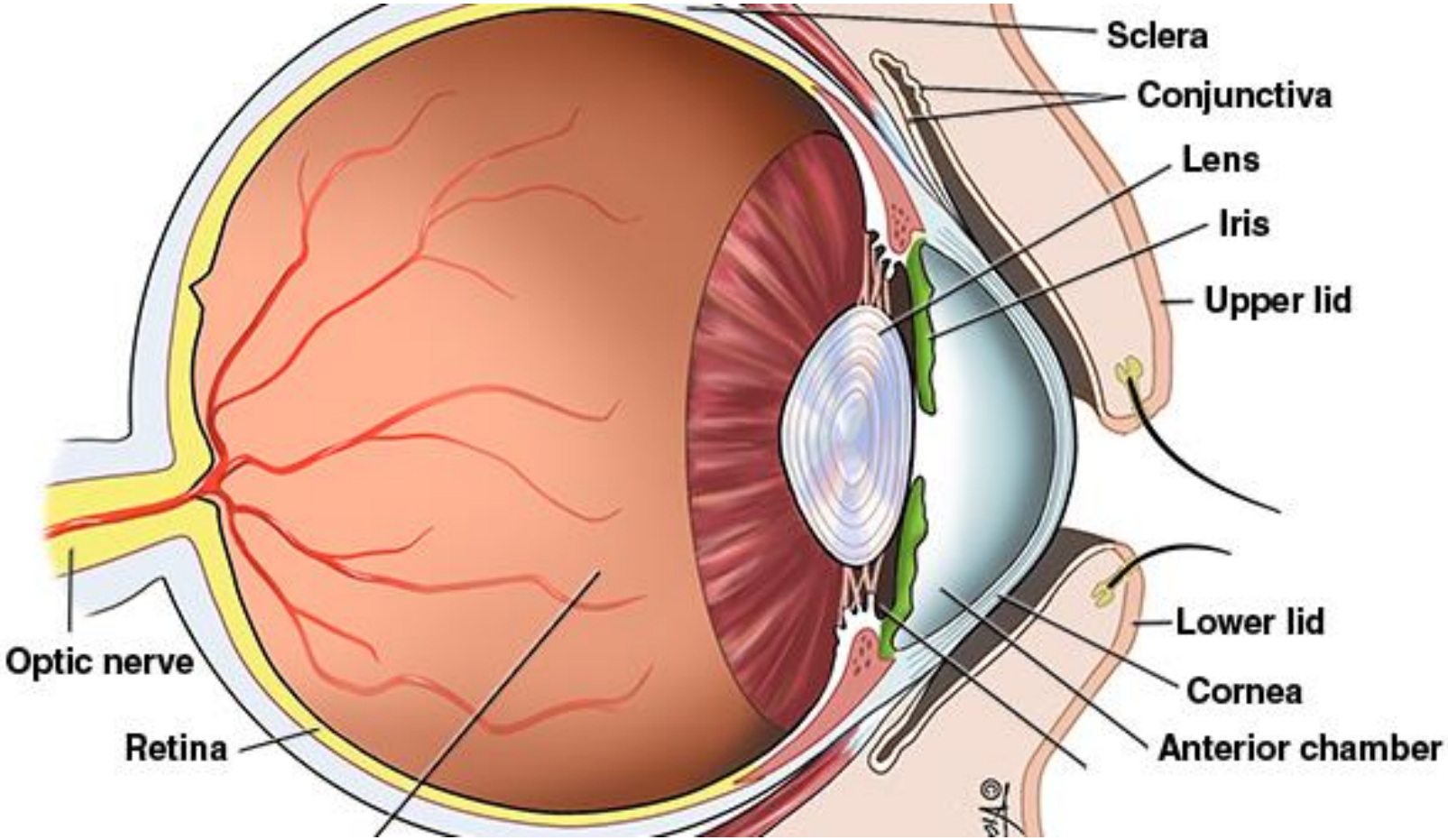
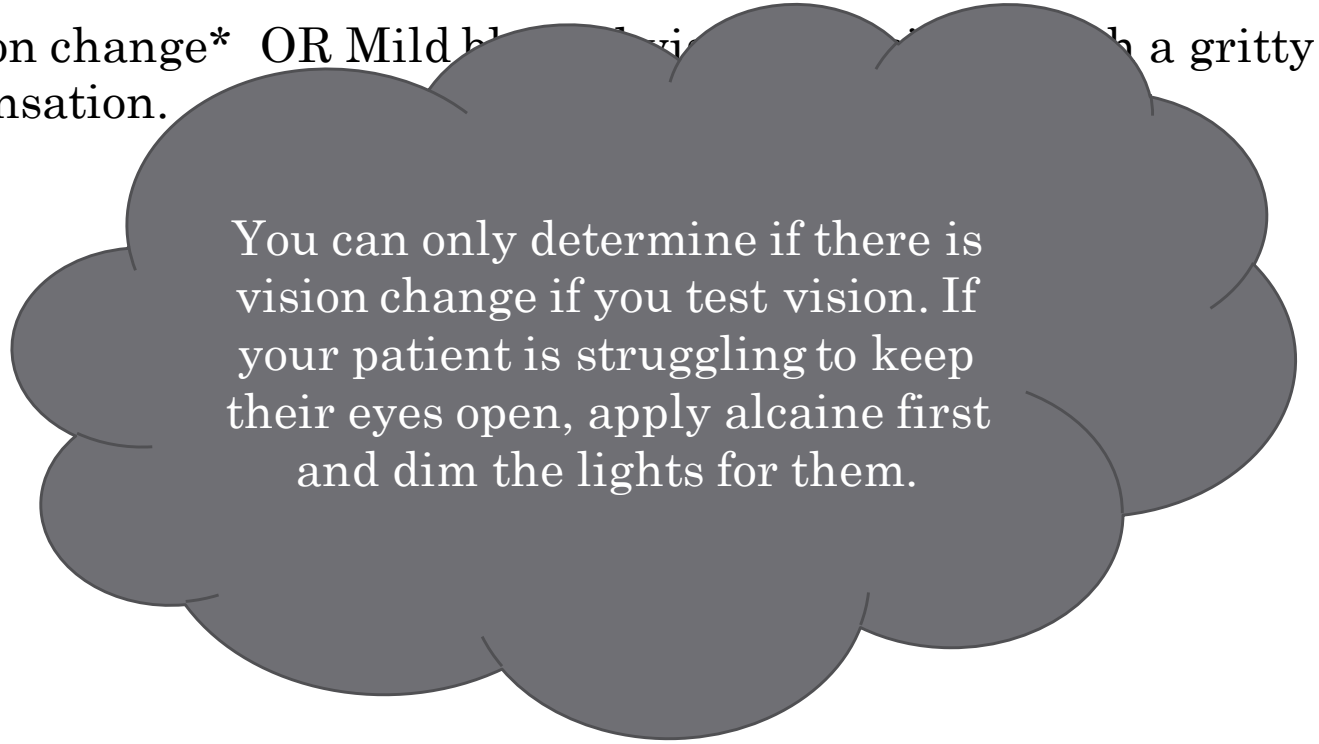


Let's start with the Conjunctiva



Infectious Conjunctivitis

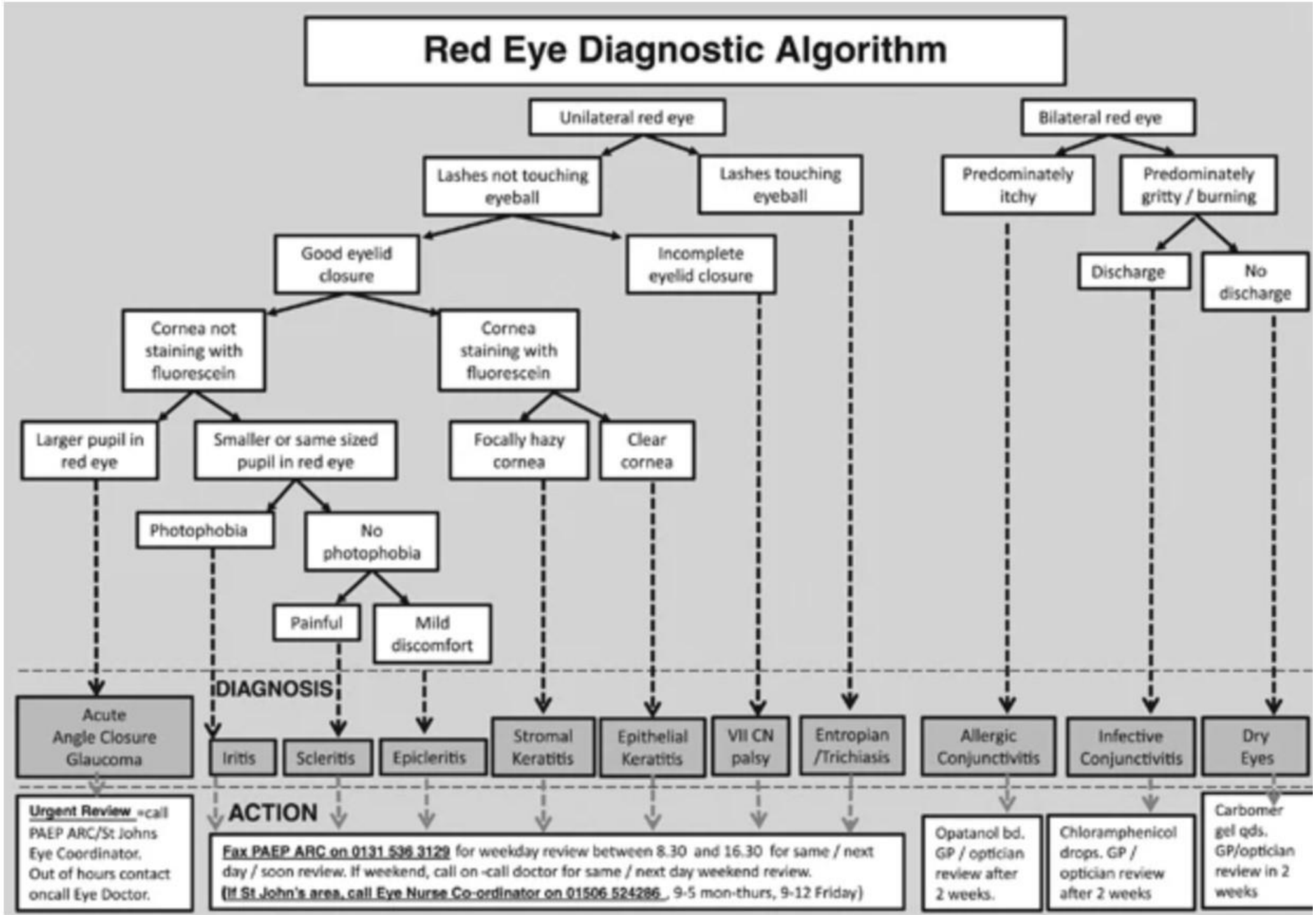
- History of URTI or sick contacts
- Bilateral tearing, redness, itching, discharge
- Pre-auricular node common in infectious conjunctivitis.
- No vision change* OR Mild b[illegible] a gritty foreign body sensation.

