

# Corneal Ulceration

## ABOUT THE DIAGNOSIS

**Cause:** In dogs and cats, like in humans, the cornea is the transparent, front part of the eye through which one sees the pupil (black center) and iris (colored [brown, blue, green] part of the eyes). A corneal ulcer (also sometimes called a “scratch on the cornea”) is an injury to the surface of the cornea that may be superficial or deep. There are many potential causes of corneal ulcers in dogs and cats. The most obvious is direct trauma, such as when a stick or toy strikes the eye during play or a piece of gravel strikes the eye while a pet has its head out the window of a moving car. Other causes include entropion and distichiasis, conditions in which one or more eyelashes rub against the cornea. Some diseases indirectly predispose to corneal ulcers, such as disorders that affect the nerves to the eyelids and result in poor or absent blink reflexes, which can also lead to dry, ulcerated corneas. Diseases that cause inadequate tear production (keratoconjunctivitis sicca, or “dry eye”) also invariably cause corneal ulceration because the cornea becomes dry and unhealthy. Various ocular infections can cause corneal ulcers. For example, in cats, infection with feline herpesvirus may cause corneal ulcers.

Corneal ulcers are generally uncomfortable or painful, and squinting (blepharospasm), redness of the eye, and excessive tear production (epiphora) are common symptoms. Depending on whether the corneal ulcer is superficial or deep, the length of time before treatment, and whether the ulcer is infected, vision may or may not be affected and corneal scarring may or may not occur. Any eye injury should be treated as an emergency and veterinary care should be sought immediately.

**Diagnosis:** Corneal ulcers are diagnosed with fluorescein stain. This is a special, water-soluble green stain solution that is gently placed on the surface of the eye. A corneal ulcer retains the stain and glows bright green, whereas healthy cornea does not. To determine the cause of the corneal ulcer, your veterinarian will ask you for a complete history (including duration and types of symptoms you have observed, possibility of trauma, and previous medications, eye drops, etc.) and will conduct an ophthalmic examination, which is a thorough examination of the eye. Specifically, the eyelids, eyelashes, and the blink response are examined as well as the general conformation of the eye. The ability to produce tears is measured. The inside of the eye is observed using different types of lenses or an ophthalmoscope. If the corneal ulcer is very deep or even full-thickness, causing rupture of the eye, your veterinarian may refer you to a veterinary ophthalmologist, meaning a veterinarian who has specialized in the diagnosis and treatment of diseases of the eye, for treatment.

## LIVING WITH THE DIAGNOSIS

Home care involves giving medication exactly as directed by your veterinarian. Usually an Elizabethan (“cone,” “lampshade”) collar is placed on the animal to avoid self-trauma through rubbing the face with the paws or on the ground, and it should remain on until you are instructed to remove it by your veterinarian. Although superficial, uninfected corneal ulcers typically heal uneventfully over several days’ time if treated properly, deeper ulcers, persistent or “indolent” ulcers, and ruptured eyes can require multiple visits to the veterinarian and a longer course of treatment. Some corneal ulcers leave scars on the cornea and may affect vision, and the very deep or full-thickness corneal ulcers may require surgical correction.

## TREATMENT

In both dogs and cats, the cause of the corneal ulcer must be identified, if possible, and eliminated, if possible. **Topical ophthalmic antibiotics** (drops or ointment made especially for use in the eyes) need to be placed on the eye surface multiple times per day to treat bacterial infections. Depending on the cause, topical **atropine** is given to control pain caused by inflammation and to dilate the pupil, which helps to prevent adhesions (bridging scars, which hamper normal eye function) within the eye. An antiinflammatory drug may be prescribed for oral administration to control ocular inflammation and pain. In cats, corneal ulcers caused by herpesvirus infection, which is a common occurrence, are treated with a topical antiviral medication and oral supplementation with the amino acid lysine.

In addition to the treatment methods presented above, dogs and cats with deep or rapidly progressing ulcers or ruptured eyes may also require treatment with oral antibiotics and ocular surgery. A commonly used surgical procedure involves creating a **conjunctival flap**, which is a small section of the most superficial layer of the white part of the eye. A conjunctival flap is transferred from its normal position to a position overlying the ulcer while your pet is under general anesthesia. The blood vessels in the flap can help the ulcer to heal. The eyelids may be partly sutured/stitched closed to act as a natural protective barrier during this period of healing, usually a few weeks, after which the sutures (stitches) are removed and the eye retakes its normal shape.

Persistent, “refractory,” or “indolent” ulcers are superficial corneal ulcers that do not respond to conventional treatment. They can occur in any breed of dog; however, boxers are especially predisposed. These corneal ulcers are difficult to treat because the newly-growing corneal tissue fails to stay anchored to the corneal surface and after growing for days or weeks, simply peels away and restarts the corneal ulcer process. These indolent corneal ulcers usually require removal of the loose, nonadherent new corneal tissue from the surface of the cornea (debridement) and making many small abrasions on the surface of the ulcer and surrounding healthy cornea (**keratotomy**). This method facilitates attachment of the new tissue that grows to cover the ulcer. Several types of **contact lenses** or **shields** are available that can be placed temporarily over the corneal ulcer as a type of transparent bandage for protection and to promote healing.

## DOS

- Seek veterinary attention immediately if your dog or cat suffers an eye injury. Delays in treatment can allow permanent damage to occur to the eye.
- Use simple preventive measures to prevent corneal ulcers. If you bathe your dog or cat at home, ask your veterinarian to recommend a protective ointment that you can place in the pet’s eyes beforehand to avoid chemical irritation of the cornea from the soap or shampoo (otherwise a common problem).
- Inform your veterinarian if your pet has ever been diagnosed with a medical condition and is taking medication.
- Give medication exactly as directed by your veterinarian, and if you are concerned about possible negative effects, discuss them with your veterinarian immediately rather than simply discontinuing the treatment.
- Seek a second opinion if the condition is not improving or resolving altogether. Eye specialists in veterinary medicine are known as

Diplomates of the American College of Veterinary Ophthalmology ([www.acvo.com](http://www.acvo.com)).

### **DON'Ts**

- Do not allow your dog to keep his or her head out the window of a moving vehicle, as a pebble or other foreign object can cause severe corneal ulcers when it hits the cornea at high speed.
- Do not remove the Elizabethan collar until instructed to do so by your veterinarian. A damaged cornea can be itchy, and the collar prevents your dog or cat from further traumatizing the cornea by scratching it.
- Do not attempt to remove foreign bodies from your dog's or cat's eyes yourself, since doing so may cause further damage.
- Do not place any medications not intended for use in the eyes of animals in your pet's eyes; human eye medications or veterinary medications not specifically made for the eyes may contain drugs or inactive ingredients that actually prevent healing and may cause more damage.

### **WHEN TO CALL YOUR VETERINARIAN**

- If you cannot keep a scheduled appointment.
- If you are unable to give medication as directed.

### **SIGNS TO WATCH FOR**

- General signs of illness: lethargy, weakness, decreased appetite, hiding more than usual, aggressiveness, and other behavior changes.

- Signs of problems with the eye(s): increased tear production, squinting, red eyes, swollen eyelids, itching/pawing the eyes, drainage of white or greenish material from the eye, and acting in pain or defensive when the area around the eye is touched.

### **ROUTINE FOLLOW-UP**

- Follow-up visits will be scheduled to assess progress and to determine if medication should be changed or the dosage adjusted.

*Other information that may be useful: "How-To" Client Education Sheet:*

- How to Administer Eye Medications

Practice Stamp or Name & Address

Also available in Spanish.