Primary Care Eye Care

Mindy J. Dickinson, OD
Midwest Eye Care, PC
Omaha/Council Bluffs

Learning Objectives

1) Be able to better differentiate red eyes without a slit lamp

2) Visual Symptoms – which are scary, which are not

3) When to Refer and how urgently

4) Tips and Pearls

Things that you might encounter

- Subconjunctival hemorrhage
- Conjunctivitis – viral vs bacterial
- Dry eye and Allergies
- Blepharitis
- Uveitis
- CL related keratitis/ulcer
- HSV/HZO
- Episcleritis/scleritis
- Hordeola/chalazia
- Pre/Orbital Cellulitis
- Trichiasis, Entropion/Ectropion
- Acute Glaucoma attack
- Photopsias
- Sudden loss of vision

- Trauma:
  - Corneal abrasion
  - Foreign Body
  - Chemical Burn
  - Hyphema
  - Traumatic Iridocyclitis
  - Orbital fracture
  - Penetrating injury

Components of exam

- Visual Acuity
  - 20/?, corrected, pinhole, near card if no distance card
- External Observation
  - Face – pustules, ecchymosis, rosacea, rash
  - Eyelids – turned out or in, edematous, ptosis
  - Conjunctiva – bulbar or palpebral injection, both?
- Confrontation VF
  - Be sure that ½ way between you and patient
- Ocular motility
  - Full or limited - elevation, depression, abduction, adduction
  - Pain on eye movement?
- Pupil Assessment
  - Fixed, Afferent Pupil Defect (APD)

Using Pupils to help you

- If pupil normal size and reactivity
  - think conjunctivitis
- If one pupil smaller
  - think inflammation from trauma or uveitis
- If one pupil larger (mid-dilated) and non-reactive
  - think acute glaucoma – or worse
- If pupil irregular or poor reaction
  - think iris stuck (synechiae with inflammation) or sick (HSV,HZO)
- If pupil peaked
  - think penetrating wound
- If Relative Afferent Pupillary Defect (RAPD)
  - think orbital cellulitis, retinal detachment, optic neuritis

Using Symptoms to help you…

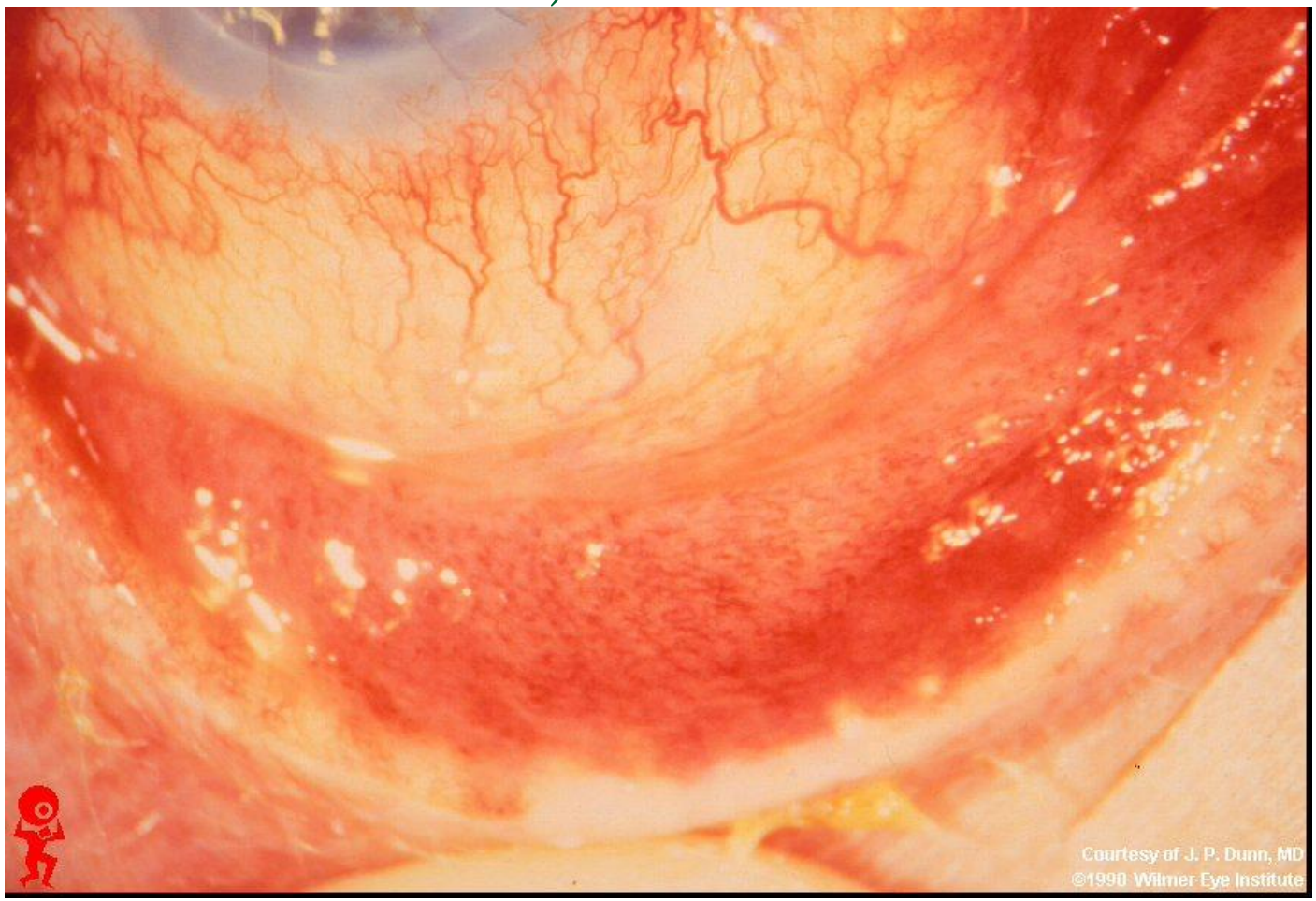
- Redness “injection”
- Discharge
- Foreign Body Sensation
- Itching
- Burning
- Eye Lid Swelling
- Photophobia
- Pain
- Vision Changes

- Unilateral
- Bilateral
- Start in one, spread to other

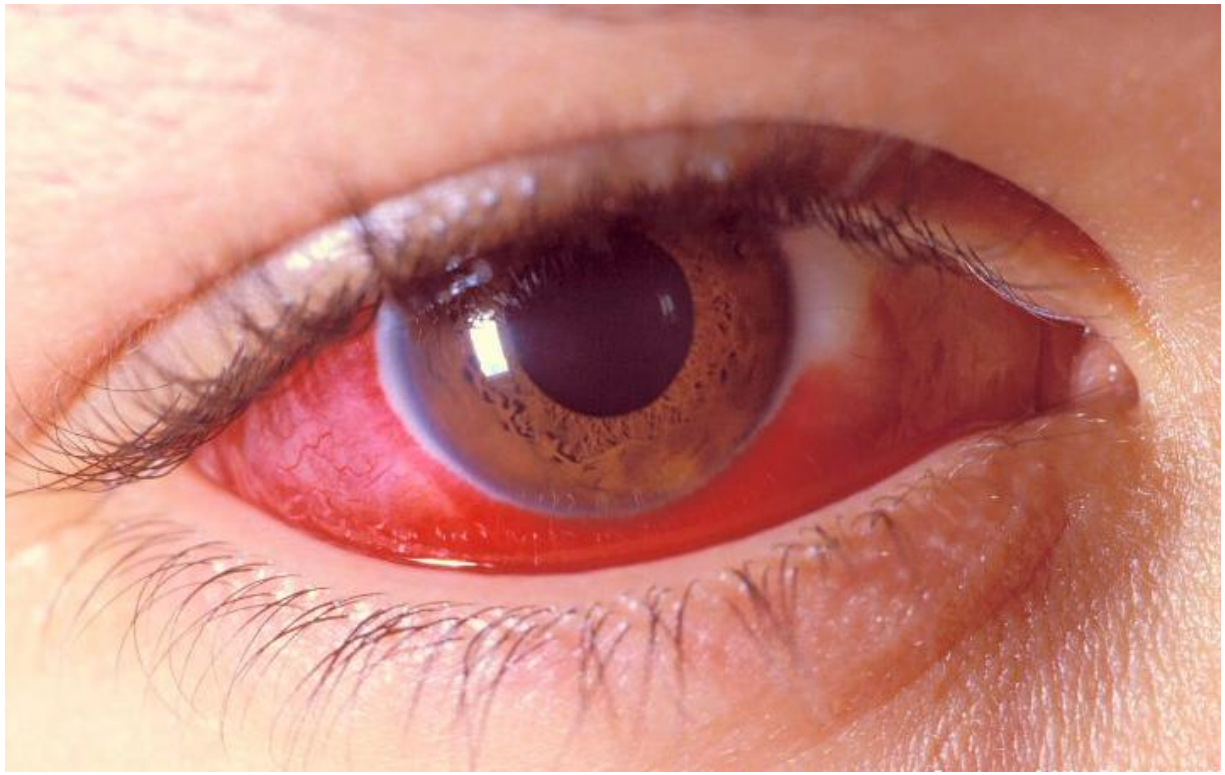
Redness

- **Bulbar injection versus Palpebral injection**
  - If both – think conjunctivitis
  - If bulbar only – MORE SERIOUS - think episcleritis, scleritis, uveitis, corneal problem, acute glaucoma
- **Location of redness**
  - Circumlimbal injection - think cornea disease or uveitis
  - Sectoral – trauma, FB, episcleritis, scleritis
- **Pooling of blood vs dilated vessels**
  - Subconj heme vs injection

Injected Blood Vessels in Conjunctivitis



Confluent Redness in a Subconjunctival hemorrhage



Photophobia

- Indicates eye inflamed
- Corneal and/or Anterior Chamber involvement
- More urgent !!

