

Corneal Ulcers and Abrasions

[Disclaimer](#)

COVID-19 note

The Royal Australian and New Zealand College of Ophthalmologists (RANZCO) and The Royal Australian College of General Practitioners (RACGP) have made recommendations regarding eye examination during the COVID-19 pandemic. See RANZCO – [COVID-19: Practical Guidance for General Practitioners Performing Eye Examinations](#).

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Red Flags

- Corneal infiltrate, haze, or opacity
- Significantly reduced vision
- Unilateral red eye
- Red, painful eye in contact lens wearer

Background – About Corneal Ulcers and Abrasions

Corneal ulcers:

- An area of corneal epithelial loss accompanied by epithelial or stromal inflammation or infections
- Potentially sight threatening
- The affected area has an opaque appearance

Abrasions:

- An area in which the cornea is devoid of its surface epithelium
- The consequence of mild to moderate ocular trauma
- Very common
- The cornea remains clear

Assessment

Practice Point

Be aware of possible keratitis

Suspect microbial keratitis if there is corneal eye opacification or failure to rapidly heal.

1. Take a history – ask about:
 - use of contact lenses.
 - **risk factors.**

Risk factors for ulcers

- Immunocompromised patients
 - [Dry eyes](#)
 - [Facial nerve palsy](#)
 - [Ectropion](#)
- symptoms, including:
- red eye.
 - photophobia.
 - blurred or decreased vision.
 - progressive eye pain (usually over 1 to 3 days).

2. Perform examination:

➤ **Examine the eye and eyelids.**

- Assess ocular injection to differentiate ciliary flush from generalised injection.
- Examine the cornea using the direct ophthalmoscope. Use the dial to focus on the cornea. Look for any area of corneal opacity or thickening.
- Look for any hypopyon.
- Check for presence of a fluorescein stain on the cornea – this is the key to diagnosis.
 - Examination is often difficult, as the patient is in pain.
 - Instil a topical local anaesthetic if necessary.
- Evert the eyelid and check for retained foreign body.

The pupil should be round and reactive. If small, it is likely due to sphincter muscle spasm often caused by iritis (can occur secondary to corneal inflammation).

- **Measure visual acuity.** Ulcers usually reduce vision, while abrasions usually leave vision intact.

Measure visual acuity

1. Ask if the patient has distance glasses with them, and if either eye has had known poor vision i.e., a lazy eye.
2. Test the vision in each eye, while wearing distance glasses, with a standard visual acuity chart at the correct distance.
3. If the patient does not have their glasses, vision is poor, or to establish if there is a refractive error, repeat the test while the patient looks through a pinhole with each eye separately. To create a pinhole, perforate a large piece of paper with a pen.

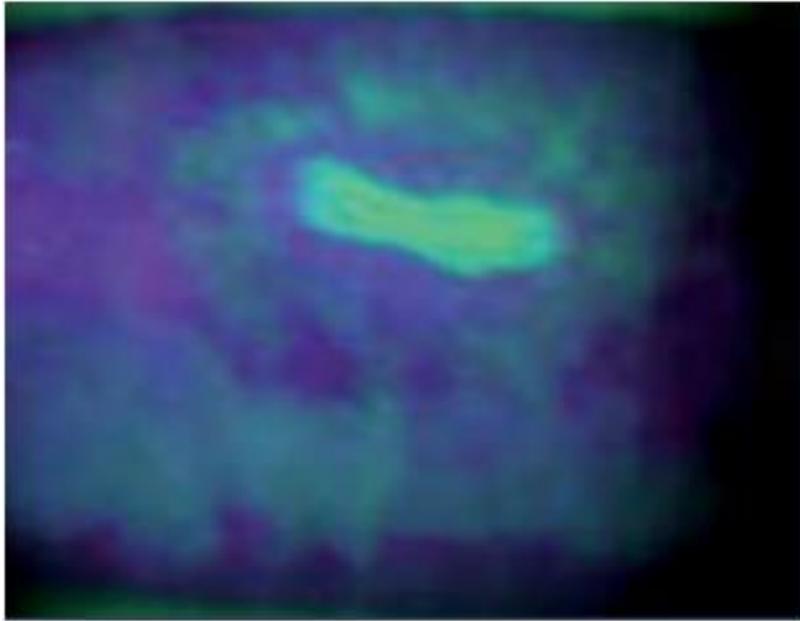
- Look for corneal infiltrates (seen with slit lamp if available).

3. Note corneal abrasions and ulcers present as painful, red, photophobic eyes.

4. Determine the type of ulcer or abrasion. There are five types:

➤ **Traumatic corneal abrasion**

- Usually give a clear history of trauma.
- It is important in every eye injury to ascertain exactly what happened.
- Make sure there is no possibility of a penetrating injury e.g., from sharp objects, high speed tools, hammering metal on metal. May not be recent injury.
- Visual acuity maybe reduced.
- Mildly hyperaemic eye with a macroscopically clear cornea and a corneal epithelial defect on fluorescein staining.
- Abrasions typically heal in 24 to 48 hours.