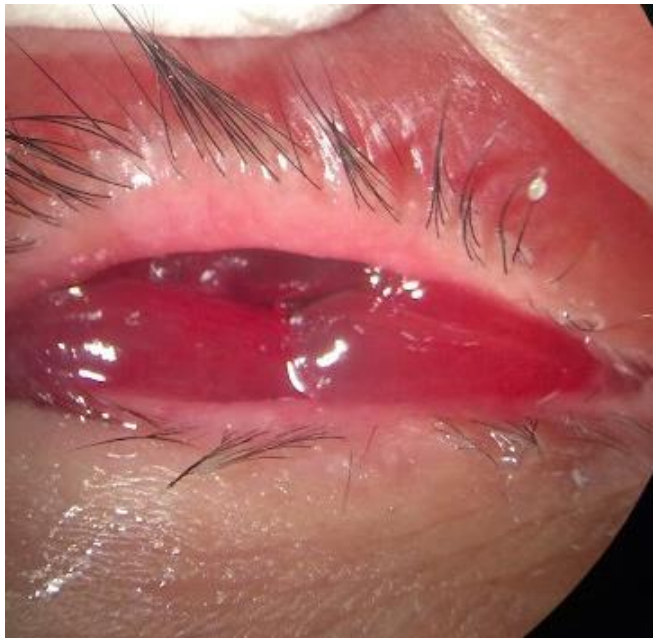


Differential

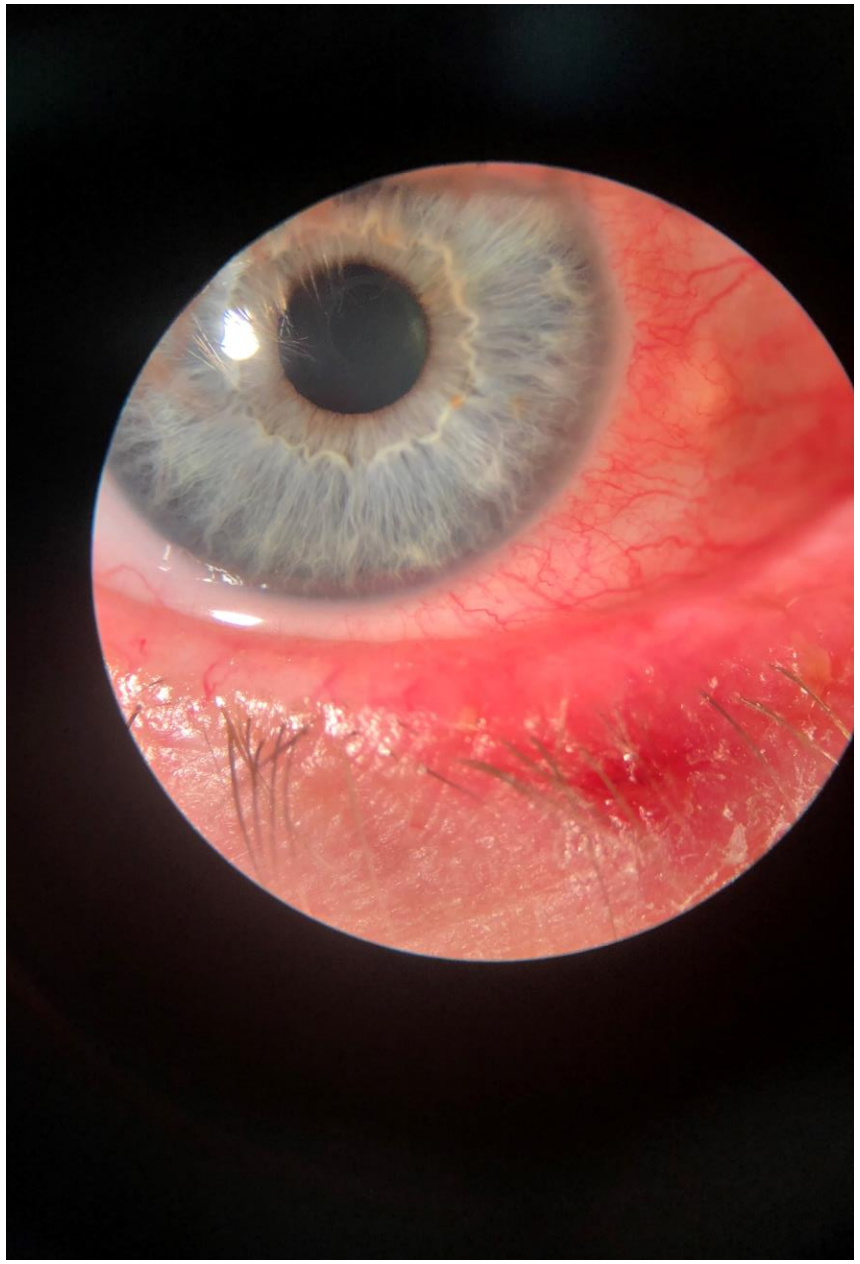
- Is it conjunctivitis???
- Completing your office based clinical exam (Last years talk!) that includes:
  - Vision
  - Pupils
  - EOM
  - Inspection, Palpation, Fluorescein
    - Look for injection, chemosis, follicles or papillae

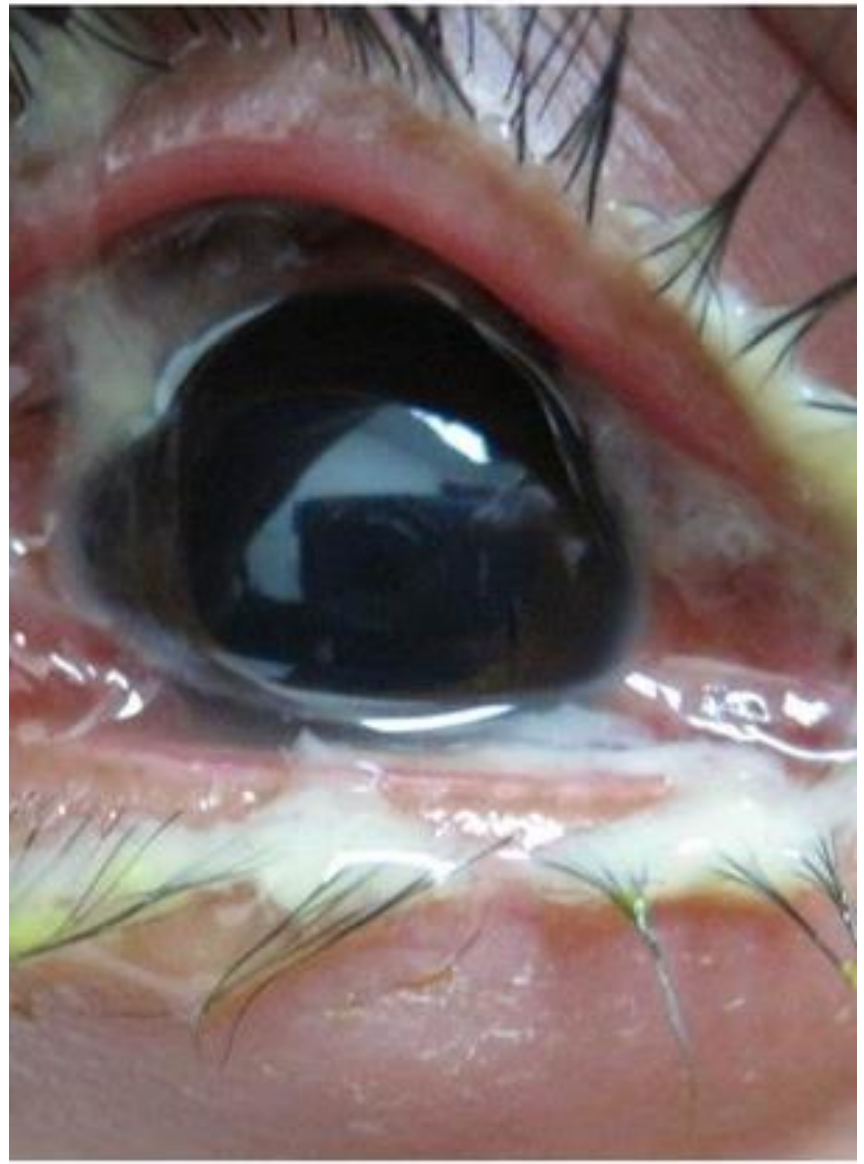
  Apply alcaine and move the conjunctiva around!
- Consider checking the Edinburgh Red Eye Algorithm


