Eye Problems

Common Office Concerns and Exams

Objectives

- Describe normal and abnormal findings during an eye exam
- Describe management and treatment of abnormal findings on eye exam

History

*Chief Complaint – Pain, vision

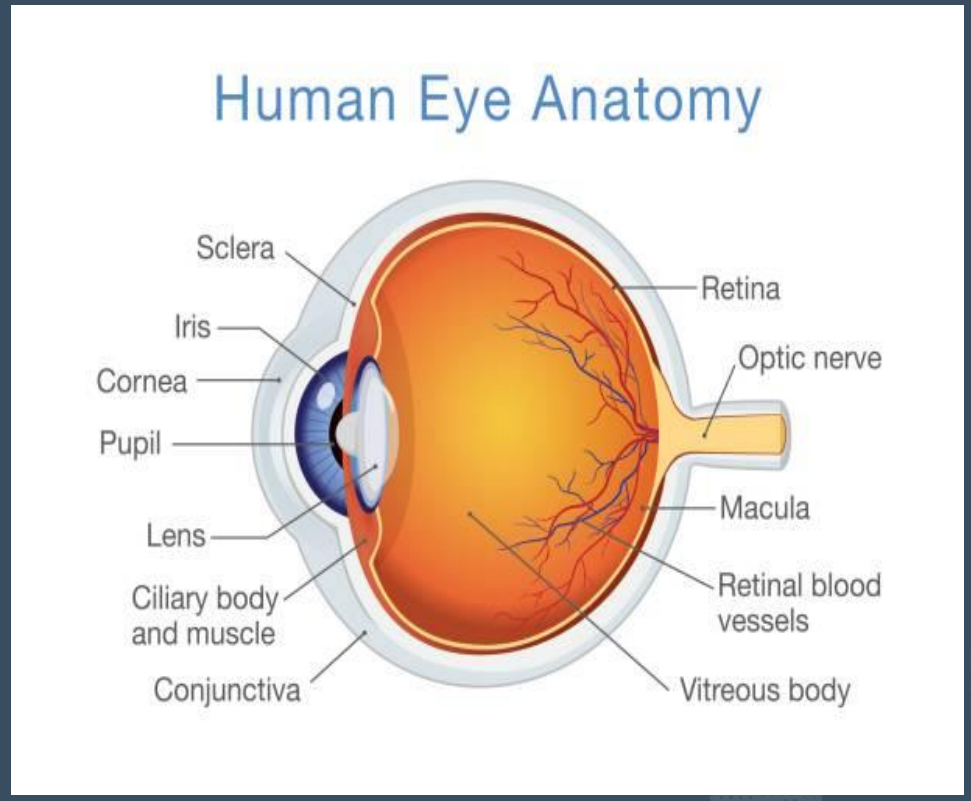
PMH – Eye problems

Contact Lens

Tetanus

Eye Exam

- Anterior to Posterior
  - External- lids, EOM/ROM, PERRL
  - Globe – conjunctiva, cornea, iris, anterior chamber
  - Fundus – optic disc, cup, retinal vessels, macula



Most important vital sign of the eye: Visual Acuity

Distance

Near

Pinhole

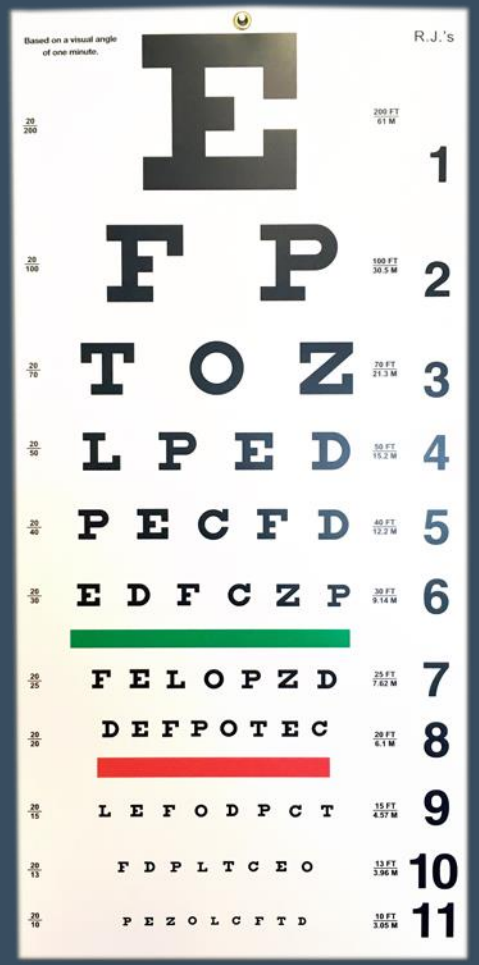
Newsprint

Counting Fingers

Hand motion

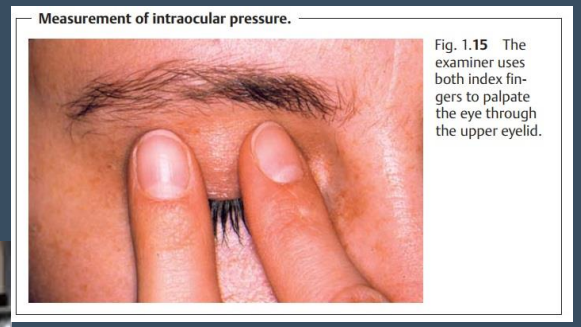
Light perception

No Light Perception



Measurement of IOP (intraocular pressure)

- Normal Pressure 10-21 mmgHg
- Equipment:
  - Tonopen
  - Applanation tonometer
  - Fingers

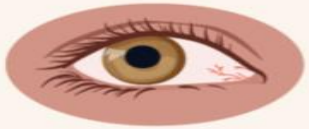


General Principles

- Use a topical anesthetic unless allergy
- Superficial injuries are more painful
- Never send patient home with topical anesthetic – they will ask
- Never use steroid drops in eye, unless under direction of opthamologist

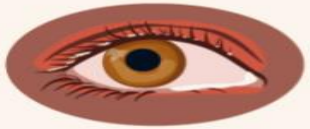
Common Causes For

EYE REDNESS



Injury

Pink eye



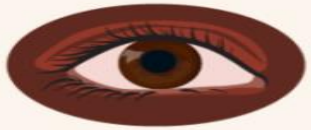
Blepharitis

Uveitis

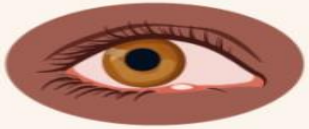
Allergies

Corneal ulcers

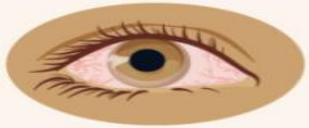
Dry eyes



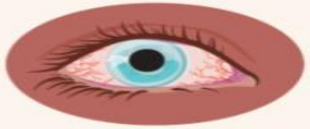
Cold



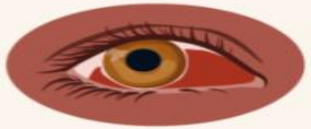
Eyelid stye



Acute glaucoma



Scleritis



Subconjunctival hemorrhage

Overuse of contact lenses

healthline

Subconjunctival hemorrhage

- Occurs usually after trauma, sneeze, cough, etc
- Treatment:
  - None
  - Reassurance
  - Resolve approximately in 2 weeks.

