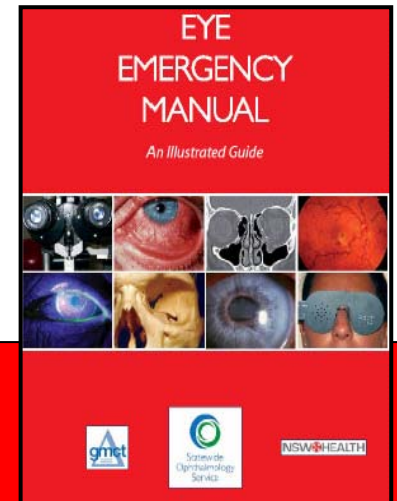


Education Session Six

Eye Skills



EYE EDUCATION FOR EMERGENCY CLINICIANS

These presentations have been prepared by:

- Jillian Grasso, *Clinical Nurse Consultant, Ophthalmology*
- Janet Long, *Clinical Nurse Consultant Community Liaison, Ophthalmology*
- Joanna McCulloch, *Transitional Nurse Practitioner, Ophthalmology*
- Cheryl Moore, *Nurse Educator, Ophthalmology*



Further information contact us at Sydney Hospital & Sydney Eye Hospital: 02 9382 7111



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

December 2008

Aims and Objectives

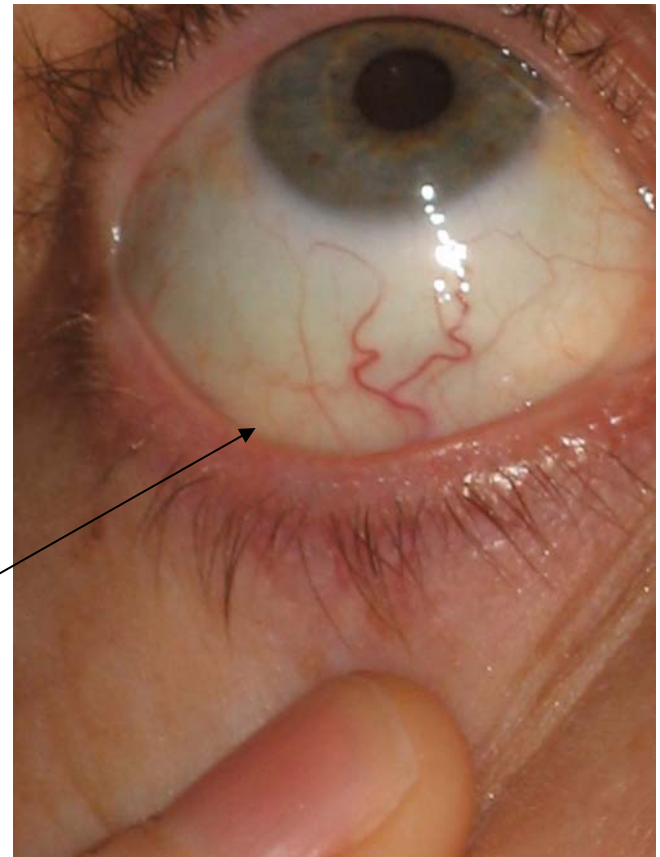
Understand the fundamental principles behind four common procedures / skills

On completion of this session you will be able to:

- Effectively insert eye drops
- Appropriately and effectively apply an eye pad
- Safely evert an eye lid
- Effectively irrigate an eye

1. Instilling eye drops

- Explain to the patient what you are doing
- Ask the patient to look up and tilt back their head
- Gently pull down the lower lid to form a pouch



1. Instilling eye drops (cont)

- Instil one drop into the outer half of the eye
- Instruct the patient to gently close the eye for about a minute

They should **not** blink, squeeze their eyes or roll their eyes around or the drop will go straight down the tear duct or onto their cheek.



1. Instilling eye drops (cont)

- Gentle pressure on the inner (nasal) corner of the eye occludes the tear duct



1. Instilling eye drops (cont)

Occluding the tear duct allows the drop to stay in the eye and not drain away, enhancing the absorption of the drop.

This also prevents the medication passing down the nose and into the pharynx where it can be swallowed. This minimises systemic absorption of the medication.

1. Instilling eye drops (cont)

- If two different types of drops are required at the same time, leave 5 minutes between drops to allow time for the first drop to be absorbed
- The eye can hold less than one drop at a time. A second drop will wash out the first if given too quickly.

