

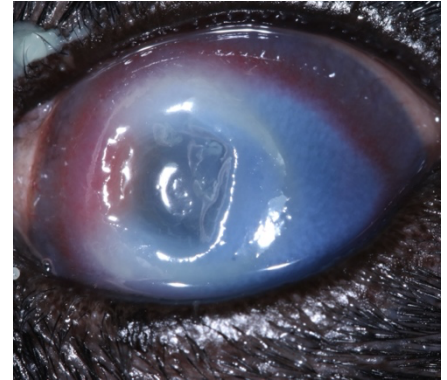


Deep Corneal Ulceration

The cornea is the clear, transparent area at the front of the eye. It is approximately half a millimetre thick and is made up of four layers.

What is a corneal ulcer?

A corneal ulcer is a wound or break in the corneal tissue, which can range from superficial (involving the outermost layer) to deep (affecting several layers of the cornea). Deep corneal ulcers are considered a medical emergency, and prompt treatment is essential to prevent further damage to the eye and preserve your dog's vision.



Reasons why corneal ulcers are serious:

1. Corneal ulceration is a **painful** condition.
2. The open wound is prone to **infection**, which could worsen the condition and complicate healing.
3. A simple ulcer can progress quickly due to a process called “**melting**”, where the cornea is damaged by destructive enzymes.
4. The cornea is a strong structure which contributes to the shape and rigidity of the globe. Should a corneal ulcer deepen, the eye can **rupture** at the site of weakness.
5. **Vision** depends on having a clear cornea. If the cornea is scarred, vision will not be optimal.

Causes of Deep Corneal Ulceration

Deep corneal ulcers can be caused by a variety of factors, including:

- **Trauma:** Injury to the eye, such as scratches, bites, or foreign objects (like dust, grass, or sand) can damage the cornea.
- **Infections:** Bacterial, viral, or fungal infections can cause or worsen ulcers.
- **Dry eye (Keratoconjunctivitis sicca):** Insufficient tear production can cause the cornea to dry out, leading to ulcers.
- **Underlying eye diseases:** Conditions like conjunctivitis, eyelid problems (entropion), or abnormal tear drainage can increase the risk of ulcers.
- **Immune-mediated diseases:** Some autoimmune conditions may affect the cornea and make it more prone to ulceration

Management of deep corneal ulcers

Management of corneal ulceration depends on several factors, which include:

- Age and general health
- Breed
- Temperament (for example, is it possible to apply drops to the eyes?)
- Owners circumstances (e.g. out to work all day)
- Cause of the ulcer – e.g. eyelid or eyelash abnormality/ trauma/ foreign body/ dry eyes/ infection.
- Severity and chronicity of the ulcer
- Presence of infection or other complicating factors.

Treatment Options for Deep Corneal Ulceration





If the underlying cause is apparent, this is treated (for example, eyelid surgery may be required to stop eyelashes from rubbing inappropriately on the cornea).

Deep corneal ulcers may be treated medically or surgically. Which treatment is chosen is based on the individual case and circumstances. In some instances, medical treatment alone will not save the eye.

Medical management:

With careful medical management, some deep corneal ulcers can slowly re-model and heal. This entire process may several months. A concern is that the healing cornea will be thinner and more vulnerable to further corneal disease.

Medical treatment involves eye drops and occasionally oral antibiotics or other medication. Depending on the severity of the condition, the drops may need to be applied as frequently as every two hours. Very deep or infected ulcers generally do not respond well to medical treatment, and surgical repair or enucleation (removal of the eye) may be required.

Surgical management:

In many cases, surgery provides for a more rapid and complete resolution of the condition, and the cornea is much stronger in the recovery phase.

The most common surgery performed is a **corneo-conjunctival transposition**. This involves raising a flap of the adjacent healthy cornea, attached to the external conjunctiva, and suturing it into the thin ulcerated area using magnification provided by an operating microscope.

However, only certain cases are suitable for this surgery – for example, it is not an option with a melting cornea. If the ulcer shows signs of infection, we could recommend **corneal crosslinking**. This procedure uses a specialised tool to sterilise bacteria in the tissue while also increasing the stiffness of the cornea, strengthening it.

If the ulcer has perforated and is beyond repair, then **enucleation** (removal) of the eye may be recommended to remove pain.

Will my animal have vision after surgery?

This depends on whether the animal could see before surgery and on the reason for the deep corneal ulcer. Restoring good vision is possible, although with some corneal scarring. However, each case is different, and sometimes, the surgery is done to save an eye rather than to restore vision.

Prognosis

The prognosis for deep corneal ulcers largely depends on the severity of the ulcer, how quickly it is diagnosed and treated, and the underlying cause of the ulceration. With prompt treatment, many dogs make a full recovery. However, in severe cases, complications like corneal scarring, loss of vision, or even the need for enucleation (removal of the eye) may occur.

