

Ophthalmology

Corneal Abrasion

History

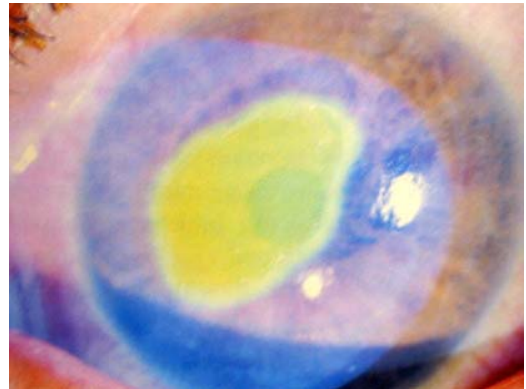
- Usually clear history of very recent trauma
- Foreign Body Sensation
- Pain +++
- Lacrimation
- Photophobia *Fig. 1* Corneal Abrasion

Examination

- Abrasion stains yellow / green with fluorescein
- Only use Fluorescein sodium 2% if suspecting aqueous leak
- Absence of corneal opacity or hypopyon

Management

- **Chloramphenicol** Ointment QDS for 3-5 days, if not allergic.
- Consider Cyclopentolate 1% (lasts 24hrs) to alleviate the ciliary spasm that accompanies any eye pain.
- Small abrasions do not need follow up.
- Refer larger abrasions to eye clinic.
- No evidence to suggest eye patch of benefit so do not need to supply, even after instillation of topical local anaesthetic.



Corneal Foreign Body

History

- Always clear
- !!Beware of high velocity FB, eg. Hammering, Grinding, Strimming.

Examination

- Always check for evidence of penetrating injury of high velocity FB (May be more than one).

Management

- Proxymetacaine 0.5% many times until the eye is anaesthetized.
- Remove FB with a green needle / cotton bud under slit-lamp microscope.
- Try to distract patient by asking them to look at something, eg. Your ear.
- Chloramphenicol Ointment QDS for 3-5 days
- Refer eye clinic if residual rust stain (fig. 3) or large abrasion post removal
- Rust ring comes off much more easily after 24 hours.

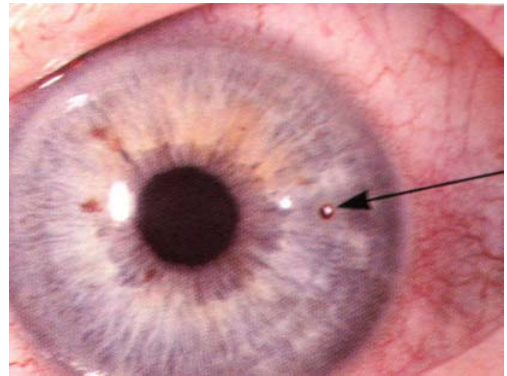


Fig. 2 Corneal Foreign Body



Fig. 3 Corneal Rust stain

Conjunctivitis

- Viral / Bacterial / Allergic

History

- Gritty sensation in affected eye
- Mucopurulent / watery discharge
- \pm Lashes stuck together on waking

Examination

- Conjunctival Hyperaemia
- Remember to check for corneal involvement
- \pm Chemosis & Conjunctival papilla in allergic conjunctivitis

Management

1) Infective Conjunctivitis

- Chloramphenicol ointment QDS for 3-5days
- Take a swab if eyes are sticky.
- GP follow up if not settling.
- If the bacteria are sensitive to the antibiotic, there should be marked improvement in 24-36 hours.
- ** If cornea involved (Keratoconjunctivitis), refer eye clinic following day.

2) Allergic Conjunctivitis

- Antihistamine drops and tablets (Sodium Cromoglycate 2% drop QDS \pm Piriton 4mg QDS)
- Refer eye clinic if ? Vernal conjunctivitis with conjunctival papillae and especially if there is central corneal plaque.



Fig. 5 Bacterial conjunctivitis



Fig. 6 Chemosis



Fig. 7 Conjunctival papilla in Vernal Conjunctivitis

Welding Flash / Arc Eye

History

- Welding without protective goggles / Sun bed.
- symptoms similar but more severe than corneal abrasion

Management

- Proxymetacaine 0.5%
- Chloramphenicol ointment QDS 3-5 days
- Adequate analgesia eg. Cocodamol
- Reassure it will get better in 24 hours.
- Tell patient pain will recur when topical anaesthetics wears off.