Corneal abrasion with fluorescein

Source: NSW Department of Health – [Eye Emergency Manual: An Illustrated Guide](#)

➤ **Recurrent corneal erosion syndrome**

- Usually organic cause such as a finger nail or tree branch but also can be idiopathic with no abrasion (30 to 40%)
- Common and often occurs following a recent corneal abrasion.
- Same clinical findings as traumatic corneal abrasion.
- Patients describe going to bed with no eye problem only to awaken later in severe pain with photophobia and decreased vision.
- Usually heals within 12 to 24 hours depending on the extent of the loss of epithelium.
- Frequently recurs as it takes many months for the epithelial surface to firmly adhere to the basement membrane after a corneal abrasion.

➤ **Marginal keratitis**

See [Keratitis](#).



Marginal keratitis

Source: NSW Department of Health – [Eye Emergency Manual: An Illustrated Guide](#)

➤ **Microbial keratitis**

See [Keratitis](#).



Microbial Keratitis

Source: NSW Department of Health – [Eye Emergency Manual: An Illustrated Guide](#)

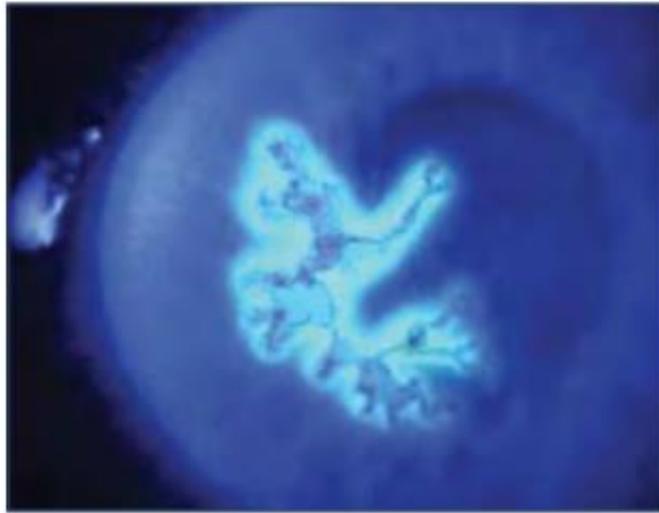


Keratitis (the white infiltrate in the cornea) and a hypopyon

Source: [EyeRounds](#)

➤ **Herpes simplex keratitis/Dendritic ulcer**

See [Herpes Simplex Keratitis / Dendritic Ulcer](#).



Herpes simplex keratitis dendritic ulcer with terminal bulbs

Source: NSW Department of Health – [Eye Emergency Manual: An Illustrated Guide](#)

Management

1. Never issue or prescribe topical anaesthetic agents, as they mask symptoms, delay healing, and/or potentially lead to further injury.

2. Manage accordingly:

➤ **Traumatic corneal abrasions**

Abrasions typically heal in 24 to 48 hours, and can be safely managed by a general practitioner

- 1. Treat any abrasion with 3 or 4 days of chloramphenicol eye ointment or drops four times daily, and analgesia.*
- 2. Suggest that patient may find it more comfortable to keep eye closed with a double eye pad.*
- 3. Advise patient not to drive with eye pad on.*
- 4. For large corneal abrasions, review within 24 to 48 hours to check abrasion is healing rapidly. If not rapidly healing, seek ophthalmology advice or [optometry assessment](#).*
- 5. For minor abrasions, advise patients to re-attend only if symptoms worsen or fail to resolve within 24 to 48 hours.*

➤ **Recurrent corneal erosion syndrome**

This can be safely managed by a general practitioner.

- 1. Advise patient to use lubricant ointment nightly e.g., Poly Visc for 3 months to prevent recurrence.*

2. *If not resolving, seek [urgent or routine ophthalmology referral](#) for consideration of laser therapy.*

- [Suspected keratitis](#) (microbial, marginal)
- [Herpes simplex keratitis/Dendritic ulcer](#)
- Contact-lens wearers – any patient who wears contact lenses and develops a red, painful eye must be assumed to have microbial keratitis. See [Keratitis](#).

Referral

- If recurrent corneal erosion syndrome and not resolving, seek [urgent or routine ophthalmology referral](#) for consideration of laser therapy.
- Seek ophthalmology advice or [optometry assessment](#) if.
 - corneal abrasion is not rapidly healing.
 - if uncertain.

Information

For health professionals

Further information

- National Eye Institute – [Corneal Conditions](#)
- NSW Health:
 - [Eye Education for Emergency Clinicians: Red Eye](#)
 - [Eye Emergency Manual – An Illustrated Guide, Second Edition: Painful Cornea Abnormal](#)

[Disclaimer](#)

Last updated: June 2020