

Evaluation and Treatment of the Red Eye

Most common eye problem in primary care, usually benign but occasionally an emergency! Important to know the difference.

I. **Etiology** -4 main presentations need to be differentiated in diagnosis:
A) Eye lid and periorbital disease B) Conjunctival injection (secondary to conjunctivitis) C) Ciliary injection (secondary to corneal disease, acute iritis or acute glaucoma) D) Subconjunctival hemorrhage

A. Eye lid and periorbital disease

1. **Blepharitis** = inflammation of lid margin, many causes (Staph, Seborrhic, etc.)

2. **SLIDE 1** = Acute Hordeolum (Sty) -secondary to staph, may req. oral abx or Optham. to I & D

3. **SLIDE 2 & 3** = Acute Dacrocystitis Hordeolum (Sty) -secondary to staph, may req. oral abx or Optham. to I & D

B. **Conjunctival Injection** = “**Conjunctivitis**” = diffuse blood vessel engorgement on the palpebral and bulbar conjunctiva.

1. **SLIDE 4: Infectious causes** -predominantly viral, only approx. 10% require abx

2. Bacterial conjunctivitis -pneumococcus and H. Flu most common

SLIDE 5: Gonococcal conjunctivitis -grossly purulent

3. **SLIDE 6: Follicular conjunctivitis** = viral or chlamydial, don't forget to consider chlamydia in sexually active or those with chronic (> 3 wks) follicular conjunctivitis

SLIDE 7: Preauricular adenopathy classic in viral and chlamydial disease

4. **SLIDE 8:** Epidemic Keratoconjunctivitis (EKC) = contagious adenoviral infxn; viral conjunctivitis causes corneal epithelial defects 1st week then subepithelial WBC infiltrates which lead to decreased vision the 2nd week shown here.

5. **SLIDE 9:** Allergic conjunctivitis -common cause of chronic conjunctivitis in adults, non emergent (unlike in kids where it could be vernal conjunctivitis). Marked conjunctival edema classic. Routine tx. = topical Alavide (Mast cell stabilizer) + Acular (Ketorolac -topical NSAID for itching)

6. **SLIDE 10:** Atopic conjunctivitis -Emergency! when allergic conjunctivitis is seen with atopic dermatitis can lead to atopic keratoconjunctivitis and eventually blindness. Mucus strand shown above classic. Tx as above and refer.

SLIDE 11: The result of untreated atopic keratoconjunctivitis

7. **SLIDE 12:** Rosacea -one of several systemic dzs which can cause conjunctivitis progressing to keratitis and iritis. Any red eye with serious systemic dz consider rapid referral.

8. **SLIDE 13:** Chronic conjunctivitis -may = Cicatricial pemphigoid. Have patients look up and loss of cul de sac = symblepharon is virtually diagnostic. Requires Cytoxan to prevent blindness.

9. **SLIDE 14:** Scleritis -not = conjunctivitis, vessels not dilated. Causes severe eye pain. Often associated with collagen vascular diseases. This case associated with PMR.

C) **Ciliary Injection** (secondary to corneal disease, acute uveitis/iritis or acute glaucoma)

i. Corneal Disease/Keratitis

SLIDE 15: Anatomy -sclera continuous all around eye and is contiguous with the cornea (the limbus is the jxn of sclera and cornea).
-Uvea = iris, ciliary body and choroid; therefore uveitis approx. = iritis
-3 layers of post. Eye: retina, choroid (layer with blood vessels) and sclera

1. **SLIDE 16:** Corneal abrasion - common causes include trauma, staph infxn in contact wearer, or overwearing contacts

2. **SLIDE 17:** Foreign body = after topical anesthesia can remove with 25 ga. Needle. After removal use fluorescein to r/o other abrasions. Note WBC infiltr. around FB. Always presume bacterial infxn and tx with topical BS abx (like Cipro)

3. **SLIDE 18:** Bacterial Keratitis = most common cause of infx keratitis followed by viral and then fungal (e.g. Acanthamoeba). All occur more often in contact wearers. In example shown note large ulcer with WBC infiltrate and early hypopyon.

SLIDE 19: -get contact out

3. **SLIDE 20:** Herpetic Keratitis -reason for generalist never to use topical steroids in eye. Makes this 10x worse.