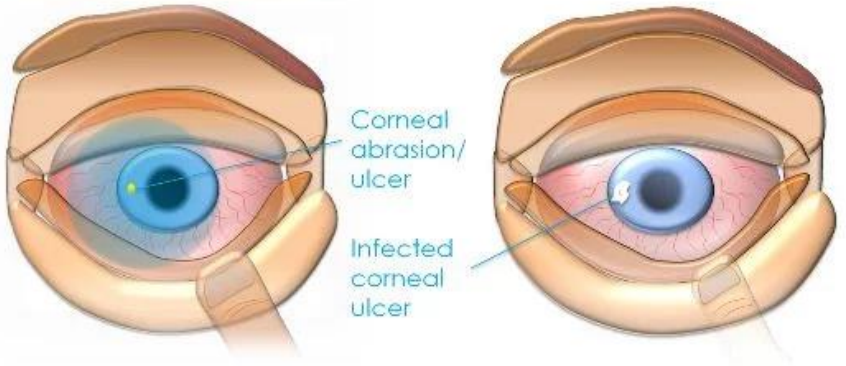
Corneal Abrasion

- Symptoms:
  - Foreign body sensation, tearing , photophobia, blepharospasm

- Dianosis:
  - Fluorescein Stain Dye uptake
  - Damaged Cells take up dye

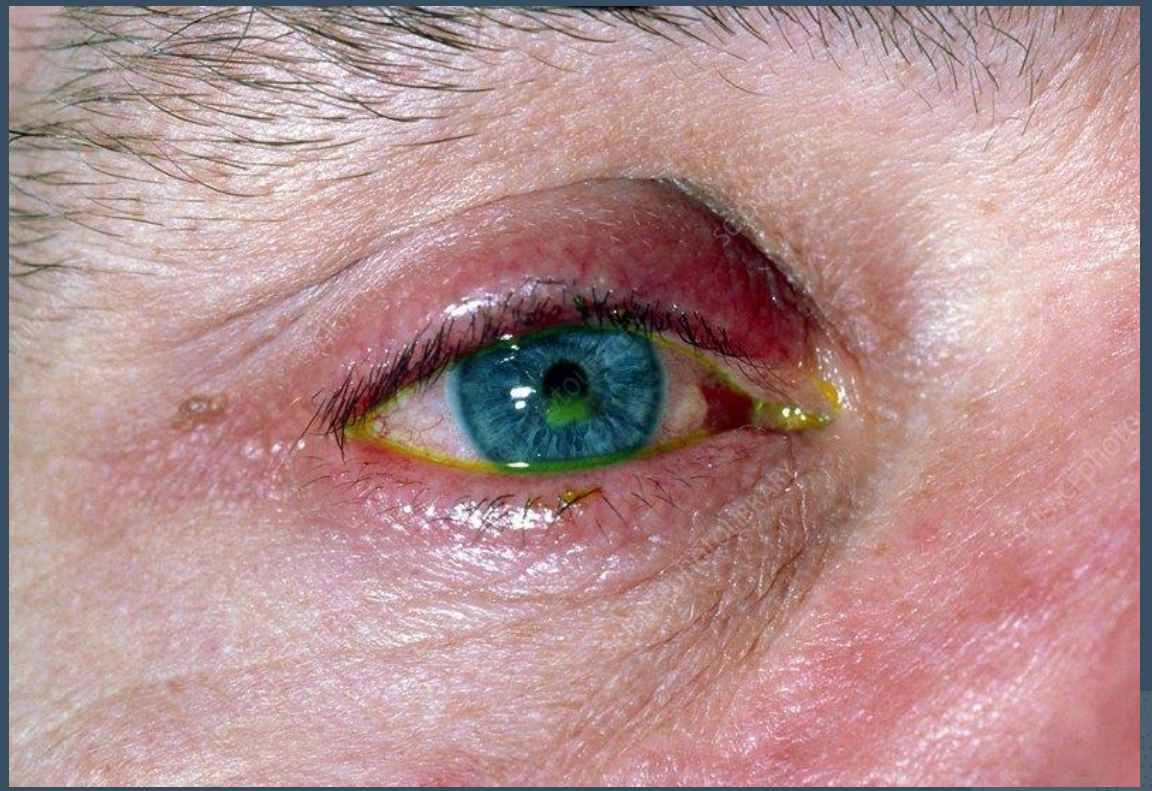

Do you know about Fluorescein Eye Stain Test?


NDC 68682-920-05
Rx only
Tetracaine Hydrochloride Ophthalmic Solution, USP 0.5% (Sterile)
5 mL
OCEANSIDE

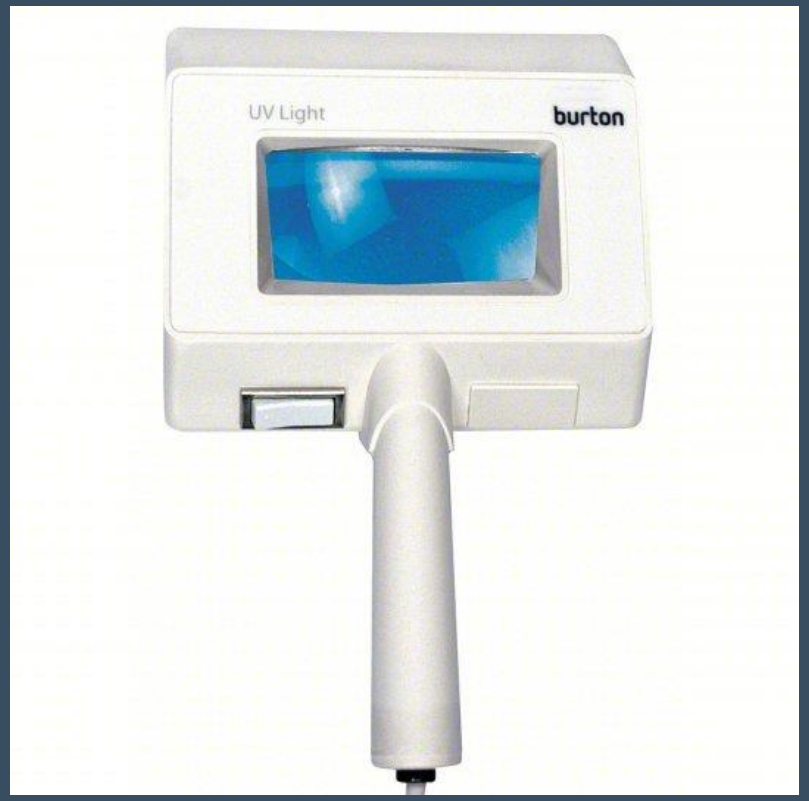


By using the slit lamp blue light and instilling fluorescein, corneal abrasions and ulcers can be easily diagnosed.

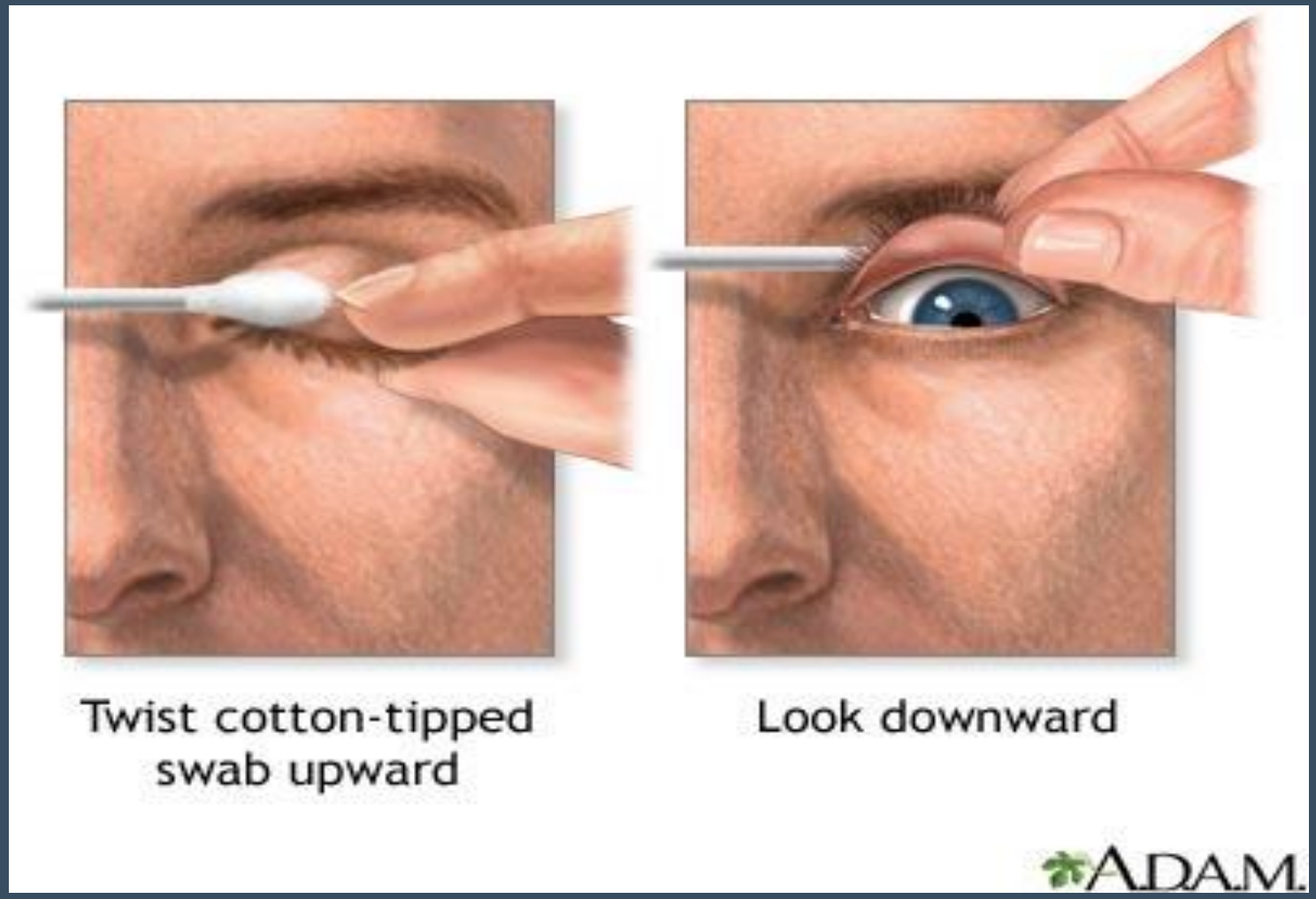
Corneal abrasions and ulcers should be treated properly. Otherwise they may become infected and cause visual impairment and severe pain. Infected corneal ulcers can lead to permanent loss of vision.



