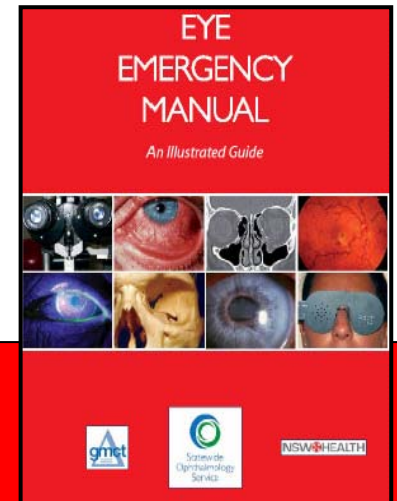


Education Session Five

Ocular Trauma



EYE EDUCATION FOR EMERGENCY CLINICIANS

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Modules originally designed for emergency nurses as a component of the Eye Emergency Manual Project.

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Aims and Objectives

On completion of this session you will be able to:

- Understand the principles of management of ocular trauma
- Identify various types of trauma and safely, appropriately manage patient care

GOLDEN RULES

- Immediate treatment is directed at preventing further injury or vision loss
- Never think of the eye in isolation, always compare both eyes
- Always record visual acuity as it has important medicolegal implications
- A visual acuity of 6/6 does not necessarily exclude a serious eye injury
- Beware of the unilateral red eye as it is rarely 'just' conjunctivitis

GOLDEN RULES (cont)

- If injury is self evident avoid further manipulation
- requires urgent ophthalmic consult
- If in doubt always X-Ray, CT scan, MRI scan
- Documentation.

BLUNT TRAUMA

- May result in considerable damage to the ocular contents
- Objects – champagne cork, squash / tennis ball, car airbag, closed fist, wood or octopus strap.



BLOWOUT FRACTURE

- Medial and inferior orbital walls are the most common sites of fracture
- Observe for limited eye movement
- Nerve damage may result in reduced feeling on cheek or front teeth on affected side
- Advise patient not to blow their nose as this increases the risk of further ocular damage
- Enophthalmos (sunken eye) may be evident

BLOWOUT FRACTURE (cont)

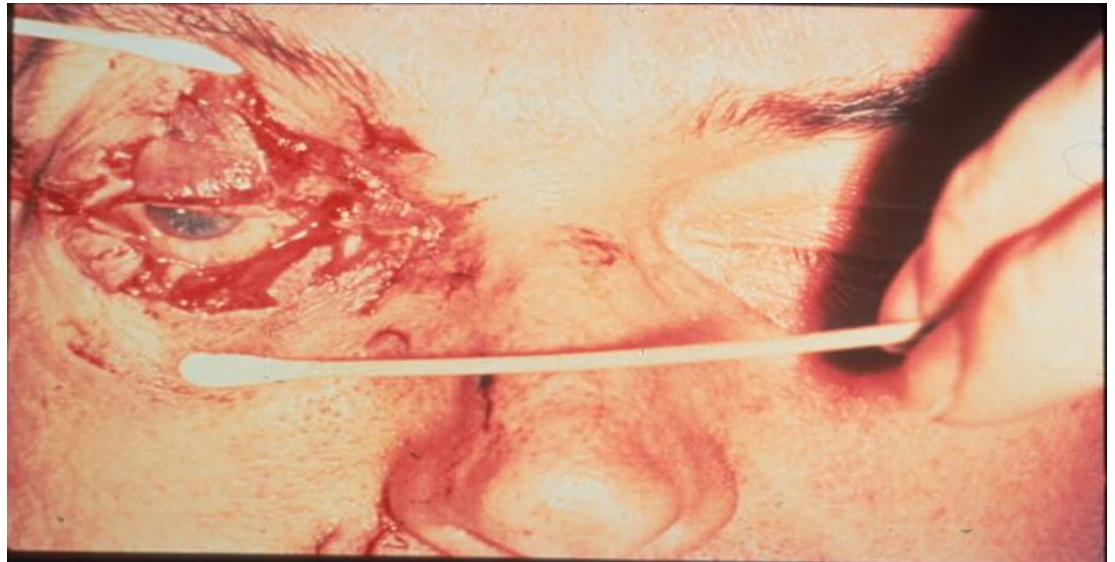
- X-RAY, CT scan mandatory
- Increased risk of orbital cellulitis day 2-7 so observe for increased pain, swelling, red eye
- Antibiotic cover important
- All patients require ophthalmic consult

Enophthalmos



LID LACERATIONS

- Vascular area and will heal quickly if clean and edges well apposed
- Complex structure of lids and lacrimal system requires urgent Ophthalmic repair
- A lid laceration is a potential penetrating eye injury until proven otherwise