- Causes of Photophobia
  - Keratitis – HSV, ulcer, CL related, abrasion, FB
  - Uveitis
  - Dry Eye Disease

PAIN

- Grading scale 1 to 10
- Superficial vs sharp pain
- Deep, achy, throbbing pain
- On eye movement?
- Constant vs intermittent?
- History of trauma?

- More severe the pain = more urgent !!

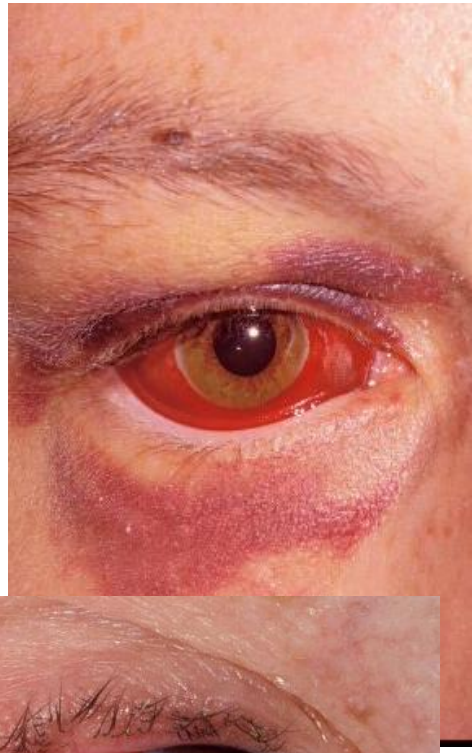
Vision

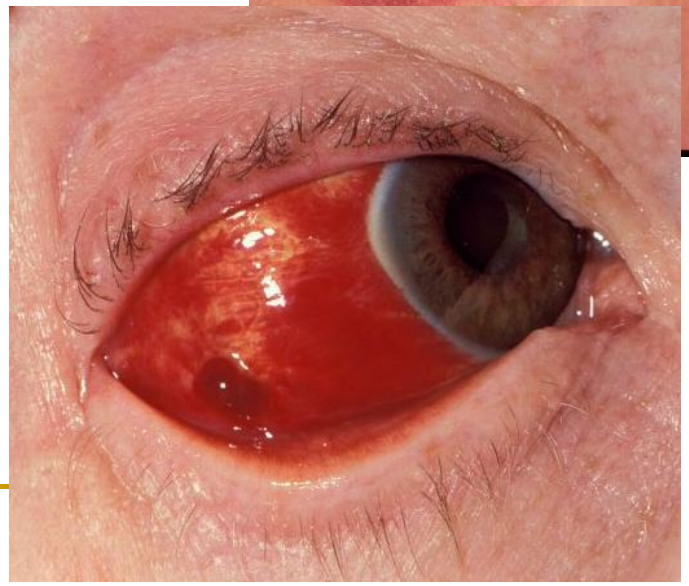
- Affected or Unaffected
- If affected = more urgent!!

- Foggy, blurred, fluctuates with blinking
- Floaters, flashes of light
- Curtain
- Double vision
- Constantly reduced vs comes and goes
- Unilateral dimming out of vision – intermittent vs consistent

Subconjunctival Hemorrhage

- Symptoms
  - Redness, **NO DISCHARGE**
  - Minimal to no pain
  - No change in vision
- Use of blood thinners?
- History of trauma?
- Eye rubbing, heavy lifting, valsalva, forceful coughing/sneezing
- Recurrent?
- Treatment –
  - None
  - Artificial tears if really puffy
  - Reassurance, up to 1-2 weeks to resolve
  - Referral unlikely





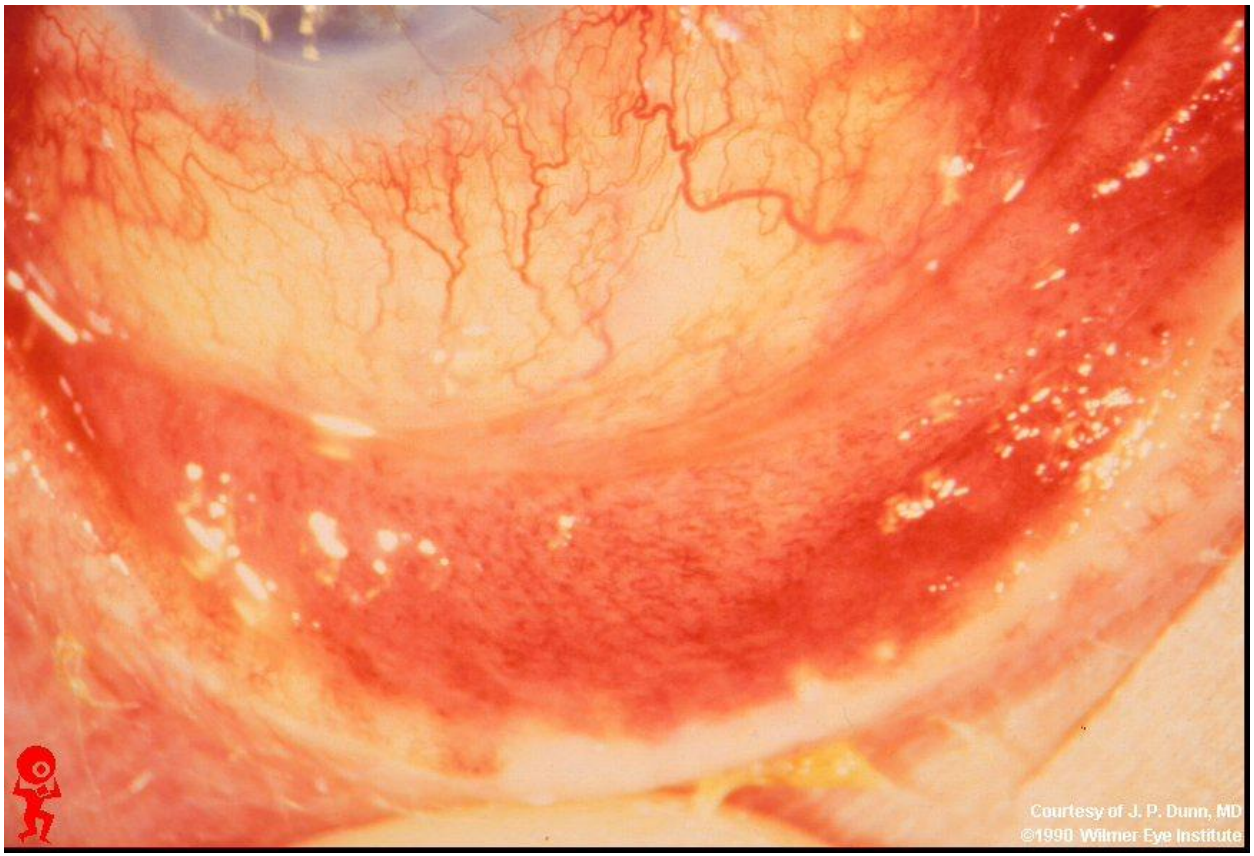
Symptoms of **Conjunctivitis**

- DISCHARGE ! (Always or not the correct Dx)
- Redness – BOTH BULBAR and Palpebral
- Scratchy, Burning, Stinging, Sticky, Itchy
- Swollen Eyelids
- Little to no affect on vision
- Little to no pain