Ice Rink Sign

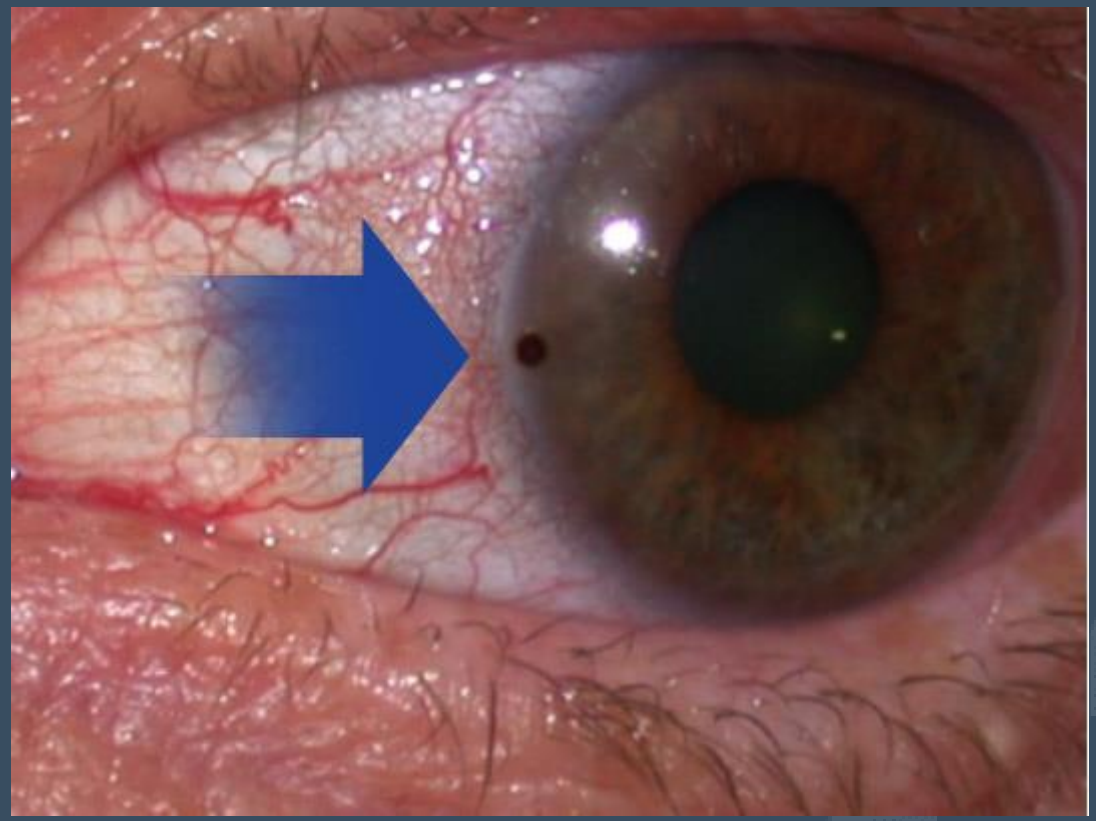

UV Light
burton

Upper Eyelid Eversion

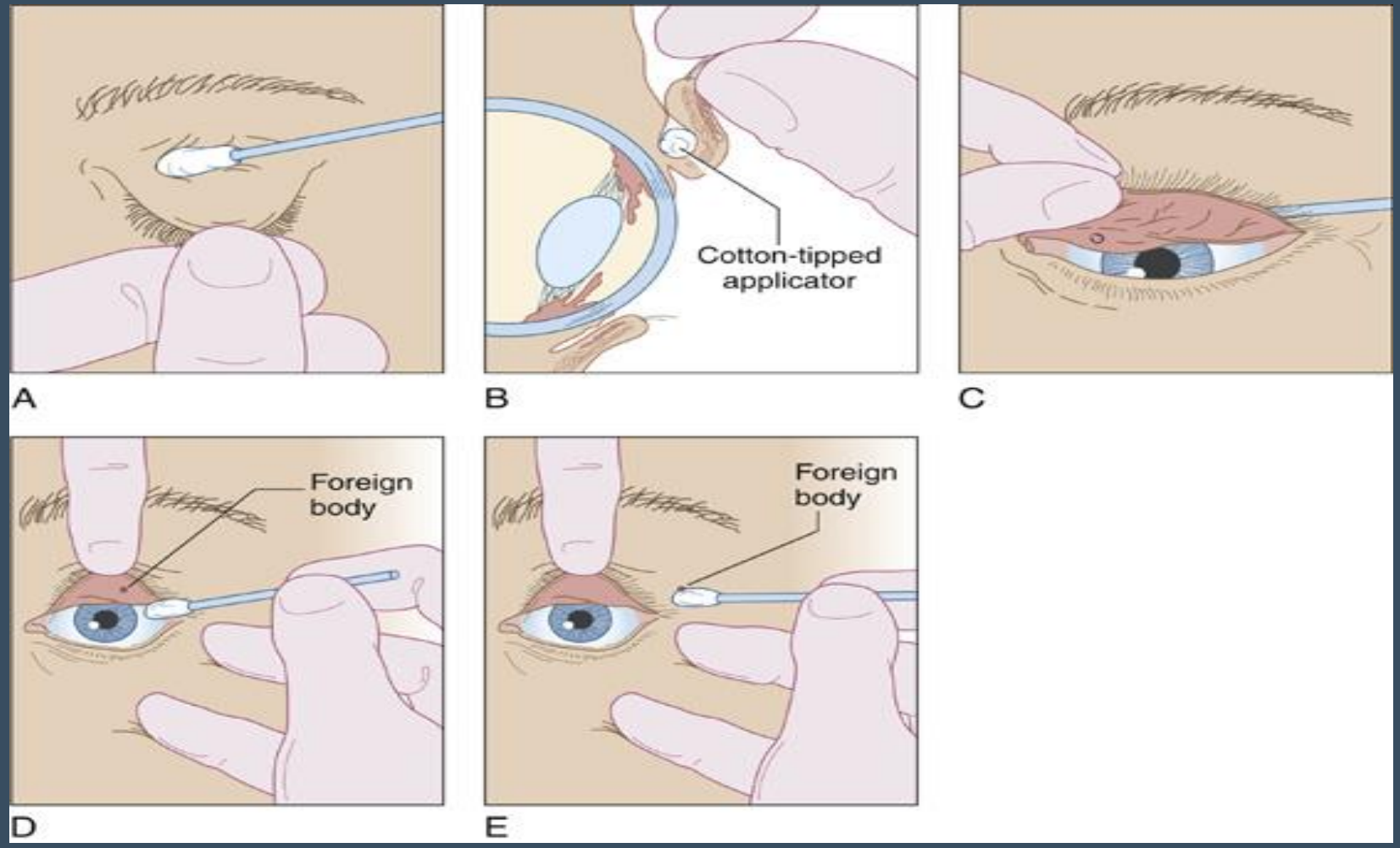


Corneal Foreign Body

- Symptom
  - Pain
  - Foreign body Sensation
- Topical Anesthetic
- Moisten cotton swab – rolling action
- 25 G needle spud
- Rust ring



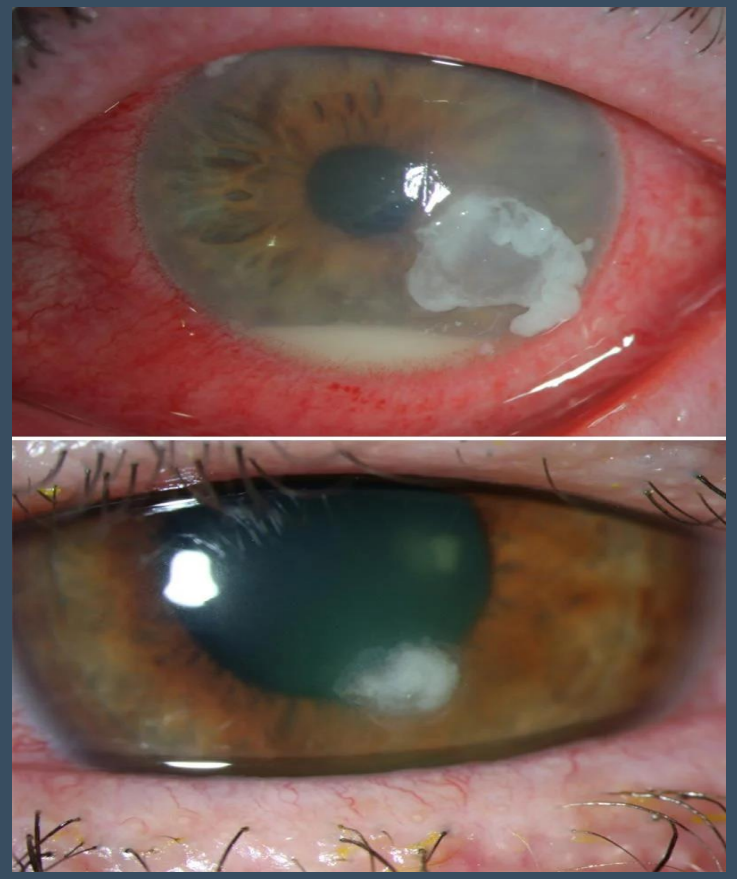
To remove foreign body – moisten cotton swab – use a rolling action



Treatment of Corneal Abrasion

- Topical Antibiotics
  - Drops – 2 gtts qid (polytrim, ciprofloxacin, tobramycin)
  - Ointment – ½ in Ribbon (erythromycin)

