The Red Eye

Evidence, Pearls, and Medico-Legal Pitfalls

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Four Reasons to Avoid Prescribing Eye Steroids

Ophthalmic steroids can cause:

1. **PERFORATION**: In the event of herpetic keratitis, steroids can facilitate progression resulting in corneal perforation

2. **GLAUCOMA**: Ophthalmic steroids can cause chronic open-angle glaucoma if used for a prolonged period of time (i.e. > 2 weeks)

3. **CATARACTS**: Ophthalmic steroids can cause cataracts if used for a prolonged period of time

4. **CORNEAL ULCERS**: Ophthalmic steroids have been associated with development of corneal ulcers of a fungal origin.

**Evaluation of the Red Eye**

**REMEMBER RED FLAGS: PAIN, Anisocoria, and Decreased Acuity**  DON’T prescribe eye steroids!

**IRITIS**

- **A** Yes, constant
  - **Pain** - Photophobia

- **B** Yes, watery

- **C** Miosis / reacts poorly on affected side / **distorted pupil** (anisocoria)

- **D** Blurred vision - DOCUMENT

- **E** Perilimbal Haze

- **F** Normal
  - Not necessary unless FB sensation

- **Tx** Refer for Steroids
  - R/O systemic cause (i.e. SpA, Behcet’s, IBD, Kawasaki’s, TINU, JIA, Sjögren’s, Polychondritis, Granulomatous angiitis...)

**MEMORY TIPS...**

Remember anatomically what the IRIS is (coloured part of the eye), what the IRIS does (constricts in response to light), and what it surrounds (pupil):

- It makes sense that if the iris is inflamed...
  - it will be red around the iris (**PERILIMBAL HAZE**)
  - it hurts when the iris constricts (**PHOTOPHOBIA**)
  - it can become warped (**DISTORTED PUPIL**)

**DDx – Unlike Iritis...**

- **Conjunctivitis** has morning crusting, no pain
- **Scleritis** has SEVERE pain & tenderness to palpation
- **Episcleritis** is NOT painful
- **Keratitis** has corneal opacity, discharge, fluoresces
- **Glaucoma** has hazy, nonreactive pupil & headache

A = ache, B = blob, C = constriction, D = document acuity, E = erythema pattern, F = fluorescein
**REMEMBER RED FLAGS: PAIN, Anisocoria, and Decreased Acuity**

**DON’T** prescribe eye steroids!

### SCLERITIS

| A | • SEVERE CONSTANT BORING PAIN - ++ night, pain w/palpation, + photophobia |
| B | • Tears |
| C | • PERL |
| D | • Decreased - DOCUMENT |
| E | • No erythema...but deep red / blue / purple hue |
| F | • Normal |
|   | • Not necessary unless FB sensation |
| Tx | •REFER for Steroids |
|   | •R/O systemic cause (RA, IBD, microscopic polyangiitis, Churg-Strauss, Sjögren’s, Polychondritis, Granulomatous angiitis, SLE, infectious) |

### DDx – Unlike Scleritis...

- **Conjunctivitis** has morning crusting, NO pain
- **Iritis** has PHOTOPHOBIA, perilimbic haze, less painful
- **Episcleritis** NO pain, resolves w/ phenylephrine drops
- **Keratitis** is less painful and +ve Flourescin staining
- **Glaucoma** has hazy, nonreactive pupil & hi pressure

### MEMORY TIPS ...

Remember the sandwich, from superficial to deep:

1. CONJUNCTIVA
2. EPISCLERA
3. SCLERA

As the deepest part of the eye, the eye will be will be **VERY VERY PAINFUL** if the inflammation gets all the way down to the sclera.
# Evaluation of the Red Eye

Find this handout and the slides online at [http://learn.drmoore.ca](http://learn.drmoore.ca)

**REMEMBER RED FLAGS:** PAIN, Anisocoria, and Decreased Acuity

**DON'T** prescribe eye steroids!

## EPISCLERITIS

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Irritation (pain is rare)</td>
</tr>
<tr>
<td>B</td>
<td>Tears - NO pus, NO a.m. crusting</td>
</tr>
<tr>
<td>C</td>
<td>PERL</td>
</tr>
<tr>
<td>D</td>
<td>Normal - DOCUMENT</td>
</tr>
<tr>
<td>E</td>
<td>FOCAL redness</td>
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<tr>
<td>F</td>
<td>Normal</td>
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<tr>
<td>Tx</td>
<td>Artificial Tears</td>
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</tbody>
</table>

## MEMORY TIPS ...

Remember the sandwich, from superficial to deep:

- **CONJUNCTIVA**
- **EPISCLERA**
- **SCLERA**

The episclera is not the deepest part, so there’s **no pain & normal acuity**. As well, it’s sealed in by conjunctiva so there’s **no significant discharge & no A.M. crusting**. **Focal redness**-think Episcleritis.

