Ophthalmologic Emergencies

Rebecca B. Bloch, MD
Medical Director
Maine Medical Center Urgent Care Plus
SANE Program at MMC
Assistant Medical Director
Maine Medical Center's Emergency Services
Portland, ME

CONTINUING EDUCATION COMPANY

1

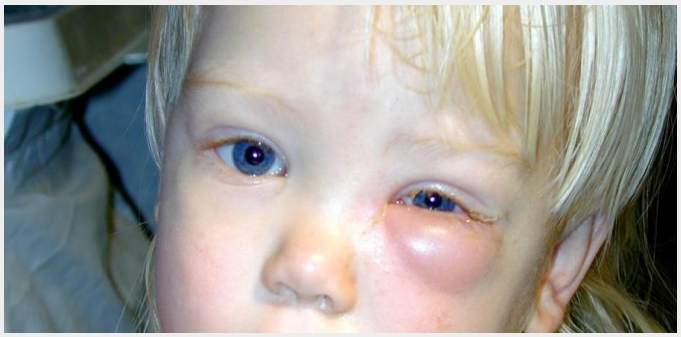
Disclosure

I have no financial interests or relationships to disclose.

CONTINUING EDUCATION COMPANY

2

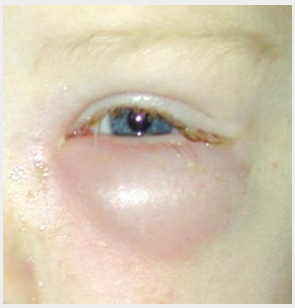
Case 1



3

Preseptal (Periorbital) Cellulitis

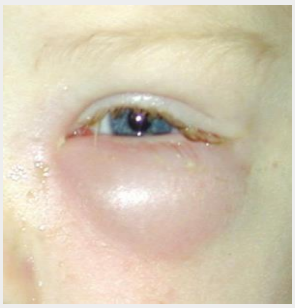
- Erythema
- Warmth
- Edema of eyelids
- Exclude orbital involvement



4

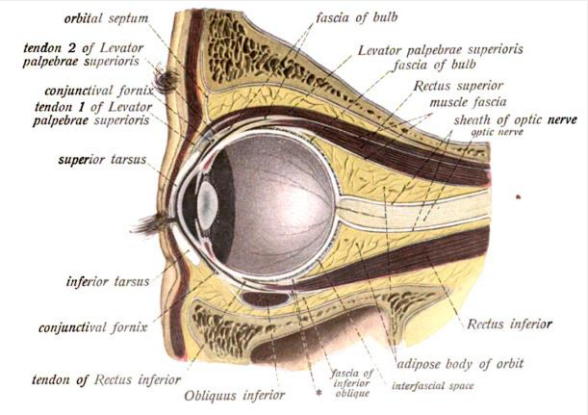
Preseptal (Periorbital) Cellulitis

- Non-toxic
- No visual changes
- No pain with ocular movement
- Tx: Antibiotics
  - Staph/strep/h.flu
  - Amoxicillin-clavulanate, cephalosporin, clindamycin



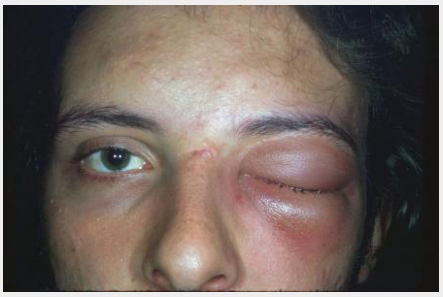
5

Orbital Septum = Fibrous Tissue that Partitions Periocular Tissue from Orbital Fat



6

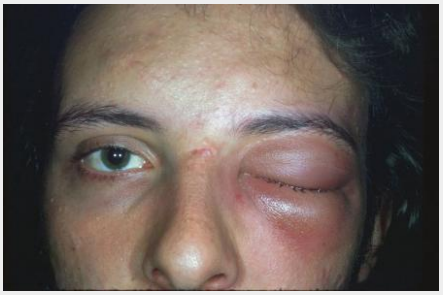
Orbital Cellulitis



- Fever
- Irritability, lethargy
- Pain with EOM
- Abnl EOM
- Proptosis
- Dx: Orbital CT

