Ophthalmologic Emergencies

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

CONTINUING EDUCATION COMPANY

1

Ophthalmologic Emergencies

Rebecca Bloch, MD

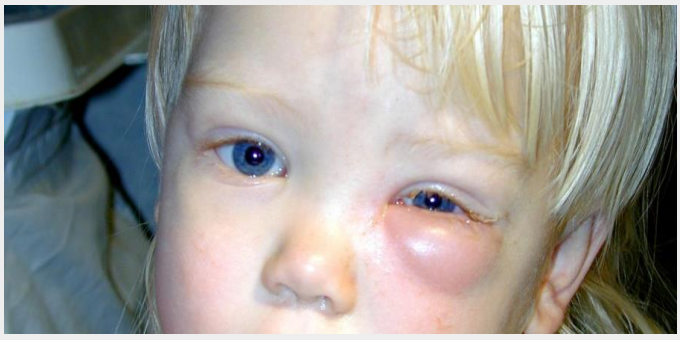
2

Disclosure

I have no financial interests or relationships to disclose.

3

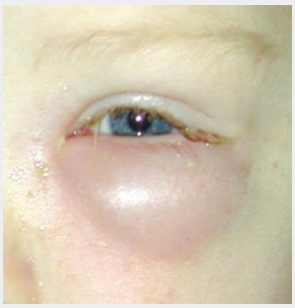
Case 1



4

Preseptal (Periorbital) Cellulitis

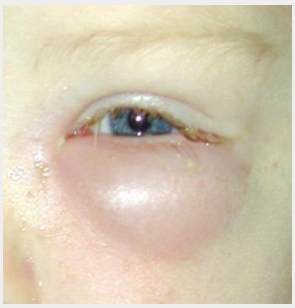
- Erythema
- Warmth
- Edema of eyelids
- Exclude orbital involvement