4. **SLIDE 21:** Zoster ophthalmicus -cause for urgent referral if ophthalmic branch of trigeminal involved.

ii. Uveitis/Iritis

SLIDE 22: Anatomy -Uvea = iris, ciliary body and choroid; therefor uveitis approx. = iritis

1. **SLIDE 23:** Uveitis - presents with eye pain, photophobia, ciliary flush and pupillary contraction b/c of iritis. Most commonly idiopathic, trauma, or variety of systemic dzs. WBCs only seen by slit lamp on back of cornea = keratic precipitants.

2. **SLIDE 24:** Hypopyon = WBCs in anterior chamber secondary to uveitis. Hyphema = blood in anterior chamber from iris or ciliary body.

iii. **Acute Angle Closure Glaucoma (SLIDE 25)** -SURGICAL EMERGENCY to prevent loss of vision. Can note decreased depth of anterior chamber by shining light from side.

D) **Subconjunctival hemorrhage (SLIDE 26)** -when present with no other findings, no big deal.

II. Evaluation of a Red Eye

-history

-Assess visual acuity! Any reduced vision requires immed. Referral

-check PA nodes

-inspect lid margins, conjunctiva with eversion, ciliary flush, note corneal clarity

-inspect magnified cornea with ophthalmoscope at 15 diopters

-can screen for corneal abrasion with fluorescein but if concern need slit lamp

-note depth of ant chamber, shining light from side

-inspect fundus

-refer immediately for eye pain (as opposed to just FB sensation), visual disturbance or corneal damage.

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B. **Physical** -inspect nasal mucosa preferably with nasal speculum

-assess ability to breathe through each nostril

-check ears and throat

-palpate sinuses, transilluminate if able and sinusitis suggested

C. Labs

1. Nasal smear -send dried smear to hematology for Wright's stain for eos and polys

-can help when it is difficult to differentiate allergy vs. infection vs. vasomotor rhinitis by history alone. In general:

Eosinophils =allergic rhinitis

Neutrophils in abundance = sinusitis

Absence of Eos & Polys = vasomotor rhinitis (occasionally eos are seen)

2. Skin testing (pin prick testing for allergen specific IgE)

-usually obtained if considering allergy shots for severe or difficult to treat allergic rhinitis and to help to direct avoidance measures (however treatment and avoidance can usually proceed effectively based on history alone).

3. RAST (radioallergosorbent testing)-uses patients serum and is specific for high levels of specific IgE.
-rarely indicated since sensitivity is low.

4. Quantitative IgE -specific for allergy but has low sensitivity.

5. Eosinophil count -specific for allergy but has low sensitivity.

6. Sinus Films -helpful if diagnosis of sinusitis suspected but not clear from hx & px.

7. Limited Sinus CT -more sensitive than routine films and better show specific areas of involvement.

-indicated as initial test in patients for whom sinus surgery is anticipated.

D. Referral

1. ENT -indicated in patients for whom sinus surgery is anticipated either for chronic/recurrent sinusitis or obstruction.

2. Allergy -indicated in suspected allergic patients when skin testing, allergy shots, etc. are needed but are not available in your office.

II. Treatment of Rhinitis

A. **Avoidance of Allergens** = cornerstone of tx in allergy

B. Drugs

1. Antihistamines -non-sedating formulations particularly helpful, especially in allergy but also in sinusitis.

2. Topical Corticosteroid Therapy -best 2nd line tx for allergy , works well in conjunction with antihistamines; also effective at reducing inflammation and allowing drainage in chronic sinusitis.

3. Cromylyn Sodium -prevents mast cell degranulation. Effective for prophylaxis when known exposure to allergen is anticipated.

4. Hyposensitization -allergy shots stimulate production of IgG antibodies which block binding of IgE to mast cells. Useful in pts with prolonged allergic symptoms unresponsive to other therapies and works best for dust, mold and animal dander allergies.

5. Sympathomimetics -helpful adjunct in non-hypertensive patients. Best for use in sinusitis and vasomotor rhinitis. Topical spray only helpful in limited 2-3 day course.

6. Systemic steroids -only indicated occasionally for severe recalcitrant recurrent or chronic sinusitis to reduce inflammation and allow drainage.

7. Antibiotics -A 6-8 week course of Clinda or other drug with good anaerobic coverage may be indicated for severe recalcitrant sinusitis prior to ENT referral for surgical drainage.