7

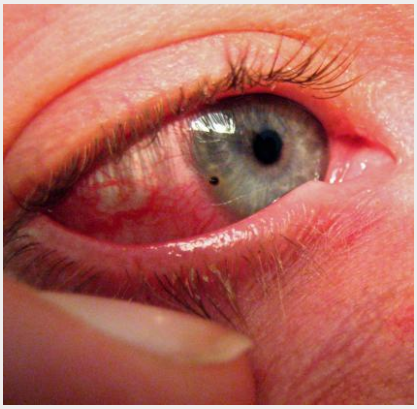
Orbital Cellulitis



- IV abx
- Admit
- Consider MRSA coverage
  - Case series reported MRSA
- Drainage of fluid collections

8

Case 2



9

Ocular Foreign Body

- Deep, suspect corneal perforation
  - Apply eye shield
  - Immediate Ophthalmology consult
- Superficial

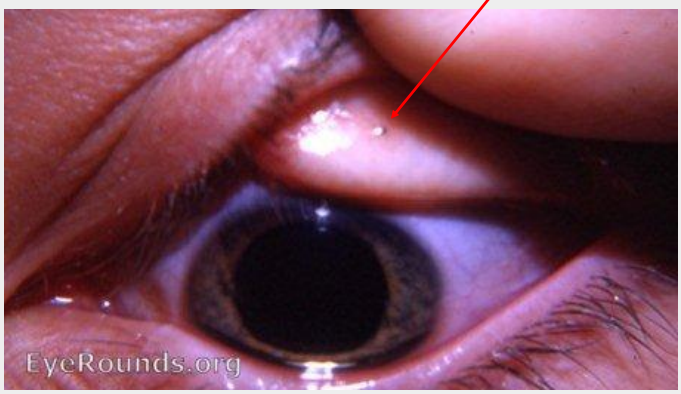
10

Foreign Body Removal

1) Topical anesthetic
2) Position yourself + patient
   stabilize your arm/hand
3) Attempt with moistened cotton applicator or saline lavage/irrigation
4) Extract with 25 gauge needle/TB syringe or burr
5) Burr to remove rust ring

11

12



13

Foreign Body Removal

- After removal, treat corneal abrasion
  - Topical antibiotic
  - Pain control
- Encourage safety glasses!

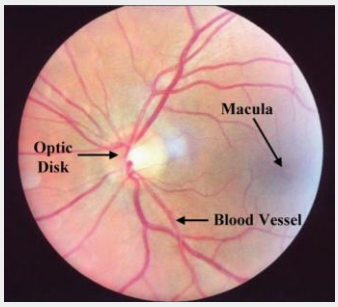
14

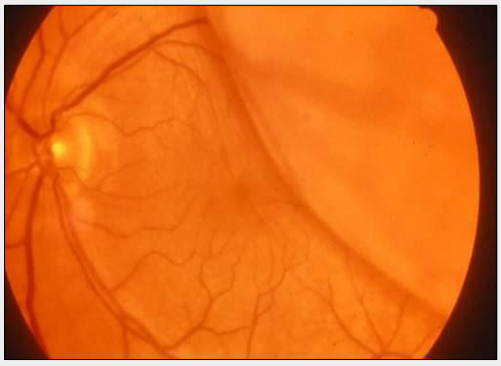
Case 3

- 60 yo male
  - Intermittent flashes R eye x 1 week
  - Now lateral visual field cut

15

Retinal Detachment



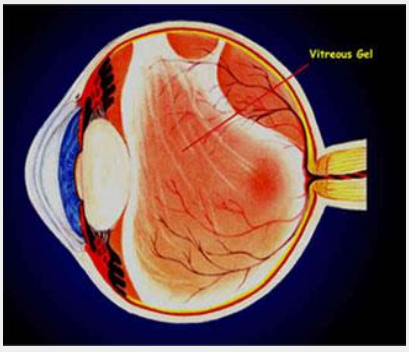


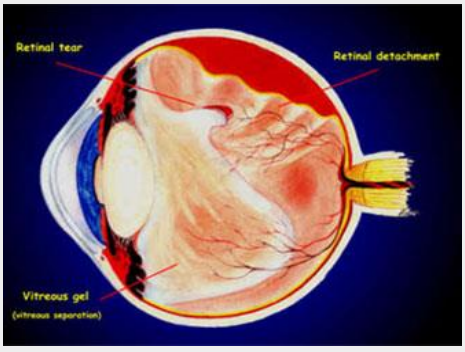
16

Posterior Vitreous Detachment

- Vitreous liquefies with age and pulls away from the retina
  - Normal event occurring in 40- to 70-year-olds **(75% over 65)**
- Separation from retina can result in:
  - Flashes – retinal activation from the traction/separation
  - Floaters (dots, spots) – Glial/fibrous tissue pulled from optic nerve/retina
- **PVD is the initiating event for most retinal detachments**
  - **Majority do NOT have retinal involvement**