5

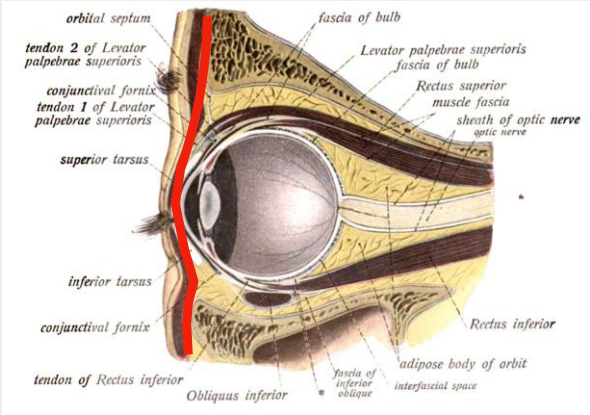
Preseptal (Periorbital) Cellulitis

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



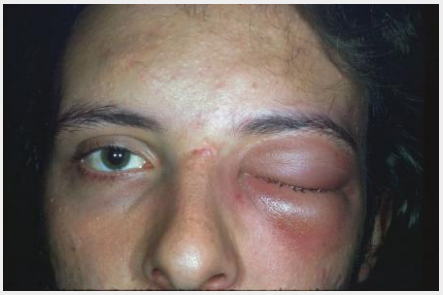
6

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



7

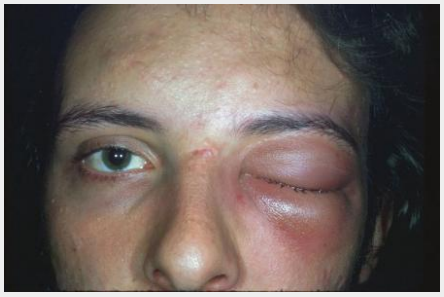
Orbital Cellulitis



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

8

Orbital Cellulitis



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

9

Case 2

10

Foreign Body Removal

1) Topical anesthetic

2) Position yourself + patient

stabilize your arm/hand

3) Attempt with moistened cotton applicator

4) Extract with 25 gauge needle/TB syringe or burr

5) Burr to remove rust ring

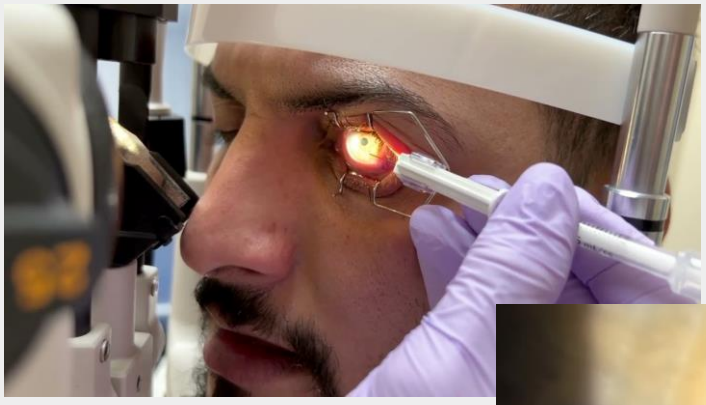
11

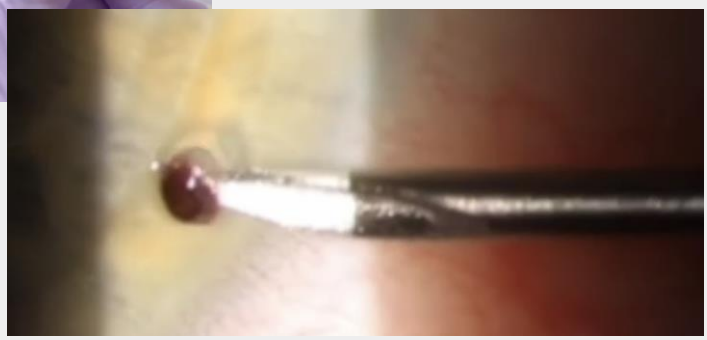
1

2

3

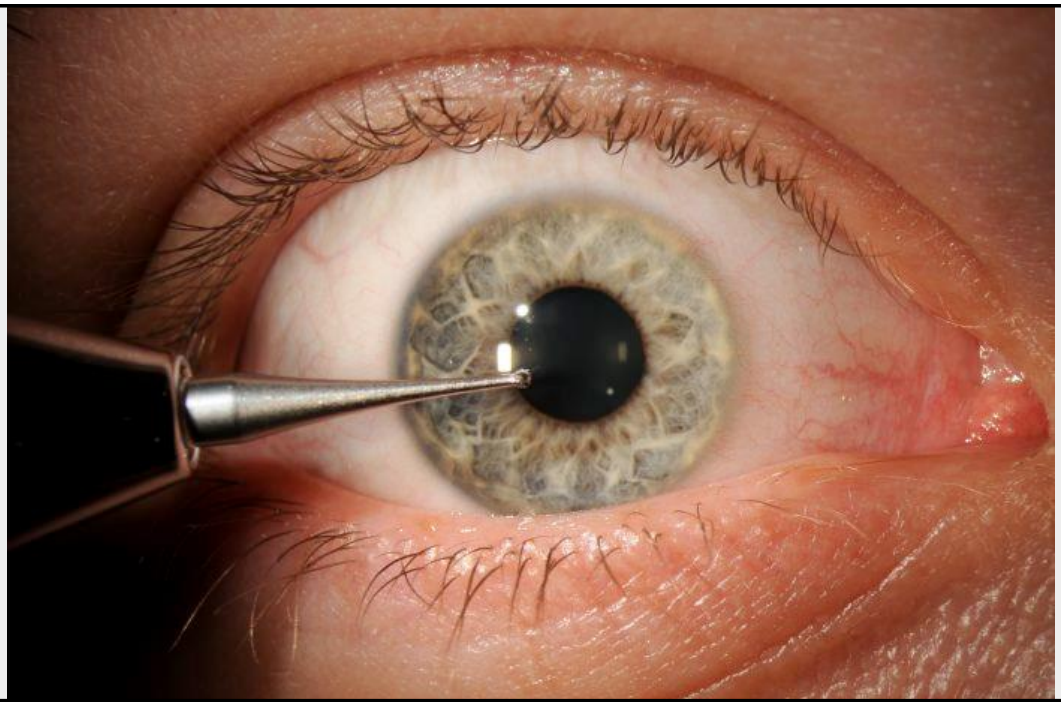
12





13

14



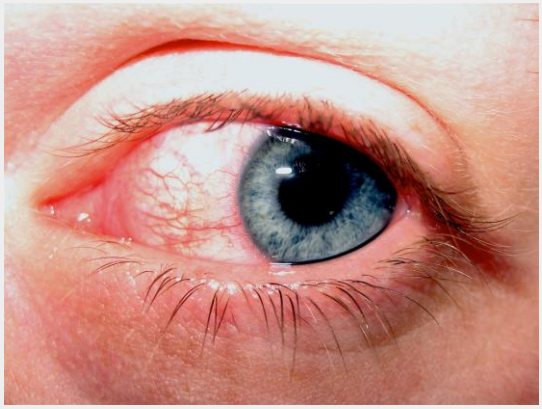
15

Foreign Body Removal

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

16

Case 3



Poked in the eye with a finger

17

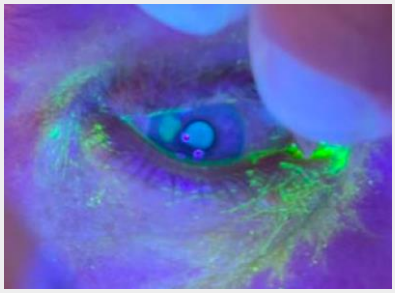