LID LACERATIONS (cont)

- Lid swelling- use of ice packs helpful
- Patient comfort
- X-ray, CT scan may be required
- Animal / human bites need antibiotic cover and meticulous cleaning
- Check tetanus status

HYPHAEMA

- Urgent ophthalmic consult required
- Usually trauma related-however always consider non accidental injury in children and blood dyscrasias
- Blood visible in anterior chamber or may be microscopic
- May only be visible on slit lamp examination



HYPHAEMA (cont)

- May require hospital admission, more often sent home
- Bed rest / limited activity
- Elevate head of bed 45 degrees
- Only use dilating drops under ophthalmic direction
- Risk of secondary bleed, raised intraocular pressure (IOP), corneal staining over next week
- Therefore warn patient to return immediately if they experience pain, reduced vision or nausea and vomiting

HYPHAEMA (cont)

- Avoid aspirin, NSAIDs, warfarin and alternative medicines
- Daily review
- Daily visual acuity and IOP
- Topical and oral steroids only following ophthalmic review / advice

INTRAOCULAR FOREIGN BODY (IOFB)

- Damage dependent on type of material that enters eye
- Glass, porcelain, plastic, silica and aluminium are inert
- Copper, iron, other metals, vegetative matter are extremely toxic
- Always consider slow growing organisms carried by retained organic material

IOFB (cont)

- Complications may include-
 - Rust ring on cornea at entry point
 - Persistent inflammation
 - Corneal defects / damage if fragments not removed – corneal scarring
 - Infection - endophthalmitis
 - Secondary glaucoma
 - Lens damage – traumatic cataracts
 - Retinal / vitreous damage
 - Sympathetic ophthalmia

PENETRATING EYE INJURY(PEI)

- The aim is for micro-surgical repair within 24 hours
- If PEI is suspected DO NOT TOUCH THE EYE.
- Immediate referral required
- No drops or ointment
- Apply a shield lightly: to protect the eye; to prevent pressure on globe; and to prevent loss of ocular content



PENETRATING EYE INJURY (cont)

- Eye Exam in PEI
 - cursory if injury is obvious otherwise VA, slit-lamp examination
 - Important to check anterior chamber in both eyes and compare
- Avoid nausea, vomiting, coughing and sneezing
- Do not remove embedded/protruding object or apply pressure on eye
- Consider tetanus immunisation status

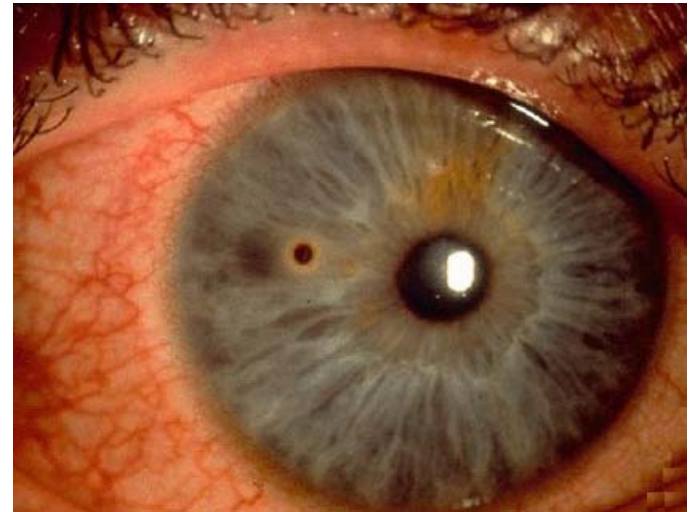
CHEMICAL BURNS

- Treat first do not wait to triage
- Instil LA drops
- IMMEDIATE, copious irrigation of effected eye/s for 30 minutes
- Visual acuity must come after irrigation
- pH check at end of each litre of irrigation
- Evert upper lids and irrigate under lids, use moist cotton bud / irrigation flow to remove any particles
- Hospital admission may be required



CORNEAL FOREIGN BODY/ ABRASION

- Local anaesthetic
- Fluorescein stain
- Slit lamp examination
- Irrigate with 10mL normal saline to flush off
- Moist cotton bud touch off
- Antibiotic eye drops +/-
eye pad



RETINAL / VITREOUS INJURY

- Injury can include retinal detachment, haemorrhages, orbital wall fracture, optic nerve damage
- Beware if patient complains of flashes, floaters, visual field defect (see vision loss session)
- Urgent ophthalmic assessment required
- Reduce patients activity if suspect macula or retinal detachment



CONCLUSION

- The key is to prevent further ocular damage and vision loss
- IF YOU DON'T KNOW ASK... if in doubt don't touch and always seek ophthalmic advice for ocular trauma.