Corneal Ulcer



- **Open Sore on Cornea**
- **Usually severe eye pain, possible pus or eye drainage**
- **Symptoms – red, watery, bloodshot eye, white or grey spot on area of concern**
- **Considered medical Emergency – can lead to vision loss or blindness**
- **Occurance in US 30,000-75,000/year**
- **12 % lead to corneal transplants**

Risk factors for corneal ulcer

Contact lens wearer
Infection – bacterial (leading cause), viral, fungal, parasitic
Viral infection – shingles, cold sores, chickenpox
Dry eyes
Eye lids that don’t close completely
Use of steroid eye drops
Injury or burn to cornea
Diabetes
Prior eye surgery
Other eye disorders

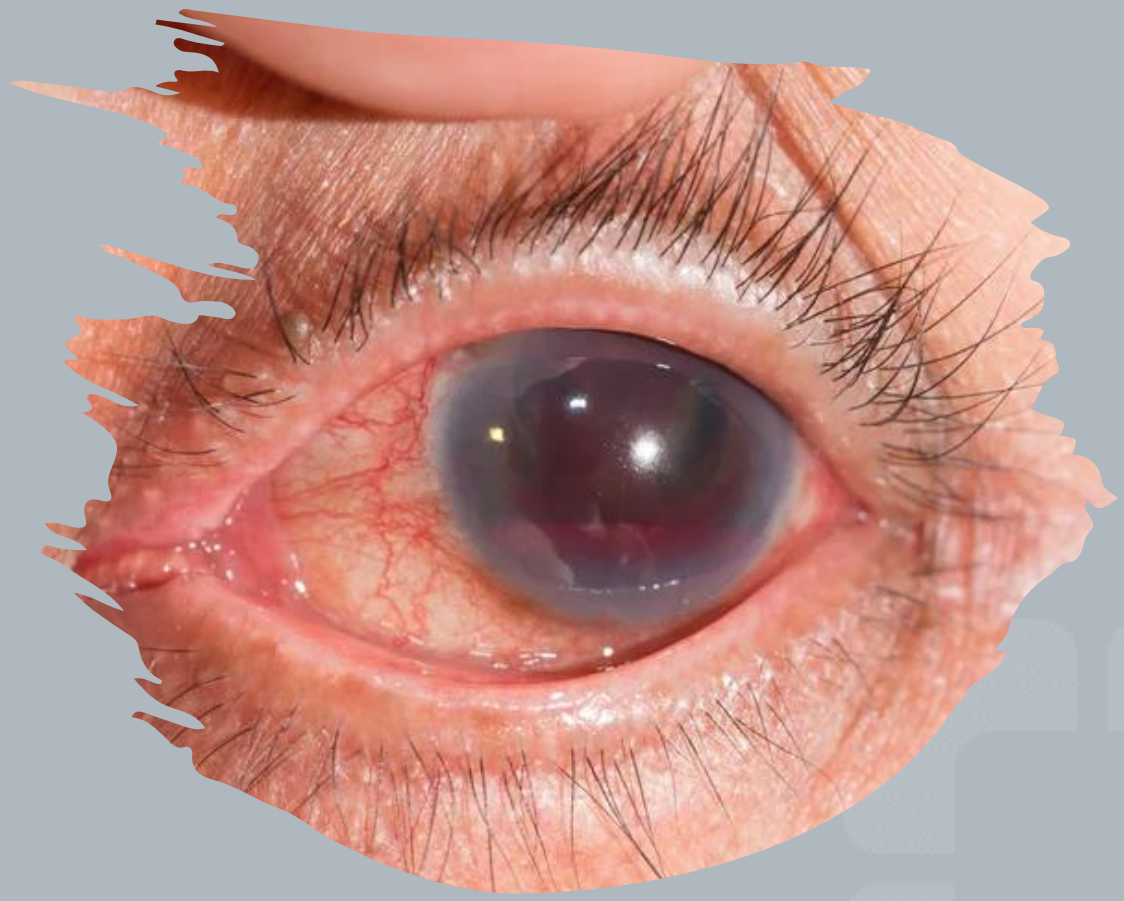
Treatment of corneal ulcer

- Depends on type of infection
- Pain management
- Close monitoring by ophthalmologist

- Further information on corneal ulcers:
- https://my.clevelandclinic.org/health/diseases/22524-corneal-ulcer#:~:text=A%20corneal%20ulcer%20is%20an,It's%20considered%20a%20medical%20emergency.

Hyphema

- Usually blunt trauma to eye
- Pain, blurred vision
- Hemorrhage into antior change – suspended or layered



Treatment of hyphema

- Referral to opthamology
- Semi-fowler position
- Bedrest, sedation
- Cycloplegia, steroid
- No aspirin
- Frequent monitoring – 1st 5 days increase risk rebleed

Ocular Burns

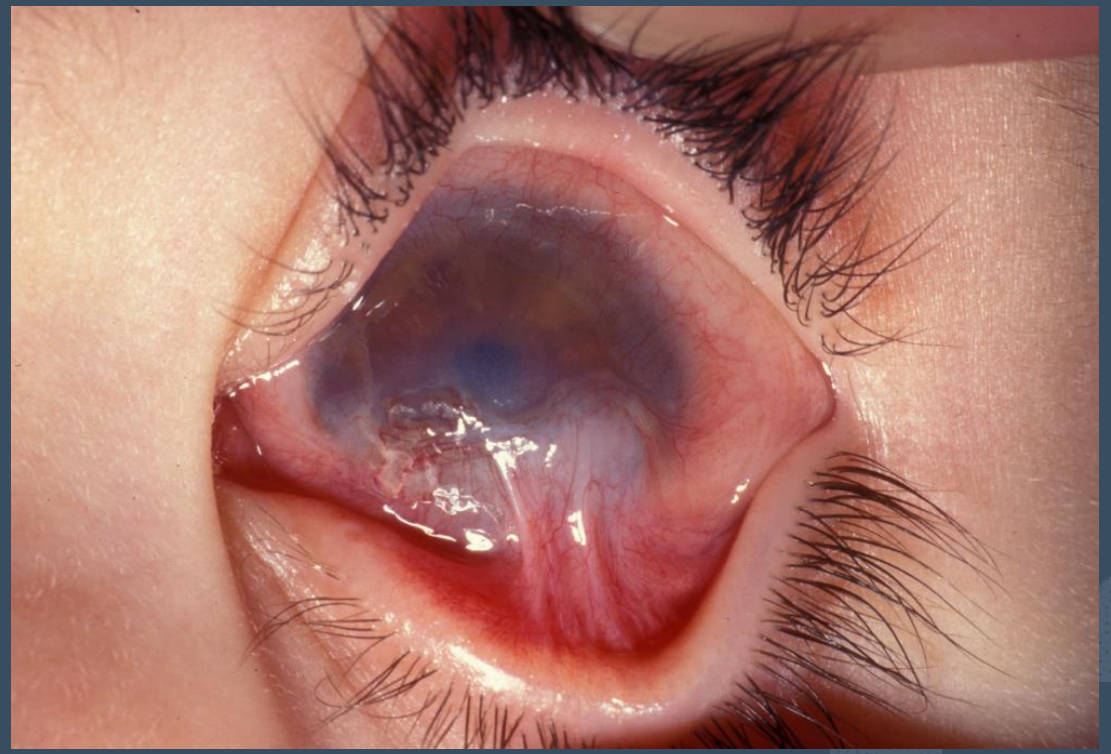
- Chemical
  - Alkali
  - Acid
- Thermal
- Ultraviolet

Aklali Ocular Burn

- Tear gas, mace, lime, fertilizer, ammonia, household cleaners, airbags, plaster,
- Penetrate cornea quickly by lyse cell membrane
- Severe damage may not occur until 3-4 days post injury
- Worse than acidic
- Referral all alkaline burns

Acid Ocular Burn

- Battery acid, acetic acid, bleach, refrigerant
- Mechanic, pools, or laboratory worker
- Acid precipitates proteins that set up barriers against deeper penetration



Ocular Burn Treatment

- Treat urgently
- Irrigate immediately
  - Acid Burn 500 ml
  - Alkali Burn – 2000 ml
- Check pH after 20 min irrigation
- Analgesia
- Cycloplegic and antibioitic drops
- Opthamology Referral