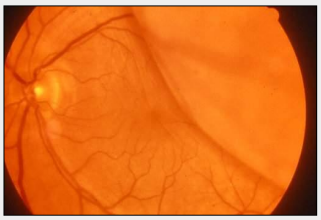
17





18

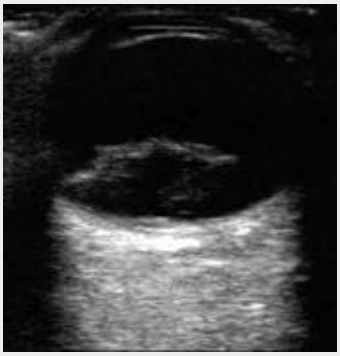
Treatment- Retinal Detachment



- Urgent surgical repair
- Emergent if fovea is threatened
  - sharp central vision
- Laser to adhere retina and seal tear

19

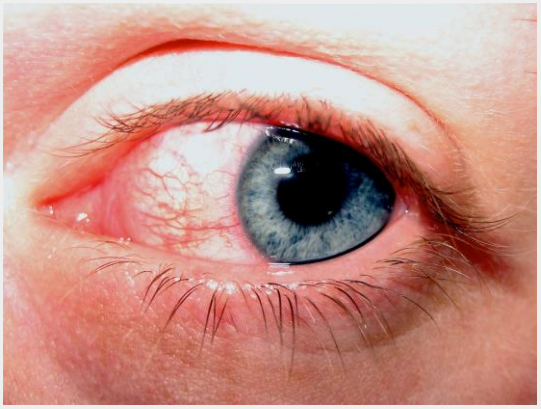
Ultrasound



- Eye/vitreous is great US media
- US very helpful if trouble visualizing the retina

20

Case 4



Poked in the eye with a finger

21

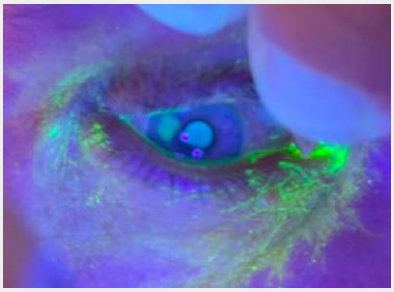
What Is the Best Choice of Ophthalmologic Antibiotic in a Patient with a Corneal Defect Who Wears Contact Lenses?

A. Erythromycin (Emycin)
B. Moxifloxacin (Vigamox)
C. Polymyxin b/Trimethaprom (Polytrim)
D. Bacitracin (Bacitracin)

22

Corneal Abrasion

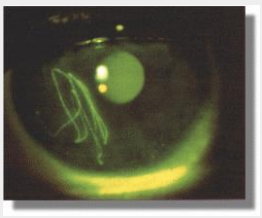
- Traumatic defect corneal epithelium
- Presents with pain, light sensitivity, tearing
- Visual acuity preserves except
  - Abrasion on visual field
  - Corneal edema
- +Conjunctival injection

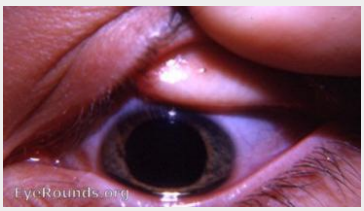


23

Corneal Abrasion

- Confirm with fluorescein stain and UV/wood lamp or cobalt blue light on slit lamp