What Is the Best Choice of Ophthalmologic Antibiotic in a Patient with a Corneal Defect Who Wears Contact Lenses?

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

19

Corneal Abrasion

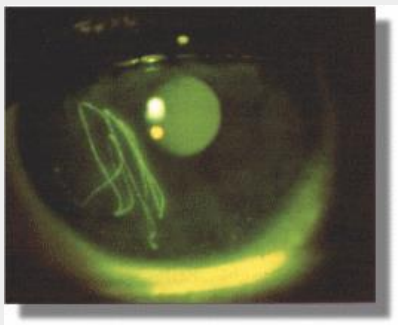
- Traumatic defect corneal epithelium
- Presents with pain, light sensitivity, tearing
- Visual acuity preserves except
  - Abrasion on visual field
- +Conjunctival injection

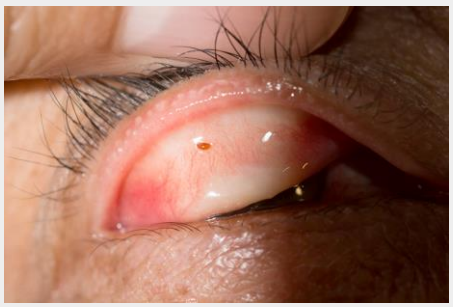


20

Corneal Abrasion

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





21

Corneal Abrasion Rx

- Pain control
  - Topical NSAIDs (ketorolac)
  - ~~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

22

Randomized Controlled Trial > Ann Emerg Med. 2021 Mar;77(3):338-344.
doi: 10.1016/j.annemergmed.2020.08.036. Epub 2020 Oct 27.

Short-Term Topical Tetracaine Is Highly Efficacious for the Treatment of Pain Caused by Corneal Abrasions: A Double-Blind, Randomized Clinical Trial

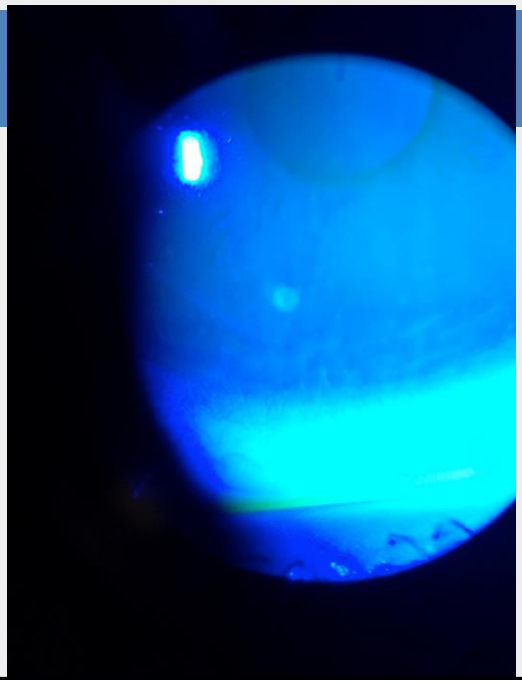
Stacia Shipman [1], Kelly Painter [2], Mark Keuchel [2], Charles Bogie [2]

