This document was created by Alex Yartsev (dr.alex.yartsev@gmail.com); if I have used your data or images and forgot to reference you, please email me.

Traumatic Injuries of the Eye

Key history:

- Do they wear corrective lenses?
- Have they had eye surgery?
- Do they have glaucoma?
- What medications do they use
- Was the injury BLUNT OR PENETRATING?
- Was there missile injury?
- Was there thermal, chemical or flash burn?
- Was there immediate pain or photophobia?
- Was the decrease in vision immediate or progressive?

Physical examination

- VISUAL ACUITY
- EYELIDS:
  - Edema
  - Ecchymosis
  - Evidence of burns
  - Ptosis
  - Lacerations
  - Foreign bodies
  - Canthal avulsions
- ORBITAL RIM
  - Subcutaneous emphysema – fracture into the ethmoid or maxillary sinus
  - Deformities of fracture
- GLOBE
  - Retract the lids and look for hematoma
- PUPIL
  - Reaction to light
  - Test for afferent papillary defect: optic nerve trauma causes a failure of both pupils to constrict when a light is shined at the affected eye
- CORNEA
  - Opacity, ulceration, foreign bodies
- CONJUNCTIVA
  - Chemosis, subconjunctival emphysema, foreign bodies
- ANTERIOR CHAMBER
  - Hyphaema
  - Shine a light across the pupil; it should illuminate the whole iris.
    - If not → shallow anterior chamber, maybe a penetrating wound to the anterior chamber
- IRIS
  - Should be reactive and of a regular shape
  - Iridodialysis = tear of the iris
  - Iridodonesis = floppy tremulous iris
- LENS
  - May be displaced into the anterior chamber
  - Should be transparent
- VITREOUS
  - Should be able to see the fundus (otherwise there may be hemorrhage)
  - If there is hemorrhage, you will get a BLACK REFLEX instead of a red reflex
- RETINA
  - A detached retina is opalescent, and the blood columns are darker

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SPECIFIC INJURIES

- **EYELID INJURY**
    - **Lacerations may be closed with nylon sutures if they are**
        - **HORISONTAL**
        - **SUPERFICIAL**
        - **Not involving the levator in the upper lid**
    - **CALL THE OPHTHALMOLOGIST IF:**
        - **Medial canthus wounds (may involve the lacrimal duct or medial canaliculus)**
        - **Deep horizontal lacerations**
        - **Lid margin lacerations which may lead to notching**
        - **COVER THESE WOUNDS WITH A SALINE DRESSING**
    - **Penetrating foreign bodies should not be disturbed**
- **CORNEAL INJURY**
    - **ABRASIONS heal quickly; give antibiotic drops**
- **ANTERIOR CHAMBER INJURY**
    - **HYPHEMA = severe ocular trauma**
    - **Glaucoma will develop in 7% of patients with hyphema**
- **IRIS INJURY**
    - **Contusion = fixed pupil**
    - **Disruption of the ciliary body = irregular pupil and hyphema**
- **INJURY TO THE LENS**
    - **Usually due to severe blunt trauma**
- **VITREOUSL INJURY**
    - **Sudden profound loss of vision**
    - **Usually due to blunt trauma**
- **RETINAL INJURY**
    - **Weirdly, there may or may not be visual acuity loss, depending on macula involvement**
    - **Blunt trauma or head injury**
    - **Light flashes and a curtain-like defect in the visual field**
- **GLOBE INJURY**
    - **IF YOU SUSPECT THIS, STOP TOUCHING THE EYE, FULLSTOP.**
    - **Sterile dressing and eye shield**
    - **Don't remove foreign objects or clots**
- **CHEMICAL INJURY**
    - **Immediate intervention is required**
    - **Acid injury precipitates proteins and sets up a natural barrier, so it does not penetrate as far**
    - **Alkali injury combines with lipids, bursts cells, and penetrates more deeply**
    - **COPIOUS AND CONTINUOUS IRRIGATION IS THE KEY**
- **BLUNT TRAUMA**
    - **Orbital floor is the weakest point: "blowout" fractures**
    - **Diplopia and limitation of movement is a disturbing sign of muscle entrapment**
    - **There may be subcutaneous or subconjunctival emphysema**
    - **Hyperesthesia of the cheek occurs with infraorbital nerve injury**
- **RETROBULBAR HEMATOMA**
    - **Optic nerve and retinal blood supply is compromised**
    - **Requires IMMEDIATE INTERVENTION**
    - **Elevate the head**
- **FAT EMBOLISM**
    - **An explanation for a sudden loss of vision in a patient with multiple long-bone injuries**

Summarized from GMP medical school lectures and the ATLS handbook - many parts were treated unfairly brifly, or were entriley omitted- I strongly recommend you read the actual ATLS manual, and attend their excellent course.