EMC 370 Introduction to Medical Emergencies

30 Eyes

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Objectives

At the completion of this lecture, you will be able to discuss the presenting signs and symptoms and some of the treatment considerations for:

- Acute Visual Loss
- Acute Red Eye
- Acute Eye Pain
- Orbital Blowout Fracture

Acute Red Eye

- Conjunctivitis
  - chemical
  - ultraviolet
  - Infectious
    - chlamydia
    - Herpes simplex
    - zoster
- Periorbital cellulitis

Acute Red Eye

Chlamydia Trachomatis

- in sexually active adults
- occurs in newborns
  - in newborns, an associated chlamydial pneumonia may also occur

Treatment

- PO and topical erythromycin
- Sexual partners should also be evaluated and treated

Acute Red Eye

Herpes Zoster ("shingles") conjunctivitis

- a monocular infection with a dermatome origin
- lesions on the TIP of the nose
  - from involvement of the nasociliary nerve
  - a clue to the presence of corneal involvement (keratitis).

Treatment

- immediate ophthalmology referral is required
- antiviral agent: Zovirax or Famvir

Acute Red Eye

Chemical conjunctivitis

- Alkali burns (a true emergency)
  - usually caused by sodium hydroxide lye
  - produce liquefaction necrosis of conjunctiva and cornea.
- Treatment
  - immediate and copious irrigation at the scene followed by continuous irrigation by paramedic followed by continuous irrigation in the ED
  - ED/UC referral to an ophthalmologist

Acute Red Eye

Ultraviolet keratitis (corneal flash burn)

- Excessive ultraviolet radiation exposure
  - pain, burning, and blurred vision
  - usually presents 7-8 hours after exposure
  - swelling of the corneal epithelium
- Especially intense sources of ultraviolet radiation are:
  - arc welding (welders' keratitis)
  - reflected sunlight (snow blindness)
  - artificial sunlight (tanning booths)
- Treatment
  - mydriatic agent; +/- eye patch; narcotics.

Acute Red Eye

Periorbital Cellulitis

- Sx: Fever, eye pain
- Sn: red, hot, edematous eyelids, cheek, brow
- Tx: IV antibiotics required

Acute Angle Closure Glaucoma

- see slides (acute painful eye)

Acute Eye Pain

With associated decrease in visual acuity

- Acute Angle Closure Glaucoma
  - a true eye emergency

Acute Angle Closure Glaucoma

- Etiology
  - Acute - not chronic. (Note: acute angle closure glaucoma occurs almost exclusively in farsighted +/- elderly patients).
  - Cause: congenital narrowing of the anterior chamber angle
  - When the angle closes completely:
    - prevents exit of aqueous humor, raising intraocular press.
    - most often precipitated by moving from daylight to a darkened room or area (entering a theater).

Acute Angle Closure Glaucoma

Symptoms:

- Pain
- Nausea / vomiting,
- Blurred vision, halo around lights
- Headache (occasionally)
- 911: "stroke" [sudden eye Sx. +/- HA]

Acute Angle Closure Glaucoma

Signs

- decreased visual acuity
- a red, congested-looking eye
- a mild-dilated pupil
  - that is fixed to light
- a hazy cornea
- in ED: Intraocular pressure >50mmHg

Acute Angle Closure Glaucoma

Pharmacologic therapy
- Topical miotics (pilocarpine)
- Hyperosmotic agents (glycerol or ***mannitol***)
  - decreases the volume of fluid in the eye
  - Dose of Mannitol - (20% sol) 1-2 gm/kg IV
    (500-1000cc of 20% bag)

Acute Visual Loss

- Retinal Artery Occlusion
- Retinal Detachment
- Functional Blindness
- Temporal Arteritis

Central Retinal Artery Occlusion

An Ocular Emergency
- Causes
  - thrombotic plaque
  - embolus
  - vasospasm of the retinal artery
- Clinical presentation
  - sudden
  - painless
  - loss of vision in one eye

Retinal Detachment

- Definition:
  - painless loss of vision due to vitrous seeping behind a retina that is tearing from the choroid-base
- Cause(s) – most often seen in patients with:
  - proliferate retinal disease (e.g., diabetes)
  - significant myopia [long eye], +/or
  - blunt eye trauma

Retinal Detachment

Symptoms:
- Early
  - ***flashing lights*** (as the retina begins to tear)
  - "spider webs" or "cloud of dust" across the visual field
    (small vitreous hemorrhages).
- Late (as the retina further detaches)
  - sensation of ***curtain*** gradually lowering or raising across eye

Examination (direct ophthalmoscope):
- undulating, dull gray, detaching retina.

Retinal Detachment Treatment

- Immediate goal is to prevent further detachment
- Patch (gently) ***both*** eyes
- The patient should hold still!
  - avoid any vigorous activity
  - avoid head and eye movement
  - preferably remaining in Fowler's
  - at rest until evaluated by the ophthalmologist

Functional Blindness

Blindness
- that is sudden and bilateral
- with preservation of normal pupillary reactions
- no previous history of visual defects
- is "always" a functional problem (hysteria / conversion disorder, or malingering).

Functional Blindness

- Despite the serious nature of their complaint these patients are often remarkably calm.
- Treatment referrals:
  - first ophthalmologic (intact, non-blind, visual pathway can be confirmed with use of an optokinetic drum or strip which will elicit optokinetic nystagmus)
  - and then psychiatric referral

Temporal Arteritis

Cause / epidemiology
- vasculitis (CVD)
- most often seen in patients with:
  - female predominance
  - over 50 YO or older
  - often with polymyalgia rheumatica

Temporal Arteritis

Clinical presentation
- usually presents with
  - sudden monocular loss of vision and
  - a temporal headache.

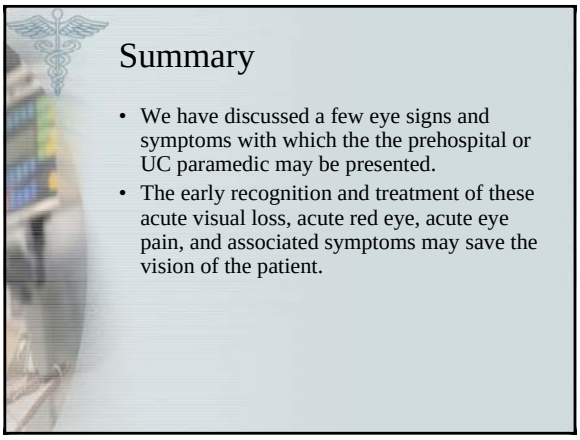
Examination reveals a
- tender, tortuous and sometimes pulseless temporal artery on palpation

Temporal Arteritis

- ED / UC diagnosis is suggested by
  - an elevated sedimentation rate (>50mm/hr)
  - later, confirmed by temporal artery biopsy
- Treatment:
  - immediate ophthalmology consultation and
  - administration of steroids
    - Dexamethasone 10 mg IV , or
    - Methylprednisone 125 mg IV

Orbital Blowout Fracture

- MOI:
  - Blunt, direct blow to the eye
- Sx:
  - double vision
- PE:
  - EOM are not Intact on eye range of motion
  - cannot get the involved eye up on upward gaze


Summary
• We have discussed a few eye signs and symptoms with which the the prehospital or UC paramedic may be presented.
• The early recognition and treatment of these acute visual loss, acute red eye, acute eye pain, and associated symptoms may save the vision of the patient.