Observational Study > Ann Emerg Med. 2018 Jun;71(6):767-778.
doi: 10.1016/j.annemergmed.2017.02.016. Epub 2017 May 5.

An Observational Study to Determine Whether Routinely Sending Patients Home With a 24-Hour Supply of Topical Tetracaine From the Emergency Department for Simple Corneal Abrasion Pain Is Potentially Safe

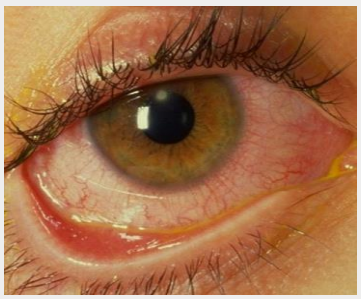
Neil Waldman [1], Ben Winrow [2], Ian Densie [3], Andrew Gray [4], Scott McMaster [2], George Giddings [2], John Meanley [2]

23



24

Corneal Ulcer

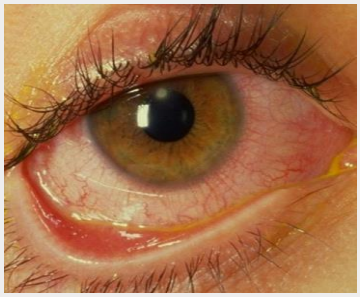


- Focal white infiltrate/opacity
- Pain, photophobia
- Bacterial- most common

RF: Contact lens use, diabetes, immunosuppression

25

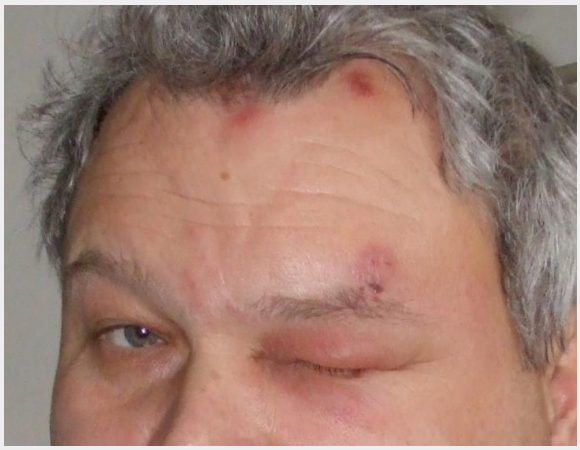
Corneal Ulcer



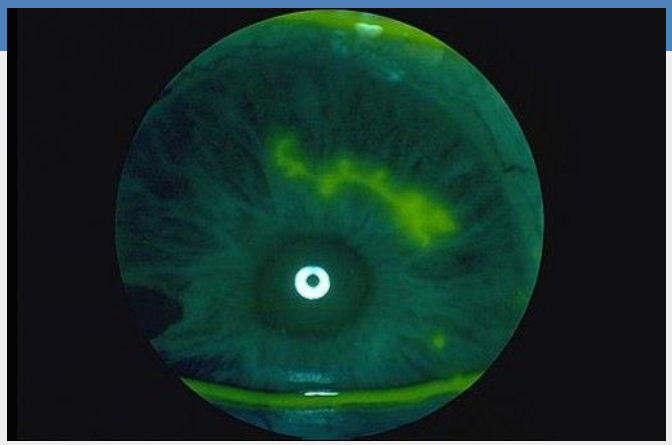
- Fluoroquinolone
- Daily follow up!