Types of Conjunctivitis

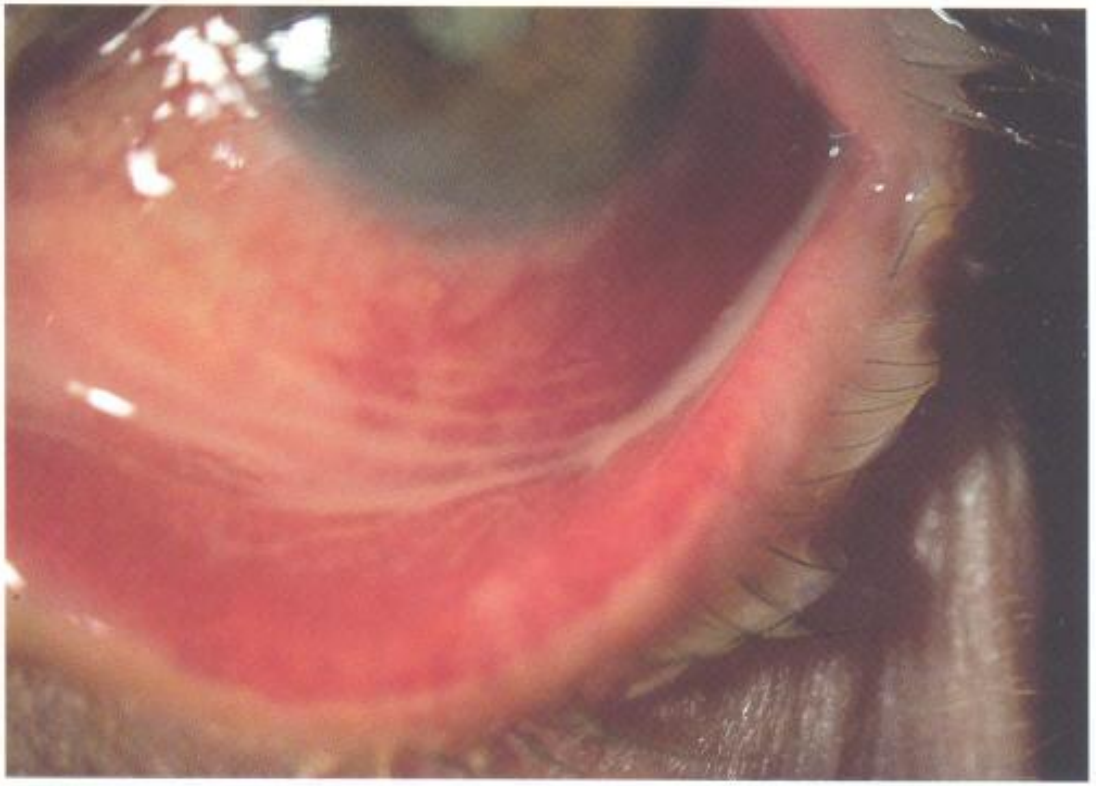
- Viral -
- Bacterial -
- Allergic
- Keratoconjunctivis Sicca (Dry Eye)
- Blepharoconjunctivitis
  (associated with Blepharitis/Rosacea)
- Contact Lens Related
- Chlamydial
- Gonococcal
- Herpetic
- Vernal/Atopic

Conjunctivitis



Injection of bulbar and palpebral conjunctiva

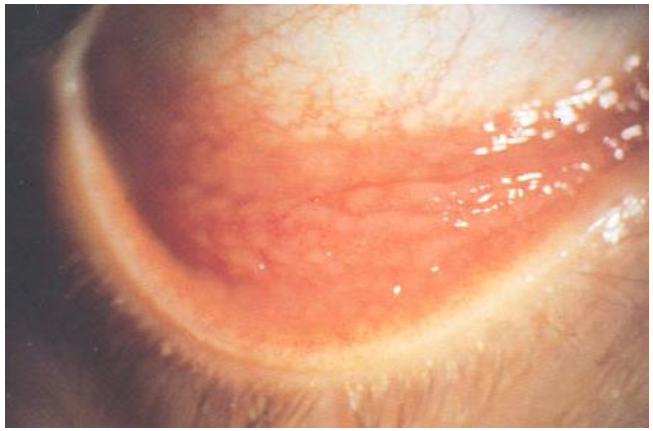
Mucopurulent Discharge

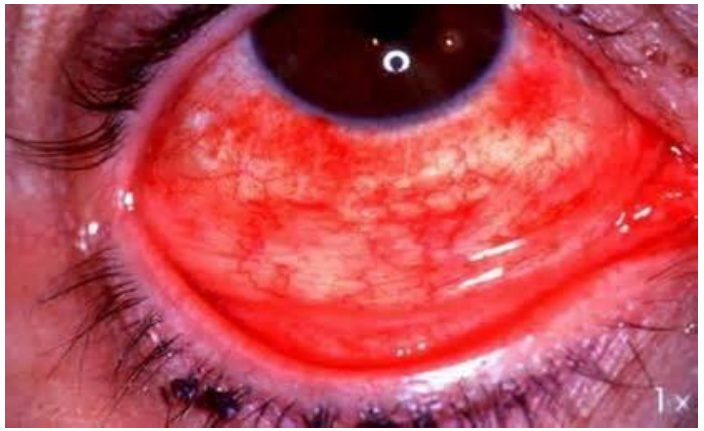


Think VIRAL if…

- Swollen Pre-auricular Lymph Node
- Subconjunctival hemorrhages
- Significant eyelid edema
- Corneal involvement (blurry, photophobia)
- Mucus membranes stuck to conjunctiva
  - EVERT EYELIDS !!!!!!
- Recent URI
- Bilateral or Unilateral
- Not getting better after a week
- Not getting better after use of antibiotic

Viral Conjunctivitis





Conjunctivitis – Treatment

- If choose to treat with antibiotic, make sure not allergic and not $$$
  - Prefer not to use gentamicin
  - Polytrim, tobramycin, ciprofloxacin
- Always do palliative therapy in conjunction
  - Chilled Preservative Free Artificial tears (q1hr)
  - Cold compresses
  - Oral NSAID
  - Discontinue contact lens use

So you treated it and it didn't get better …Now what?

- Don't just try a different antibiotic
  - if didn't get better with first one, then not just a simple bacterial conjunctivitis
- Refer to eye care provider if not better in a week
- Most commonly misdiagnosed as bacterial conjunctivitis:
  - Viral Conjunctivitis
  - Blepharitis
  - Dry Eye Syndrome
  - Herpes Simplex Keratitis
  - Uveitis
  - Trichiasis
  - Contact lens problem – so don't forget to ask if wear them

Allergic Conjunctivitis

- Usually bilateral
- Main symptoms (similar to dry eyes):
  - **Itching,** Tearing, Puffy, Red
  - Stringy ***DISCHARGE***
- **Both bulbar and palpebral** injection
- **Chronic, recurrent**
- **Oral anti- histamine**
- **OTC vs Rx Anti-histamine eye drops**
  - **Zaditor, ketotifen, Azelastine, Pazeo, Elestat, Bepreve, Lastacaft**

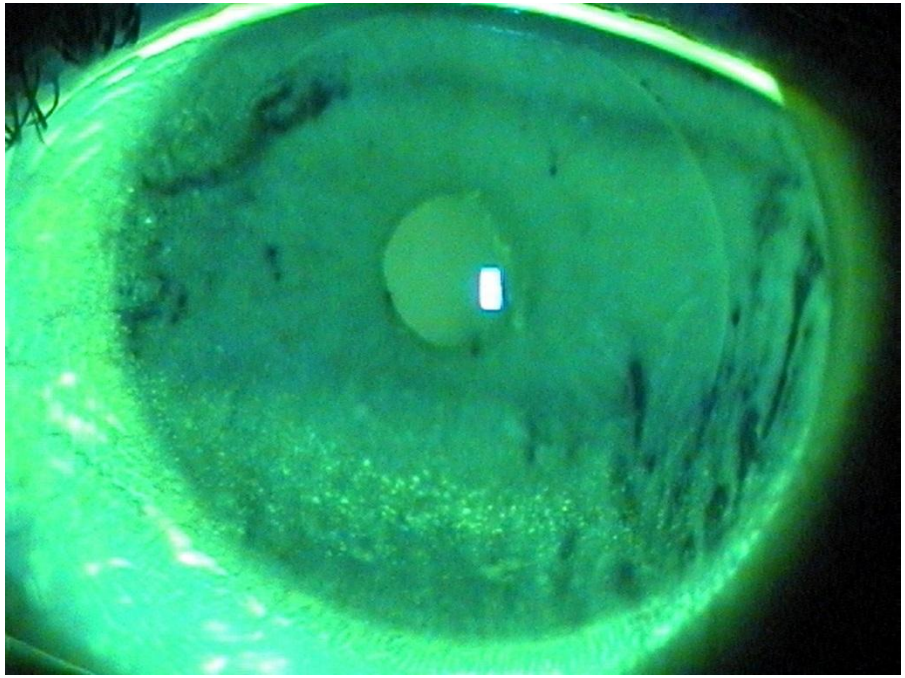
Keratoconjunctivitis Sicca - "Dry Eye Syndrome"

- Inflammation of ocular surface in setting of poor lubrication
- Could be related to exposure (reduced blink rate, cannot close completely), medications, autoimmune disease, hormones, age
- Symptoms
  - Burning, stinging, tearing, fluctuations in vision, foreign body sensation, stringy ***DISCHARGE,*** itchy (similar to allergies)
  - ***Chronic, Recurrent***
  - ***Bilateral***