Red Eye Diagnostic Algorithm
Unilateral red eye
Bilateral red eye
Lashes not touching eyeball
Lashes touching eyeball
Predominately itchy
Predominately gritty / burning
Good eyelid closure
Incomplete eyelid closure
Discharge
No discharge
Cornea not staining with fluorescein
Cornea staining with fluorescein
Larger pupil in red eye
Smaller or same sized pupil in red eye
Focally hazy cornea
Clear cornea
Photophobia
No photophobia
Painful
Mild discomfort
DIAGNOSIS
Acute Angle Closure Glaucoma
Iritis
Scleritis
Epicleritis
Stromal Keratitis
Epithelial Keratitis
VII CN palsy
Entropian /Trichiasis
Allergic Conjunctivitis
Infective Conjunctivitis
Dry Eyes
ACTION
Urgent Review =call PAEP ARC/St Johns Eye Coordinator. Out of hours contact oncall Eye Doctor.
Fax PAEP ARC on 0131 536 3129 for weekday review between 8.30 and 16.30 for same / next day / soon review. If weekend, call on -call doctor for same / next day weekend review. (If St John's area, call Eye Nurse Co-ordinator on 01506 524286, 9-5 mon-thurs, 9-12 Friday)
Opatanol bd. GP / optician review after 2 weeks.
Chloramphenicol drops. GP / optician review after 2 weeks
Carbomer gel qds. GP/optician review in 2 weeks




EyeRounds.org





Key Points – Gonococcus can perforate the cornea

- Nisseria gonorrhea can blind patients within 24 hours
- Rapid irrigation
- Ceftriaxone 1g IM,
- Topical fluoroqinolones.
- Emergent Referral to Ophthalmology .

Management of Conjunctivitis

- Self Limited in nearly all cases (YES, Even the bacterial ones)
- Swab it! This will be helpful for those few cases that are more severe or not self limited. (For viral cases SPH Virology for Adenoviral PCR)
- Cool Compress for Comfort
- Preservative Free Artificial Tears 6-8 x per day
- Infection control precautions: Hand washing, don't share towels or pillows, avoid infecting others (symptomatic = contagious)
- If severe: treat bacterial conjunctivitis with Polymyxin B/Gramicidin drops qid or Tobramycin 0.3% qid for 7 days
- Severe adenoviral conjunctivitis can cause secondary autoimmune conditions of the cornea – Subepithelial Infiltrates require ophthalmic management.

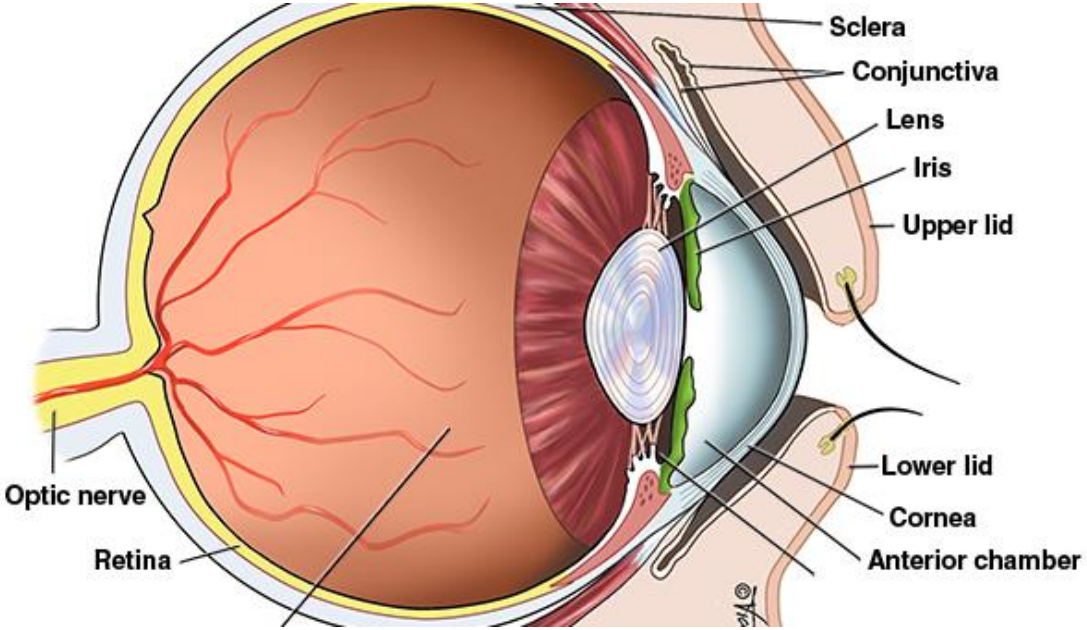
Allergic Conjunctivitis

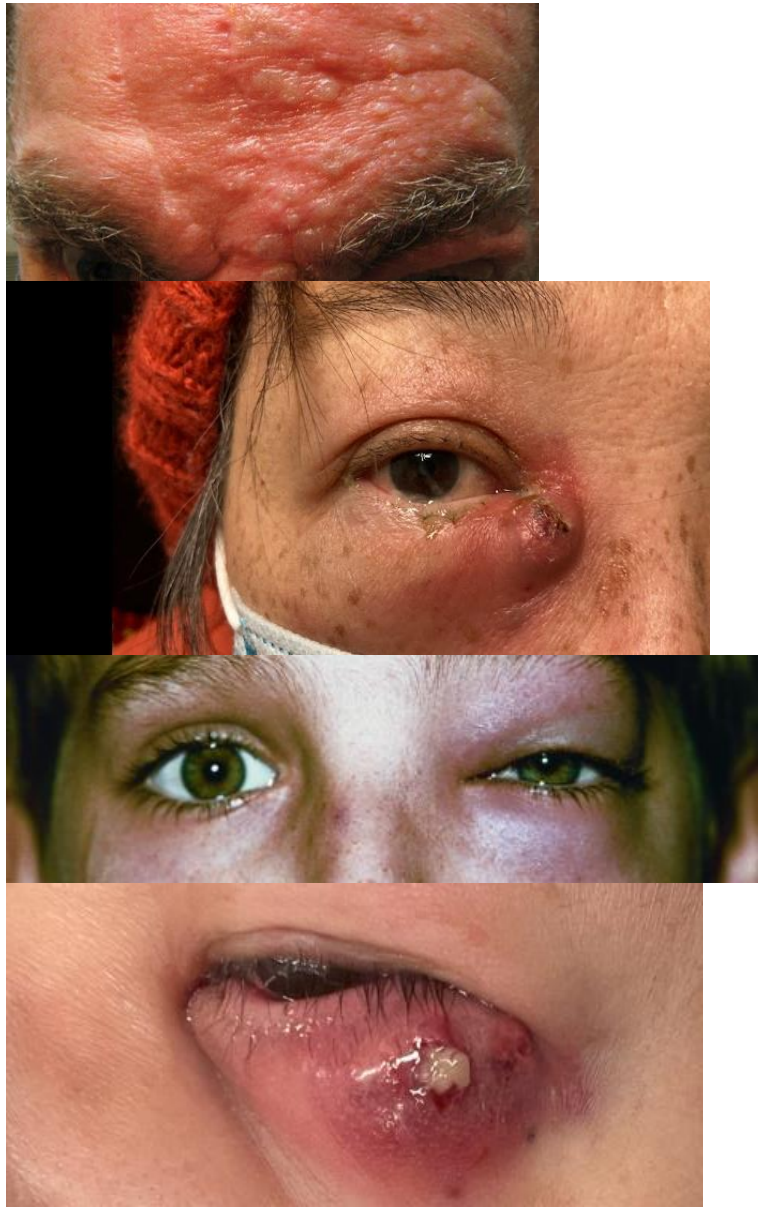
- Seasonal
- Itching predominates

- Bepotastine 1.5 % 1 drop bid.
- Olopatanine
- Optichrom

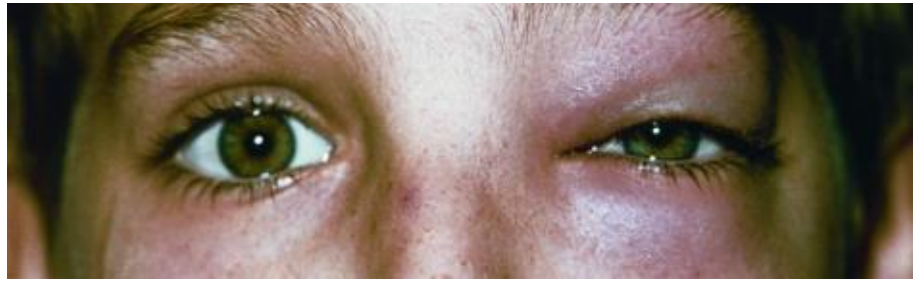
Mast Cell Stabilizers and Antihistamines should be tried along with frequent preservative free artificial tears