26

Case 4



27



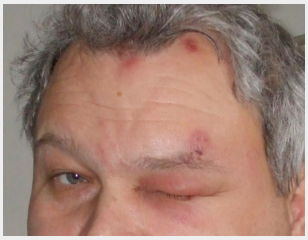
28

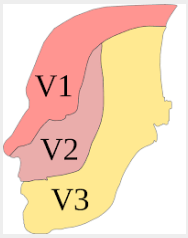
Herpes Simplex Virus Keratitis

- 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

29

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

30

Case 5

17 yo skier presents with red eyes

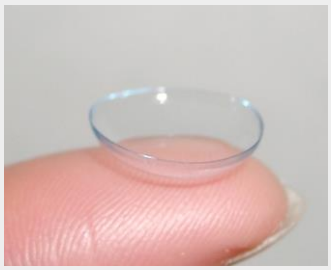
31

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

32

Leave Contact Lenses Out When Treating Any Corneal Disease



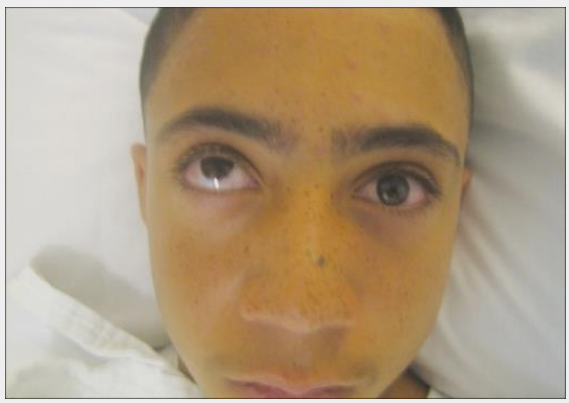
33

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

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

34

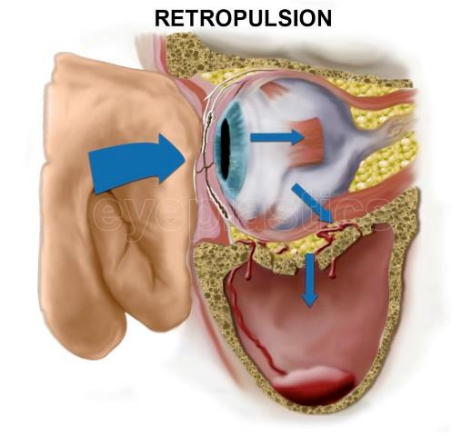
Case 6



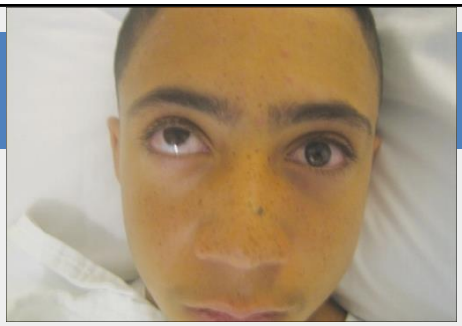
35

Orbital Fractures

- Orbital blowout fractures
  - Inferior and medial walls

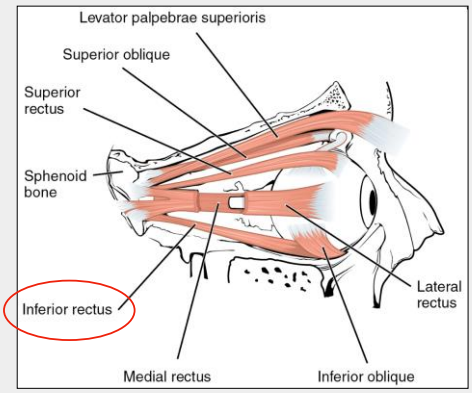


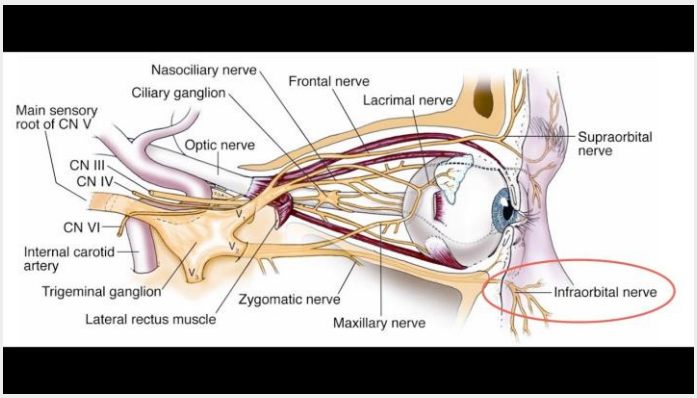
36



- Exam
  - Periorbital ecchymosis/edema
  - Restricted EOM
    - Most common= restricted upward gaze
    - Infraorbital anesthesia