24

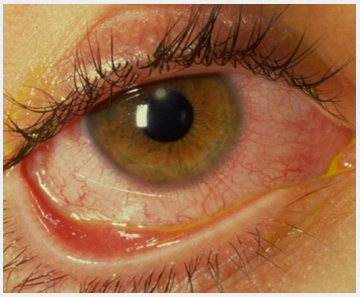
Corneal Abrasion Rx

- Pain control
  - Topical NSAIDs (ketorolac, etc)
  - Cycloplegics - no clear benefit
  - Eye patch - no clear benefit
  - Oral pain meds
- Infection prevention
  - Topical antibiotic QID x 3-5 d
  - Pseudomonas coverage if contact lens use

25

26

Corneal Ulcer

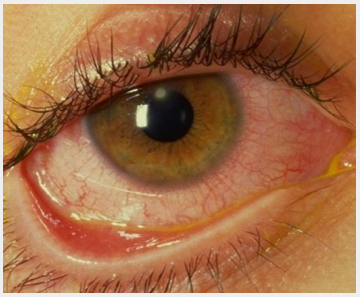


- Focal white infiltrate/opacity
- Pain, photophobia
- Bacterial- most common

RF: Contact lens use, Diabetes

27

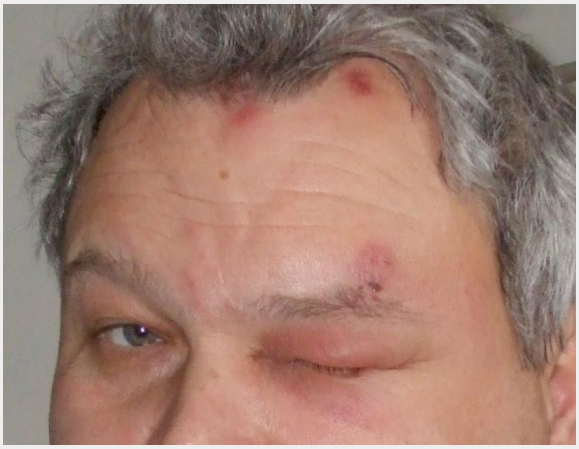
Corneal Ulcer



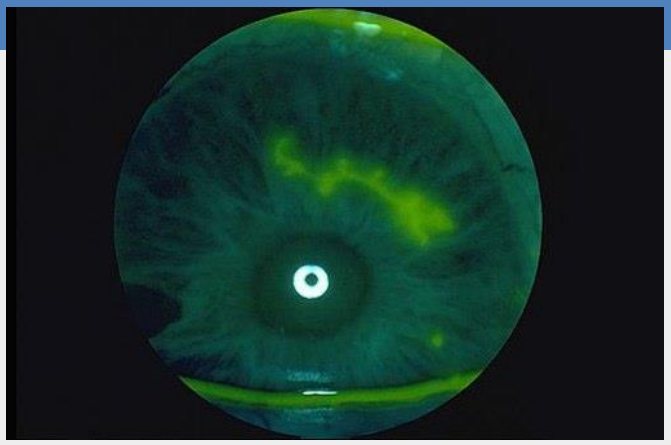
- Fluoroquinolone
- Daily follow up!

28

Case 5



29



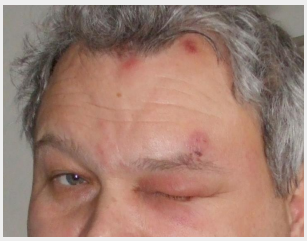
30

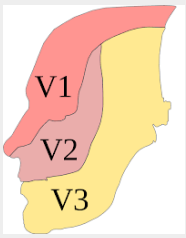
Herpes Simplex Virus Keratitis

- One of most common causes of corneal blindness
- May present with or without skin findings
- Fluorescein exam reveals dendritic lesions
- Ophthalmologic antiviral drops (trifluridine [Viroptic]) + systemic antiviral medication
- Emergent ophthalmologic consult and close follow-up vs admission

31

Varicella Zoster Keratitis





- Zoster/shingles
- Ophthalmic division of trigeminal nerve
  - forehead, upper eyelid, nose
- Fluorescein stain to evaluate
- Tx - oral antivirals +/- topical antivirals
- Close ophthalmologic follow-up