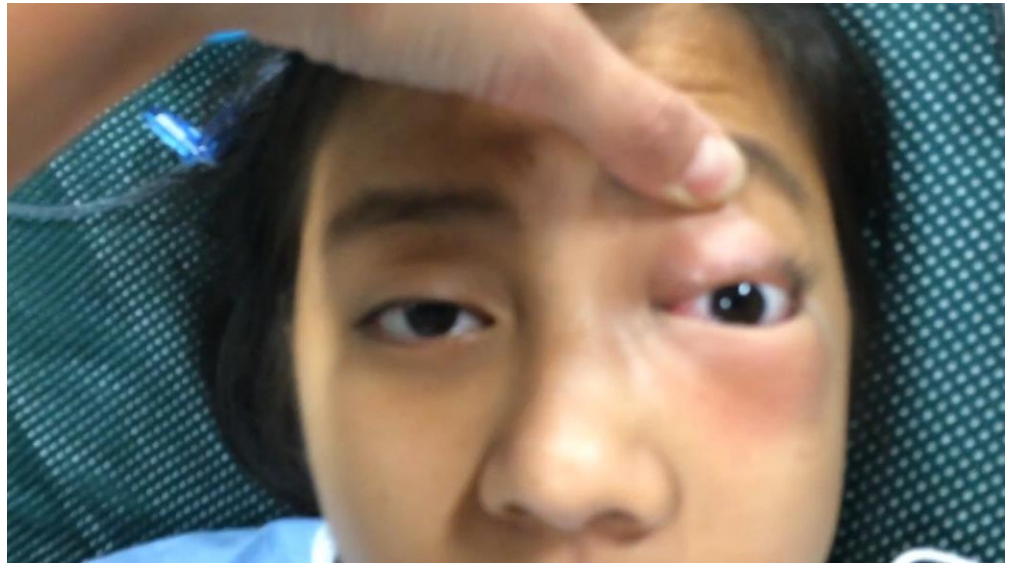
Ocular Adnexa (all the stuff that's not the eye and nerve)





- Preseptal Cellulitis
  - Trauma vs. Secondary to sinusitis
  - Amox-Clav and education about orbital progression
- Orbital Cellulitis
  - Assess for decreasing vision, proptosis, afferent defect, restricted movement
  - These patient require canthotomy/cantholysis for orbital compartment syndrome and IV Ceftriaxone + Vanco

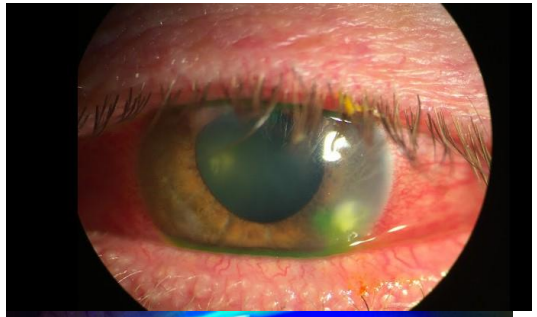


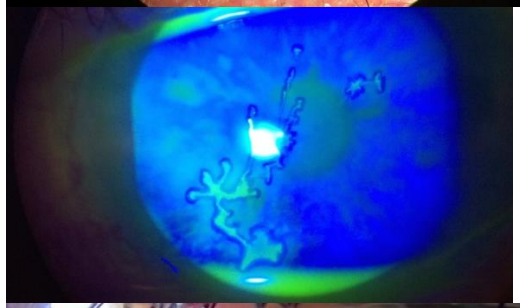


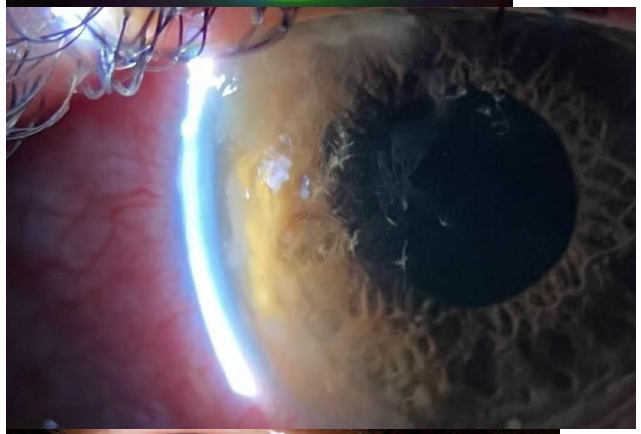
Infectious Keratitis (corneal infection)

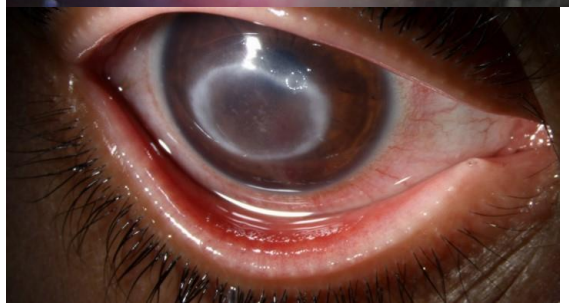
- Bacterial
- Viral
- Fungal
- Parasitic

- Red Flag History:
  - Any trauma – Organic Matter High risk
  - Contact Lens Use
  - Recent Swimming Pool
  - Immunocompromised (diabetics with neuropathy)









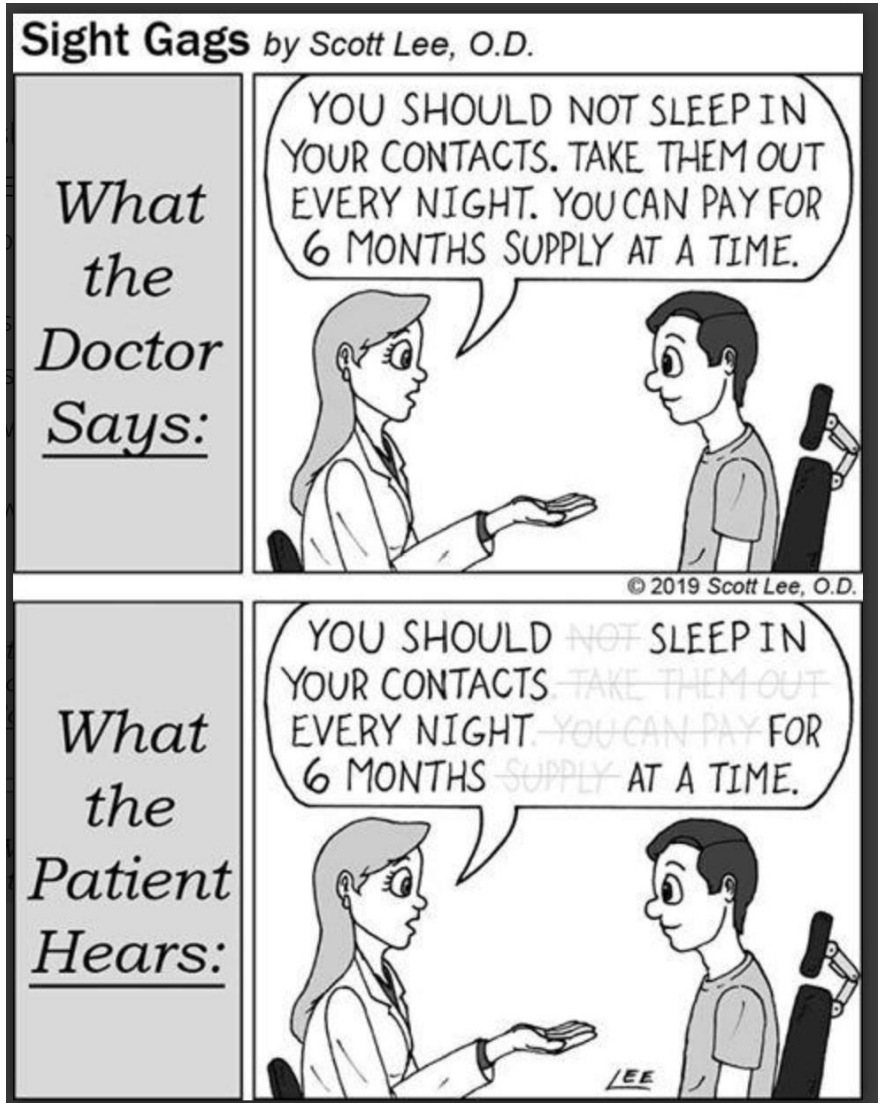
Contact Lenses

- If your patient is a contact lens wearer and has a complaint of eye redness, discomfort +/- blurred vision
- The cause is the contact lenses

- Your patients will refute this!

