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Aim and Objectives

Understand the fundamental principles and perform a systematic eye examination.

On completion of this session you will be able to:

• Recognise normal and abnormal anatomy
• Systematically examine an eye
• Correctly document examination findings
Equipment required to examine an eye

- Fine beamed torch (with optional blue filter for examination using Fluorescein)
- Cotton buds
- Local anaesthetic eye drops, eg Amethocaine 0.5%, Oxybuprocaine 0.4%
- Fluorescein strips or Minims
- Magnification – slit lamp, indirect ophthalmoscope, loupes or Woods lamp
Patient Assessment

• If injury is SELF EVIDENT
  – Eg, impaled object
  – OR totally closed, tightly swollen eyelid associated with trauma
  – **Do not** try to examine this eye
  – Patient requires an **immediate** referral to an Ophthalmologist
Patient Preparation

• Head well supported (eg. chair back against the wall prevents head moving back and away)
• If using a slitlamp make sure patient is correctly positioned.
• Appropriate lighting for patient comfort – e.g. dim lights if photophobic
Examine from the outside – in

Using a systematic approach to examine the eye
1. Lids and lashes
2. Conjunctiva
3. Cornea
4. Anterior chamber
5. Iris and pupil
6. Lens and posterior chamber
Normal Lid and Lashes

Normal position of lids: 2mm below top of iris; 2mm below bottom edge of iris
Lids and Lashes

Abnormal

• Lesions
• Crusting
• Redness
• Swelling / bruising
• Lacerations
Abnormal lid position
Left ptosis

Right ptosis

Bilateral lagophthalmos – unable to close eyes completely
Entropion
Ectropion
Eyelid lesions
Crusting on eyelids (blepharitis)
Gross swelling of lids – infective in this case
Lid lacerations
Conjunctiva
Covers the inside of eyelids and the sclera – does not pass over the cornea; is vascular.

- Normal
  - translucent, flat, sclera visible beneath
- Abnormal
  - Injected - bloodshot
  - Chemosis (oedema)
  - Discharge
  - Subconjunctival haemorrhage
  - Lacerations
  - Lesions
Chemosis (oedema)
Purulent Discharge (probably bacterial infection)
Subconjunctival haemorrhage
Pterygium – wing of overgrown conjunctiva
Cornea
Avascular circular ‘window’ of the eye

• Normal
  – clear, bright, smooth surface
• Abnormal
  – Cloudy – iris may be difficult to see
  – Scarring - milky line, localised opacity
  – Foreign body
  – Rust ring
  – Abscess
  – Laceration
Normal cornea: Clear, bright, smooth surface
Cloudy cornea: difficult to view iris
Cloudy cornea with central scarring
Dendritic ("shaped like a tree") ulcer – Herpes Simplex Virus

Viewed with a blue light under fluorescein stain.
Anterior Chamber
Space between posterior cornea and iris filled with aqueous fluid

- Normal- clear, bright & deep
- Abnormal-
  - flat, shallow
  - hyphaema
  - hypopyon
  - Anterior chamber Intraocular Lens (IOL)
Hyphaema

Side view showing hyphaema
Total hyphaema (sometimes called ‘8 ball’ or ‘black ball’).
Hypopyon
Anterior chamber Intraocular lens
Pupil
- Normal
  - may be variable sizes but should be equal
  - react to light
  - central
  - round
- Abnormal
  - unequal
  - dilated or constricted
  - not reacting to light
  - irregular (e.g., tear drop)
  - not central

Iris
- Normal
  - similar appearance between eyes
  - Be aware of coloured contact lenses
- Abnormal
  - lesions
  - tears, lacerations
  - prolapse
DILATED

CONSTRICTED
Irregular shaped pupils

Iris coloboma: keyhole shaped (congenital abnormality)
Iris lesions
Iris prolapse with teardrop pupil caused by penetrating eye injury. Refer immediately, do not touch.

DO NOT MISTAKE FOR FOREIGN BODY OR TRY TO REMOVE.
Lens
Lies behind iris – seen through the pupil

• Normal
  – Bright, even red reflex (like the red eye seen in photos)

• Abnormal
  – Dull or absent red reflex
  – White pupil
  – Shadows in red reflex
Dense, white cataract

Left: shadow of early cataract
Right: dislocated lens
Documentation
The next 3 slides will give you an overview of how to document ophthalmic observations.

Drawings are usually set out like this: as if the patient is in front of you. The circle represents the cornea and you can add lids, pupil etc.
Terminology

- superior
- nasal or medial
- temporal
- inferior
Draw what you see

Right foreign body at 4 o’clock

Left irregular pupil
On completion of this session you will now be able to:

- Recognise normal and abnormal eye anatomy
- Perform a systematic eye examination
- Correctly document examination findings