Dry Eye Therapy

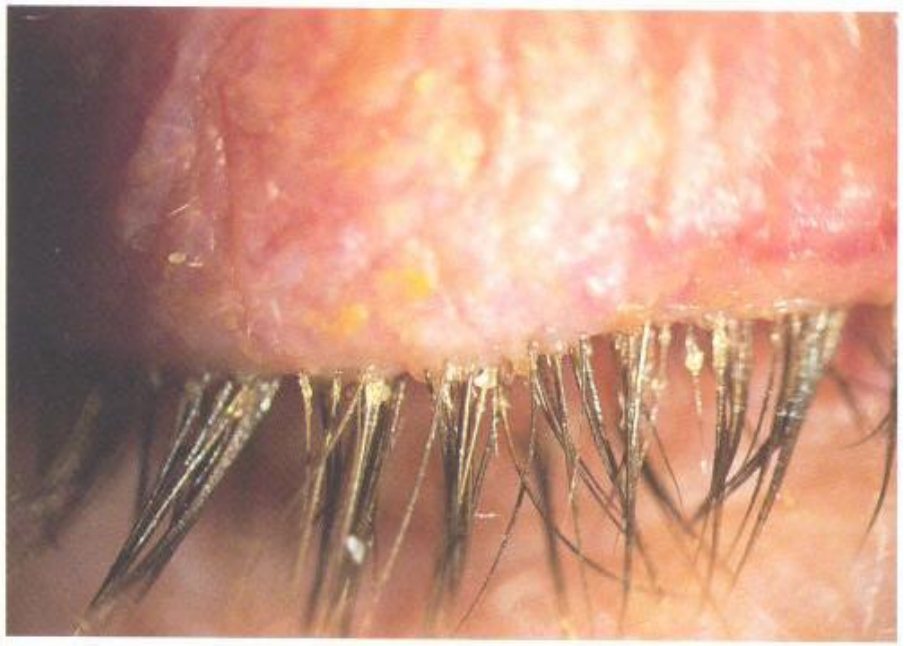
- *Chronic problem* – referral for long term management but not urgent

- Artificial tears
- Liquigels, gels, ung
- Environmental adjustments
- Restasis/Xiidra BID
- Corticosteroids
- Punctal Plugs
- Eyelid Hygiene



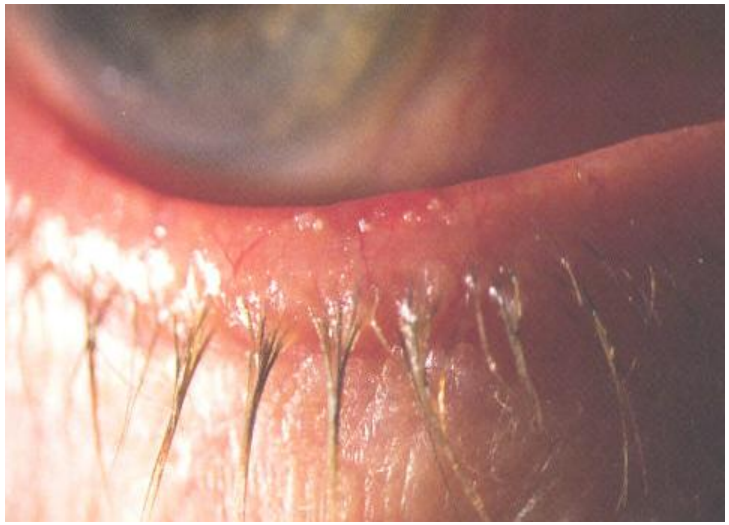
Eye Lid Disease - Blepharitis

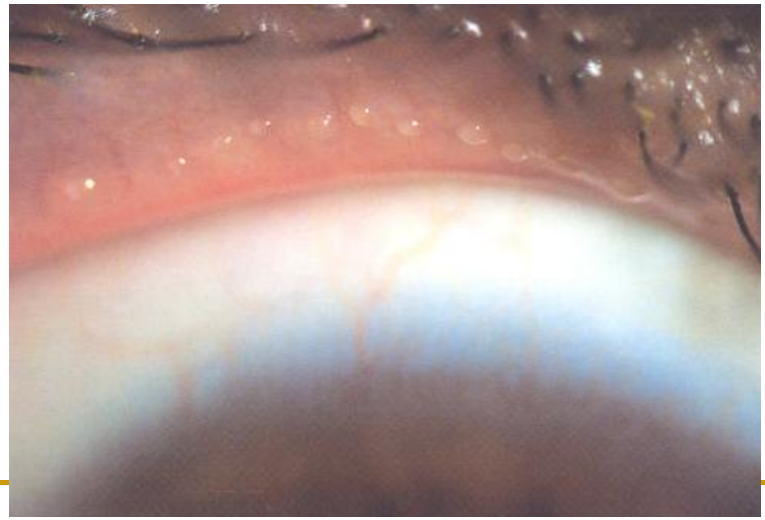
- "Red-Rimmed" eyes
- Red, burning, stinging, itchy, irritated eyes
- ***DISCHARGE***
- **Chronic, Recurrent**
- **Bilateral**



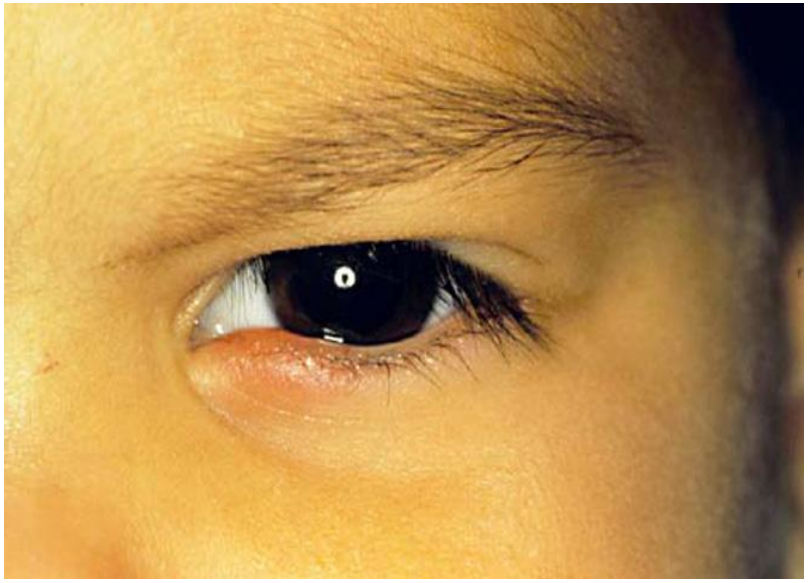
Blepharitis - Treatment

- Referral for long term management but not urgent
- Lid hygiene
  - Warm washcloth, massage at base of lashes
  - Diluted baby shampoo
  - Prepared Lid Scrubs
  - Hot soaks
- Antibiotic ung
  - Bacitracin, Erthyromycin
  - Tobradex ung if severe inflammation
- Oral Doxycycline
- Omega 3s





Hordeolum/Chalazion



- Blocked meibomian gland
- Red, tender, localized swelling

- Treatment

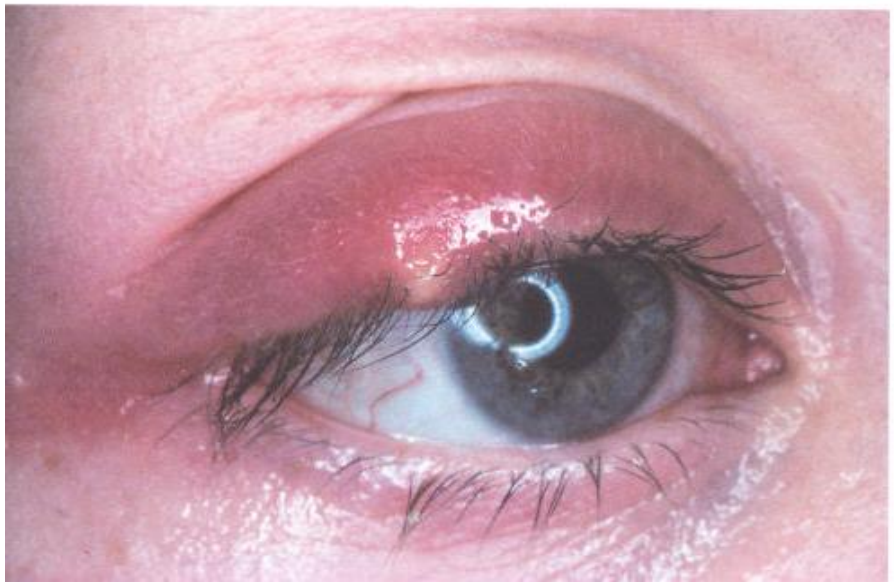
  1) START HOT PACKING

  2) Oral antibiotic if concern for cellulitis

  3) Ung like Maxitrol locally to lid

  4) Incision/Drainage – not right away – delayed until after inflammation gone

  * Oral Doxycycline if recurrent



Preseptal VS Orbital Cellulitis

- **PUPILS:**
  - No APD = Preseptal
  - + APD = Orbital
- **VISION:**
  - Normal vision (may have to lift eyelid for pt to see) = Preseptal
  - Reduced vision (doesn't pinhole better" = Orbital
- **EYE MOVEMENTS:**
  - No pain on eye movements and full
- **PROPTOSIS:**
  - None = Preseptal
  - + Proptosis = Orbital
- **TREATMENT:**
  - Preseptal = Oral antibiotic (Augmentin, Keflex, Bactrim)
  - Orbital = refer to ER for IV antibiotics