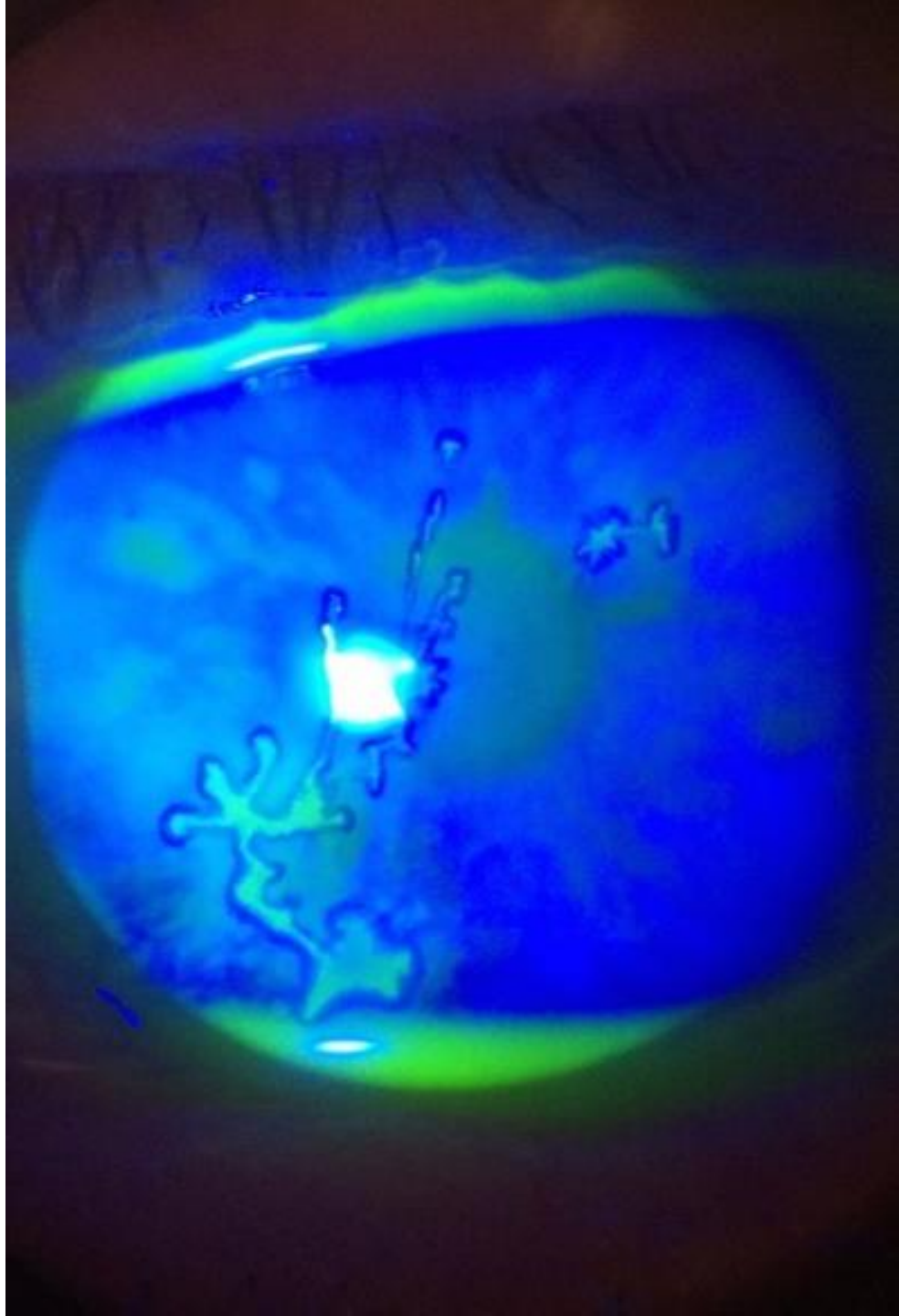
- D/C Contact lens use immediately!

- Pseudomonas can perforate the cornea in 24 hours. Start Vigamox drops q1h while sending to ED.

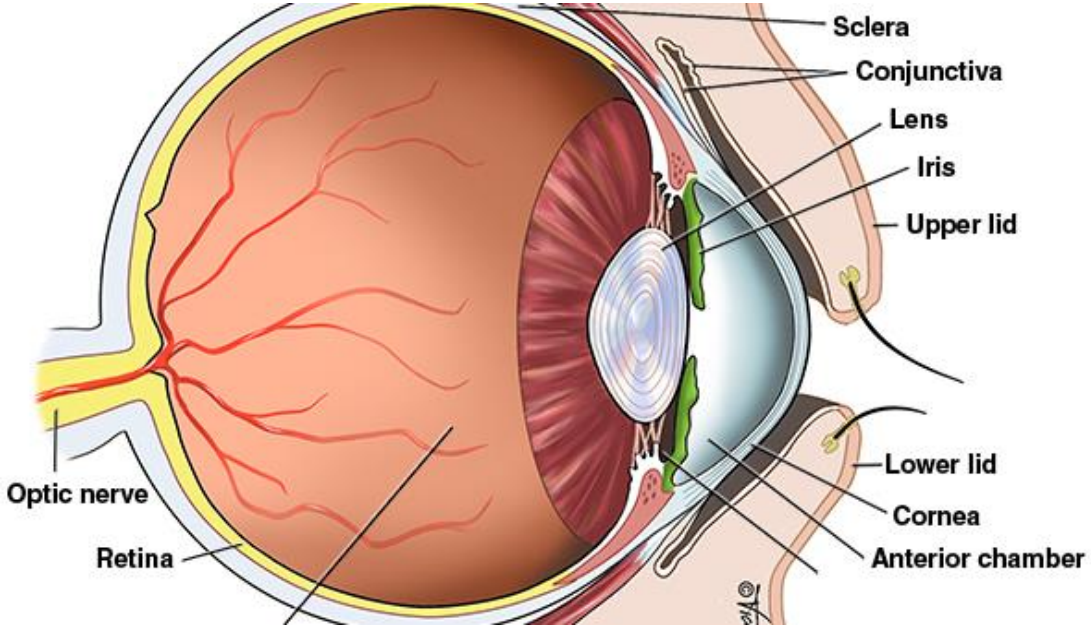


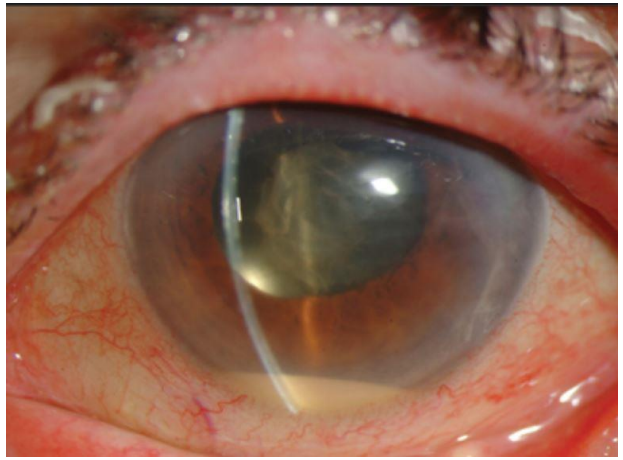
Herpetic Keratits

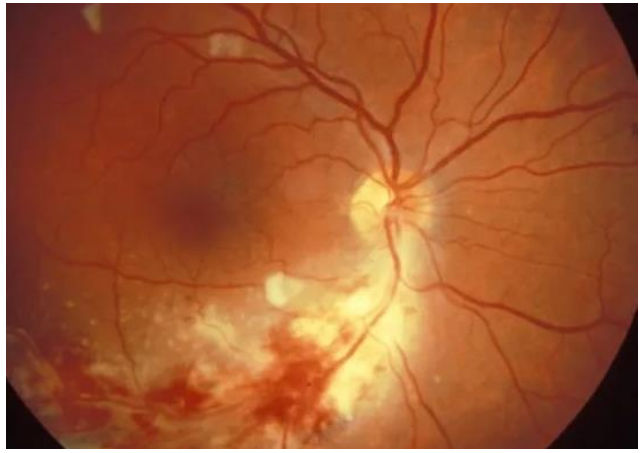
- HSV virus causes corneal dendrites
- Presents with decreased vision and foreign body sensation
- Steroid can worsen or precipitate
- Start Valtrex 500mg tid and send urgently to Ophthalmology

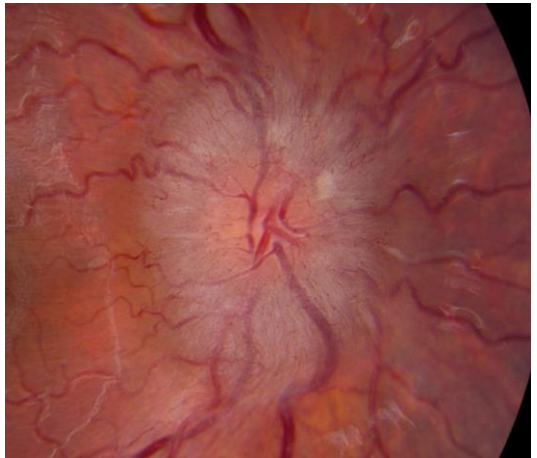


Intra-ocular Infections



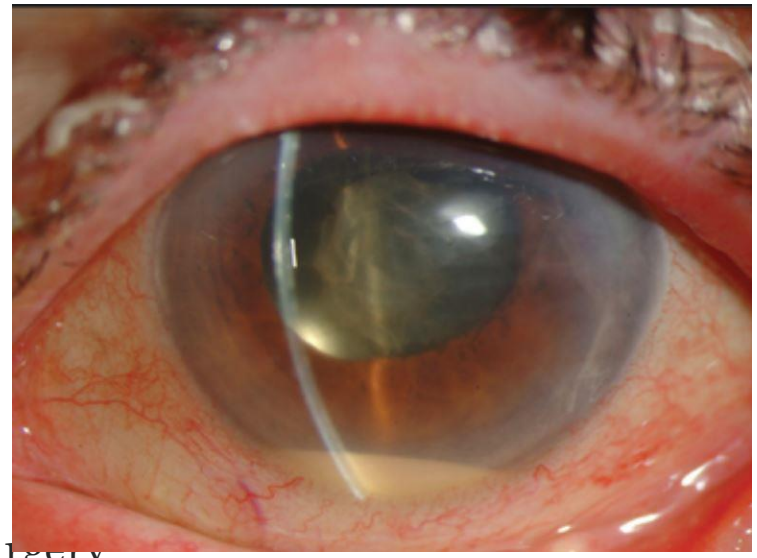






- Any Infection INSIDE the eye will cause pain and decreased vision!
- Endophthalmitis, Retinitis, Infectious Optic Neuropathy

