

**Department of Ophthalmology
Trauma Lecture Notes
OP 10 by Dr. Lorne Bellan**

This lecture is based on Chapter 5 in Berson's Textbook of Ophthalmology for Medical Students which is available in the bookstore and in the library.

Objectives:

1. To recognize which problems are emergent or urgent and deal with them accordingly
2. To obtain the salient historical facts
3. To state how to examine the traumatized eye
4. To record the visual acuity as accurately as possible
5. To determine whether to manage or to refer the most common injuries

As in many areas in emergency medicine, initial appropriate care is critical to the final outcome in many eye injuries.

The best approach to eye injuries is to follow a routine sequential examination beginning with the measurement of visual acuity, assessment of pupils, and extraocular movements before proceeding to examining structures around and in the eye. Honing in on the obvious abnormality may lead to missing other injuries.

Do instill a topical anesthetic drop before your examination if the patient is in pain; otherwise they will not be able to cooperate for the examination.

Orbit and Lids

First examine the orbit and surrounding soft tissues looking for fractures and soft tissue injuries.

Next examine the lids looking for foreign bodies and lacerations. All lacerations medial to the punctum must be referred to an ophthalmologist within 24-48 hrs.

Conjunctiva and Cornea

Chemical Burns

- alkali injuries are potentially much more serious than acid because they penetrate rather than just causing superficial damage
- don't wait to do a full eye exam with a chemical burn before starting treatment. Begin irrigation **immediately**.
- if the conjunctiva is red and the cornea is transparent then the ultimate prognosis is good. After irrigation the eye can be patched with an antibiotic ointment and followed.
- if more than 3 clock hours of the conjunctiva is white and it is still possible to see iris detail through the cornea the burn is moderate. The patient should be patched and sent to an ophthalmologist. Most of these eyes will recover.
- if more than 3 clock hours of conjunctiva is white from ischemia and if the cornea is cloudy so that it is not possible to see iris detail (e.g. crypts) then the burn is severe. The patient should be patched and an urgent referral to an ophthalmologist is required. The prognosis for complete visual recovery in these cases is poor.

Abrasions

- if less than 10 mm² then treat with antibiotic and NSAID drops but no patch. Follow and expect resolution in 1-2 days.
- if greater than 10 mm² apply antibiotic ointment or drops and patch. Follow and expect resolution in 1-3 days.

Foreign Bodies

- after topical anesthesia remove with moistened cotton swab or with a 25 gauge needle applied **tangential** to the surface of the globe. If you are uncomfortable with these techniques or unable to remove the foreign body refer to an ophthalmologist.

Blunt Trauma to deeper structures of the eye

- iris - hyphema (blood in anterior chamber) +/- iritis. If blood is visible in the anterior chamber refer to an ophthalmologist
- lens - traumatic dislocation - refer to an ophthalmologist
- retina - hemorrhage or detachment - refer to an ophthalmologist

Sharp Trauma

- if you can see what appears to be a penetration site, or if the anterior chamber is flat or if the pupil is irregular and drawn towards the injury site or if iris appears to be prolapsing through a wound assume that you have a penetrating injury of the eye.
- arrange for urgent consultation with an ophthalmologist
- shield the eye in transit
- if you suspect a penetrating injury with a metal foreign body get an x ray