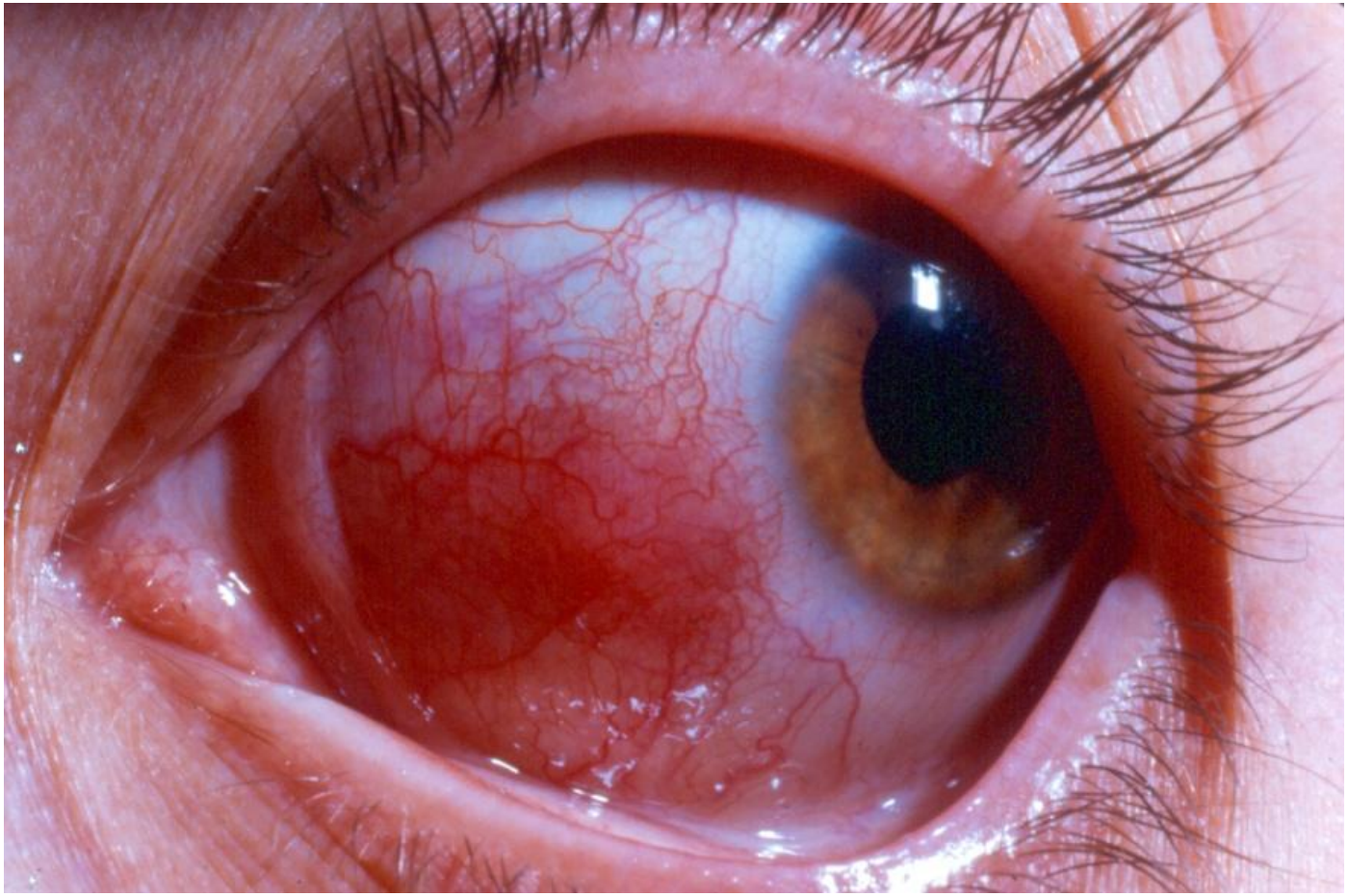
Epicleritis vs Scleritis

- inflammation of episcleral or scleral layers of eye
- ONLY BULBAR injection, ***NO DISCHARGE***
- ***Pain, tenderness***

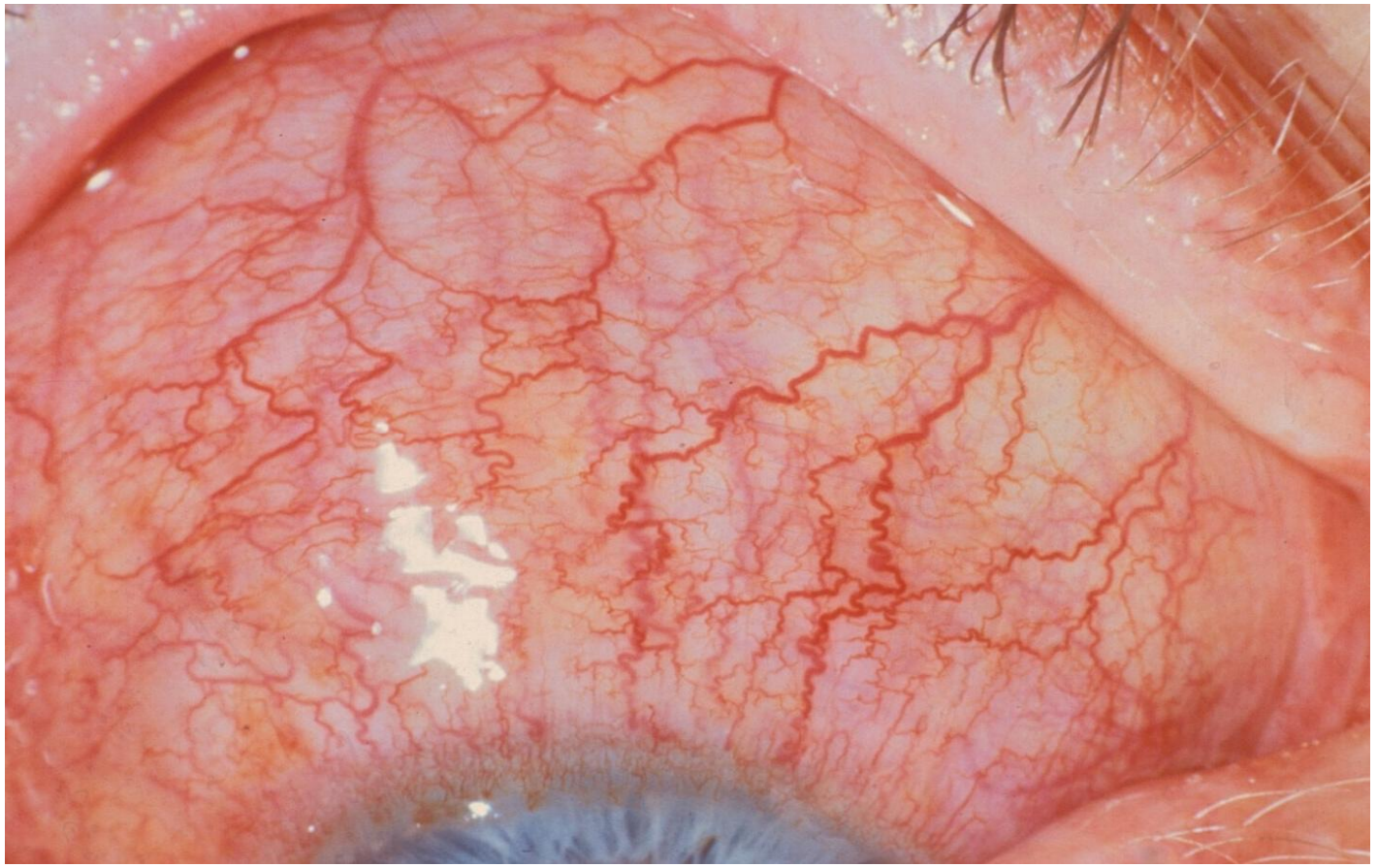
- **EPISCLERITIS**
  - *not as serious*
  - Eye is moderately pink or red
  - Often sectoral injection
  - Vision not affected
  - None to minimal pain
- URGENT – 24 hours

- **SCLERITIS**
  - *very serious*
  - **Eye is very red, almost purple**
  - Photophobia
  - **Very Painful** – can wake pt from sleep, cause decreased appetite, pain may radiate into temple or brow
  - Vision may be decreased
- EMERGENT