Red Flags

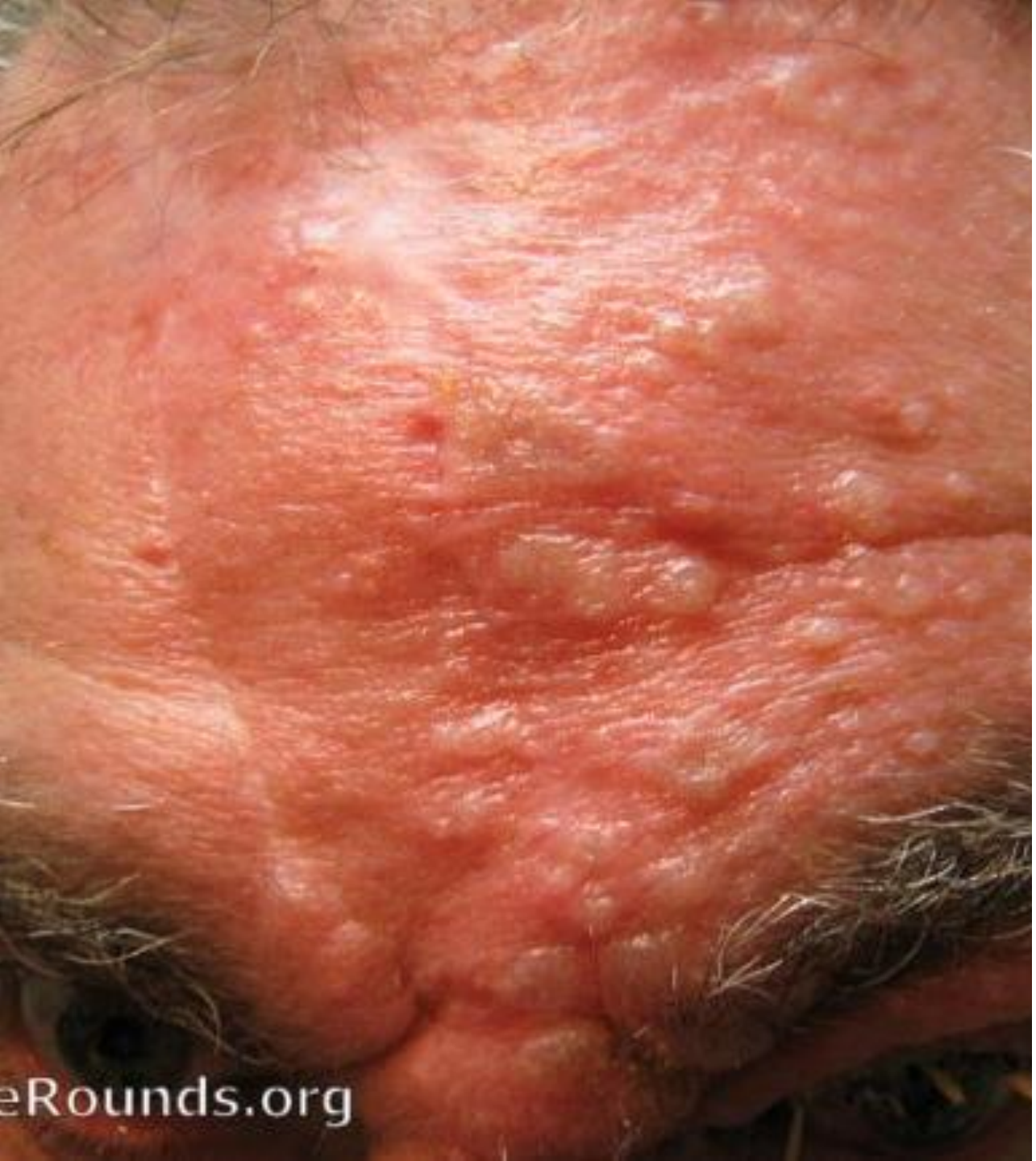


- Immunocompromised or systemic infection
- **Recent surgery or injection**
  - 1:6000 risk of endophthalmitis with routine cataract surgery.
  - High risk of severe and irreversible vision loss
  - Patient should be able to contact their surgeon but if they cannot, direct them immediately to the emergency department

Intra-ocular infection should be seen emergently by ophthalmology on call!

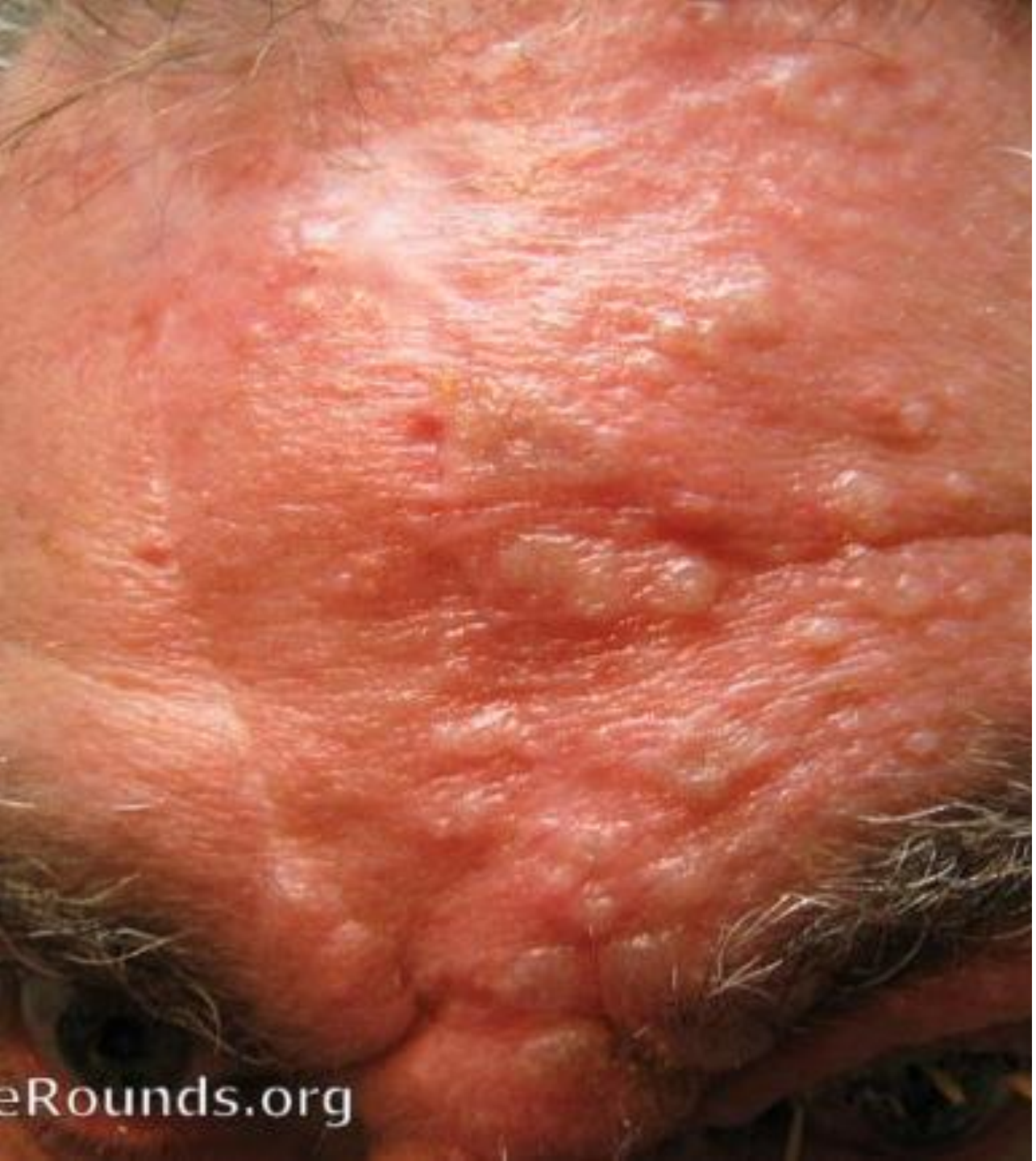
Shall we keep going or stop for questions?

Part 2 is some red/itchy/burning eyes review and a “what to worry about with shingles” case



V1 Zoster

- Conjunctivitis
- Lid lesions
- Corneal Pseudo-dendrites
- Uveitis
- Acute Retinal Necrosis/ Progressive Outer Retinal Necrosis



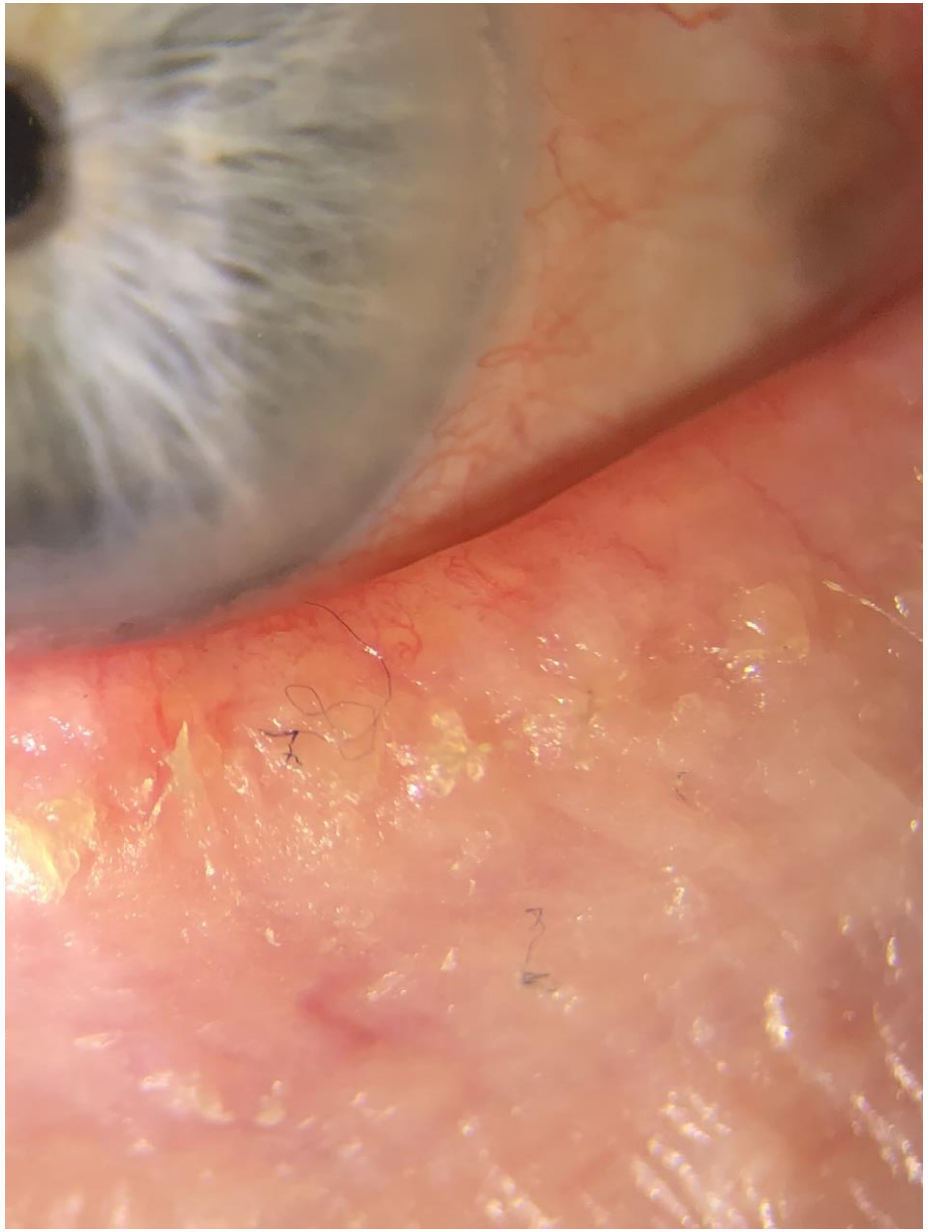
How soon should this be seen by ophthalmology?