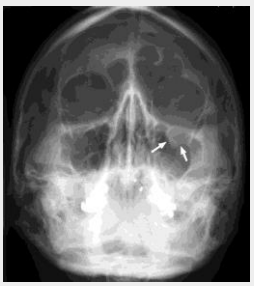
37

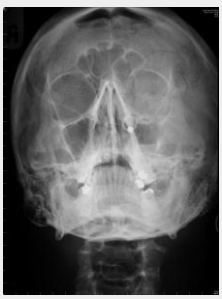


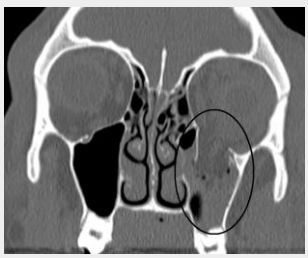


38

Orbital Fracture: Diagnosis







39

Treatment

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

40

Ann Plast Surg. 2021 Apr 1;86(4):424-427. doi: 10.1097/SAP.0000000000002572.

Excluding Antibiotics in the Management of Nonoperative Orbital and Zygomatic Fractures

Kenneth Pessino [1], Tracey Cook [2], John Layliev [2], James P Bradley [2], Nicholas Bastidas [2]

Open Ophthalmol J. 2017 Jan 31:11:11-16. doi: 10.2174/1874364101711010011. eCollection 2017.

Antibiotic Prophylaxis in Orbital Fractures

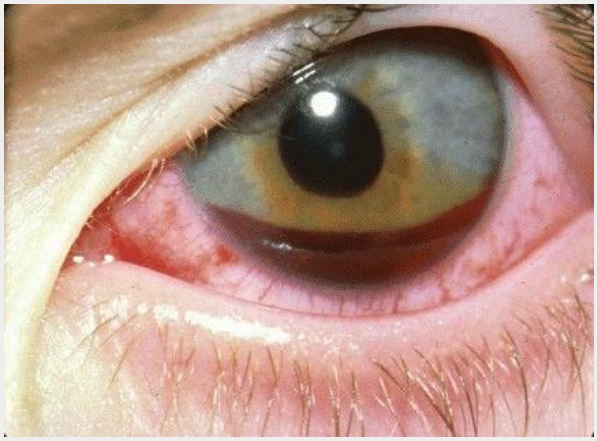
Benjamin Reiss [1], Lamise Rajjoub [1], Tamer Mansour [1], Tony Chen [1], Aisha Mumtaz [1]