Localized Injection in EPISCLERTIS

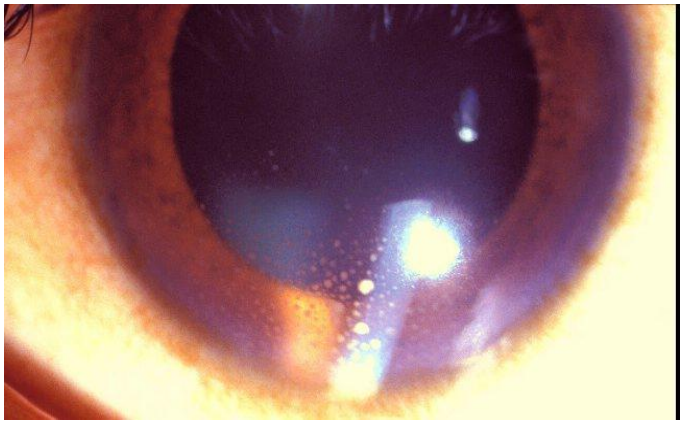


Deeper/Diffuse Injection in SCLERTIS



Iridocyclitis – inflammatory reaction in anterior or posterior chamber or both

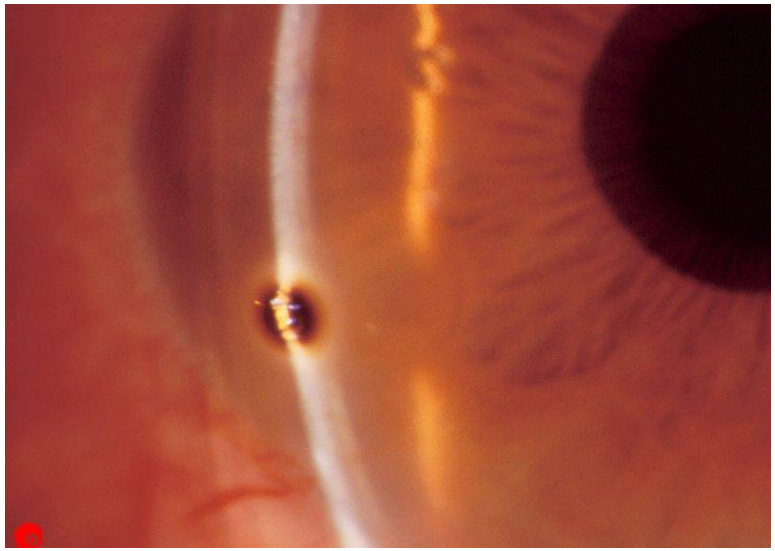
- Symptoms:
  - **Severe Photophobia**
  - Deep ache/throbbing pain
  - Blurred vision
  - ***NO DISCHARGE***
- Signs:
  - BULBAR injection only
  - Cells and/or Flare in Anterior Chamber
  - Precipitates on back of cornea
  - Miotic or irregularly shaped pupil
  - Usually unilateral

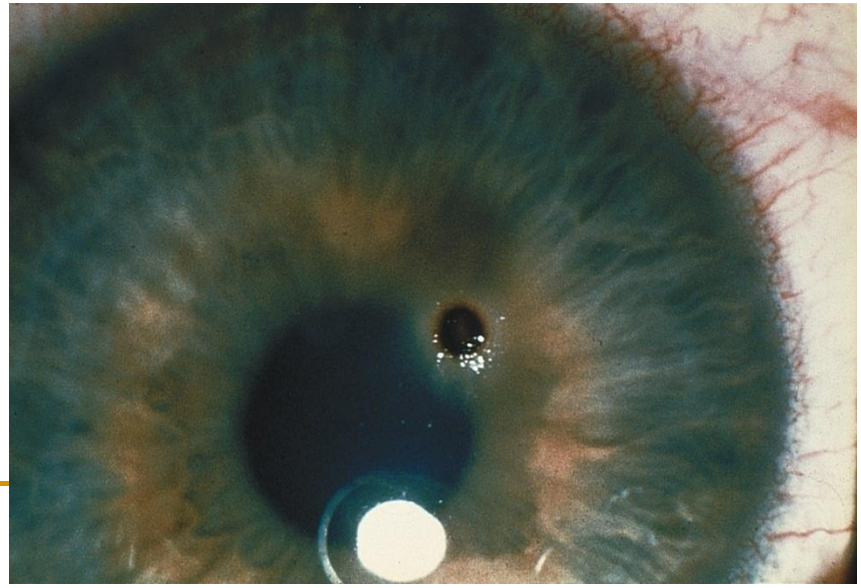


REFER urgently

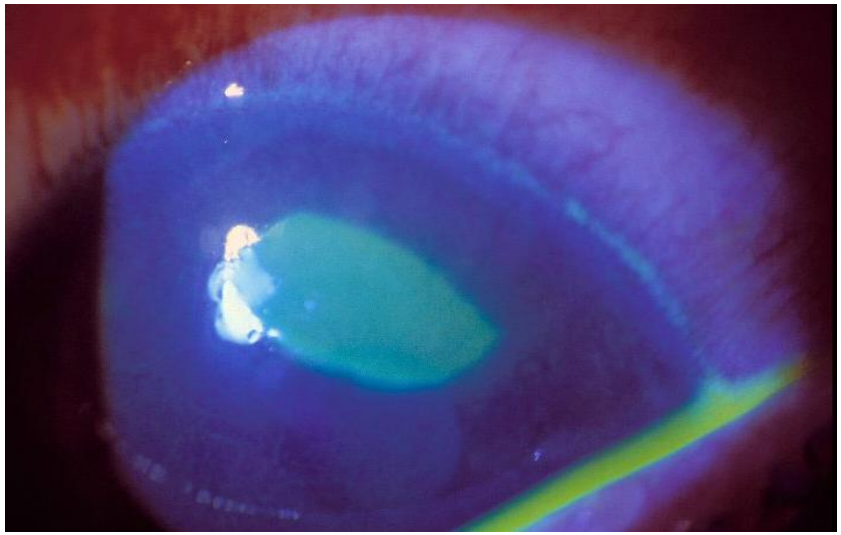
Corneal Foreign Body

- Tearing, FBS, pain, photophobia, red
- If metal frequently have rust ring associated
- See right away!
- Instill several drops of Alcaine to numb eye
- May use cotton swab, burr, or needle tip (30 gauge)
- Try to remove as much rust as possible
- Antibiotic drops or ung





Corneal Abrasion



- History of trauma
- PAIN, TEARING, PHOTOPHOBIA
- Staining epithelial defect
- Make sure no infiltrate
  - White blood cells beneath area epithelial loss may indicate infection
- Make sure nothing up under the eye lid scratching the eye – EVERT UPPER LID
- May have associated traumatic iritis

Treatment of Corneal Abrasion

***** DO NOT send home ALCAINE with patient ******

- If infiltrate, large, or central – REFER!!
- Antibiotic drops vs ointment, QID
  - Drops - don't blur vision but less comfortable
  - Ung – improve comfort, helps heal, but blurs vision
- Cycloplegic drop for comfort (cyclopentolate 1% QID, Atropine 1% QD)
- Cold compresses
- Oral NSAIDS
- Artificial Tears q few hours
- Eye Doctor can use Bandage Soft Contact Lens

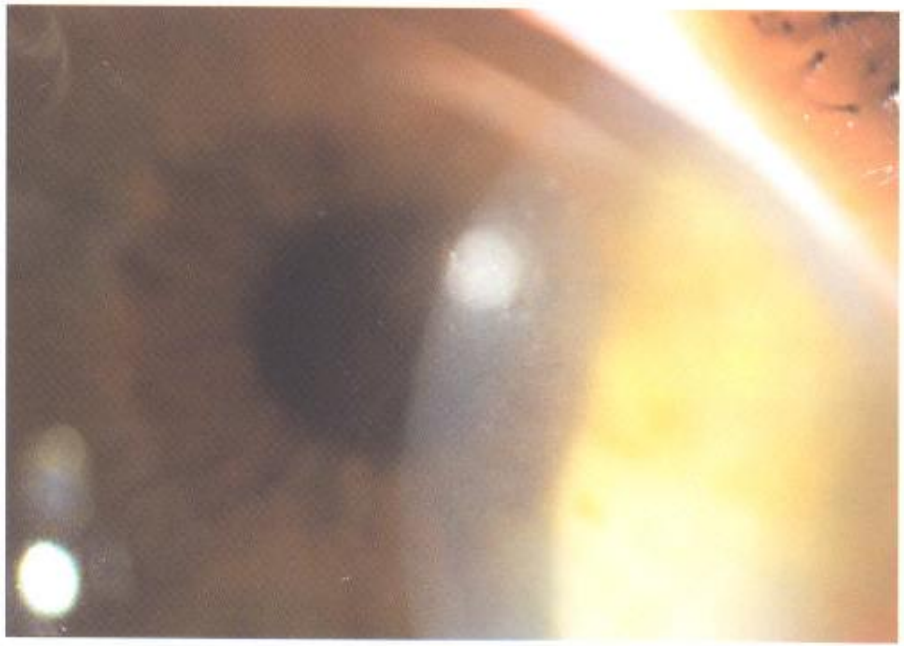
Recurrent Corneal Erosion

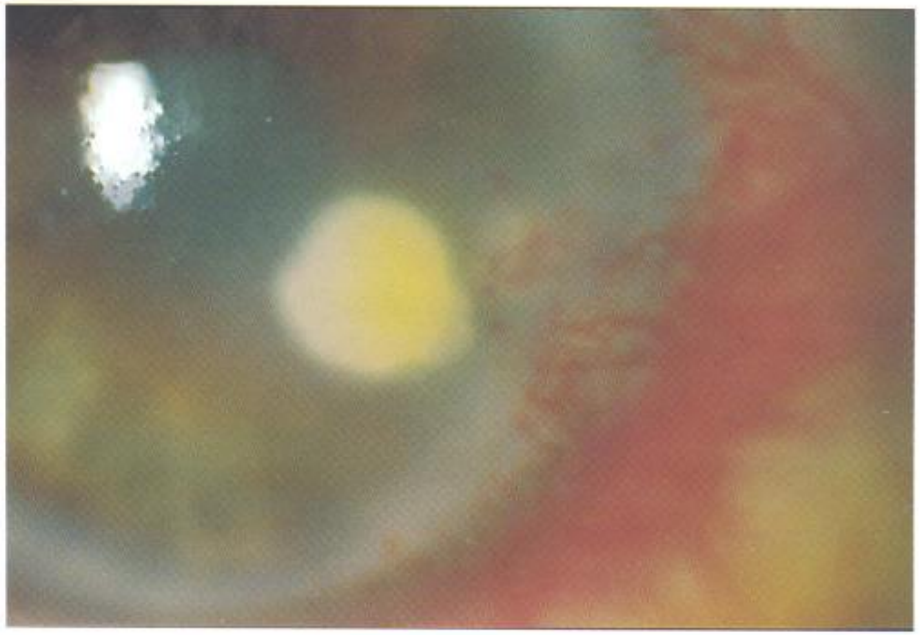
- Corneal epithelium sloughs off without any new history of trauma
- Usually happens upon awakening in morning
- Symptoms same as abrasion – pain, tearing, photophobia
- Usually history of either
  1) Corneal Abrasion
  2) Anterior Basement Membrane Dystrophy