- First – Start Valacyclovir 1000mg tid for 7 days and educate!
- If your patient has no eye concerns…
  - No referral required
- If your patient has mild injection of the conjunctiva
  - No referral required – artificial tears qid
- If your patient has vision decrease and light sensitivity
  - Urgent referral – Seen within a few days
- If your patient has painless blotches of vision loss with floaters
  - This is an emergency in zoster patients!

Other itchy-burnies of all sorts!

- Tired, red, tearing, goopy in the morning, goop at night, sticky in the morning, sticky at night, sore, aching pain, burning pain, shooting pain, worse when I read, worse on screens, new lump in my eyelid ….

- If vision is affected it is transient, associated with the mild discomfort and often improves with blink.



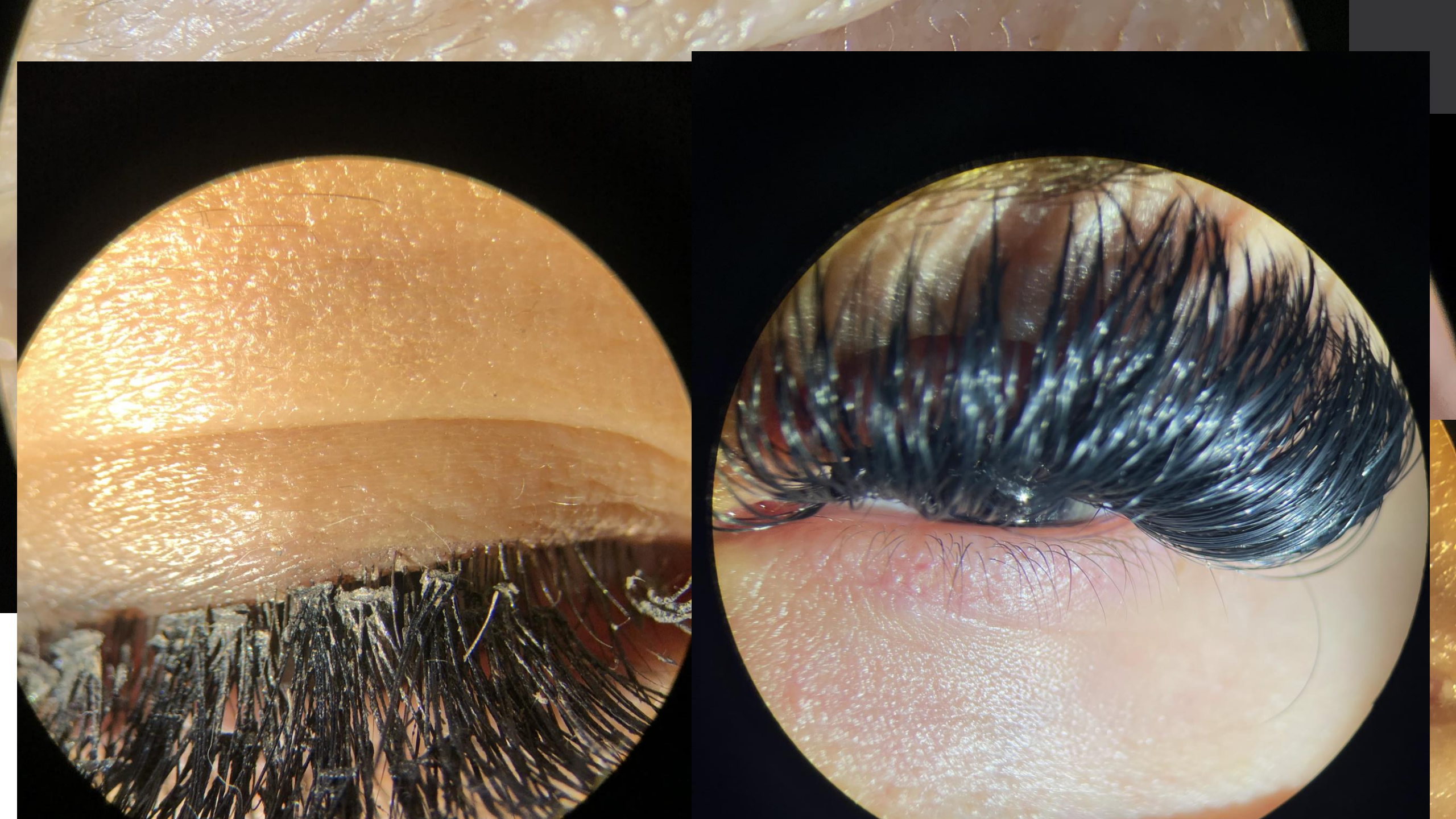
Blepharitis and Meibomian Gland Dysfunction

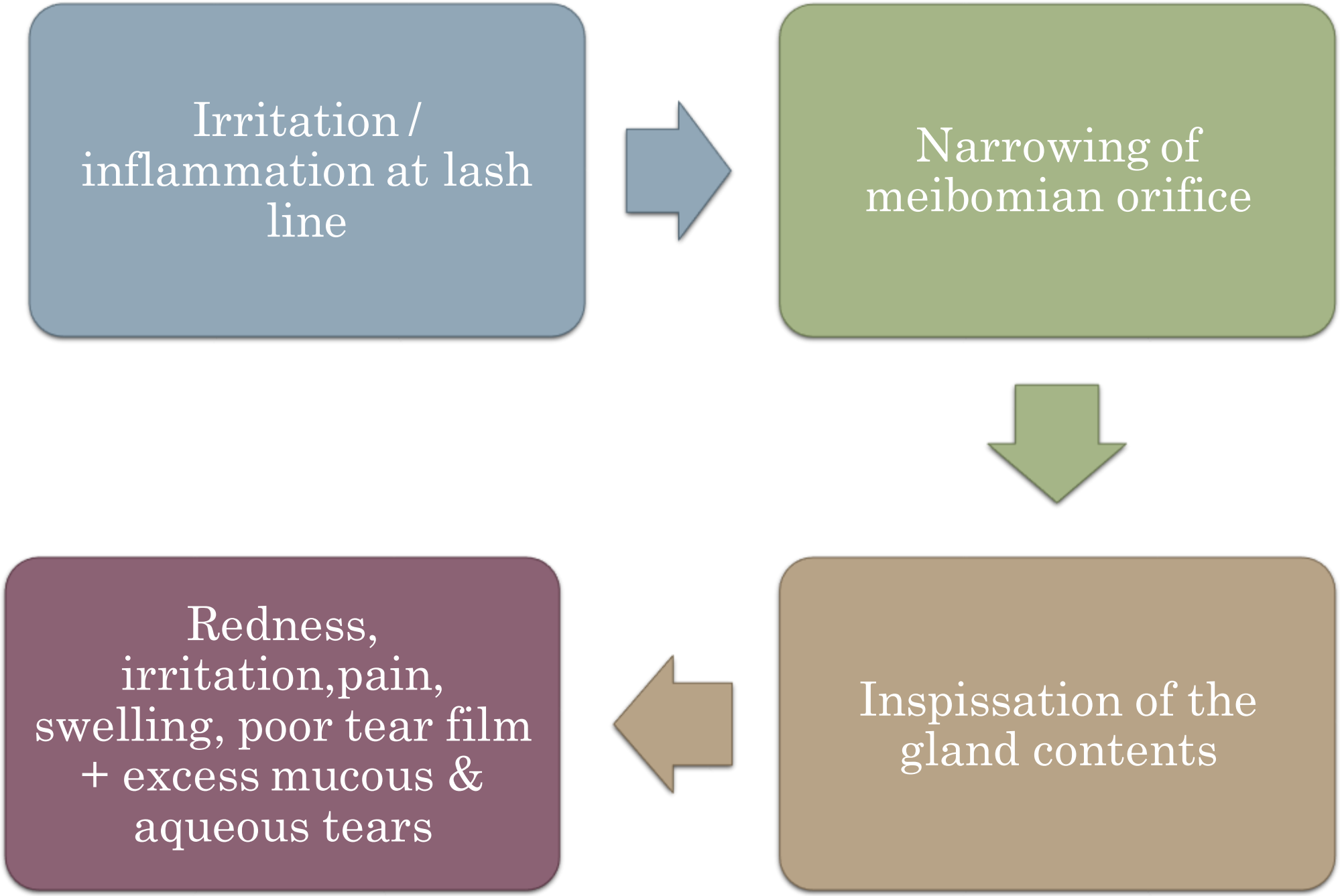
Irritation / inflammation at lash line

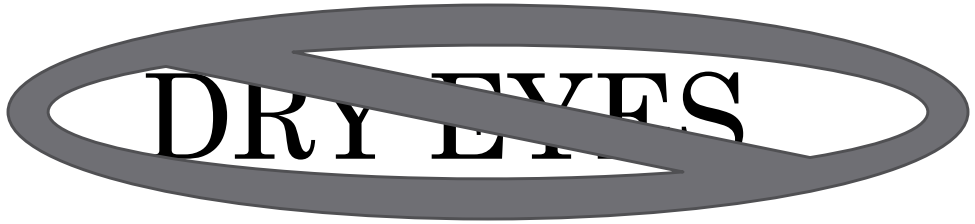
Narrowing of meibomian orifice

Inspissation of the gland contents

Redness, irritation,pain, swelling, poor tear film + excess mucous & aqueous tears