32

Case 6

17 yo skier presents with red eyes

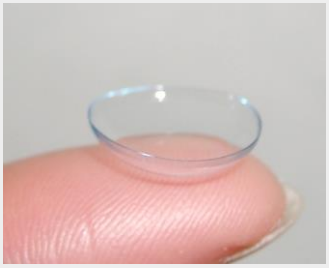
33

Superficial Punctate Keratitis

- Pinpoint fluorescein uptake
- UV exposure
- Pain, erythema, photophobia
- Hours after exposure
- Skiing, welding, tanning booths, sailing
- Tx: abx, avoid further UV exposure

34

Leave Contact Lenses Out When Treating Any Corneal Disease



35

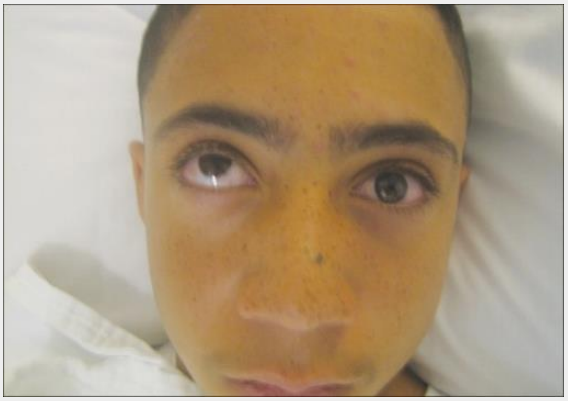
What Is the Most Common Muscle Entrapped in an Orbital Floor Fracture?

A. Superior Rectus
B. Inferior Rectus
C. Medial Rectus
D. Inferior Oblique

CONTINUING EDUCATION COMPANY

36

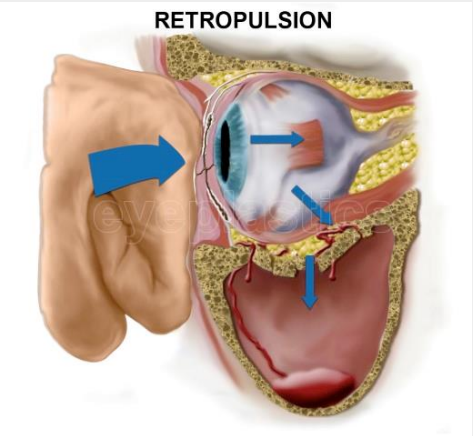
Case 7



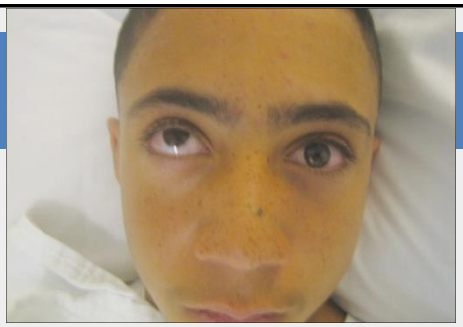
37

Orbital Fractures

- Orbital blowout fractures
  - Inferior and medial walls

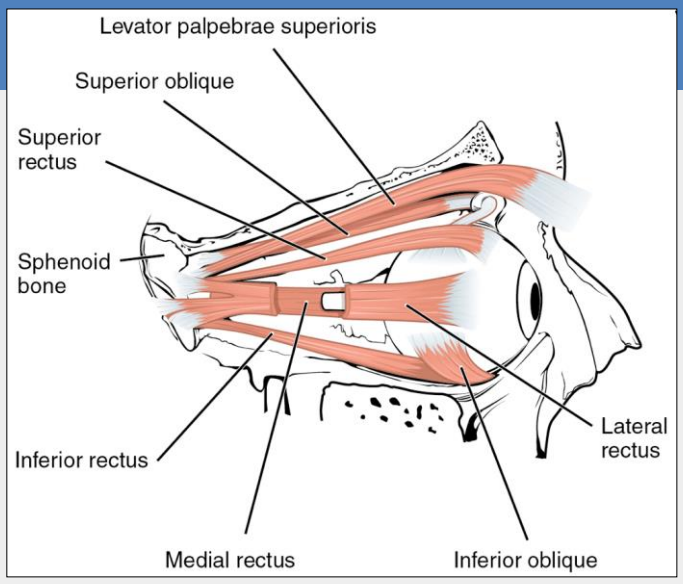


38



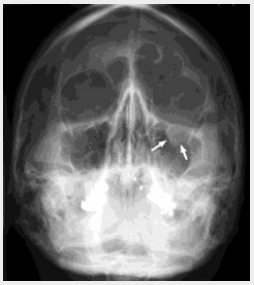
- Exam
  - Periorbital ecchymosis/edema
  - Restricted EOM
    - Most common= restricted upward gaze
    - Anesthesia distribution infraorbital nerve