Eyelid laceration

- * **Do not suture if through tarsal plate**
- * Refer ophthalmologist for closure
- * Beware puncture of globe as well especially if history suggest a stab injury.



Fig. 8 Laceration involving lid margin

Blunt trauma

History

- A blow to the eye by a blunt object, eg. Fist / ball

Examination

- Watch out for :
 - **Traumatic Mydriasis** – paralysis of pupil. Rupture of the iris sphincter muscle may be visible as irregularity of the pupil margin.
 - **Hyphaema** – Damage to the iris blood vessels causes haemorrhage into the anterior chamber.
 - **Iridodialysis** – Tearing of the root of the iris from the ciliary body.
 - **Lens dislocation**
 - **Vitreous Haemorrhage** – usually associated with retinal tear.
 - **Retinal Detachment**
 - **Choroidal rupture**
 - **Retinal Oedema (hard to see)**

Management

- Document findings for medico-legal purpose and refer to on-call Ophthalmologist.

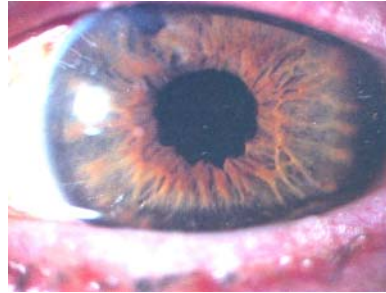


Fig. 9 Rupture of iris sphincter

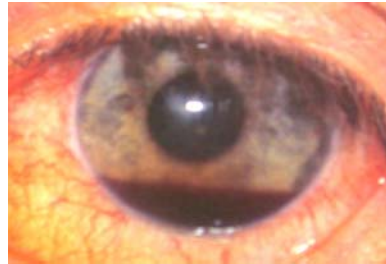


Fig. 10 Hyphaema



Fig. 11 Iridodialysis



Fig. 12 Choroidal rupture



Fig. 13 Giant retinal tear

Blow-out fracture

History

- A blow to the eye by a blunt object, eg. Ball, fist.

Examination

- usually orbital floor fracture with herniation of soft tissues into the maxillary sinus.
 - **Enophthalmos** (Sunken eye)
 - Restriction of eye movement, especially upward gaze, giving rise to **diplopia**.
 - Loss of sensation over the regions supplied by the **infraorbital nerve**
- Feel for air in subcutaneous tissue (surgical emphysema).
- Check for nosebleed

Management

- warn patient to avoid blowing nose.
- If Facial Xray shows signs of orbital floor fracture, refer Maxillofacial SHO on-call.
- If vision is reduced, ask on-call ophthalmologist's advice.
- Refer eye clinic following day.

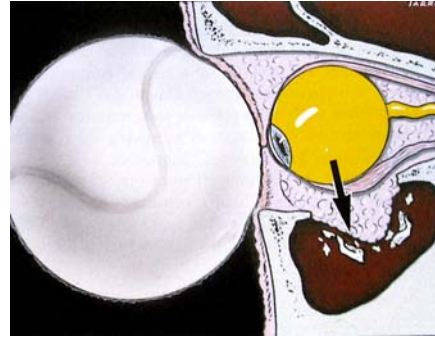


Fig.14 mechanism of orbital floor #



Fig. 15 Right floor blow-out fracture. Defective elevation of the right eye.

Penetrating trauma ± Intraocular FB (IOFB)

History

- High index of suspicion from mechanism of injury, esp. Grinding, Strimming, Hammering.
- May follow previous cataract surgery (weakened eye wall).