Affiliations + expand

PMID: 28400887 PMCID: PMC5362967 DOI: 10.2174/1874364101711010011

41

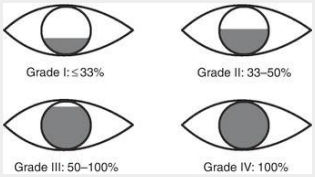
Case 8



42

Hyphema

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



43

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

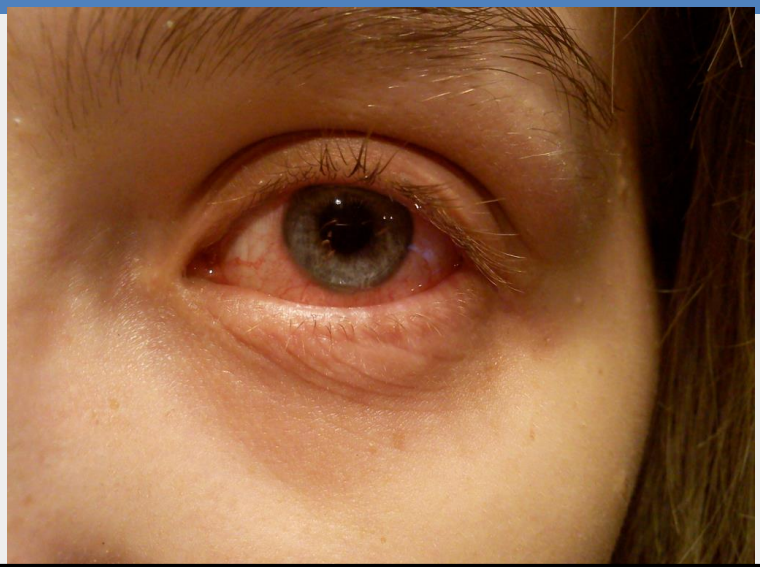
44

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

45

Case 9



46

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

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

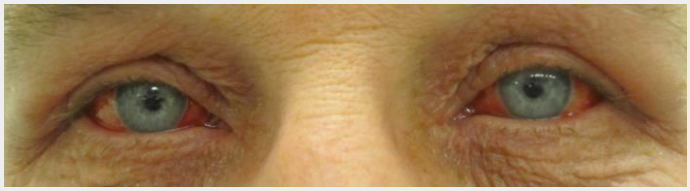
47

Conjunctivitis

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

48

Viral



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

49

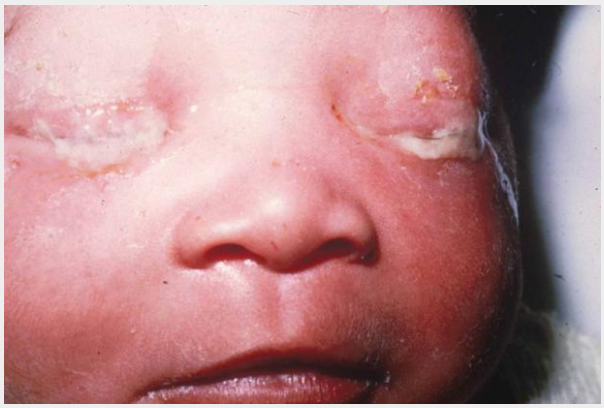
50

Bacterial

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

51

Special Case

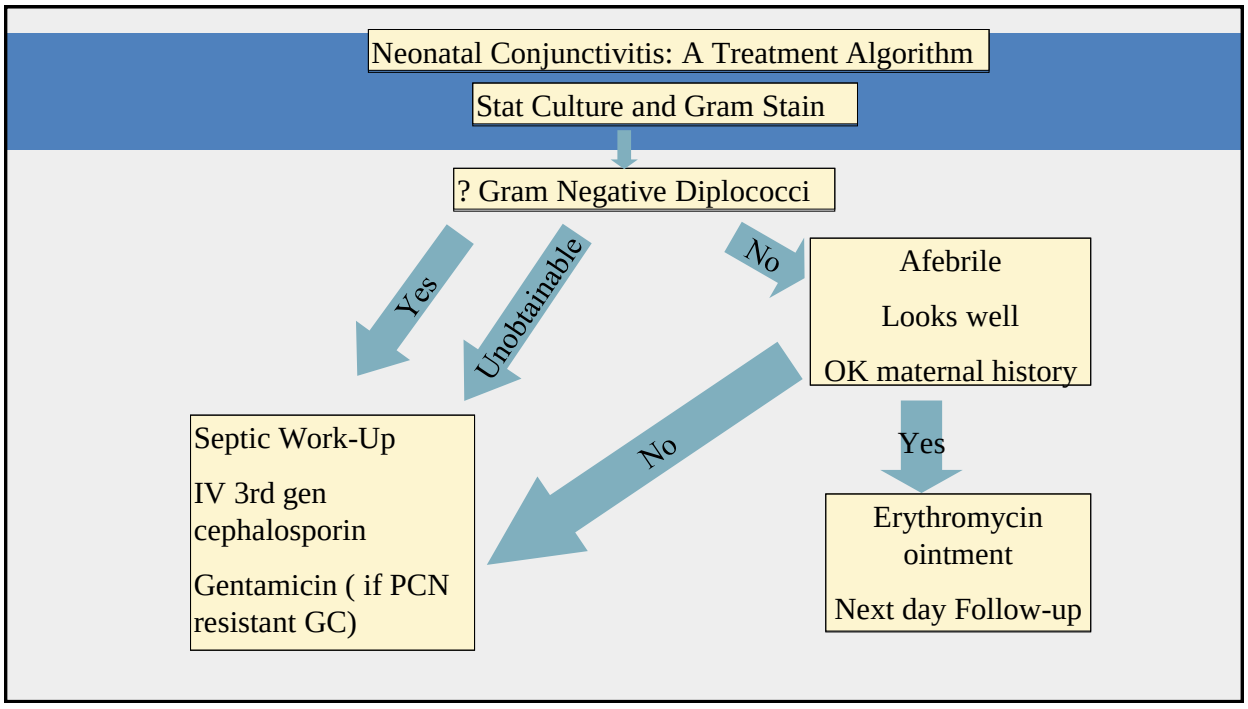


52

Neonatal Conjunctivitis (<1mo)

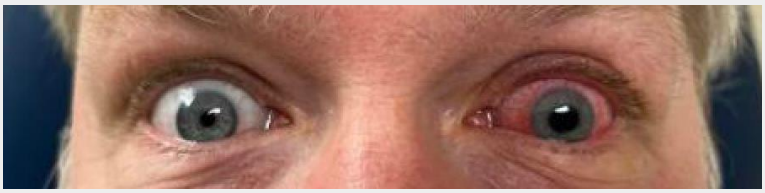
- Noninfectious
  - Chemical conjunctivitis induced by silver nitrate, neomycin, erythromycin
  - Usually in first day of life, resolved by 2-4 days
- Infectious