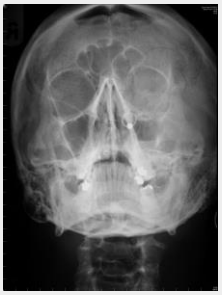
39

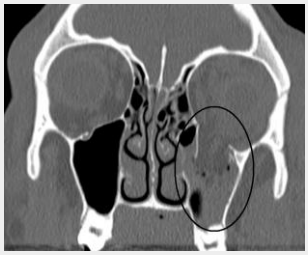


40

Orbital Fracture: Diagnosis







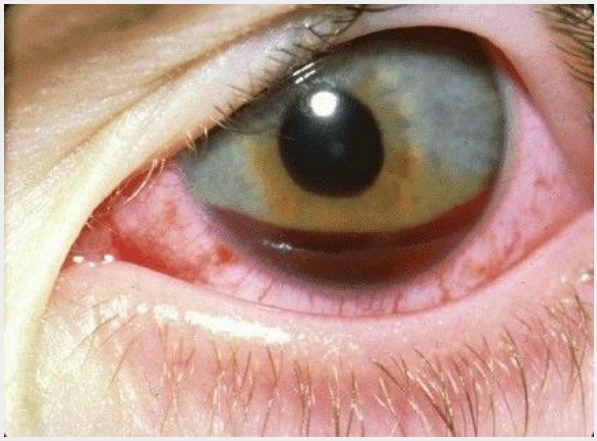
41

Treatment

- Evaluate for globe injury, retrobulbar hematoma, entrapment
  - If positive, emergent specialist consultation
  - If negative
    - +/- antibiotics
    - Nose-blowing/straining precautions
    - Follow up plastics/ophthalmology

42

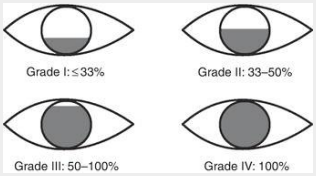
Case 8



43

Hyphema

- Disruption of blood vessels in iris or ciliary body
  - Blood into anterior chamber
- Graded 0-4
  - 0 = only visible with a slit lamp
  - 4 = anterior chamber filled with clot



44

Hyphema

- Ask about history of bleeding disorders or anticoagulant use
- MOST COMMON COMPLICATION IS REBLEEDING
  - 2-5 days later
  - Occurs in 22%
- Corneal staining, elevated IOP, scarring

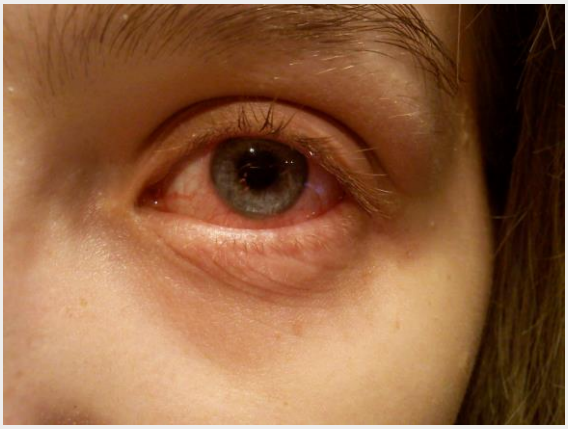
45

Hyphema- Rx

- Supportive therapy
  - Elevate head of bed 30 degrees at rest
  - Cycloplegics for comfort (iritis)
  - Avoid bending, straining or exertion
  - Aggressive control of N/V
  - Topical corticosteroids
  - Monitor IOP
  - Avoid ASA or NSAIDs, discontinue anticoagulants
  - Hospitalization in high risk patients

46

Case 9



47

What Symptom Should Make You Concerned for a Process Other than Simple Conjunctivitis?