Examination

- Soft eye.
- Look for
 - reduced vision
 - Corneoscleral laceration
 - Iris prolapse / distortion of pupil.
- Watch out for lid stabs that may hide a stab injury to the eye itself

Management

- Avoid pressure on the globe
- Protective shield
- Urgent referral
- Not all FBs are radio-opaque, however X-ray orbit if IOFB suspected
- If IOFB suspected discuss with ophthalmologist

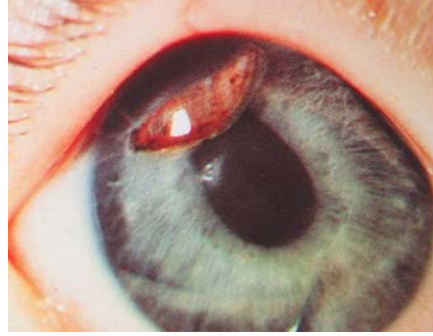


Fig. 16 Corneal laceration with iris prolapse

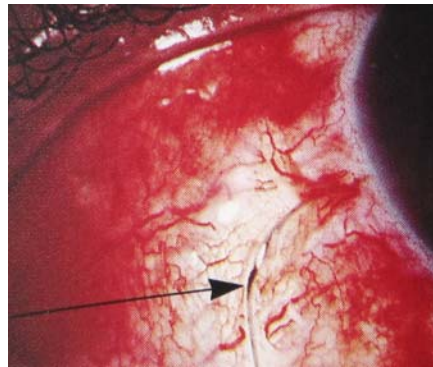


Fig. 17 Scleral laceration

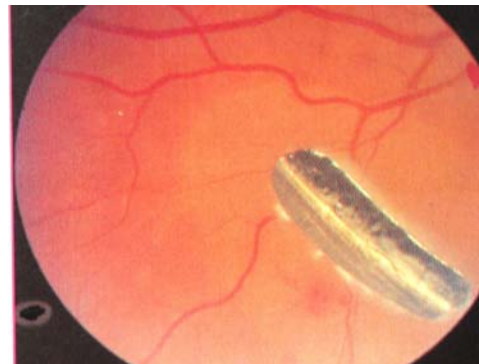


Fig. 18 Metal IOFB lying on retina

Chemical Burns

History

- Do not waste time with a detailed history and examination, especially if due to alkali
- Alkali burns can cause long term corneal and conjunctival scarring, including untreatable blindness

Examination

- Use Proxymetacaine 0.5% instillation until comfortable to allow examination
- Ensure the eye is not penetrated
- Ensure no bits of solid alkali in the eye

Management

- Irrigate copiously with sterile water / saline for 30 minutes within seconds!!
- Use litmus paper to ensure that pH is no longer alkali
- Refer to on-call ophthalmologist urgently.
- * Similar management for all chemical burns, but alkali cause the most damage as it penetrates the cornea and causes intra-ocular damage as well as surface damage

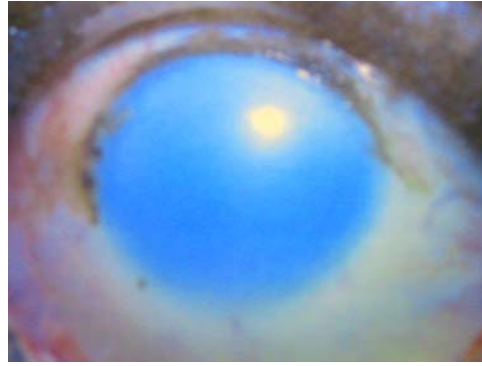


Fig.19 Cornea opacified with alkali burn

Bacterial Corneal Ulcer/ Abscess

History

- Red and painful eye
- mucopurulent discharge

Examination

- Ulcer appears white due to cellular infiltration of the corneal stroma
- Hypopyon – Fluid level of pus in anterior chamber.