2. Eye padding

- An eye pad keeps the eyelid closed on the affected eye allowing opening of the other eye
- Advantages:
 - it can rest a photophobic or abraded eye
 - Initially at least they can be comforting
- Disadvantage:
 - vision is reduced to monocular
 - If applied incorrectly, they can do more damage

Patients wearing an eye pad should not drive

2. Eye padding (cont)

- Eye pads **must** be used appropriately
- Eye pads should **never** be used on an infected or discharging eye as it promotes bacterial growth
- Eye pads should not be used if they increase pain or discomfort
- Eye pads should **never** be left on for more than 24 hours

The use of eye padding after **corneal abrasions** has been well studied: no evidence that it promotes healing or decreases pain; no evidence that it hinders healing or causes pain either. It definitely helps some people. If applying a patch, tell the patient to remove it if it is causing discomfort. If pad seems to help, leave on for a **maximum** of 24 hours. After that time, padding is inappropriate for a corneal abrasion

Ref: Turner, A & Rabiou, M (2006) *Patching for Corneal Abrasion*
The Cochrane Database of Systemic Reviews vol.2

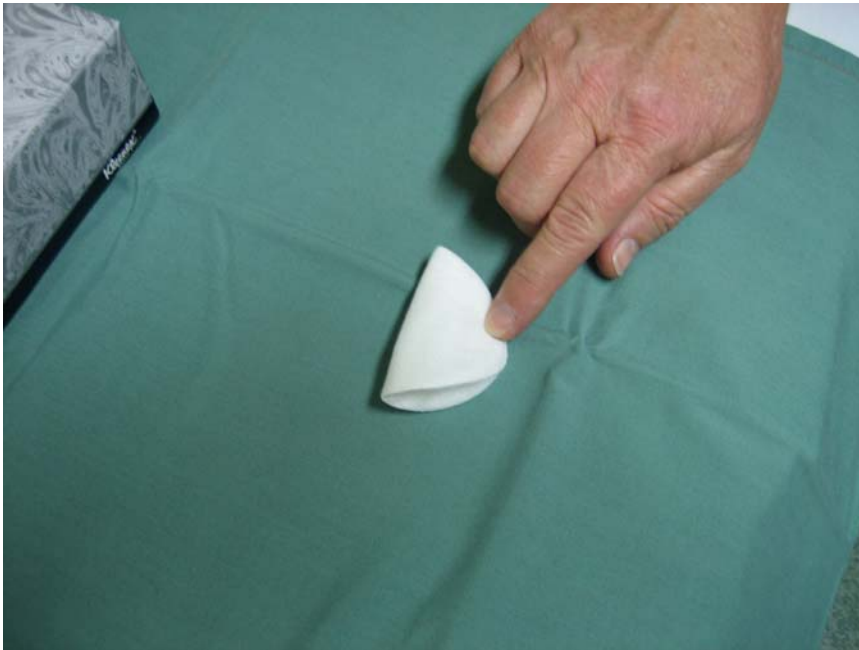
Applying a double, firm eye pad

- Instil eye drops or ointment as prescribed
- Ask the patient to close **both** eyes. This ensures that the affected eye is fully closed
- Check that the eye is completely shut in spite of any swelling
- Check that no eyelashes are turned inwards and are touching the eye

Patients may not be aware that their eye is not fully closed due to the cornea being anaesthetised.

Applying a double, firm eye pad (cont)

- Fold first eye pad in half and have patient hold it in place snugly in the eye socket



Applying a double, firm eye pad (cont)

- Place the second unfolded eye pad over the first and tape firmly in place



Tape should go from the forehead to the cheek. Never tape in a cross as this can cause a pressure point on the cornea.

Applying a double, firm eye pad (cont)

- Ask patient to open their eyes. If the pad is effectively applied, the affected eye should stay comfortably shut

3. Everting an eyelid

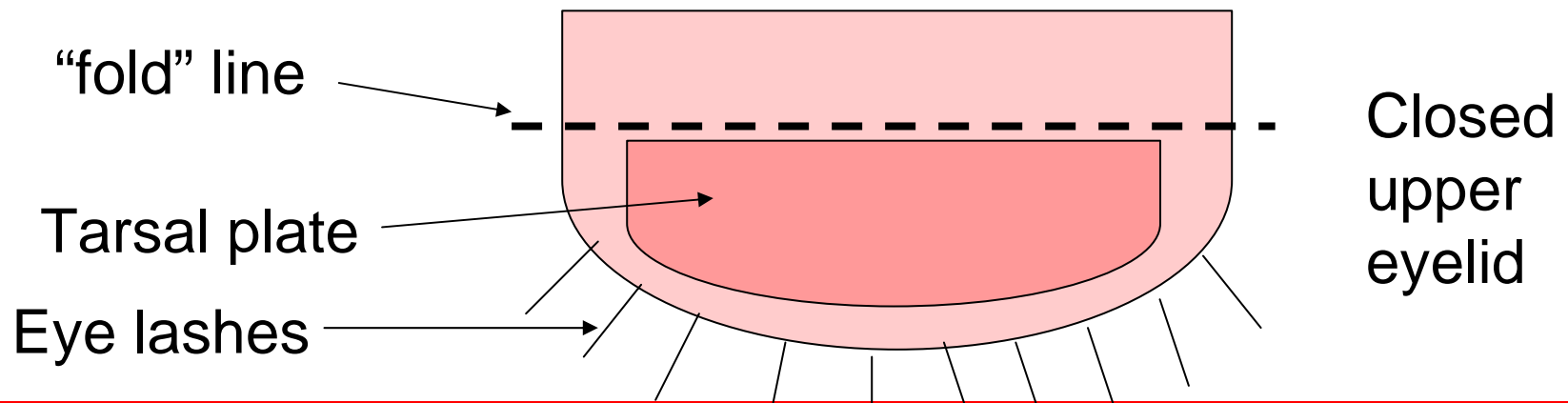
- Used to inspect the upper fornices for foreign bodies or pathology
- Used in irrigation to thoroughly wash eye
- Equipment
 - Cotton bud
 - Adequate light

