The occasional corneal foreign body

Peter Hutten-Czapski, MD
Scientific editor, CJRM
Haileybury, Ont.

Correspondence to:
Peter Hutten-Czapski;
phc@srpc.ca

This article has been peer reviewed.

Sam is a 32-year-old man who was working on his 4 × 4 when he felt something enter his right eye. His tetanus vaccination is up to date. He presents to you, his rural doctor, asking for assistance. You proceed to examine and remove the corneal foreign body.

MATERIALS

The following materials are needed (Fig. 1).

- Topical anesthetic ophthalmic solution (e.g., tetracaine 0.5% or proparacaine 0.5%)
- Fluorescein strips or 2.0% solution
- Cotton-tipped applicator
- 3-mL syringe with 25-gauge needle or eye spud
- Loupe or slit lamp
- Cobalt blue light
- (Optional) rust ring burr or Alger Brush II Corneal Rust Ring Remover

PROCEDURE

Apply 2 or more drops of anesthetic to the affected eye by having the patient look up while you place drops onto the cornea or in a pocket of a retracted lower lid (Fig. 2).

Examine the eye for a loose foreign body using a loupe or slit lamp. Evert the upper lid using a cotton applicator to keep the proximal tarsus applied to the globe while pulling cephalad on the eyelashes (Fig. 3). Check under the lower lid by pulling down on the eyelashes.

Apply fluorescein to the eye and have the patient blink to distribute the stain evenly (Fig. 4).

Re-examine the globe for corneal abrasions and foreign bodies under cobalt blue light from the slit lamp or from a filter applied to an ophthalmoscope or transilluminator (Fig. 5). If a corneal foreign body is found, explain that you need the patient to remain still, and then use the eye spud or needle, approaching laterally, with the bevel up in a tangent to the cornea where the foreign body is sitting. Touch the edge of the foreign body with the spud (Fig. 6).

With a flicking motion away from the patient, dislodge the foreign body and use the cotton applicator to pick it up. If there is a remaining rust ring, you can use either a sterile dental burr (preferably a used one from the town's dentist because you don't want one that is too sharp) spun between your fingers or a battery-operated burr, to grind away any contaminated tissue (Fig. 7).

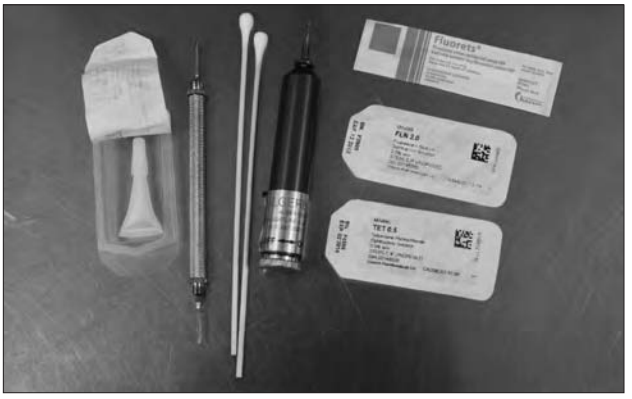

Fig. 1. Materials needed for removal of a corneal foreign body.

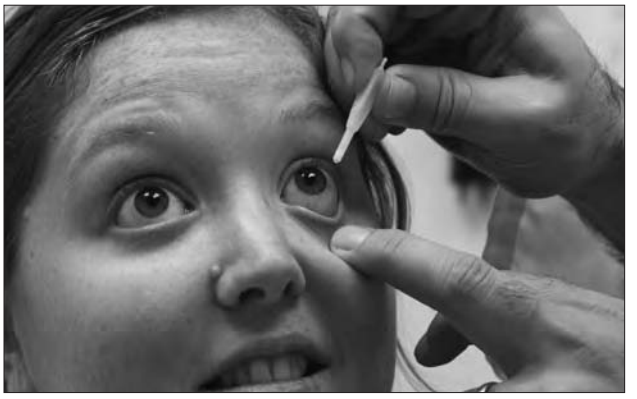

Fig. 2. Anesthetic drops.