Management

- Refer on-call Ophthalmologist urgently

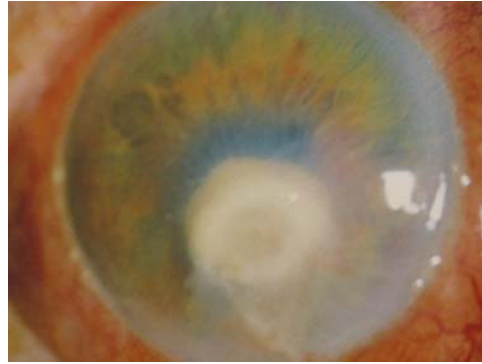


Fig. 20 Bacterial corneal ulcer

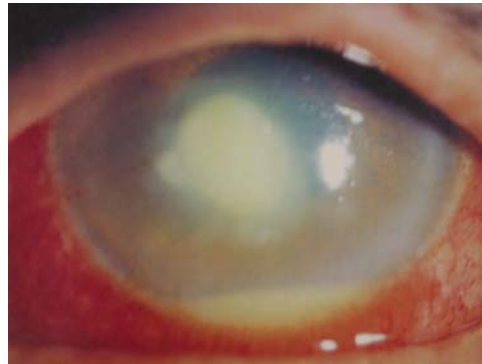


Fig. 21 Corneal abscess with hypopyon

Herpetic Keratitis

History

- Commonly past history of same problem.
- Foreign body sensation
- Lacrimation
- Photophobia
- ± blurry vision

Examination

- ↓ Corneal sensation to light touch
Use a cotton bud/wool to test this
before instilling fluorescein 0.25% ,
NOT 2%
- Dendritic corneal ulcer

Management

- Acyclovir ointment 3% 5 times daily
for 1 week
- Refer to eye clinic

** Avoid Topical steroid



Fig. 22 Dendritic corneal ulcer

Shingles

History

- Vesicular rash on face/scalp
- swelling around the eye
- If eye involved, photophobia, blurry vision.

Examination

- Vesicular rash with crust in CN V1 dermatome distribution (seldom V2)
- Look up for rash hidden on scalp covered by hair.
- Oedema++ both upper and lower eyelids.
- * If rash on tip of the nose, likely eye involvement.

Management

- Oral Acyclovir 5 times daily.
- Refer Eye clinic following day if suspected eye involvement.



Fig. 23 Shingles

Acute Anterior Uveitis (Iritis / Iridocyclitis)

History

- Red eye
- Discomfort/pain worse on reading close up (ie. Accommodation)
- Photophobia
- ± Blurred vision
- Slight watering

Examination

- Unequal pupils (distorted due to previous adhesions – posterior synechiae)
- Redness most marked in the circumcorneal region
- ± Keratic precipitates – aggregates of cells on the posterior corneal surface
- ± Hypopyon

Management

- Refer ophthalmologist on call especially if severe.

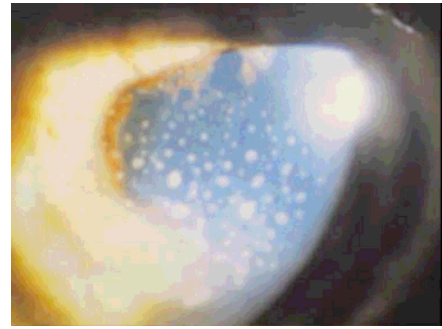


Fig. 24 Keratic Precipitates

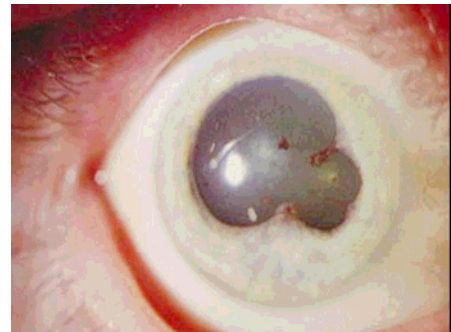


Fig. 25 Posterior Synechie

Orbital Cellulitis

History

- Recent sinusitis
- Painful, swollen eye
- Malaise, fever

Examination

- * Try to differentiate between
 - a) Preseptal infection with normal globe motility and
 - b) Orbital involvement with proptosis and limited motility of the globe.
- Proptosed eye
- Both lids and conjunctiva are inflamed and swollen
- Eye movements limited and painful
- Pyrexia

Management

- Swab if pus visible
- Refer on-call ophthalmologist
- Needs IV antibiotics

** Children with pre-septal cellulitis (inflammation to lids anterior to the orbital septum) often after trivial trauma to eyelids, usually responds well to oral Augmentin, but are at risk of developing meningitis.