3. Everting an eyelid (cont)

- The conjunctiva lines the upper and lower eyelids and then folds back on itself to line the sclera of the eye
- This means that the conjunctiva forms “pockets” under the eyelids that can trap and retain foreign particles

3. Everting an eyelid (cont)

- The eye lids contain a tarsal plate – a semi-rigid plate that allows the lid to be flipped over rather than rolled up.
- It is positioned in the lower half of the lid.



3. Everting an eyelid (cont)

- Explain procedure to the patient: warn it may feel strange
- Ask them to look down throughout – this lengthens the upper lid making it easier to manipulate and also helps protect the cornea



3. Everting an eyelid (cont)

- Place the cotton bud across the top of the tarsal plate of the upper lid
- Grasp their eyelashes and flip the lid back over itself, exposing the inner lining



3. Everting an eyelid (cont)

- When finished, instruct the patient to blink several times to right the lid.

4.Irrigation

- Irrigation is the flushing of the cornea and **all** the conjunctival surfaces of the eye to remove irritant or corrosive substances

Patients may present with the irritant on their hands and faces. This needs to be thoroughly washed off.

Key Concepts of Irrigation

- IMMEDIATE: irrigate first, ask questions later
- ANAESTHETIC: eye drops should be used
- COPIOUS: up to 30 minutes
- GENTLE: so delicate tissues are not further traumatised
- THOROUGH: retained chemical can cause further damage
- SUPPORT: patients are usually very distressed

Irrigation (cont)

- There are different techniques that work
- We prefer to lie the patient down and use IV fluids via a giving set. This provides a gentle continuous stream that is easily directed to all the corners and folds of the conjunctiva

Irrigation (cont)

- Start with a drop of topical anaesthetic such as Amethocaine 1%
- Note the time
- Position towels or blue sheets to keep patient dry
- Ask the patient to hold a kidney dish against their cheek on the affected side to catch the fluid



Equipment



↑
Sitting →
← Lying
Instilling
Amethocaine
first



Irrigation (cont)

- Use Hartmann's or saline sterile IV fluid
- Direct the flow systematically around the eye, asking the patient to look up for a few minutes, then to the right for a few minutes, down and to the left to allow good access to all surfaces of the eye
- Evert the upper lid and irrigate thoroughly
- Pull down lower lid as patient looks up

Irrigate all surfaces of the eye.



Irrigation (cont)

Do not delay irrigation by trying to identify the chemical involved! More information is gained from the **patient's history** than from pH paper. Time spent testing can allow continued damage to the eye.

- Alkalis: cement, plaster, bleach, caustic soda, drain cleaners, etc. Most damaging. Alkalis have the ability to penetrate the cornea and damage anterior chamber structures. Sight threatening.
- Acids: car battery fluid, hydrochloric, sulphuric and acetic acids. These do not penetrate the cornea and damage is limited to actual contact points. Exception is hydrofluoric acid (used by stonemasons) – effect more like alkali.
- Solvents: petrol, perfume, alcohol, volatile cleaning fluids. Cause limited damage.

Irrigation (cont)

Cement mix is very corrosive due to the alkaline lime content.

When mixed with tears, it forms little balls of cement that tend to get trapped in the upper fornix.

With the eyelid everted you may need to sweep the remaining pocket with a moistened cotton bud or glass rod.

Retained particles of cement will continue to burn the eye.



Irrigation (cont)

- If both eyes are affected, direct the stream to one eye then the other
- Ideal is two giving sets and two clinicians

Chemical injuries are **very** distressing. As well as the pain of the injury and the discomfort of the irrigation there is the fear of blindness. Expect high levels of anxiety and provide emotional support.

Irrigation (cont)

- Morgan Lens irrigation is popular in many Emergency Departments.
- Comprehensive instructions come with the kit and will not be repeated here.
- Remember that the lens only clears the cornea and front of the eye – you still must evert the lids and manually irrigate at intervals.
- The lens must be very carefully placed to avoid corneal damage.

Irrigation (cont)

- Repeat anaesthetic drops every 10 minutes or so as you irrigate
- Irrigation should not continue beyond 30 minutes, unless advised by ophthalmologist, as it may cause secondary damage
- Test pH (if required) 3 to 5 minutes after irrigation has ceased to ensure you are testing the tears not the irrigating fluid
- In alkaline injury, the pH often remains high for long periods after the injury
- Normal pH is around 7

Irrigation (cont)

- At the conclusion of irrigation, assess visual acuity. This will be an important baseline to evaluate treatment
- Document time started and finished and the volume of irrigating fluid used

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

- Effectively insert eye drops
- Appropriately and effectively apply an eye pad
- Safely evert an eye lid
- Effectively irrigate an eye