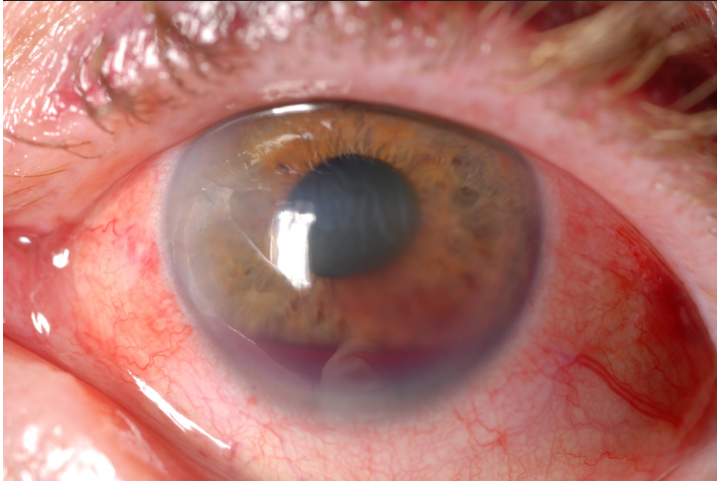


Ophthalmologic Emergencies

Lawrence B. Stack, MD

Hyphema - Traumatic



Diagnostic Features

- Trauma
- Decreased vision
- Photophobia
- Pain if acute
- Red cells in the anterior chamber
- Pupil may be abnormally-shaped due to synechia formation
- IOP may be elevated
- Clot may form in the anterior chamber

Risk Factors

- Sickle Cell Disease
- Previous eye surgery
- Diabetes
- Anticoagulation

Treatment

- Immediate ophthalmology consult
- Head of bed at 45 degrees
- Pain control (No NSAIDs)
- Temporarily stop warfarin, clopidogrel
- Keep quiet avoid activity
- Observe for rebleeding 4-5 days
- Close ophthalmology follow-up
- May need to hospitalize young children

Mechanism

- Aqueous fluid wave from trauma
- Bleeding of the iris vessels or ciliary body

Hyphema - Spontaneous



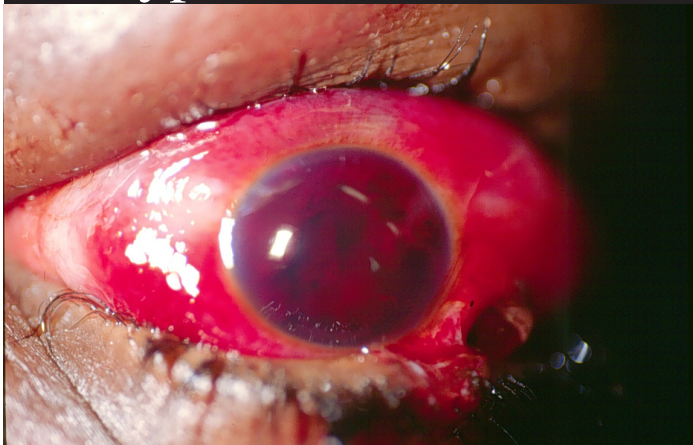
Complications

- Increased intraocular pressure (32%)
- Corneal Staining
- Re-bleeding at 4-5 days (25%)
- Synechiae formation