  - Chlamydial conjunctivitis in untreated neonates
    - Usual onset days 5-15
  - Gonorrheal conjunctivitis
    - Usual onset days 3-5

53



54

Case 10



32 year old injury to eye at gym

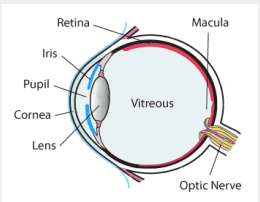
55

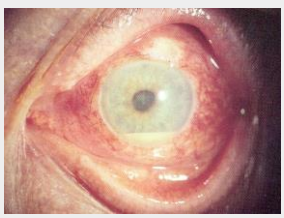
Traumatic Iritis (Uveitis)

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

56

Anterior Uveitis/Iritis

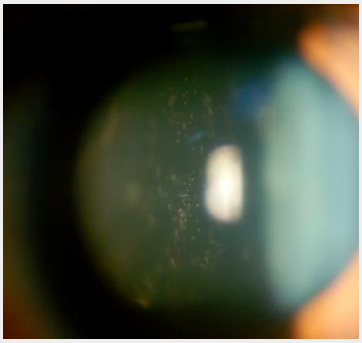




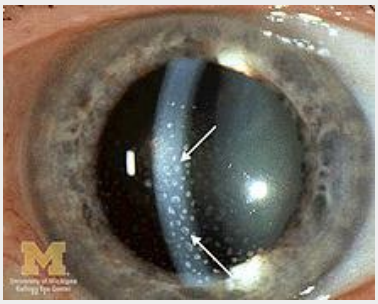
- Inflammation of iris and ciliary muscle
- Hypopyon in severe cases
- Check IOP!
  - Secondary glaucoma can be caused by inflammatory cells or scar tissue blocking outflow

57

Slit Lamp Exam



Cells and Flare



Keratotic Precipitates

58

Anterior Uveitis/Iritis Treatment

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

59

Case 11

60

Asymptomatic Anisocoria

- Physiological- 20% population
- Mechanical- previous trauma, surgery
- Pharmacologic- if instilled in one eye
  - Scopolamine, pilocarpine, dextromethorphan, adrenergic nasal drops or sprays
  - cocaine, MDMA
  - Alkaloids in plants- Jimson weed, nightshade

61