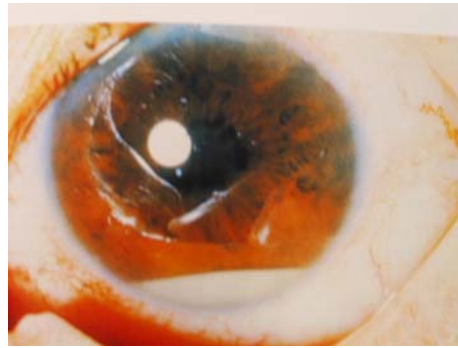


Fig. 26 Hypopyon



Fig. 27 Orbital Cellulitis

**Canalicular obstruction /
Acute Dacrocystitis**

History

- Epiphora- watering
- Swollen, painful affected site of face

Examination

- Tender over swelling

Management

- If suspect, refer eye clinic
- If severe, refer on-call Ophthalmologist
- Augmentin 375mg TDS



Fig. 28 Canalicular obstruction due to streptothrix infection



Fig. 29 Acute Dacrocystitis

Acute Glaucoma

- Painful loss of vision
- Common in Long-sighted patients, oriental races higher risk.

History

- Severe pain in eye
- Unilateral headache
- Blurred vision
- Nausea ± Vomiting
- Rainbow haloes around white light
- Previous transient attacks of blurred vision in the evenings
- * May have been to eye clinic and had mydriatic eye drops earlier that day.

Examination

- Conjunctival hyperaemia
- Cornea steamy and oedematous
- Pupil – oval, fixed and dilated
- AC both eyes shallow (Eclipse test)
- The eye is rock hard and acutely tender
- Measure IOP – usually ↑ to 40-80mmHg

Management

- Urgent referral to on-call ophthalmologist
- Pilocarpine 2% drop in affected and unaffected eye to prevent pupil dilation

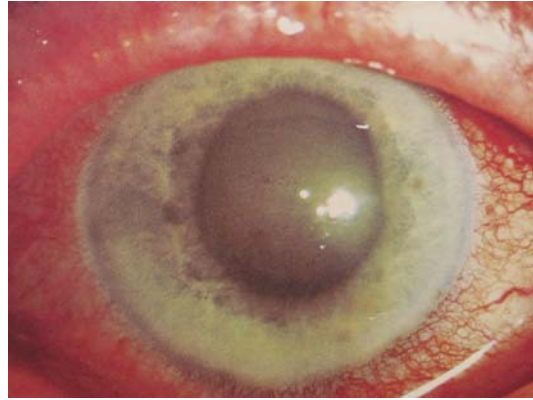


Fig. 30 Acute glaucoma

Other caveats

**** Do not put topical steroid in the eye.
This is for the ophthalmologist to do.**

**** Refer urgently any eye, which has
been subjected to :**

- 1) Alkali/ Acid Burns (Irrigate copiously first!!)
- 2) Suspected orbital cellulitis
- 3) Suspected acute glaucoma/Iritis
- 4) Sudden visual loss (such as shown below)
- 5) Anything else you are bothered about.
Seek their advice!!!

Sudden Loss of Vision (without preceding ocular upset)

- 1) Central retinal artery occlusion (Fig.31)
- 2) Central retinal vein occlusion (Fig.32)
- 3) Massive Vitreous haemorrhage (Fig.33)
- 4) Ischaemic optic neuropathy (Fig.34)
- 5) Retinal detachment (Fig. 13)



Fig. 31 Central retinal artery occlusion

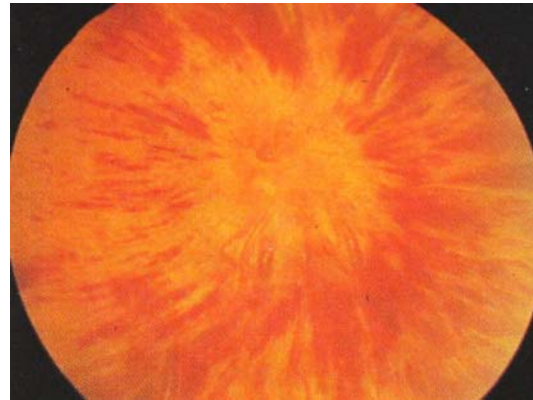


Fig. 32 Central retinal vein occlusion



Fig. 34 Ischaemic optic neuropathy