## DDx – Unlike Episcleritis...

- **Conjunctivitis** has DIFFUSE erythema, & crusting +d/c
- **Scleritis** has SEVERE PAIN & tenderness to palpation
- **Iritis** has PHOTOPHOBIA, perilimbal haze, and has pain
- **Keratitis** has PAIN, and + Flourescin
- **Glaucoma** has PAIN, h/a, & hazy, nonreactive pupil
### Evaluation of the Red Eye

**REMEMBER RED FLAGS: PAIN, Anisocoria, and Decreased Acuity**  

**DON'T** prescribe eye steroids!

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#### KERATITIS

| A | • Painful & FB sensation - miserable  
• Difficulty keeping eye open |
| B | • VIRAL - Watery  
• BACTERIAL - Possibly Purulent |
| C | • PERL but you may notice a haze or branching pattern on the cornea |
| D | • Blurred vision - DOCUMENT  
• Halos around lights |
| E | • Diffuse (maybe perilimbal)  
• Corneal haze |
| F | • + HSV - Branching pattern  
• + Bacterial - Corneal Ulceration |
| Tx | • REFER URGENTLY  
• Ophtho will target instigating bug |

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#### MEMORY TIPS ...

Keratitis is inflammation of the cornea. Think about how painful a corneal abrasion is and you’ll remember keratitis. These patients are miserable.

Also, if the CORNEA is inflamed, ACUITY will obviously be decreased as light passes through the cornea.

Don’t forget FLOURESCIN staining as this will give away the diagnosis of keratitis!

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#### DDx – Unlike Keratitis...

- **Conjunctivitis** has morning crusting, no pain
- **Scleritis** has SEVERE pain & tenderness to palpation
- **Episcleritis** has NO pain, has focal erythema
- **Iritis** has PHOTOPHOBIA and negative flourescin
- **Glaucoma** has hazy, nonreactive pupil & hi pressure
### CONJUNCTIVITIS

| A | • NO PAIN - just irritation. (If painful, it's not conjunctivitis) |
| B | • Viral/Allergic: Watery esp. in AM  
    • Bacterial: PUS esp. in AM |
| C | • PERLA. (If abnormal, it's not conjunctivitis) |
| D | • Normal -DOCUMENT |
| E | • Diffuse |
| F | • Normal  
    • Not necessary unless FB sensation |
| Tx | • SWABS = USELESS (exceptions: contact lens wearer, painful, failed Tx, immunocompromised)  
    • ABx for Bacterial (cover for Pseudo if contacts) |

#### DDx — Unlike Conjunctivitis...

- **Iritis** has PHOTOPHOBIA but NO morning crusting
- **Scleritis** has SEVERE PAIN & tenderness to palpation
- **Episcleritis** NO pain, NO morning crusting
- **Keratitis** has PAIN, + Fluorescin, NO morning crusting
- **Glaucoma** has NO morning crusting, PAIN, hazy pupil

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**MEMORY TIPS ...**

Remember the sandwich, from superficial to deep:

- **CONJUNCTIVA**
- **EPISCLERA**
- **SCLERA**

Conjunctivitis is the MOST SUPERFICAL layer so when it’s inflamed, the discharge POURS OUT.

**ITCH**=allergic  
**GRITTY/DRY**= Viral  
**PUS**= Bacterial
**GLAUCOMA**

**A**
- Acute, SEVERE Pain, Tender, & firm
  - these patients are in distress

**B**
- Minimal Watery

**C**
- Fixed, Hazy, Dilated
  - Anisocoria

**D**
- Decreased - DOCUMENT
  - Halos around lights

**E**
- Ciliary Flush

**F**
- Normal
  - Not necessary unless FB sensation

**Tx**
- LOWER PRESSURE within HOURS
  - IMMEDIATE REFERRAL to ED

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**MEMORY TIPS ...**

Remember the rule of thumb: REFER all patients with any PAINFUL EYE. And – look for red eye if your patient has serious headache. If you do this you won’t miss a rare, but serious, glaucoma.

A good analogy is the eye is like an overinflated balloon, ready to pop... imagine how PAINFUL that would be. These patients are often IN DISTRESS. As well an overinflated eyeball won’t function normally – pupil FIXED and DECREASED acuity.

**DDx – Unlike Glaucoma...**

- **Conjunctivitis** has morning crusting, no pain
- **Scleritis** has normal pupil / pressure, and is TENDER
- **Iritis** has normal pressure, no h/a
- **Episcleritis** has NO pain or h/a, normal pupil
- **Keratitis** has + Flourescin, normal pressure, no h/a

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A = ache, B = blob, C = constriction, D = document acuity, E = erythema pattern, F = flourescin
Acute Angle-Closure Glaucoma
Emergent Treatment

- Consult Ophthalmology Emergently
- Initiate treatment WITHIN 60 MINUTES as recommended by ophthalmology

A sample regimen may include:

- 0.5% timolol maleate
- 1% apraclonidine, and
- 2% pilocarpine
- Oral medications may include acetazolamide, two x 250mg tablets in the office
- IV medications may include acetazolamide or mannitol