

CORNEAL FOREIGN BODY



Left: Promotional poster for “Le Voyage Dans La Lune” 1902, and right, the most famous scene from the movie.

Humanity’s first attempt to land a man on the Moon - a great success - but unfortunately not for the “Man in the Moon” - the rocket hits him directly in the eye!

The world’s first ever science fiction movie was a French made spoof of just 14 minutes duration entitled, “Le Voyage Dans La Lune”, (A trip to the Moon). It was produced in 1902 by the French director and master magician Georges Melies (1861-1938). He loosely based his plot on the works two famous Nineteenth century science fiction writers, “From the Earth to the Moon” by Jules Verne and “The First Men in the Moon” by H. G.Wells. A group of five intrepid astronomers cram into a giant World War I type ordnance shell which is then fired out of a gigantic cannon aimed directly at the Moon. The landing on the Moon itself is shown in two attempts. In the first the shell slams at 90 degrees directly into the eye of the unfortunate “Man in the Moon”. In the “take two” scene we see a somewhat more professional smooth (...well “smooth” as far as the 16 frames per second technology of the day allowed...) shallow angled landing on the Earth’s surface.

When we attempt to remove a corneal foreign body from our patients we could do well to recall Monsieur Melies’ famous film “Le Voyage Dans La Lune” - we must take great care with the approach we take with our needle - as it is preferable that we get this right on the very first “take”! The needle must approach on a shallow angle, rather than at 90 degrees!

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Introduction

Corneal foreign body is a common presentation to the Emergency Department.

Most can be removed under local anesthesia with a sterile needle or dental burr.

Pathology

All manner of foreign bodies can lodge in a patient's eye; however the most common scenario requiring presentation to an Emergency Department will be the high velocity metal fragment that lodges onto the cornea.

High velocity injuries have the potential to cause a penetrating injury.

Clinical Assessment

Important points of History:

1. The patient usually presents with a watering, intensely irritated, painful eye in which the patient feels the presence of something.
2. This may not necessarily be a corneal foreign body, as these symptoms may also result from a sub-tarsal (under the lid) foreign body.
3. It is important to consider the mechanism of injury (especially in regard to the velocity) and to keep in mind the possibility of a penetrating injury with an intraocular foreign body.
 - Metal foreign bodies due to grinders do not usually result in penetrating injuries.
 - High velocity injuries may result in penetrating eye injuries. They may occur with the striking of metal on metal, or with high speed motor drilling.

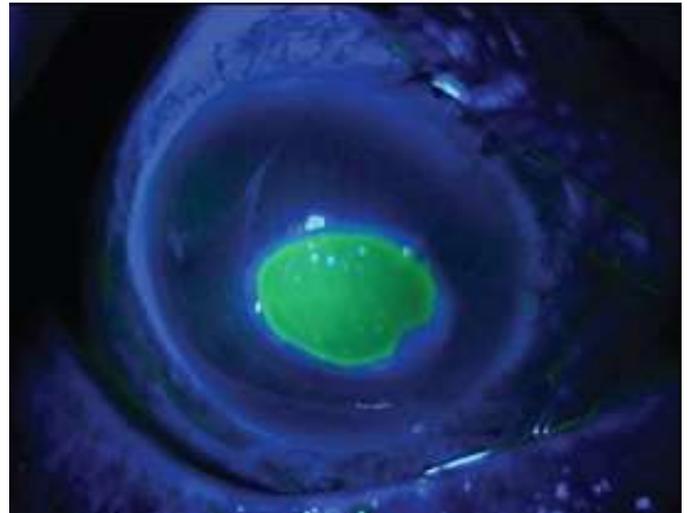
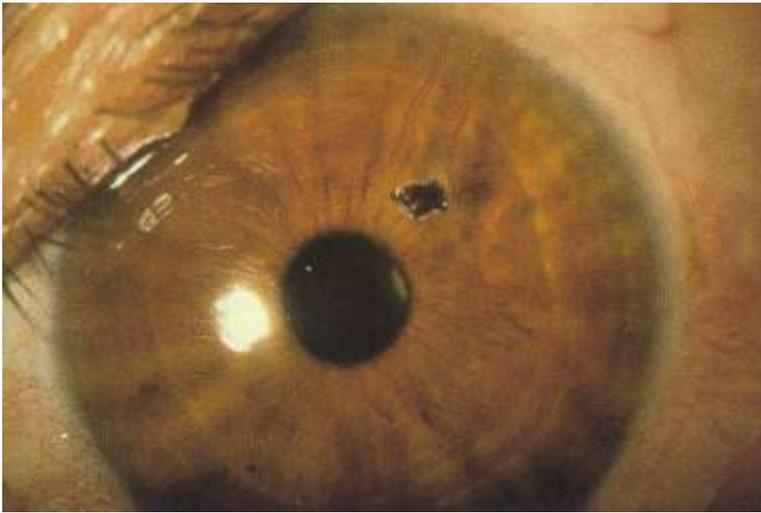
Important points of Examination:

1. Check the visual acuity
2. Inspection:
 - Corneal FBs can usually be seen easily with the naked eye. If not use the slit lamp.
 - Examine the cornea, anterior chamber, iris, pupil and lens for any distortion that may indicate ocular penetration.
3. Always **evert the upper lid**, as there may be more FBs lodged under the lid.
4. Establish the site of the foreign body.