A. Photophobia
B. Purulent Discharge
C. Foreign Body Sensation
D. Pruritus

CONTINUING EDUCATION COMPANY

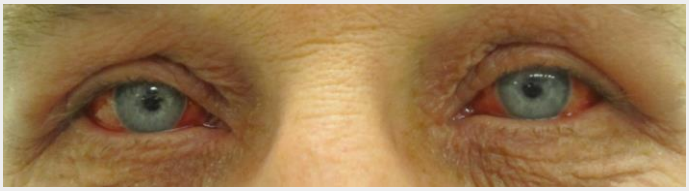
48

Conjunctivitis

- Inflammation of conjunctiva
  - Causes: bacterial, viral, trauma, toxins, autoimmune
- Erythema, pruritus, FB sensation, discharge
- Should NOT have photophobia or visual loss!

49

Viral



- Serous/clear discharge
- Often bilateral
- Heaped follicles, chemosis
- Viral prodrome

50

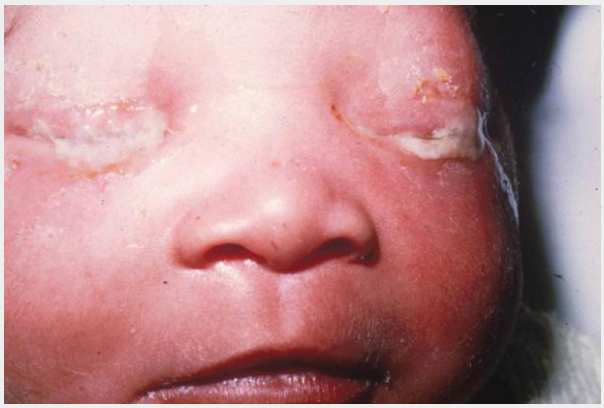
51

Bacterial

- Purulent discharge
- Often unilateral
- Presents and resolves quickly
- Topical antibiotics

52

Special Case

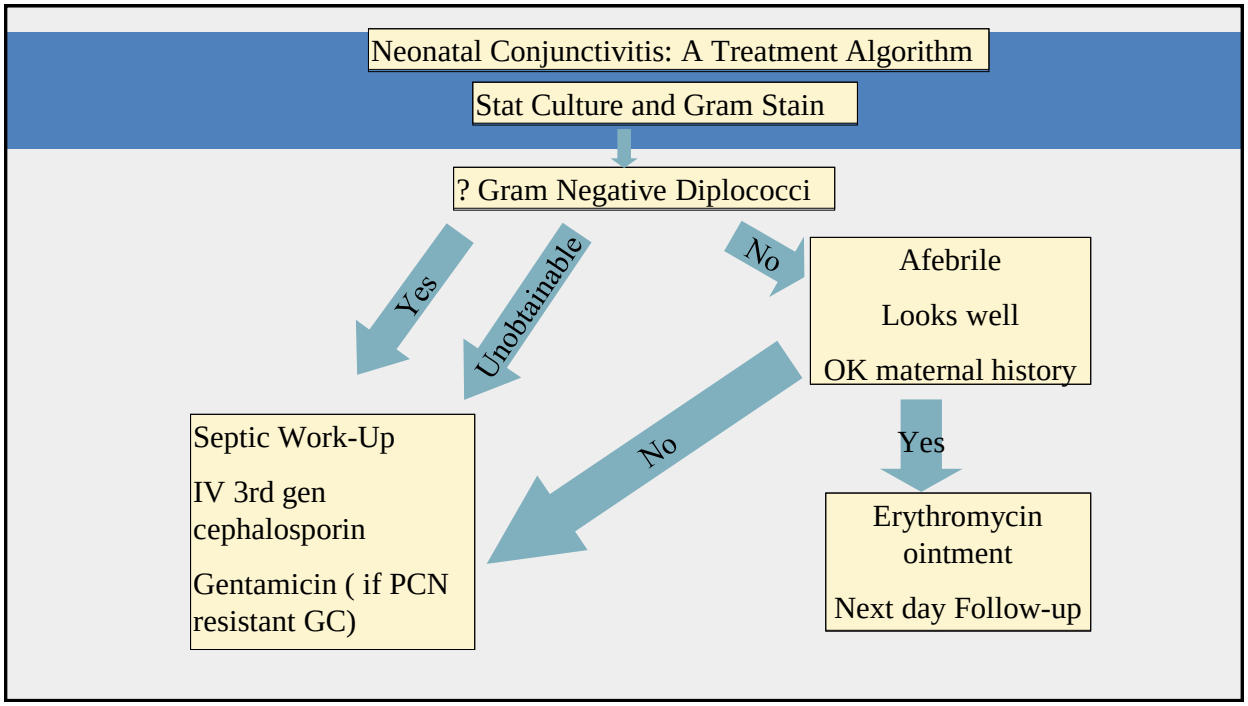


53

Neonatal Conjunctivitis (<1mo)