Key is attempt to return to normal pH - Tears 7.1

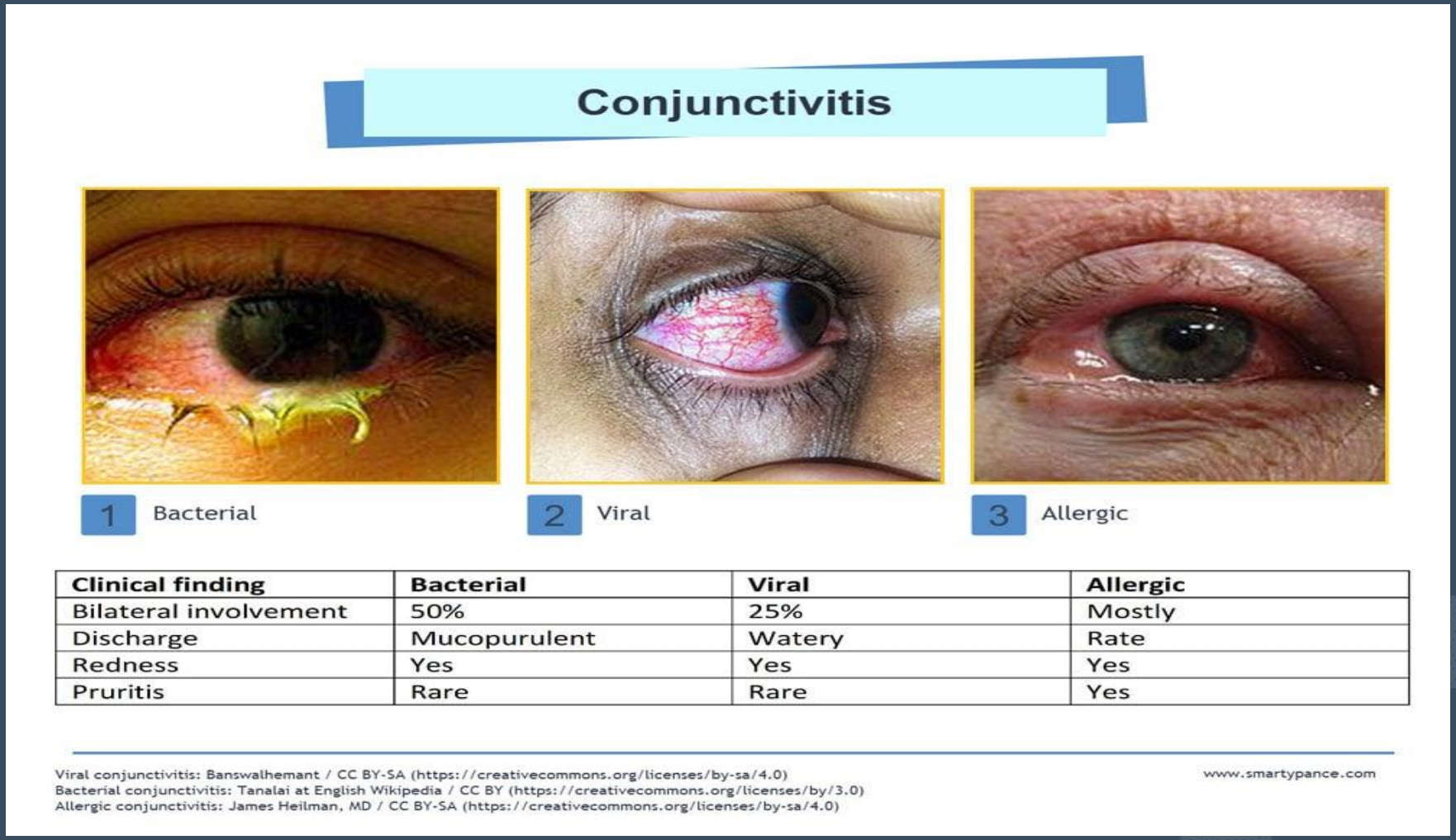
Irrigate with LR, NS (can use tap water, but recommendations LR/NS)

LR – pH 6-7.5

NS – pH 4.5-7

Conjunctivitis

- Bacterial
- Viral
- Allergic



Clinical finding	Bacterial	Viral	Allergic
Bilateral involvement	50%	25%	Mostly
Discharge	Mucopurulent	Watery	Rate
Redness	Yes	Yes	Yes
Pruritis	Rare	Rare	Yes

Bacterial or Supperative Conjunctivitis

- Usually staph, strep or H flu
- Limbal sparing
- Purulent discharge – exess can send C & S
- Topical antibiotics

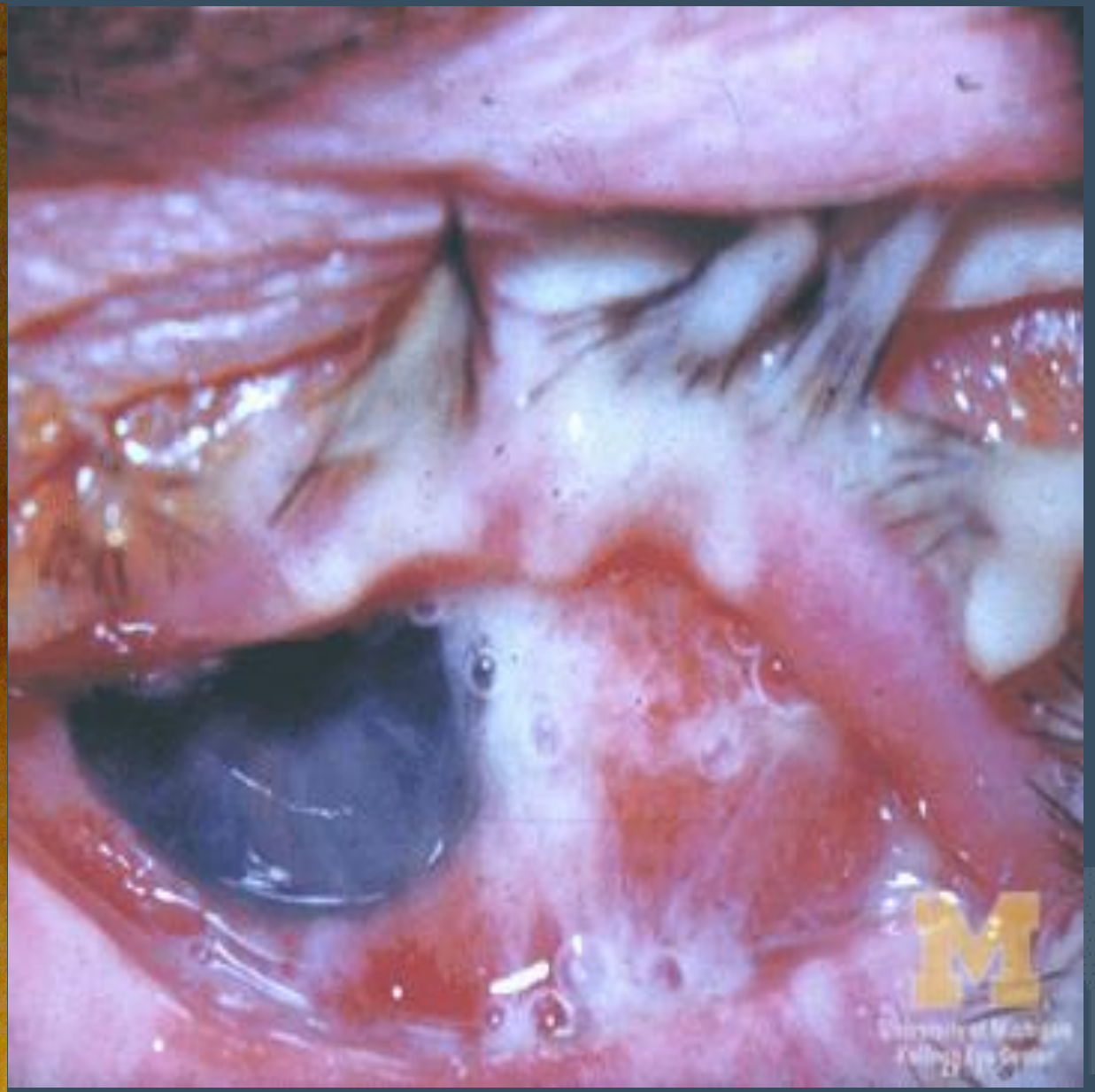
  Drops vs ointment

  Bacitracin-polymyxin B, erythromycin

  Ciprofloxin (contact lens wearer), Tobramycin

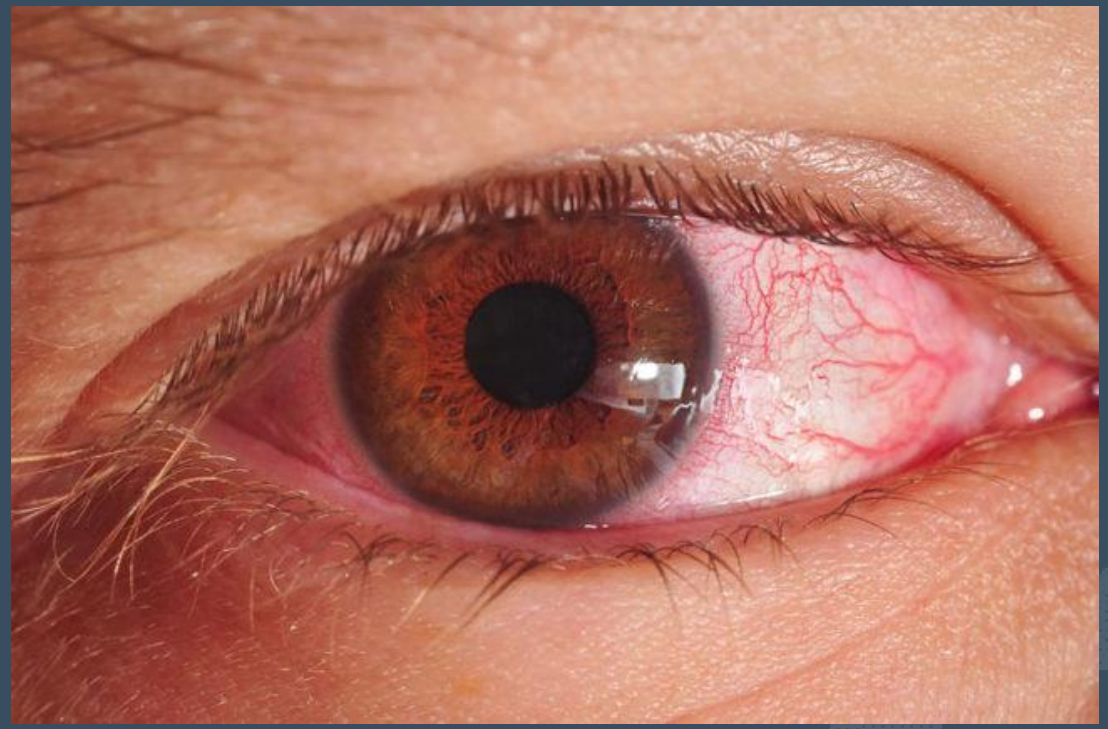
  4th Generation – VIgamox, Zymar

  costly usually rx by ophthalmologist



Viral Conjunctivitis

- Watery discharge
- Recent URI
- DIffuse injection
- Pre-auricular nodes
- Warm cool compresses
- Put on antibiotic – to prevent superinfection
- Frequent handwashing