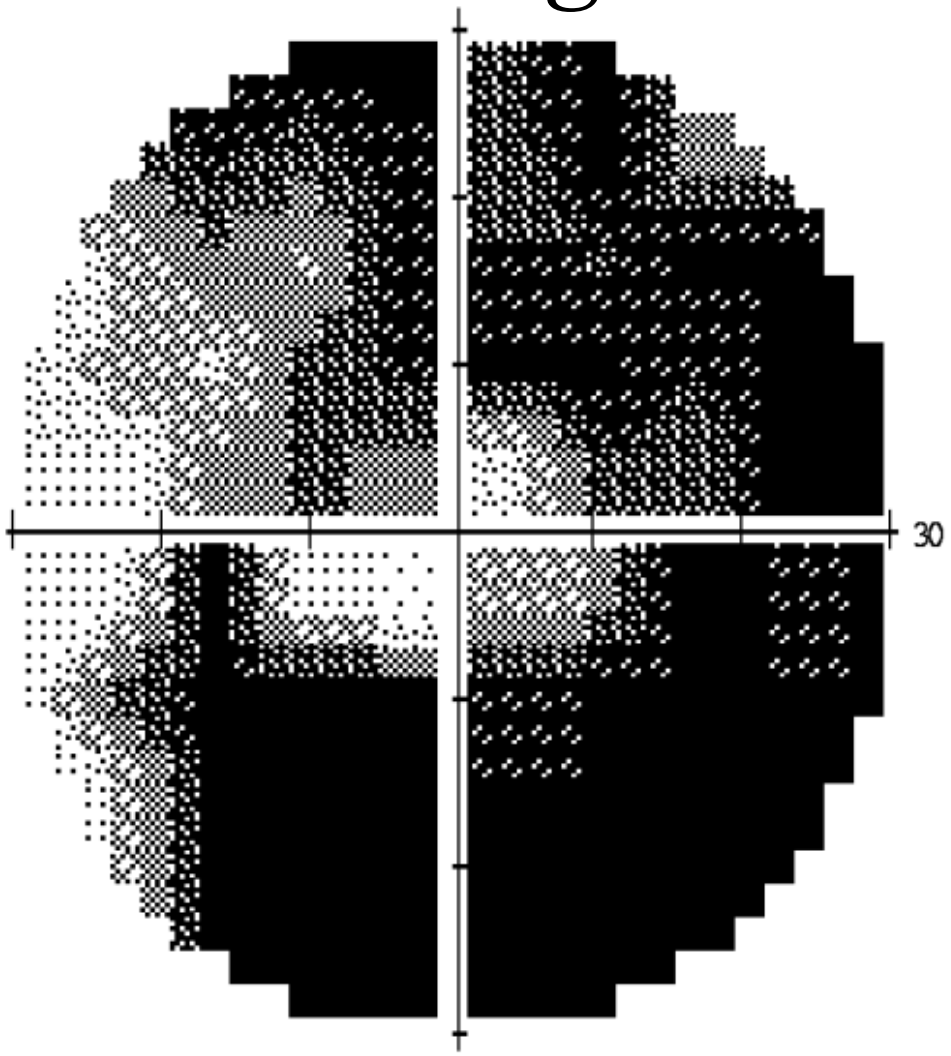

Irritation / inflammation at lash line
Narrowing of meibomian orifice
Inspissation of the gland contents
Redness, irritation,pain, swelling, poor tear film + excess mucous & aqueous tears

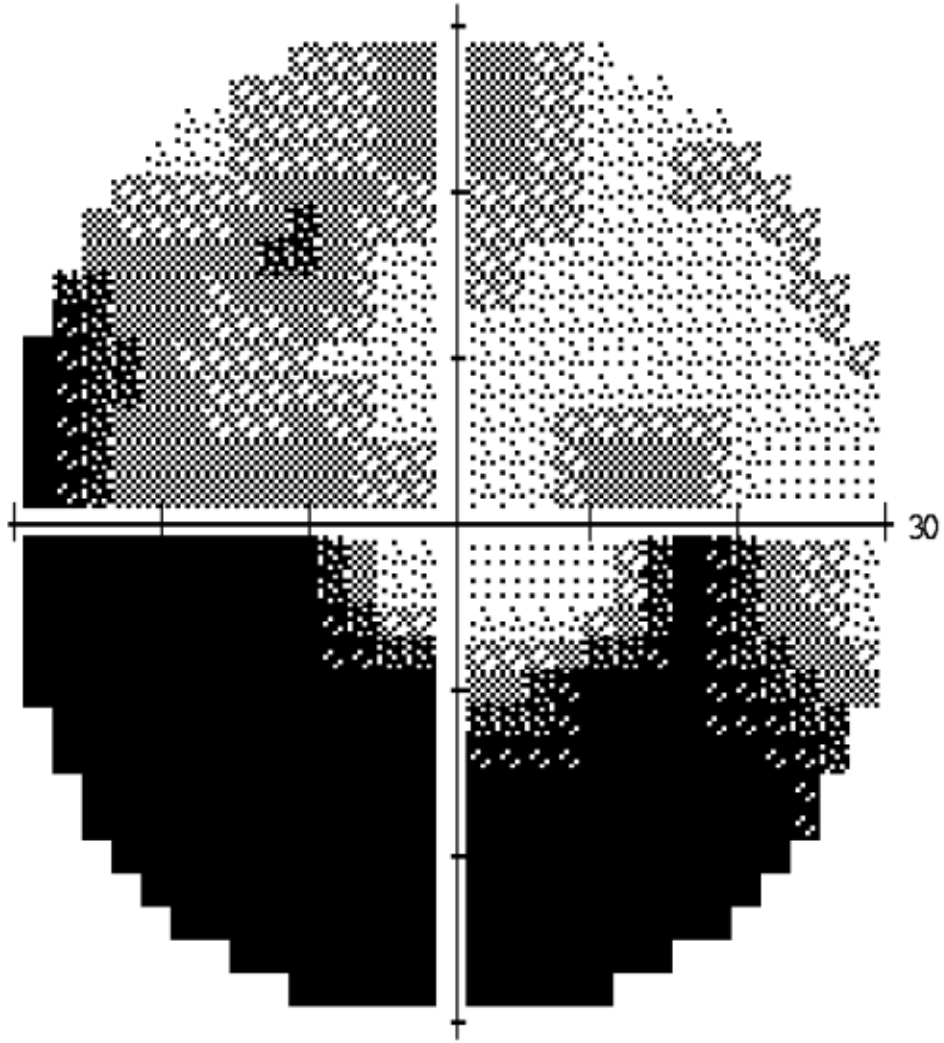


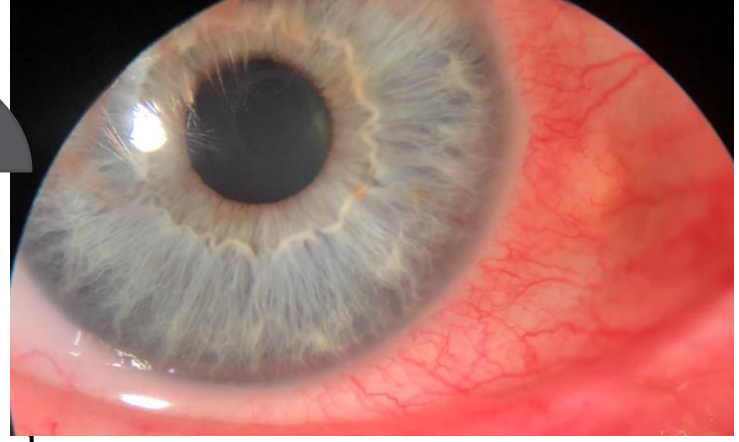
Ocular Surface Discomfort

- “Improve the quality of your tear film”
- Warm up the eyelids – Warm compresses
- Gentle lid scrubs – Like a massage for the meibomian glands that will free up debris at the base of the lashes
- Artificial tears – Visine is for plotting murder, not for dry eyes.

Should I give them steroid







- 30 yo – Red Eye

- Recent cold, describes pain, marked redness and constant tearing, mild photophobia, one eye much worse that the other.

- VA 20/20 (post tetracaine and pinhole). IOP 15, pupils symmetric. A few spots of fl. Uptake on cornea. AC D+Q.

- Dx: Conjunctivitis