Corneal Ulcer

- Staining epithelial defect *with infiltration* by immune cells – may be inflammatory or infectious
- "White staining lesion"
- Symptoms are Severe
  - **PAIN**, **redness, tearing**, **photophobia**
- Important history – CL wearer?
  - Sleep in CL? Swim in CL? How old are CL?

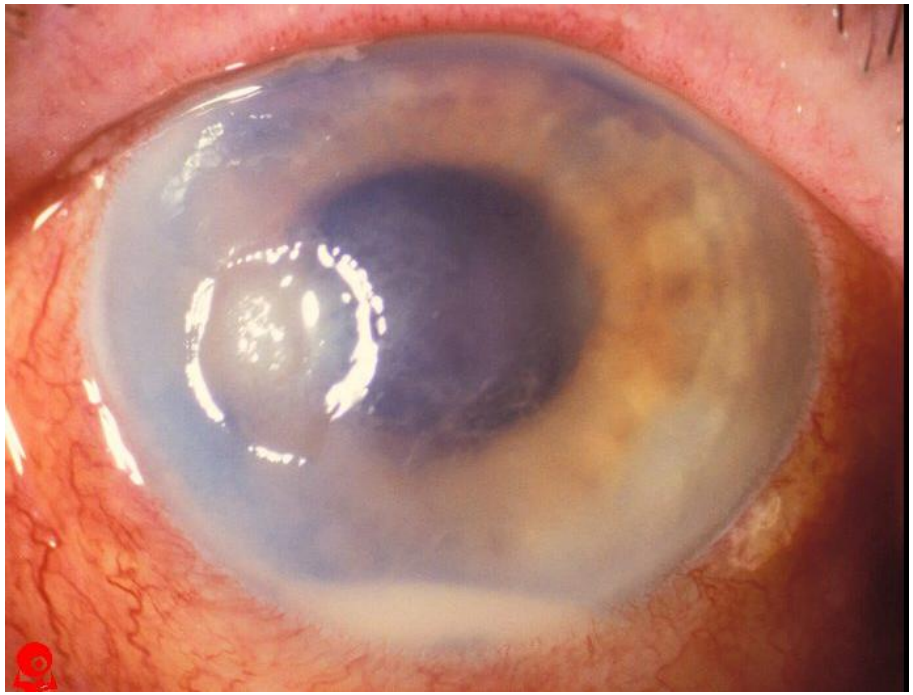
Corneal Ulcer = infiltrate with overlying epithelial defect





Corneal Ulcers

- Size and Location matter
  - Larger and central = worse prognosis
- +/- Hypopyon
- Refer emergently
- Do not patch eye
- Patient may need cultures to treat effectively
- Can perforate cornea

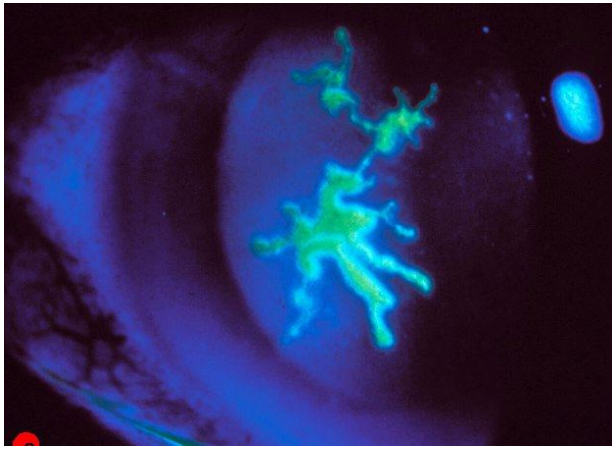


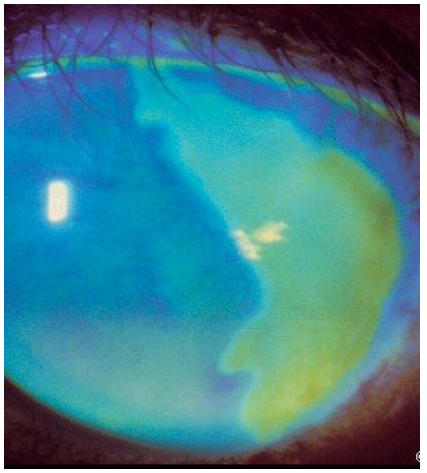
Herpes Simplex Ocular Complications

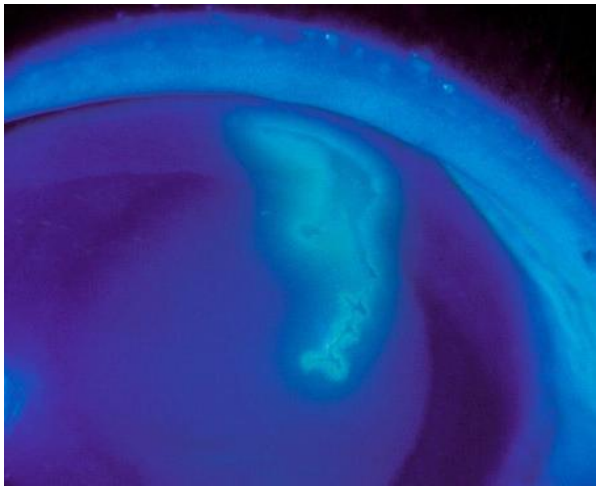
- HSV can cause:
  - Pustules/edema of eyelids
  - Conjunctivitis
  - Epithelial “dendritic” keratitis – (due to active virus)
  - Stromal keratitis – (due to pt’s immune reaction to virus)
  - Uveitis
- Can be primary or secondary
  - Primary often bilateral and young child
    - Lymphadenopathy, flu-like symptoms,
  - Secondary usually **only unilateral**
    - May occur/recur at any age for no good reason
    - More common in setting of micro trauma (UV, abrasion)

HSV Dendritic Keratitis

- Symptoms intense
  - **UNILATERAL** Pain
  - Bulbar injection
  - Photophobia
  - Blurred vision
  - Tearing, but no mucus discharge
- Branching corneal ulcer
- Steroids contraindicated
- Often misdiagnosed for conjunctivitis or abrasion
- Refer emergently