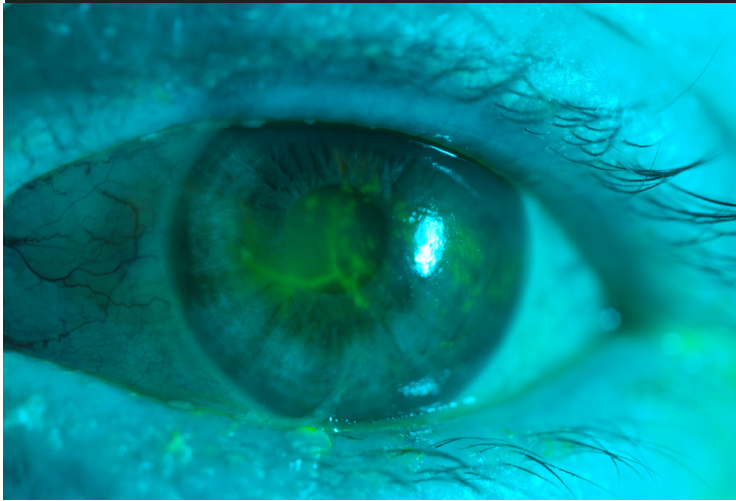
Grading of Hyphema

- Grade 1 - less than 1/3
- Grade 2 - 1/3 to 1/2
- Grade 3 - more than 1/2 but not entire AC
- Grade 4 - 8-ball

Hyphema - "8-Ball"



Herpes Simplex Keratitis



Diagnostic Features

- Pain
- photophobia
- Red eye
- Decreased visual acuity
- Tearing
- Branching lesion with terminal bulb
- Recurrent disease possible

Treatment

- Topical trifluridine 1% (Viroptic) 9 times/day
- Oral acyclovir 400mg 5 times/day
- Topical Vidarabine 3% ointment (Vira-A) 5 times/day

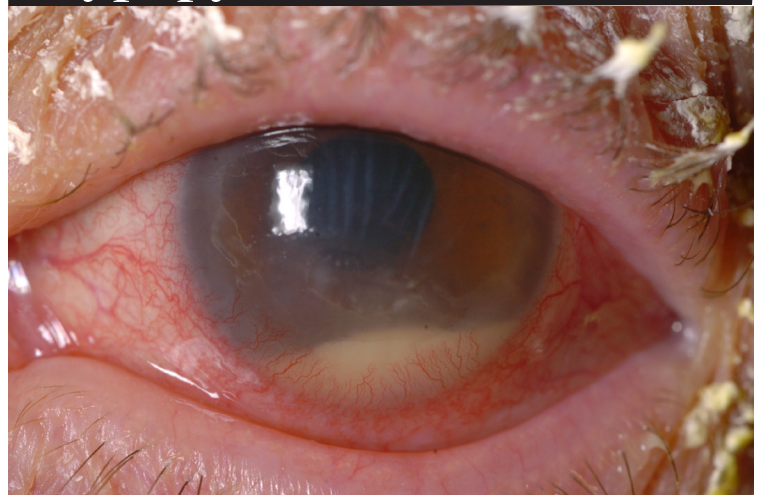
Diagnostic Features

- White blood cells in anterior chamber
- Pain
- Photophobia
- Decreased visual acuity
- Limbic injection
- Epithelial defect (if caused by corneal ulcer)
- Corneal epithelial infiltrate (corneal ulcer)
- AC cell and flare

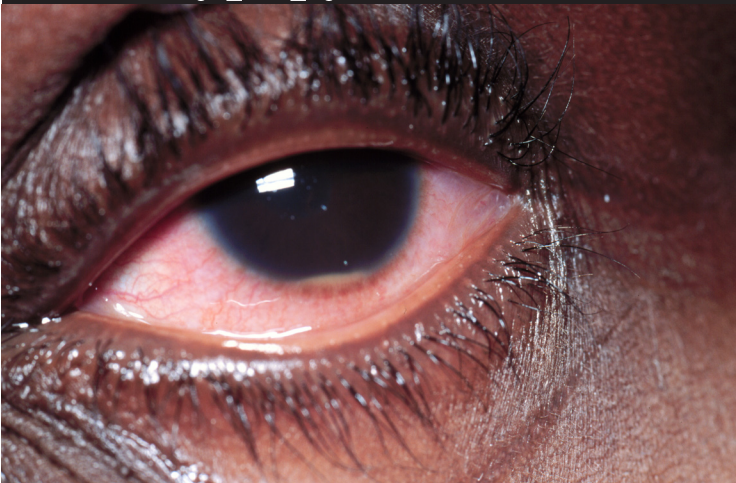
Causes

- Corneal infection (ulcer)
- Enophthalmitis
- Bechet's disease
- Uvitis
- Ankalosing spondylitis

