

# Corneal Ulcers and Erosions

One of the classical eye problems veterinarians must address is THE RED EYE. The red eye may or may not be obviously painful but when it is, the pet can be observed squinting or even rubbing at his/her face. The conjunctiva (the pink moist tissue lining the inner surfaces of the eyelids), becomes an angry red and can even swell or puff up around the eye (a condition called “chemosis”). In short, it is clear when the eye suddenly hurts and that veterinary attention is needed.



A scrape on the eye surface will take up green stain, which fluoresces under a black light.

## THE CORNEAL EROSION

There are several causes of acutely red and painful eyes and one of the most common causes is a wound or scrape to the surface of the eye. The clear surface of the eye is called “the cornea” and because it is the outermost layer of the eye, it is prone to scrapes and tears. Common causes of corneal erosions include:

- Rough contact with plants, thorns, or bushes.
- Scratches from another animal (note: the cat scratch wound can be especially serious as the wound quickly heals over, sealing infection within the eye).
- Self trauma (rubbing or scratching at a painful ear or even at the eye due to some other eye problem can lead to an inadvertent scratch to the eye).
- Chemical irritation (getting shampoo in the eye during a bath).
- Foreign body injury (plant material can get stuck under an eyelid and can scrape the cornea).

A special fluorescent stain is used to confirm the presence of the ulcer or erosion. Normally, water will run smoothly off the surface of the cornea, like rain washing off a windshield. If the cornea is damaged, the stain will stick to the damaged area and show bright green under a fluorescent lamp.

## TREATMENT



### Antibiotics

A routine corneal ulcer or erosion should heal easily. Since the damaged cornea is at risk for becoming infected (or may even already be infected, as demonstrated by a purulent discharge), a topical antibiotic is needed and ideally should be used four times a day or more. Since it is a rare pet owner that can accommodate any medication administration four times a day, we usually have to make do with three times a day but to properly sterilize the eye surface, the antibiotic should be used four times a day. Either drops or ointment can be used depending on the owner’s preference.

### Pain Relief

The second part of treatment is a pain reliever: Atropine 1% drops or ointment. The atropine acts by temporarily paralyzing the pupil’s ability to constrict (the main source of pain is spasm in the pupil). Pupillary dilation is expected when this medication is used and the pet may be reluctant to experience bright sunlight during treatment. Because the tear duct system is connected to the nose and mouth, the patient will taste the above medications and atropine is famous for its bitter taste. Dogs do not seem to mind this unduly but cats will drool shortly after the medication is given in an effort to get the taste out of their mouths. This is a normal reaction to the atropine as is the dilated pupil.



A special collar, called an Elizabethan Collar, may be needed to prevent self trauma of the eye. If you think your pet will rub the eye, it is important to have the pet wear this special collar until the erosion is healed. Be sure to request one if you think your pet needs it and if you are given one be sure the pet wears it for the entire course of treatment.

## **RE-CHECK IN ONE WEEK**

It is important that the eye be stained again after one week of therapy. Most ulcers will have healed in this time but some will require an additional week. If the ulcer has not healed after two weeks, it is no longer considered routine and some special procedures may be needed and/or a veterinary ophthalmologist may be required. If the inflammation associated with the ulcer goes deeper into the eye, the situation becomes more serious; it is very important that the one week re-check not be skipped. If there is any question about the eye's healing progress, the eye should be re-checked sooner.

**IT IS VERY IMPORTANT THAT THE OWNER OBSERVE THE PROGRESSION OF HEALING AT HOME. IF THE EYE IS DOING WELL BUT SUDDENLY BECOMES MORE PAINFUL, IF A DISCHARGE DEVELOPS, OR IF THE EYE SIMPLY DOES NOT LOOK RIGHT, HAVE YOUR VET RECHECK THE PET SOONER THAN THE PLANNED ONE WEEK APPOINTMENT.**

## **SOME SPECIAL ULCER CONDITIONS**

### **INDOLENT ULCER**

Some ulcers form with a small "lip" on the edge of the ulcer. Since the ulcer is trying to heal from the bottom up, the lip interferes and creates an ulcer that seems to never get any smaller. There are several techniques used to remedy this situation: the lip can be rubbed away, special hyaluronan or PSGAG eye drops can be used to strengthen the cornea, or even surgery can be performed. A technique that has gained popularity over recent years is called the "grid keratectomy" where a needle is used to scratch a grid of lines on the cornea. The cornea is then able to heal in grid by grid. Poodles and boxers are notorious for these ulcers but they can occur in any breed.

### **MELTING ULCERS**

When infection is present, the cornea will develop a yellow or tan gooey appearance because the bacteria or fungi causing the infection elaborate enzymes that actually dissolve corneal collagen fibers. The cornea softens and appears to be melting and can actually perforate. Culture and cell sampling for analysis are very helpful in determining the right antimicrobial therapy. In addition to antibiotic drops, the eye will need some sort of medication to inactivate the aforementioned collagen dissolving enzymes. Often this involves taking a blood sample from the patient and actually delivering the patient's own serum as an eye drop.

### **DESCEMETOCOELE (pronounced "Dez-meto-seal")**

Descemet's membrane is the thin attachment of the cornea to the fluid of the eye below. A Descemetocoele is an ulcer that has penetrated through the cornea completely except for the last thin membrane. An eye with a descemetocoele is high risk for rupture and special measures must be taken to protect the eye. Usually surgery is needed. The brachycephalic breeds (Pekingese, pug etc.) are very predisposed to this problem due to their prominent eyes.

**Again, corneal ulcers and erosions usually heal routinely but be alert for any changes that could indicate a more serious turn of events. Be sure self-trauma (rubbing the eye) is prevented and be sure to recheck at the proper time. If anything seems not to be proceeding properly, be sure to contact your veterinarian's office.**



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