Fig. 3. Everting the upper lid.

Fig. 4. Applying fluorescein to the eye.

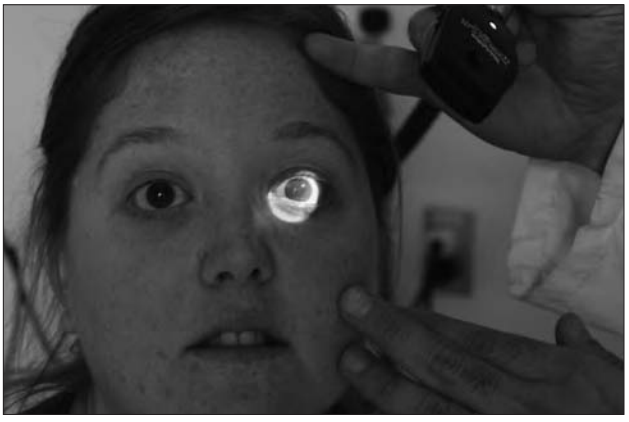

Fig. 5. Re-examining the globe under cobalt blue light.

Historically, one would then patch the eye. However, studies now show that pain is reduced and function restored more quickly without patching.[1–3] I only patch if there is a very large abrasion for which the patient finds occlusion comfortable.

For pain control, oral analgesia usually suffices. Sometimes a topical nonsteroidal anti-inflammatory drug such as diclofenac 0.1% drops and/or a cycloplegic (for ciliary spasm) such as cyclopentolate 1% are needed.

Fig. 6. Touching the foreign body with the eye spud.

Fig. 7. Removing contaminated tissue with an Alger Brush.

This is also a good time to update tetanus status.

I advise patients to return the next day if the sensation of a foreign body is not completely gone or if their vision is not completely restored. In my experience, delayed healing occurs among patients scratched by evergreen needles. Patients should return if their eye shows signs of infection, which would warrant antibiotic drops.

CONCLUSION

Corneal foreign bodies are a common presentation to the rural physician. These can be dealt with easily in the doctor's office or the emergency department.

Competing interests: None declared.

REFERENCES

1. Arbour JD, Brunette I, Boisjoly HM, et al.Should we patch corneal erosions? *Arch Ophthalmol* 1997;115:313-7.2.
2. Wilson SA, Last A. Management of corneal abrasions. *Am Fam Physician* 2004;70:123-8. .3.
3. Turner A, Rabiu M. Patching for corneal abrasion. *Cochrane Database Syst Rev* 2006;CD004764.

INTERNET CONNECTION

You need an active Internet connection for the mobile device to access *CMAJ*. I had no problem connecting using my wireless network at home.

INITIAL LOGIN

The app is accessed from a "CMAJ" icon on your device's main menu. When you first use the app, you are shown a pop-up window asking for the username and password that you created during registration (see *CMAJ* Registration). Click Submit after entering the information. This pop-up window is part of the Settings tool in the app and must be closed manually using the Back, Settings and Done buttons to close all the windows. The app remembers your information and immediately connects to *CMAJ* on future visits.

GETTING HELP

To obtain help with the registration or download, call CMA Member Services at 888 855-2555 or send an email to cmadata@cma.ca or pubsonline@cma.ca. At the time of writing, I could find no guide for new users built into the app or on the *CMAJ* website.

IBOOKS APP

To read articles at a later time, without Internet access, you can download articles as PDF files. You will need a PDF Reader app, such as iBooks (free from the iTunes Store), installed on the device. Downloaded articles are stored in iBooks with the long, obscure file name used on the *CMAJ* website.

FEATURES

The *CMAJ* app has the following features: "Favorites" for quick access to your favourite articles, previously viewed topic history, and incremental index searching for efficient topic access and SmartTabs for efficient navigation. These may be the subjects of a future article.

Competing interests: None declared.