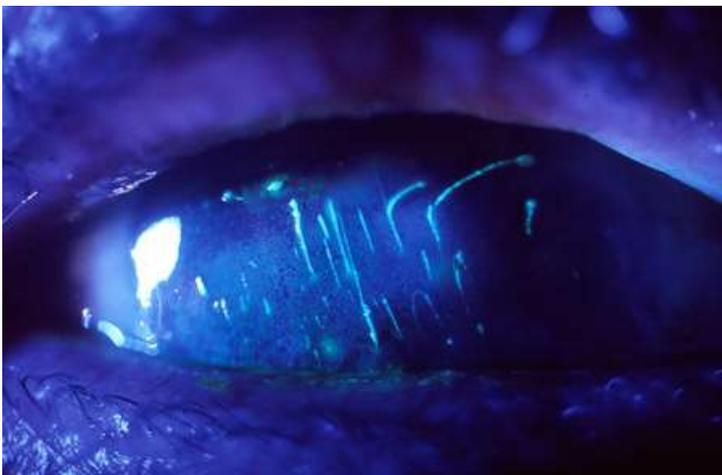
- If corneal, and within the **central 3mms** of the pupil, small amounts of scarring may be visually significant and referral to an ophthalmologist for removal should be considered.

5. If no FB is found:

- It may be that a FB has hit the eye and left a scratch or superficial ulcer. This should be checked for with **fluorescein staining**, followed by examination under a cobalt blue light source.



Left: Corneal metal foreign Body. Right Central corneal ulcer see with fluorescein staining under cobalt blue light



Left: Typical linear ulcerations produced by a sharp upper lid sub tarsal foreign body. Movement of the lid produces these characteristic lesions as the foreign body, scratches the surface of the cornea. Right: a small metal fragment sub tarsal FB.

Investigations

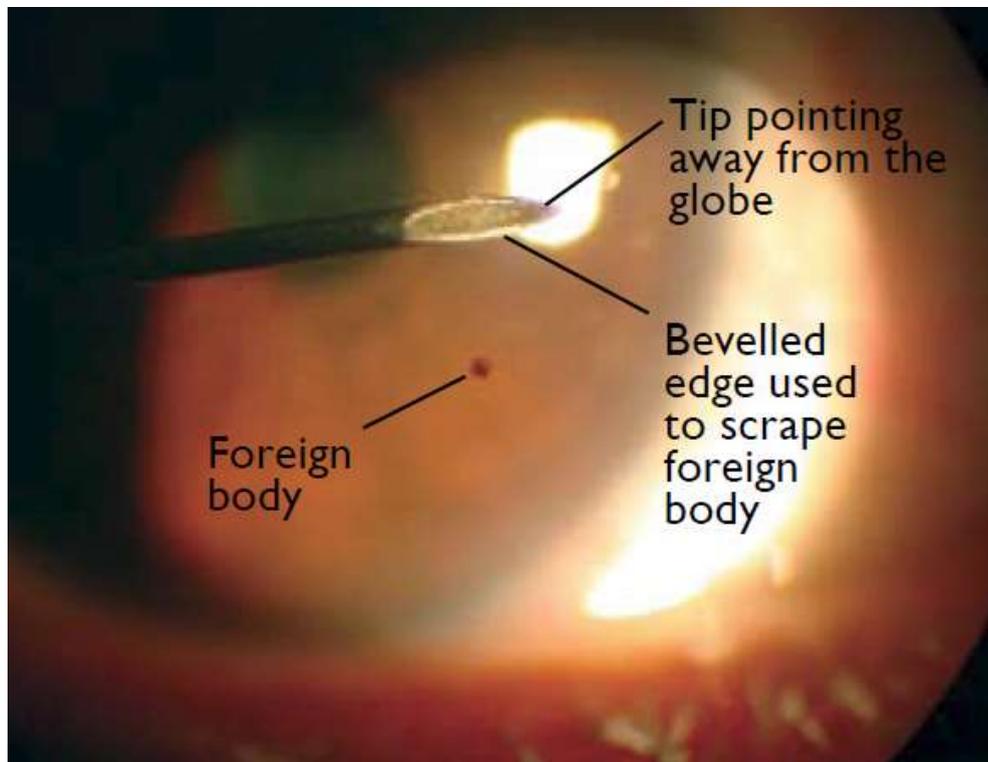
If there is thought to be a possibility of a penetrating injury to the globe, then plain radiographs of CT will be required to detect the foreign body.

Management

1. Anesthetize the eye with oxybuprocaine or amethocaine drops
2. Once anesthesia has been achieved remove the FB with a 19-30 G needle attached to a 2 or 3 ml syringe (to aid in holding and directing the needle more easily).



Cotton bud for lid eversion and removal of debris and needle on syringe for removal of the foreign body.



Use the bevelled edge of the needle to scrape away the foreign body. The tip of the needle should always be directed away from the globe by using an oblique approach.

3. Metal fragments must be removed.

Underlying rust rings, which are more likely with delayed presentations, must also be removed.



Rust ring

These may be removed using:

- A sterile needle
- A dental burr.
- An automatic dental burr device such as the **Algebrush**, (see below)



The Algebrush device

It is not necessary to remove minor degrees of brown staining, just actual metal fragments.

Subtarsal FBs can usually be removed with a cotton wool bud.

4. Eye pad:

- Once the FB is removed an eye pad may be placed for patient comfort.

It can be kept on for 1-2 hours, (just until the anesthetic has worn off) - however an eye pad is not essential. ¹

5. Antibiotic drops 4 times a day should be given for 3-4 days.

- Antibiotic ointment may be used in addition for night.

6. Contact lenses

- If the patient is a contact lens wearer, he/she should be advised to discontinue lens usage until the defect is fully healed and feels normal for at least a week. ¹

Disposition

The patient should be reviewed in 48 hours by his/her general practitioner.

If all fragments cannot be removed the patient should be referred to an Ophthalmologist.

References

1. Emergency Eye Manual, NSW Health Department, 2nd ed 2009.

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