Viral Conjunctivitis Symptoms

Pink/red-tinged eye irritation

Watery eye discharge

Mild pain

Sore throat or runny nose

Mild light sensitivity

Eye crustiness upon waking

Swollen eyelids

verywell

Viral Conjunctivitis

- Adenovirus cause 90% of viral conjunctivitis
- POC testing – adenodetector, 90% sensitivity, 96 % specificity

- These patients come back in and say not any better after using drops

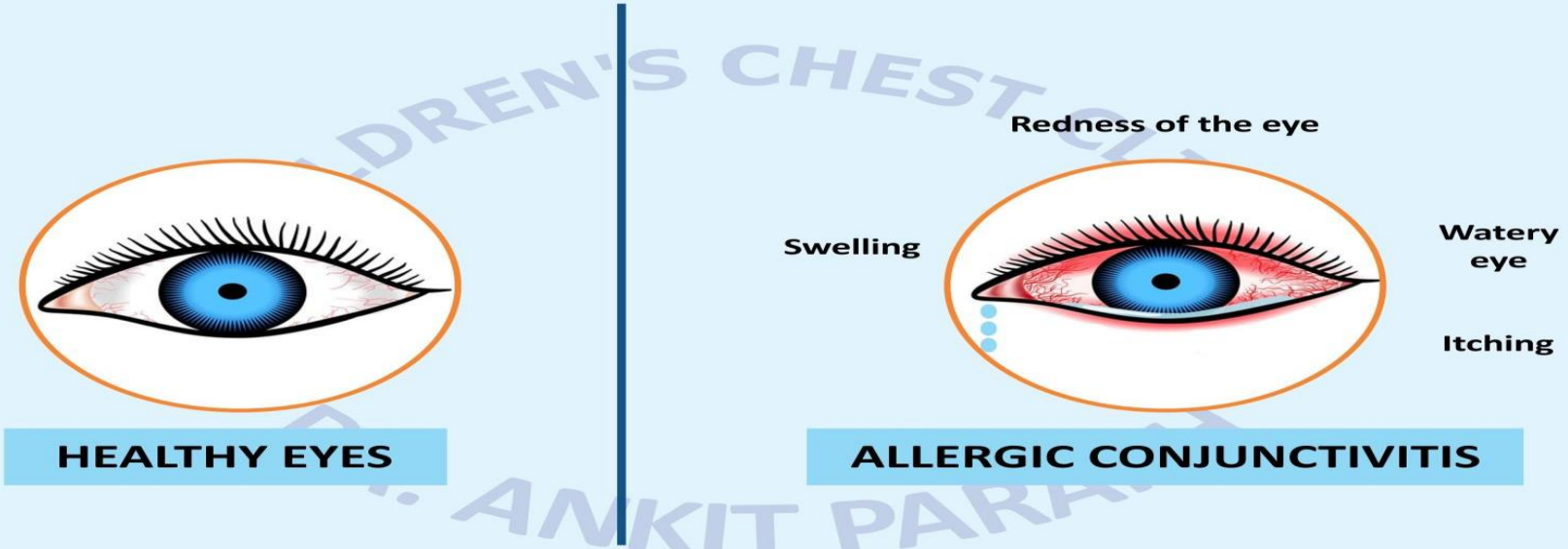
- More common in winter

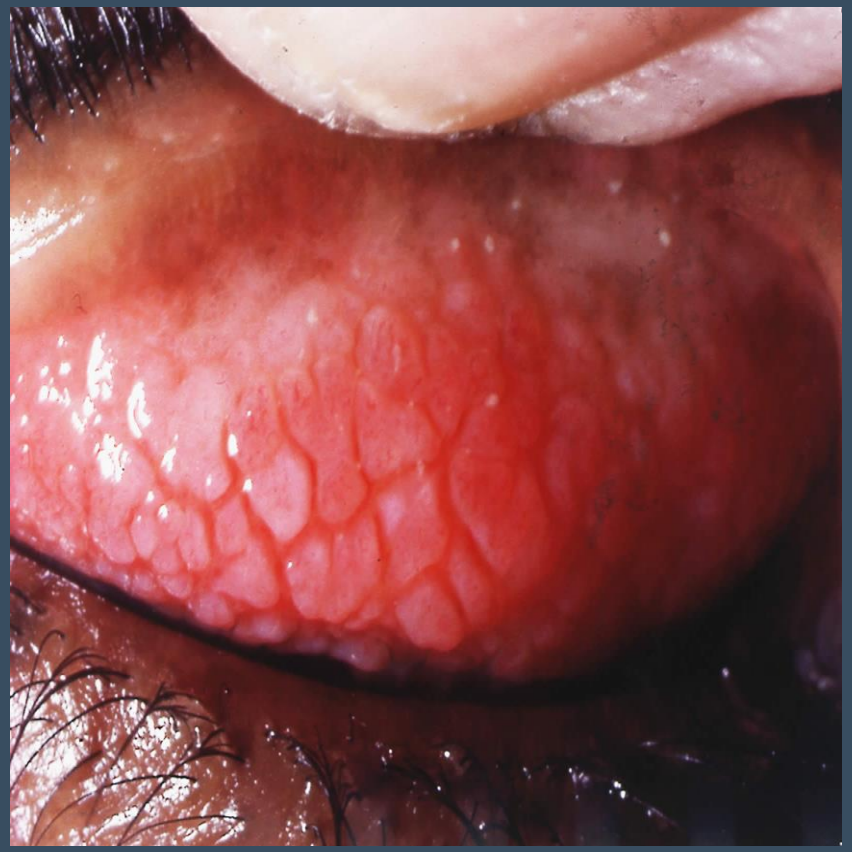
- Contagious as long as having symptoms – good handwashing

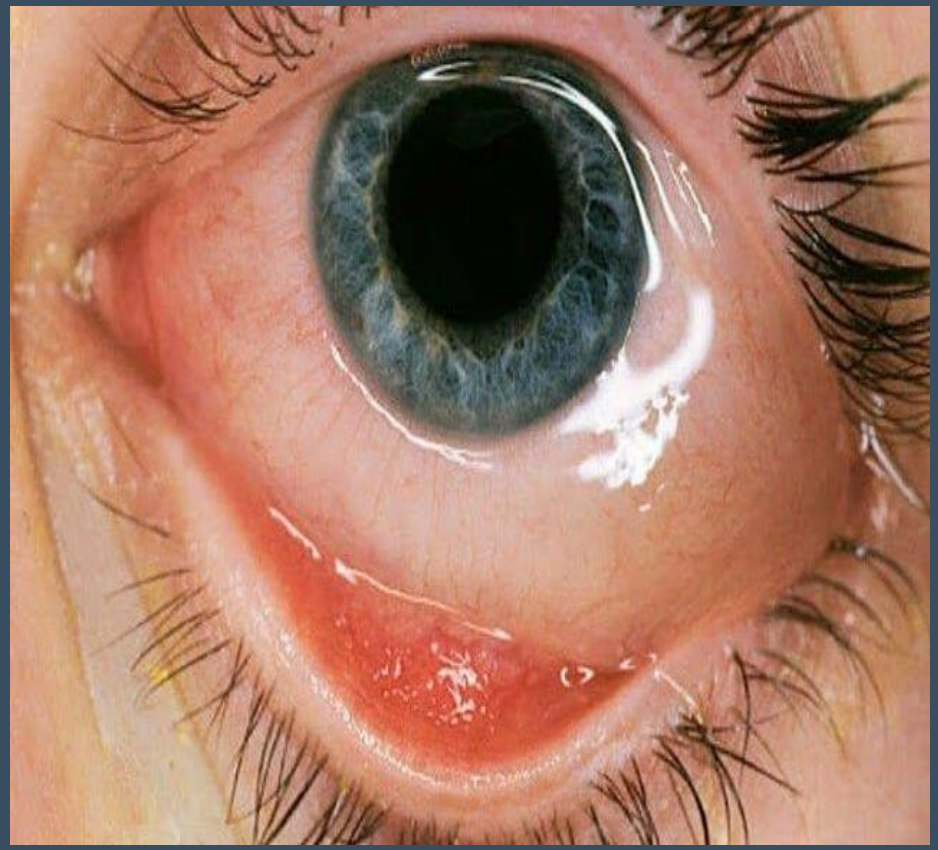
Allergic Conjunctivitis

- Seasonal – spring and fall
  - IgE seasonal – April/May - tree pollens; June/July - grass pollens; July/Aug - mold spores & weeds
  - IgE perennial – persistant- house dust mites
- Bilateral
- Rope like discharge
- Clear Nasal drainage, congestion
- Itchy watery eyes
- Boggy Conjunctiva