Hypopyon - Corneal Ulcer



Hypopyon - Uvitis



Causes (continued)

- Herpes simplex keratitis
- Kawasaki's disease
- Sarcoidosis
- Syphilis
- Lyme disease
- Systemic Lupus Erythematosus
- Leptospirosis
- Reiter's syndrome
- Toxoplasmosis
- Tuberculosis

Treatment

- Varies with cause
- Ophthalmology consult

Open Globe - AC FB



Diagnostic Features

- Pain
- Decreased visual acuity
- Limbic injection if foreign body in AC
- Hyphema
- Subconjunctival hemorrhage
- Diplopia
- Teardrop or malshaped pupil
- Extruded vitreous
- Shallow anterior chamber
- Intraocular pressure < 8mmHg
- Seidel's test positive

Risk Factors

- Paintball participation
- Metal striking occupations
- Sports
- BB-gun and pellet gun use
- Adolescent
- Assault

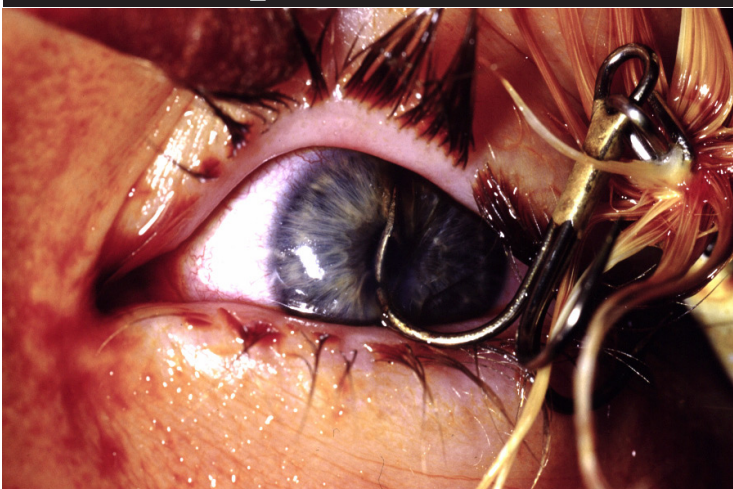
Associated Injury

- Eyelid lacerations
- Orbital floor fractures
- Traumatic optic neuritis
- Lens dislocation
- Retinal detachment
- Retained foreign body
- Vitreous hemorrhage

Open Globe - Limbus Injury



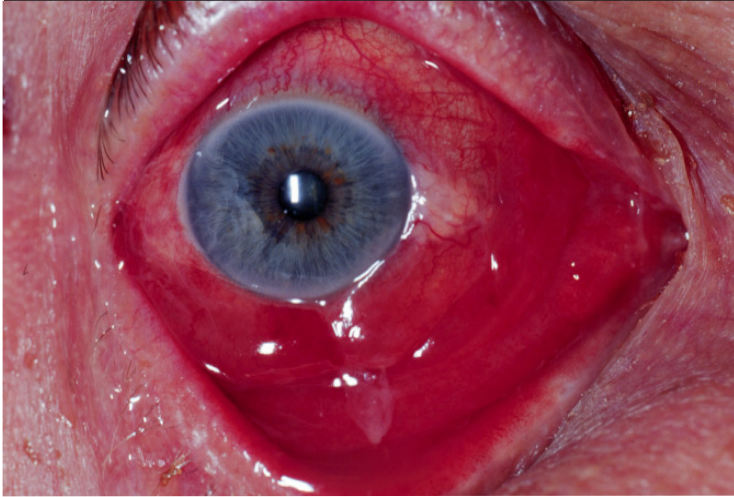
Open Globe



Management Principles

- Ophthalmology consult
- Head upright if possible
- Antiemetics
- Narcotic pain medications
- Control hypertension
- Avoid pressure to globe
- CT to detect orbital contents, blood in globe, FB
- Fox shield without gauze
- IV Antibiotics covering Staph and Strep
- Tetanus