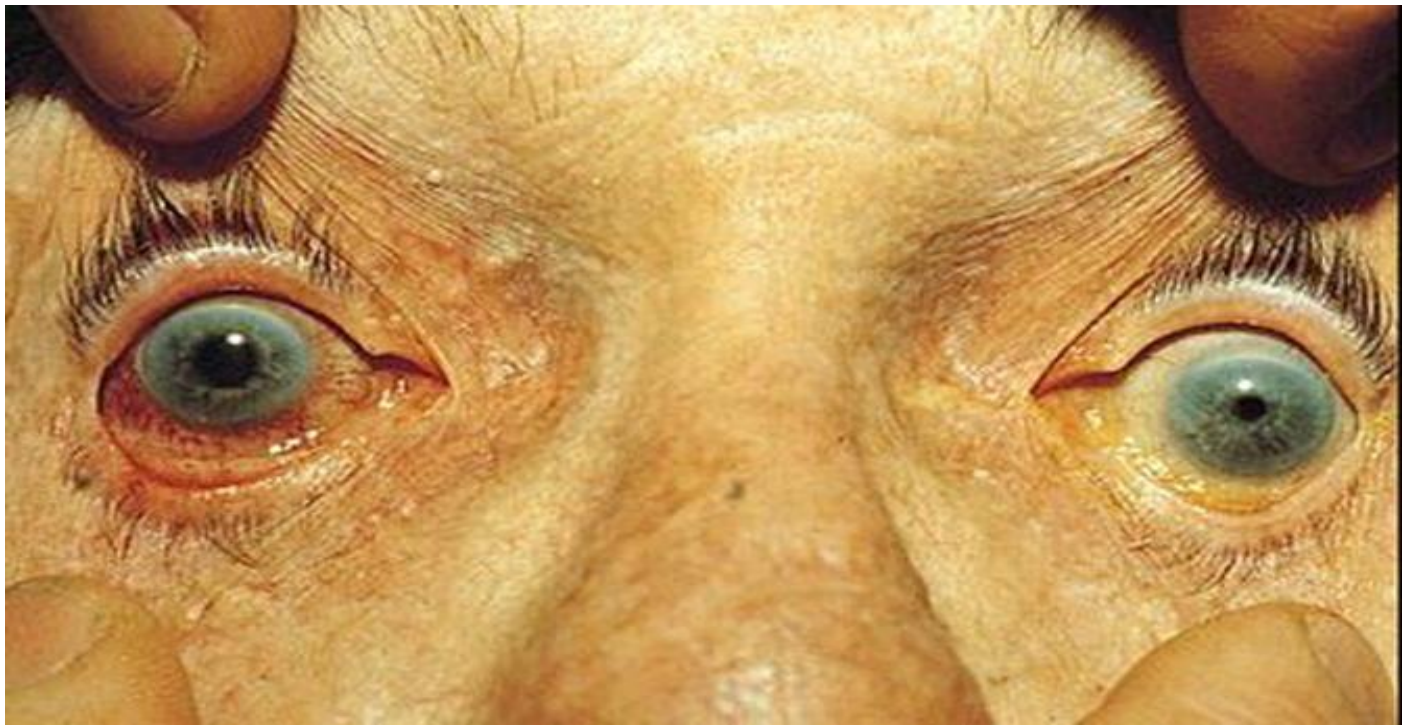
Herpes Zoster

- If around the eye, even if eye looks okay – ***refer urgently***
- Ocular complications:
  - Lids lesions/edema
  - Conjunctivitis
  - Keratitis (pseudo-ulcers, stromal edema)
  - Uveitis
  - High spikes in eye pressure
  - If immunocomprimised- vitritis, retinitis or neuritis
  - Cranial Nerve Palsy
- Treatment
  - Oral antivirals
  - Topical and/or oral steroids
  - Ophthalmic ung and/or lubricant drops

ACUTE Glaucoma

- ***Sudden Significant*** Increase in IOP
  - usually 50 or greater
- Due to blockage of drainage system
  - Angle closure, inflammatory, neovascular
- Symptom (SEVERE)
  - Pain, Headache (brow ache), Nausea, Vomiting, Red Eye, Blurred Vision, Halos
- Red, mid dilated non reactive pupil, hazy cornea

Acute Glaucoma



- Need to get IOP down right away --- REFER EMERGENTLY
- Risk is not glaucomatous optic nerve damage (slow disease)
- Risk is CRAO (IOP higher than pressure of blood into eye)

Chemical Burn – Acidic or Alkali

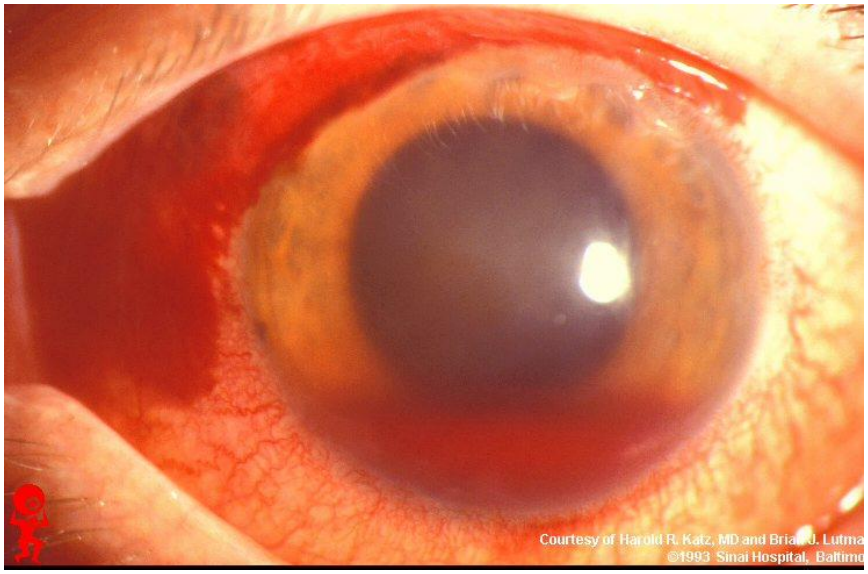
- IRRIGATE, IRRIGATE, IRRIGATE
  - At least 20-30 minutes
  - Evert lids to flush fornices
  - Saline solution, IV tubing to Ringer's solution
  - If wearing contact lens, irrigate for 5 minutes or so, then remove lens and continue to irrigate for another 25 minutes
- Anesthetize cornea and test pH with litmus paper
  - Continue to irrigate until neutral pH of 7.0
- Sweep fornices with moist cotton swab to remove any crystalized particles
- Refer right away !!

Chemical Burns

- Mild = Red eye (good prognosis)
- Severe = White eye (poor prognosis)

- Treatment usually antibiotic and anti-inflammatory drops/ointments
- Sometimes doxycycline and vitamin C to help reduce scarring

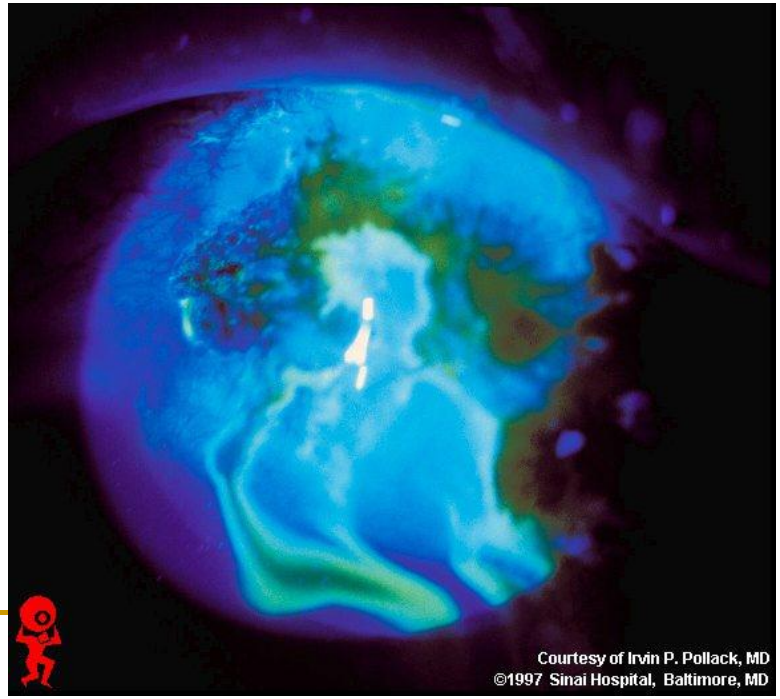
Hyphema



- Refer emergently
- Need to be sure no penetrating injury
- Be sure pupil is round
- Immediate risk of pressure spike, rebleed, vitreous hemorrhage, retinal detachment, optic nerve damage
- Tx: cycloplegic, steroids, pressure drops, limited activity, avoid ASA, Ibuprofen, Aleve due to blood thinning properties

Penetrating Injury

- History of Trauma
- Seidel Positive
- Manipulate globe as little as possible
  - Do not check IOP
- Place shield over eye
  - Fox shield, styrofoam cup cut in half
  - Do not pressure patch
- No eye drops other than alcaine
- IMMEDIATE SURGICAL REFERRAL



Painless Vision changes
- refer all of these urgently

- New Flashes/Floaters in one eye
- Curtain/Veil in Vision
- New smudge or spot in central vision
- Loss of part of vision
- Temporary loss/dimming out of vision even if recovers after minutes to hours

*** If any of these associated with APD = emergent referral

Ocular Migraine

- Visual distortions
- Flashes of lights
- Zigzag patterns
- Blind spots/colored spots
- Sparklings stars
- May or may not get or have hx of headaches

- Referral, but not emergent, dilated exam recommended to be sure not retinal in origin

- Last approx. 20-30 min, some over an hour
- May be in one half of the vision, move across vision of BOTH EYES
- Gradual goes away as if nothing has happened

Transient Vision Loss (Amaurosis Fugax)

- Dimming out of part of vision or complete loss of vision in ONE EYE for a period of time
- Even if vision returns to normal = Emergency
  - Refer same day for dilated eye exam
- Question blood flow to eye – transient arterial blockages
- Possible etiologies = BRAO, CRAO, Plaques coming from carotids, heart, inflammation of blood vessels like GCA
- We will refer these back urgently for carotid scans, echos, CBC, ESR, CRP, stroke protocol if retinal arterial occlusions present

Diplopia

- Double vision
- Sudden Onset – refer urgently
- Chronic/intermittent – not as urgent, need to get in for full exam

Tips and Pearls

- Evert eyelids with any defect in upper 1/3 of cornea
- Stain and Evert eyelids in conjunctivitis to look for membranes
- “Eyes that can’t feel, can’t heal”

  = DON’T Rx ALCAINE
- Pain, Photophobia, Reduced Vision = refer
- History matters – ask about contact lens use
- Lubrication is key – abrasions, conjunctivitis
- Direct Scope uses
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4049531/
  - Website on Conjunctivitis with tables and differential diagnoses

Questions?

Thank you!

Mindy Dickinson, OD
Midwest Eye Care, PC
Omaha/Council Bluffs
402-552-2020