

Red and Painful Eye

Summary from Rosen's By Gray Millsap

Epidemiology

- Nontraumatic ophthalmologic conditions (glaucoma, PVD leading to retinal ischemia) become more common as age increases.
- Traumatic eye injuries are the leading cause of visual impairment and blindness in the United States.

Pathophysiology

- Redness is caused by dilation of blood vessels in the conjunctiva, sclera, and retina.
- Ocular pain originates from irritation or inflammation in the conjunctiva, cornea, iris, or vasculature.

Differential Diagnosis

- Critical Diagnoses
 - Caustic injury (alkaline worse than acidic)
 - Acute angle-closure glaucoma
 - Retrobulbar hematoma (often from trauma)
- Emergent Diagnoses
 - Keratitis (inflammation of the cornea)
 - Anterior uveitis
 - Scleritis
 - Endophthalmitis
- Urgent Diagnoses
 - Penetrating ocular trauma
 - Spontaneous or traumatic hyphema

Signs and Symptoms

- Important to differentiate between itching, burning, dull pain, sharp pain, and sensation of a foreign body as it guides the diagnostic algorithm (Figure 22-10).
- Important findings associated with a more severe diagnosis in patients with red and painful eye: 1) severe ocular pain 2) persistent blurred vision 3) reduced ocular light reflection 4) proptosis 5) corneal epithelial defect or opacity 6) limbal injection 7) unreactive pupils 8) wearer of soft contacts 9) neonate 10) worsening signs s/p 3 days of pharmacologic treatment 11) immunocompromised host.
- Headache and nausea are common signs in acute angle-closure glaucoma.
- Complete eye physical exam includes visual acuity, visual field testing, external exam, extraocular muscle function, pupillary evaluation, pressure determination, slit-lamp, and fundoscopic exam.

Work-up

- Application of a fluorescein solution will often identify damage to corneal epithelium (corneal ulcers, corneal abrasions).
- A dendritic pattern on the cornea is often present with a herpetic infection.
- Relief of eye pain with topical anesthetic can help you determine origin of pathology. Complete abolition of pain suggests a corneal lesion, modest relief suggests conjunctival process, and no relief suggests an intraocular origin.
- Elevated CRP and ESR are common in temporal arteritis.
- When an infectious process is likely, CBC and cultures are unnecessary in the ED.
- U/S is more sensitive than CT for detecting intraocular foreign bodies.

Empiric Management

- Quick and prolonged irrigation of the eye with normal saline is strongly recommended for caustic injuries of the eye. For alkalis, irrigation should be a minimum of 4 liters and 40 minutes; for acids, 2 liters and 20 minutes.
- Retrobulbar hematoma - if IOP > 30mmHg, may require lateral canthotomy and inferior cantholysis in ED.
- Acute angle-closure glaucoma - ↓ production of aqueous humor pharmacologically and consult Ophtho if IOP > 20mmHg
- Pain relief with topical anesthetic may help with patient cooperation with an anterior eye injury, but may interfere with a complete eye assessment.

- With proven bacterial conjunctivitis, a topical broad-spectrum abx has show benefit (trimethoprim + polymyxin B).

Disposition

- Vast majority of patients with eye complaints are discharged and asked to follow-up in 1-2 days w/ ophthalmologist.
- Reasons for admission: procedural intervention, parenteral antibiotics, intractable pain, and further diagnostic evaluation.
*** Please see Table 22-2 for management and disposition considerations for various diagnoses causing a red and painful eye.