Chemosis - Infectious



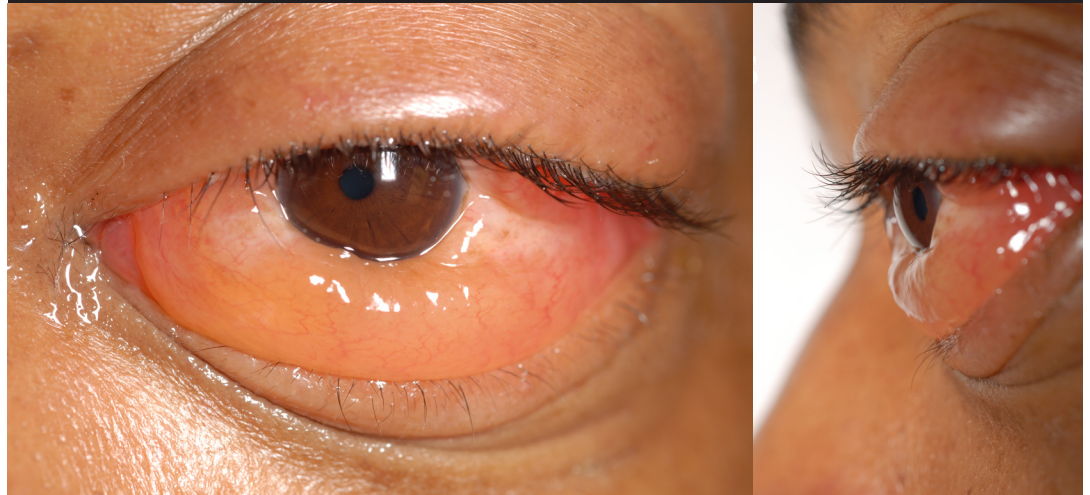
Diagnostic Features

- Edema of the conjunctiva from various causes
 1. Infectious
 2. Allergic
 3. Traumatic
- Purulent discharge if infectious
- Brawny orange edema if allergic
- Pruritis if allergic
- White stringy discharge suggests allergic
- Erythematous eye
- Eyelid edema suggests allergic
- Bloody suggests traumatic or infectious
- Conjunctival papillae suggests allergic
- Bilateral suggests allergic

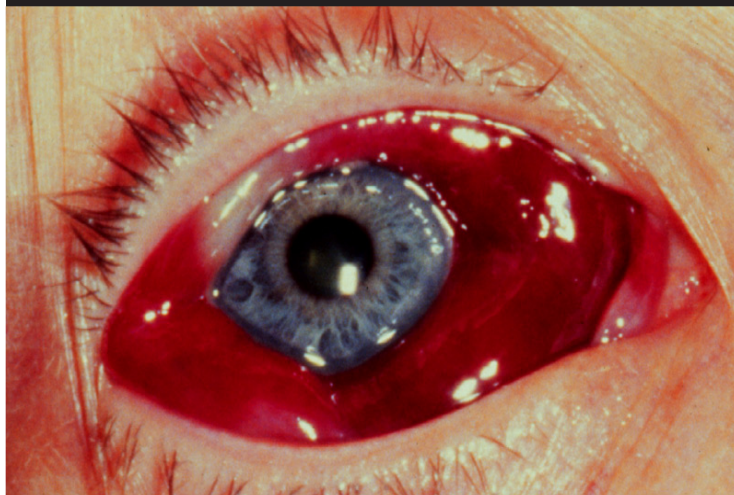
Diagnostic Features

- May be unable to close eye
- Concern for open globe if chemosis is traumatic
- Visual acuity is usually normal in infectious or allergic chemosis