ALLERGIC CONJUNCTIVITIS







Allergic Conjuctivitis

- Topical and oral anithistamine

Table 1. Topical Treatments for Allergic Conjunctivitis

Drug class	*Dosing schedule*	*Cost**
Antihistamines		
Bepotastine (Bepreve)	Twice per day	NA ($180)
Emedastine (Emadine)	Four times per day	NA ($120)
Epinastine (Elestat)	Twice per day	$38 ($220)
Mast cell stabilizers		
Lodoxamide (Alomide)	Four times per day	NA ($150)
Nedocromil (Alocril)	Twice per day	NA ($190)
Pemirolast (Alamast)	Four times per day	NA ($115)
Combination formulations		
Azelastine†	Up to four times per day	$40
Ketotifen (Zaditor)†	Twice per day	NA ($15)
Olopatadine (Patanol)	Twice per day	$50 ($250)

NA = not available.

**—Estimated retail cost for one month of therapy based on information obtained at http://www.goodrx.com (accessed April 13, 2016). Generic price listed first; brand price listed in parentheses.*

†—Available over the counter without a prescription.

Table 1. Symptom-Based Treatments for Allergic Rhinitis

	Symptoms			
Treatment	*Ocular*	*Nasopharyngeal itching*	*Sneezing*	*Rhinorrhea*
Intranasal corticosteroids	✓	✓	✓	✓
Oral and intranasal antihistamines		✓	✓	✓
Combination intranasal corticosteroid and antihistamine	✓	✓	✓	✓
Oral and intranasal decongestants				✓
Intranasal cromolyn		✓	✓	✓
Intranasal anticholinergics				✓
Leukotriene receptor antagonists	✓		✓	✓
Immunotherapy	✓	✓	✓	✓

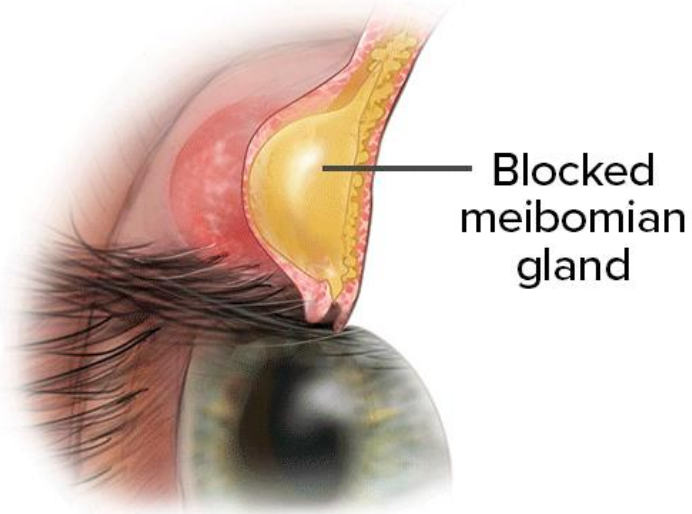
NOTE: *Treatments are listed in approximate order of preference.*

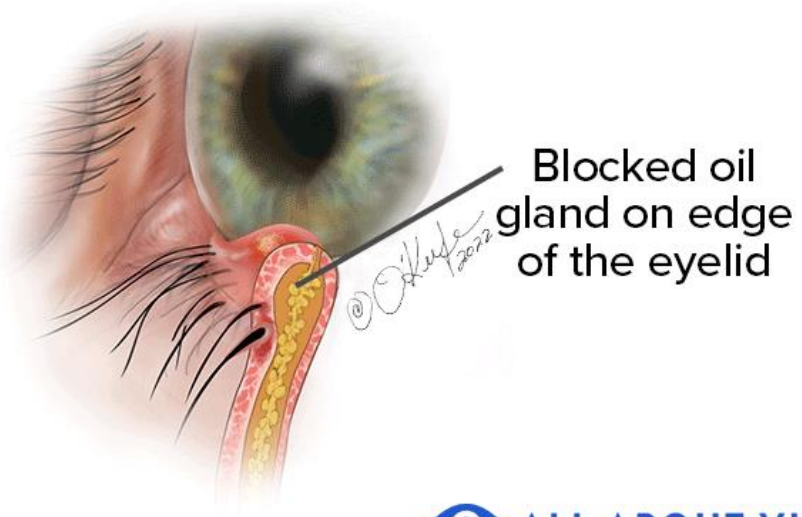
Adapted with permission from Sur DK, Scandale S. Treatment of allergic rhinitis. Am Fam Physician. *2010;81(12):1441.*

Stye or Hordeolum

- Infection of eyelid at accessory oily gland, occulsion of oil gland, lid margin
- Internal vs Exertnal
- Usual cause staph aureus
- Treatment
  - Hot compresses
  - Antibiotic drops (tobramycin)
  - Antiobiotic ointment (erythromycin)

CHALAZION VS STYE

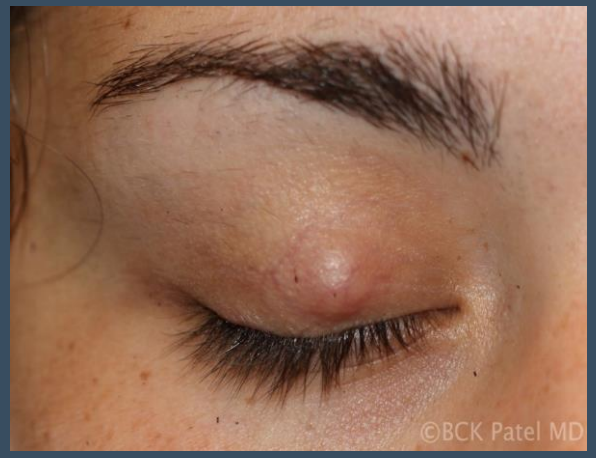




ALL ABOUT VISION

Chalazion

- Inflammation of mebomian gland under eyelid
- Hard, usually non tender
- Treatment
  - Warm/hot compresses
  - Intra-lesion corticosteroid injection by opthamology

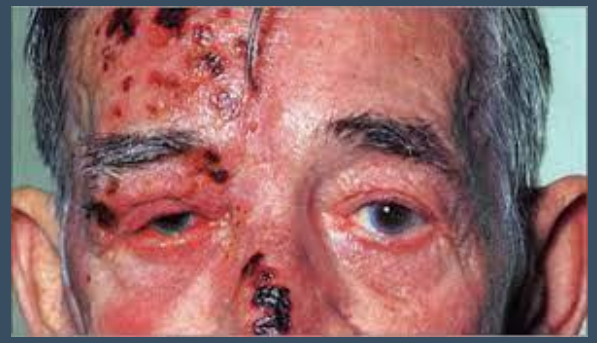


Herpes simplex keratitis

- Photophobia
- Conjunctival injection
- Pain is mild
- Epithelial dendrites noted on Fluoeriscein stain

Herpes Zoster

- Pain in eye
- Headache
- Photophobia
- Vesicular rash in distribution of trigeminal nerve – dermatone disctribution



