



The Eye in General Practice

Acid and alkali injuries of the eye

The General Practitioner's role in the acute management of a chemical injury to the eye is more critical than in any other ocular condition – the first few minutes of treatment may well make the difference between blindness and sight, and there is no time to check the books or ring the on-call ophthalmologist for advice. The patient presenting to your practice with a chemical eye injury is as much an emergency as one presenting with chest pain. Make sure your receptionist and practice nurse are aware of this and interrupt whatever they and you are doing.

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Treatment and Management

Begin treatment immediately

If you are contacted about a chemical eye injury by phone give clear instructions that treatment must start immediately. If at all possible, irrigation should begin in the home or workplace and continue as the patient travels to see you.

When a patient presents to your surgery, other than noting that a chemical injury has occurred, do not take a history or examine the eye -**begin irrigation**.

Use whatever fluid is immediately available.

Use whatever solution you can find quickly. Water is just as effective as saline. Get it from a tap or jug. You can squirt saline in from the plastic 5ml vials or set up a saline infusion through a giving set but don't delay treatment waiting for this.

Get help

Thorough irrigation is a two-person task. You will need a continued supply of fluid and other equipment such as local anaesthetic and towels. If you are unsure of what to do, get your receptionist to ring an ophthalmologist and bring the phone to you. Don't go off and make the call yourself – keep irrigating.

Provide analgesia

Most patients will need analgesia for treatment to be adequate. Because the eye is being irrigated any topical anaesthesia applied is less effective and wears off earlier than normal. Begin with a topical agent such as amethocaine. If you don't have any specific ocular anaesthetic use lignocaine with or without adrenalin. Keep instilling local anaesthetic at regular intervals. Instil a cycloplegic such as Cyclopentolate if available; some of the pain is due to iris and ciliary spasm. Remember, however, that the key issue is thorough irrigation. Don't wait for the amethocaine to arrive before starting the irrigation process and don't stop for long to anaesthetise and re-anaesthetise.

Deal with lid spasm

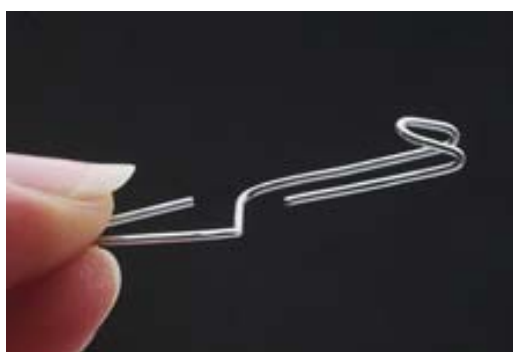


Fig. 1 A simple eyelid retractor can be constructed from a paper clip.

One of the greatest difficulties you will encounter is blepharospasm. The face and lids are wet and slippery and with the patient in considerable pain the whole situation becomes somewhat stressed. The simplest solution is to pull back the lids with the aid of a towel or sheet. Place one corner of the material on each of the upper and lower eyelid and pull the lids open. The material, even when wet, stops your fingers slipping. An alternative is to use cotton buds with one applied to each lid.

Purpose-designed Desmarres eyelid retractors are available but are too expensive for most practices to have on hand. A simple alternative device can be constructed from a paper clip (fig 1). The construction technique is simple. First open out a paper-clip, then bend one of the opened halves in half. Bending can take some strength but is

relatively easy to achieve with an artery forceps or by simply jamming the paper-clip in a door or draw. The retractor is then slipped under the upper eyelid. Whatever technique you use you need a helper to continue the irrigation.

Occasionally, the patient is in so much distress that it is impossible for them or you to keep the eyes open. In this case a regional eyelid block is needed. The preferred technique is that known as a Van Lint block. Infiltrate subcutaneously just outside the orbital margin with about 5ml of lignocaine (fig 2).

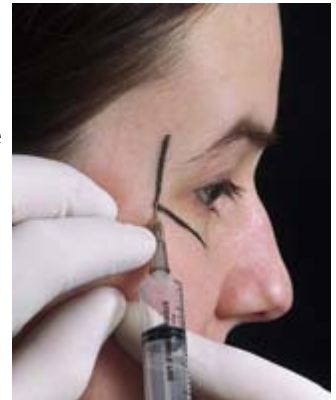


Fig. 2 Application of a Van Lint block.

Keep irrigating for 20 minutes

Whatever the history suggests, keep irrigating for 20 minutes. Don't worry about the difference between alkali and acid burns, whether the patient received some treatment before seeking your help or the degree of pain. There is no reliable relationship between any of these factors and the severity of the injury. Irrigate the whole eye and inside both eyelids. Pay particular care to thoroughly irrigating the entire globe and conjunctival sac, especially if the injurious agent was a powder or gel. The upper eyelid should be everted if possible and the upper conjunctival sac swept with a cotton bud to ensure there is no hidden particulate matter which can continue to damage the eye after irrigation ceases.

Test the pH after treatment

The danger of pH testing is that it may delay treatment, cause confusion and fail to detect ongoing chemical risk. If you do have Litmus paper test after 20 minutes of irrigation and make sure you check the pH in every part of the conjunctival sac.

Take history and examine eye

Take a history as you irrigate and examine the eye after treatment. Find out the exact nature of the chemical involved and if the chemical composition is uncertain check with the National Poisons Centre. Check the vision, using a pinhole if it decreased. Before fluorescein is instilled look to see how clear the iris details are. If the iris details are hazy there is significant corneal oedema. Note any areas of ischaemic 'blanching' around the limbus. A 'white eye' is more severely injured than a 'red eye'. Finally instill fluorescein to ascertain the degree of corneal epithelial loss.

Discuss with an ophthalmologist

Even trivial chemical injuries to the eye warrant discussion with an ophthalmologist, who will want to know the chemical involved, its form (liquid or powder), the treatment given and the examination findings. In some cases formal review is not necessary. These patients can be treated with ointment, a pad and analgesia, and reviewed by you the following day. Most patients will, however, require specialist review the same day. Now is the time to call the ambulance.

Key points

Irrigate, irrigate, irrigate. Use water or saline. Employ a helper, local anaesthesia, lid retractors and cycloplegic to ensure adequate irrigation.

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