Chemosis - Allergic



Chemosis - Traumatic



Treatment

- Depends upon cause
- Hyperacute conjunctivitis with chemosis - immediate ophthalmology consult
- Allergic chemosis is treated with topical and/or systemic antihistamines and cool compresses
- Irrigation if still exposed to allergen
- Traumatic chemosis requires ophthalmology consult to evaluate for open globe and injury to other ocular structures

Corneal Ulcer



Diagnostic Features

- Pain
- photophobia, direct and consensual
- Corneal epithelial defect with fluorescein stain
- Purulent discharge
- White epithelial infiltrate
- Decreased visual acuity
- Erythematous eye
- Limbal injection
- Cells and flare in the anterior chamber
- Corneal edema
- Contact lens use
- May see hypopyon
- *Staphylococcus*, *Streptococcus*, *Pseudomonas*
- Infiltrate without pain suggests corneal scar

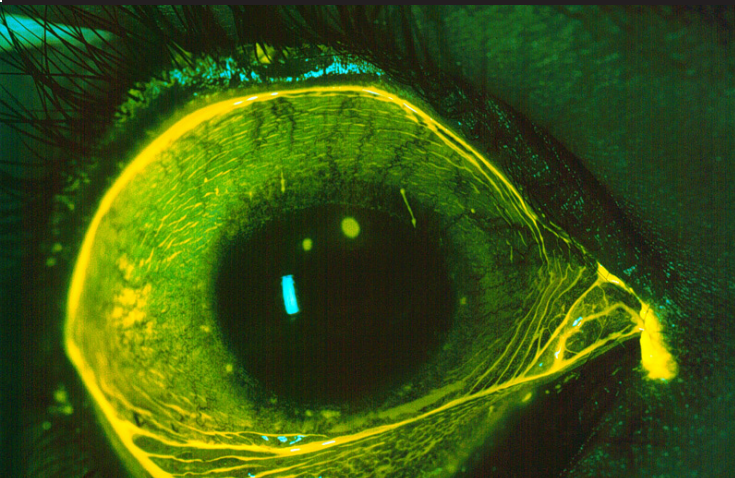
Treatment

- Discontinue contact lens wear
- Ophthalmology consult
- Gram stain
- Culture
- Q1H fortified antibiotic drops
- Pain control
- Steroids frequently used (by ophthalmologist)
- Place a shield if corneal thinning is expected
- Hospitalize if unable to apply Q1H antibiotic drops
- Suspect Acanthamoeba if history of poor contact lens hygiene

Corneal Ulcer



Corneal Ulcer (fluorescein)



Pearls

- DO NOT PATCH a corneal ulcer
- Proparacaine is not bacteriocidal
- Selected lens cleaning solutions have been implicated as causing corneal ulcers due to bacterial contamination