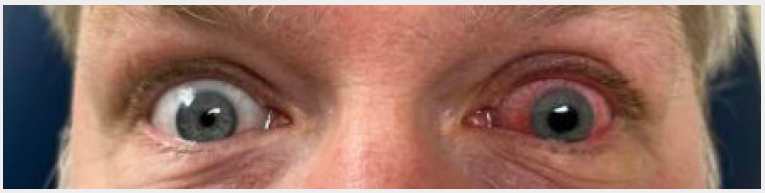
- Noninfectious
  - Chemical conjunctivitis induced by silver nitrate, neomycin, erythromycin
  - Usually in first day of life, resolved by 2-4 days
- Infectious
  - Chlamydial conjunctivitis in untreated neonates
    - Usual onset days 5-15
  - Gonorrheal conjunctivitis
    - Usual onset days 3-5

54



55

Case 10

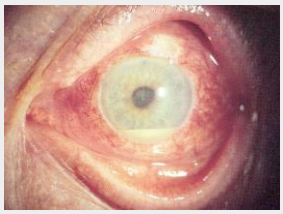


32 year old injury to eye at gym

56

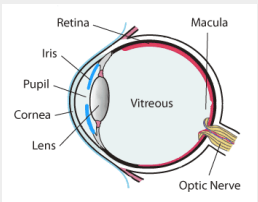
Traumatic Iritis (Uveitis)

- Inflammatory response in anterior chamber after blunt trauma
- Symptoms
  - Poorly localized, aching ocular pain secondary to ciliary body spasm
  - Photophobia
  - Decreased visual acuity



57

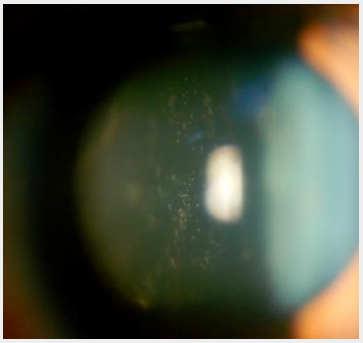
Anterior Uveitis/Iritis



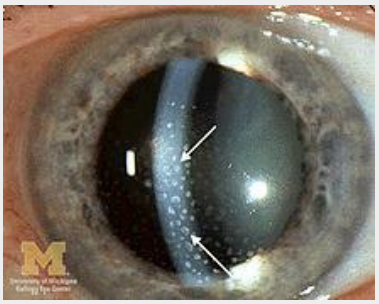
- Inflammation of iris and ciliary muscle
- Hypopyon in severe cases
- Check IOP!
  - Secondary glaucoma can be caused by inflammatory cells or scar tissue blocking outflow

58

Slit Lamp Exam



Cells and Flare



Keratotic Precipitates

59

Anterior Uveitis/Iritis Treatment

- Mydriatics alleviate the pain associated with ciliary spasm (light sensitivity)
- Topical steroid if autoimmune
- Expectant secondary glaucoma (often due to debris/cells blocking normal drainage)

60

Case 11

Chemical splash in the eye

61

Chemical Burn

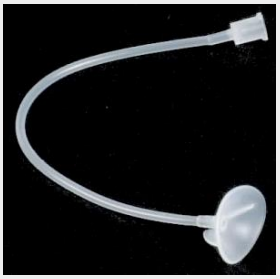
- Alkali
  - Oven/drain cleaners, fertilizers, sparklers, bleach
  - Penetrate cell membranes rapidly
- Acid
  - Hydrofluoric acid, battery acid, HCL
  - Less damage because corneal proteins bind to acid and buffer

Any questions on exposure, call local poison center

62

Chemical Burn Rx

- IMMEDIATE IRRIGATION!
  - Saline or LR
  - >30 min
  - Morgan lens/eye wash
  - After irrigation test pH
- Cycloplegia
- Antibiotic ointment
- Close follow-up vs admission



63