

APPENDIX 1. Common Conditions Causing Red Eye: Key Features

CONDITION	HISTORY	PHYSICAL EXAMINATION
Conjunctivitis		
Viral	Occasional gritty discomfort, mild itching, clear or mucous discharge, often unilateral initially with second eye involvement within 1-2 days, associated URTI symptoms. Eyes may be matted shut first thing, but d/c is NOT mucopurulent.	NO red flag findings. May have diffuse redness, preauricular lymphadenopathy, lymphoid follicles on undersurface of eyelid (tarsal follicles in lower lid mainly). Note: secondary corneal changes may develop
Bacterial	<i>Acute</i> : Mild eye irritation sometimes with foreign body sensation, mucopurulent secretions with bilateral glued eyes upon awakening (best predictor). <i>Hyperacute</i> (see Appendix 2)	<i>Acute</i> : Similar to viral but may have evidence of more purulent discharge with conjunctival papillary changes in the lower lid.
Allergic	Painless excess tears, intense itching, Stringy, watery discharge. Eyes may be matted shut first thing, but d/c is NOT mucopurulent.	NO red flag findings, may have conjunctival edema and large cobblestone papillae under upper eyelid.
Dry eye	Bilateral, gritty or foreign body sensation, excessive tears, symptoms may be transient and worse with prolonged reading or watching TV (due to ↓ blinking), and dry, cold, windy environments (due to ↑ evaporation).	NO Red flag findings, may have co-existing conditions (e.g., blepharitis, allergic conjunctivitis, Sjogren's syndrome).
Blepharitis	Gritty sensation, worse with waking, itchy, crusted eyelids, associated with seborrheic dermatitis and rosacea.	Dandruff-like scaling on eyelashes, missing or misdirected eyelashes, oils and foamy bubbles on eyelids, swollen eyelids, secondary changes in conjunctiva and cornea leading to conjunctivitis or dry eyes.
Episcleritis	Mild to no pain, localized, isolated patches of injection, mild watering.	Visual acuity preserved, pupils equal and reactive to light, localized dilation or edema of episcleral blood vessels, tenderness over the area of injection.
Subconjunctival hemorrhage	Asymptomatic or may have foreign body sensation and excessive tears.	Blood under conjunctival membrane.

Sources:

- 1) Azari AA, Barney NP. Conjunctivitis: a systematic review of diagnosis and treatment. JAMA : the journal of the American Medical Association 2013; 310(16): 1721-9.; Best Practice Advocacy Centre New Zealand. Causes, complications and treatment of a red eye 2013. <http://www.bpac.org.nz/BPJ/2013/August/redeye.aspx>;
- 2) Cronau H, Kankanala RR, Mauger T. Diagnosis and management of red eye in primary care. American Family Physician 2010; 81(2): 137-44.
- 3) Best Practice Advocacy Centre New Zealand. Causes, complications and treatment of a red eye 2013. <http://www.bpac.org.nz/BPJ/2013/August/redeye.aspx>



APPENDIX 2. Serious Eye Conditions: Red Flags on Physical Examination

Condition	Iritis (anterior uveitis)	Keratitis	Acute angle Closure Glaucoma	Scleritis	Orbital Cellulitis	Corneal Abrasion & Foreign Body	Chemical Burn	Gonococcal or Chlamydial Conjunctivitis (hyperacute)
Conjunctival injection	Ciliary pattern*, unilateral	Ciliary pattern, unilateral	Ciliary pattern, unilateral	Unilateral, sclera may have a violaceous hue	Variable with congestion / chemosis Diffuse	May be present	Possible limbal ischemia	Mixed injection, e.g., whole conjunctiva is red, and small hemorrhages and chemosis may occur
Appearance of the cornea	Possibly hazy	Hazy, localized opacity (infiltrate), epithelial defect	Hazy, iris indistinct	Clear	Clear	May be hazy, oedematous if there has been excessive eye rubbing	Corneal involvement: e.g., hazy, opaque, iris obscured	Possible corneal involvement
Pupil	Constricted, poor light response, may be distorted or miotic	Unaffected (unless secondary uveitis present)	Fixed, mid-dilated	Unaffected (unless secondary uveitis present)	May be painful eye movements	Pupil usually unaffected; if pupil is irregular, dilated or unreactive suspect penetrating trauma	Pupil may be obscured	Unaffected
Visual Acuity	Reduced	Reduced	Severely reduced, blurred, possible coloured halos around lights	May be reduced	Double vision possible	Visual acuity depends on position of abrasion in relation to visual axis	Reduced	Reduced
Discharge	None or very minimal, watery	Usually watery	Minimal, watery	Minimal, watery	Possible	Watery	Epiphora (overflow of tears onto face)	Copious, purulent
Other Distinguishing Features		Fluorescein staining positive	Palpation of the eyeball demonstrates a stony hardness	The eye may be tender to palpation.	Proptosis, co-existing sinusitis in > 80% Extraocular motility limitation	Fluorescein staining positive		
Referral	Within 24 hours	Within 24 hours	Immediate	24-48 hours	Immediate	Immediate if serious or penetrating injury	Irrigate immediately esp. if alkali, then refer	24-48 hours

* Redness in a ring-like pattern around the cornea that indicates inflammation of the cornea, iris or ciliary body. NOTE: all of these conditions cause ocular pain and photophobia, which may be severe.

Sources:

1) Hovding G. Acute bacterial conjunctivitis. Acta ophthalmologica 2008; 86(1): 5-17.

2) Best Practice Advocacy Centre New Zealand. Causes, complications and treatment of a red eye 2013. <http://www.bpac.org.nz/BPJ/2013/August/redeye.aspx>

© The Foundation for Medical Practice Education, www.fmpe.org

November 2014