Eyelid laceration



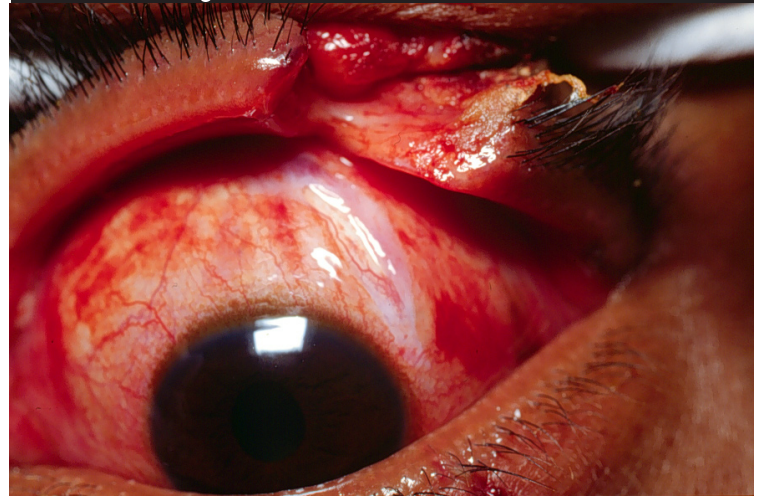
Diagnostic Features

- Superficial lid
- Lid margin
- Lacrimal apparatus
- Septal fat may be exposed
- Search for corneal or scleral laceration
- Establish open globe
- Lid edema
- Periorbital ecchymosis
- Epitheel defect with fluorescein stain
- Hyphema present?
- Entrapment?

Treatment

- Tetanus prophylaxis
- ED repair for superficial lacerations that do not involve the lid margin
- Ophthalmology repair for the following:
 - Associated open globe
 - Levator muscle involvement (ptosis present)
 - Lacrimal system involvement
 - Any tissue loss
- Keep wounds moist till repair is made
- Delay repair for heavily contaminated wounds

Eyelid laceration



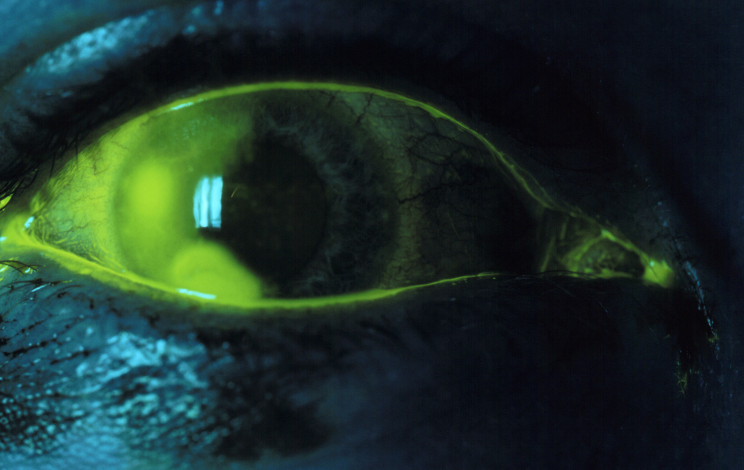
Eyelid laceration



Pearls

- Consider lacrimal involvement with any lid laceration involving the medial third of the upper or lower lids
- Search for corneal or scleral laceration in any lid laceration

Corneal Abrasion



Diagnostic Features

- History of blunt trauma
- Foreign body sensation
- Photophobia
- Tearing
- Pain
- Symptoms improved with topical anesthetic
- Corneal epithelial defect (fluorescein uptake)
- Decreased visual acuity
- Air sensitivity
- Watery tearing
- Absence of corneal infiltrate
- Negative Seidel test
- Conjunctival injection
- Mild cell and flare of AC

Diagnostic Features (continued)