Hutchinson's sign – herpes zoster

Herpes Treatment

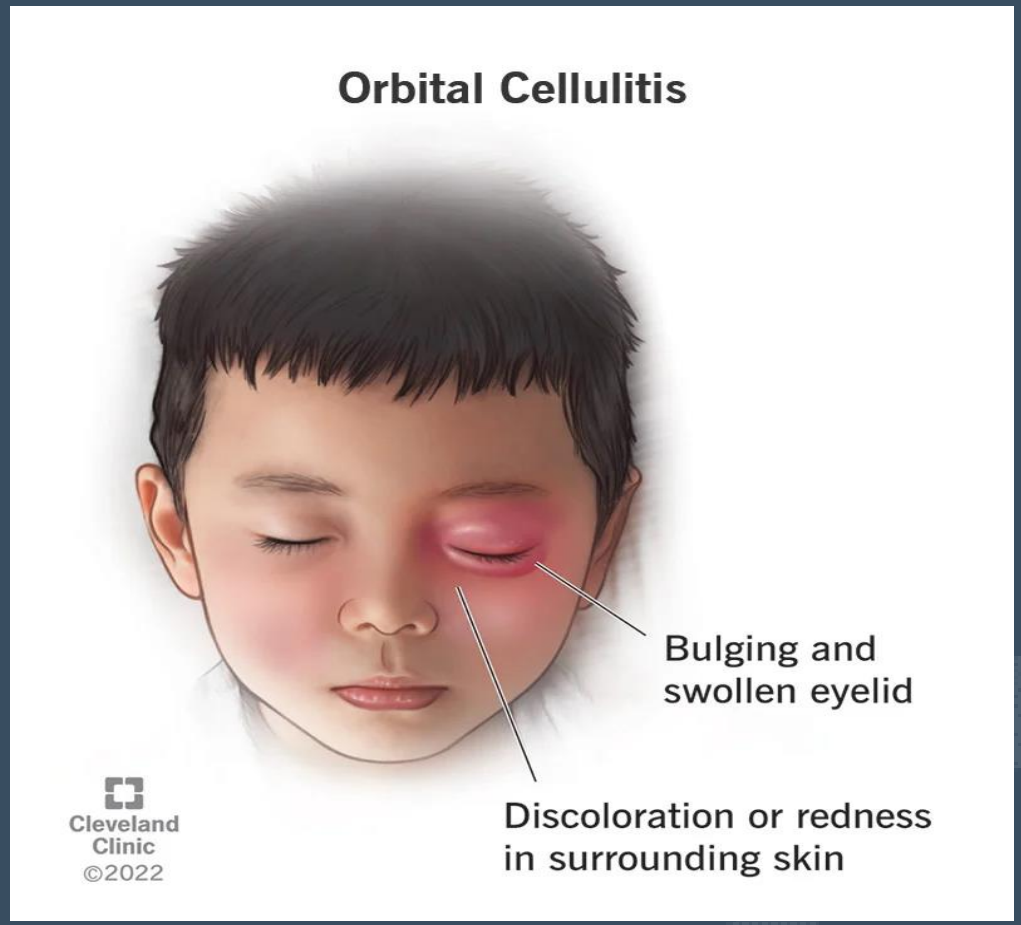
- Herpes Simplex:
  - Valtrex/Famvir 500 mg tid x 7 days
  - Acyclovir400 mg 5 x day for 7 days
  - Viroptic drops, Vira A ointment
- Herpes Zoster
  - Valtrex/Famir 1 gm po tid x 7 days
  - Acyclovir 800 mg po 5 times a day x 7-10 days
- Opthamology Referral

Preseptal/periorbital Cellulitis

- Swelling of eyelid and skin around eye
- No proptosis or chemosis
- No limit of EOM, or loss of vision
- Possible causes bug bites, scratches, injury or trauma around eye, sinus infection
- Usually affects children < 5
- Treatment antibiotics – augmentin, 2nd/3rd generation cephalosporin, bactrim (MRSA)

Orbital Cellulitis

- Bulging, swollen eyelid, fever, pain, exopthalmus, chemosis, globe feels hard
- Affects contents of orbit, fat, muscle
- Limited EOM – won't be able to move eyeball
- Elevated WBC, ESR
- CT scan
- IV antibiotics



Orbital Cellulitis

- Complications
  - Optic neuritis
  - Loss of vision
  - Brain abscess
  - Cavernous sinus thrombosis

Glaucoma – obstruction of aqueous at canal of Schlemm – elevated IOP

Open Angle (chronic)

- Usually no symptoms in early stages
- Early sign - loss of peripheral vision
- Later loose central vision

Closed angle (narrow/acute)

- Severe headache
- Severe eye pain
- Nausea or vomiting
- Blurred vision
- Halos or colored rings around lights
- Eye redness- diffusely injected

Acute Closed Angle Glaucoma

Red Eye

High IOP > 60 mm of Hg

Eye rock hard

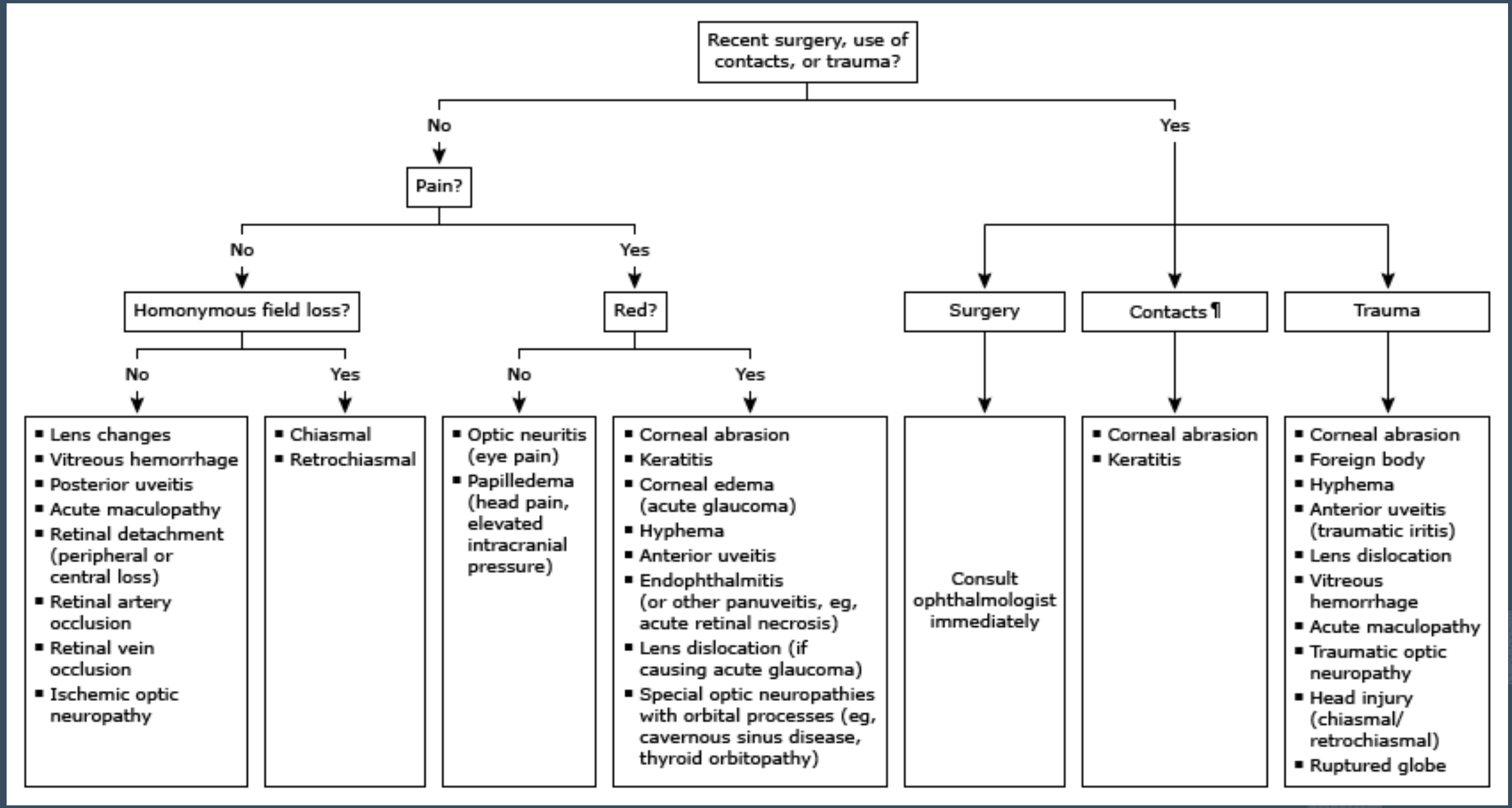
Foggy Steamy Cornea

Dilated pupil

Treatment of Acute Angle Glaucoma
PATHS Treatment

- **P**ilocarpine 2% - one gtt q5-15 min x 3
- **A**cetazolamide 500 mg po or IV x 1
- **T**imoptic 0.5% one drop x 1
- **H**yperosmolar – Mannitol 20% 1.5-2 gm IV over 30 min
- **S**urgery – laser iridectomy

- If no treatment blindness can occur in 3-5 days


Recent surgery, use of contacts, or trauma?
No
Yes
Pain?
No
Yes
Homonymous field loss?
Red?
Surgery
Contacts ¶
Trauma
No
Yes
No
Yes
■ Lens changes
■ Vitreous hemorrhage
■ Posterior uveitis
■ Acute maculopathy
■ Retinal detachment (peripheral or central loss)
■ Retinal artery occlusion
■ Retinal vein occlusion
■ Ischemic optic neuropathy
■ Chiasmal
■ Retrochiasmal
■ Optic neuritis (eye pain)
■ Papilledema (head pain, elevated intracranial pressure)
■ Corneal abrasion
■ Keratitis
■ Corneal edema (acute glaucoma)
■ Hyphema
■ Anterior uveitis
■ Endophthalmitis (or other panuveitis, eg, acute retinal necrosis)
■ Lens dislocation (if causing acute glaucoma)
■ Special optic neuropathies with orbital processes (eg, cavernous sinus disease, thyroid orbitopathy)
Consult ophthalmologist immediately
■ Corneal abrasion
■ Keratitis
■ Corneal abrasion
■ Foreign body
■ Hyphema
■ Anterior uveitis (traumatic iritis)
■ Lens dislocation
■ Vitreous hemorrhage
■ Acute maculopathy
■ Traumatic optic neuropathy
■ Head injury (chiasmal/ retrochiasmal)
■ Ruptured globe

References

https://my.clevelandclinic.org/health/diseases/17657-chalazion

https://my.clevelandclinic.org/health/diseases/24499-orbital-cellulitis

https://www.uptodate.com/contents/the-red-eye-evaluation.2023

https://www.uptodate.com/contents/corneal-abrasions-and-corneal-foreign-bodies-management