- FB under lid
- Blepharospasm
- Lid swelling

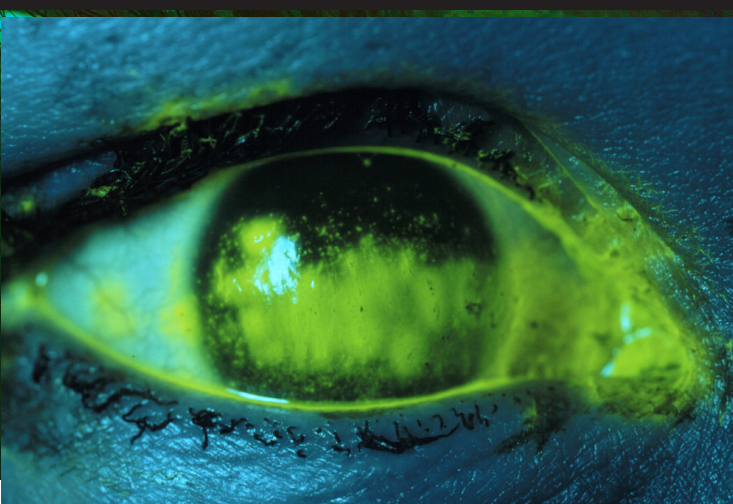
Treatment

- Topical antibiotic ointment or drops - erythromycin, polymyxin, bacitracin
- Contact lens wearers - tobramycin, ciprofloxacin, ofloxacin
- Cycloplegic agent (cyclopentolate 1%, homatropine 1%) to decrease ciliary spasm
- Patch only by request
- Topical NSAIDs (ketorolac 0.5% QID or diclofenac 0.1% QID)

Corneal Abrasion



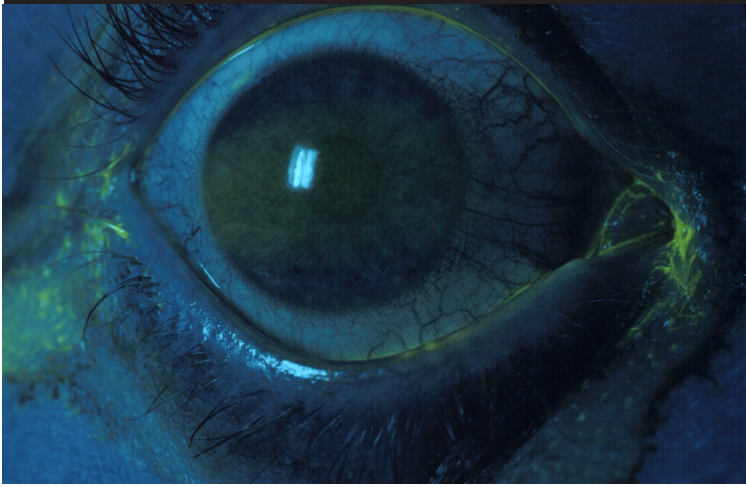
Corneal Abrasion



Pearls

- Do not use topical anesthetic outside of the ED for long term pain management - may cause corneal inflammation
- Do not patch any injury caused by vegetative material
- Look for foreign bodies underneath lids
- Give tetanus prophylaxis

UV Keratitis



Diagnostic Features

- Pain, Photophobia
- Corneal edema
- Decreased visual acuity
- Band-like diffuse uptake
- Limbic injection
- Inexperienced welders, snow skiers, beach bums

Treatment

- Topical antibiotic ointment or drops
- Cycloplegic agent
- Patch may help comfort
- Topical NSAIDs
- Resolution in 24-48 hours

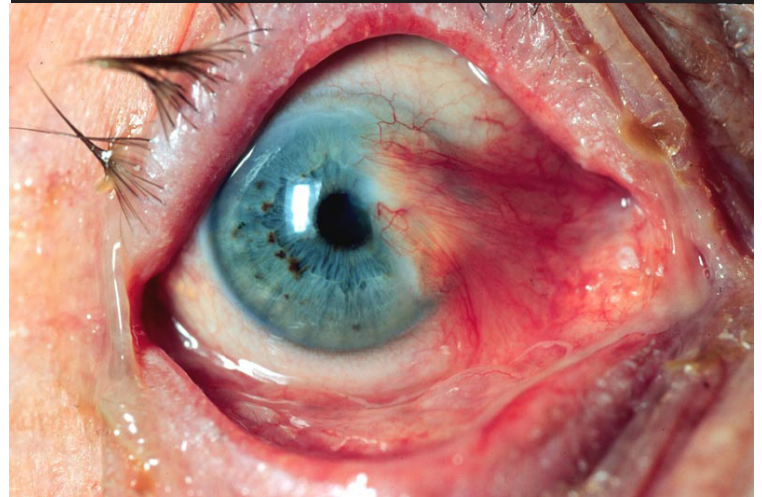
Diagnostic Features

- Chronic irritation from UV light and wind exposure
- Vascularized inflammatory process from nasal side of eye
- Non-emergency

Treatment

- Ophthalmology consult for visual disturbance or for cosmetic repair

Pterygium



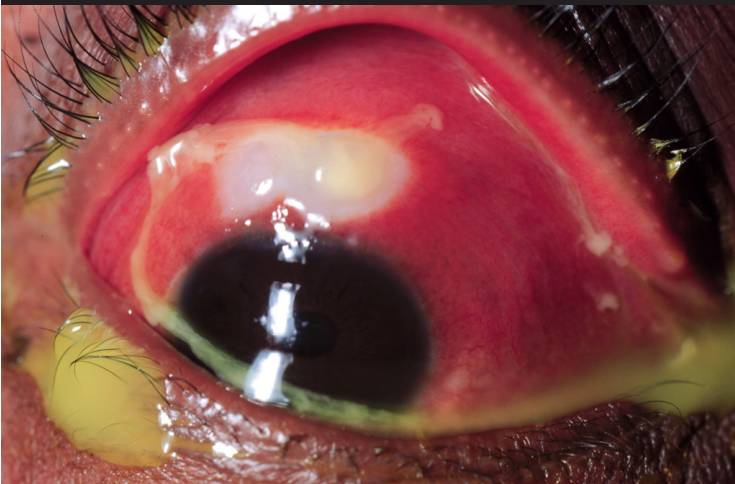
Diagnostic Features

- Infection of surgical bleb used to manage refractory glaucoma
- Pain
- Decreased visual acuity
- Purulent discharge from bleb
- Enophthalmitis
- Photophobia
- Conjunctival injection
- Milky-white cloudy bleb
- Cells and flare of AC
- *Staphylococcus*, *Streptococcus*, *Haemophilus*

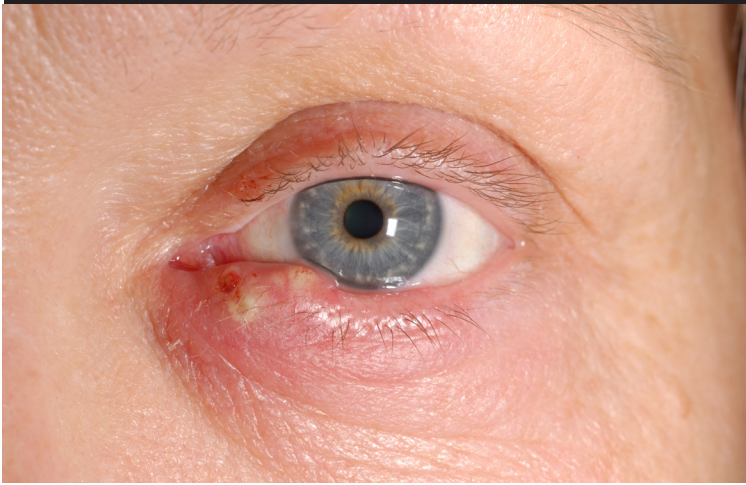
Treatment

- Ophthalmology consult
- Admission for topical and IV antibiotics

Blebitis



Hordeolum



Diagnostic Features

- Swelling, pain, lid erythema
- Localized tenderness
- Cheezy secretions surrounding lesion
- Blocked sebaceous or meibobian gland

Treatment

- Warm compresses QID
- I and D if not improved in 4 weeks
- Follow-up in 24 hours if cellulitis is suspected
- Suspect carcinoma if loss of lashes present

Diagnostic Features

- 1mm difference is 4% of persons
- Usually noticed by others
- Consider pharmlolgical causes
- Recent trauma suggests traumatic mydriasis
- Fever and AMS, suspect meningitis
- Headache and AMS, suspect aneurysm
- Horner's syndrome?

Treatment

- Depends on cause
- Consider ophthalmology consult if uncertain

Anisicoria



Anisocoria - Sympathomimetic

