



Corneal ulcers in cats and dogs

The front of the eyeball is made up of a thin, transparent membrane known as the cornea. If the cornea is damaged, an ulcer may form.

What causes corneal ulcers?

The most common cause of corneal ulceration is trauma. This may involve the dog or cat poking themselves in the eye on a bush or branch, or another pet scratching the dog or cat in the eye.

Other possible causes include poor tear production, foreign objects in the eye (such as thorns or grass seeds), ingrowing hairs or masses on the eyelids and some hormonal disorders.

How is a cornea ulcer diagnosed?

Corneal ulcers are painful so most pets with an ulcer will hold their eye slightly closed, and may have excessive tear production or want to rub at the eye. Sometimes the ulcer is visible with the naked eye, but often it is necessary to put an orange dye into the eye (fluorescein). The dye will not stick to normal cornea, but stains ulcers bright green.

Your vet will also examine the rest of the eye to check for the underlying causes described above, and to check for complications of corneal ulcers.

How are corneal ulcers treated?

If the ulcer is shallow and there is no underlying cause, the ulcer should heal within a week with appropriate treatment.

Treatment usually involves:

1. Pain relief
2. Lubricating eye drops so that the ulcer does not dry out
3. Broad spectrum antibiotic eye drops to prevent the ulcer from getting infected
4. Buster collar to prevent pets from rubbing at the eye

It is very important to have the ulcer checked every few days to make sure that it is healing properly, as a number of complications can result from a corneal ulcer. Any complications affecting the eye should be addressed promptly to reduce the risk of permanent damage.

What are the potential complications of corneal ulcers?

INFECTION

If ulcers become infected, a condition known as a "melting ulcer" can develop. This occurs when bacteria inside the ulcer start to eat away at the cornea. The cornea becomes white and mushy. A melting ulcer is a true emergency and can lead to loss of the eye if it is not addressed promptly. Treatment involves taking a swab to identify the type of bacteria involved and applying very strong antibiotic drops every 1-2 hours for several days. Antibiotic tablets may also be given by mouth. In many cases, a special type of eye drop is made out of the pet's own blood and also applied every few hours. The blood contains substances that block the bacterial chemicals trying to dissolve the cornea.

DEEP ULCERATION

Most ulcers are very shallow. These ulcers tend to be painful but are not dangerous.

If the ulcer becomes deeper, a crater may be visible in the cornea. A deep ulcer will actually often not be painful at all, because there are no nerve endings in the deep part of the cornea. A deep corneal ulcer is an emergency situation because there is a real risk of the eye bursting, which would lead to irreversible loss of the eye.

A deep ulcer requires prompt surgery to repair the ulcer with a "conjunctival pedicle graft". Tiny scissors are used to cut out a small section of the conjunctiva (just inside the eyelids) and this is stitched over the ulcer as a patch over the gap. The conjunctiva brings its own blood supply to aid healing. This does mean that the pet permanently has a visible pinkish patch on the eyeball and the pet cannot see out of this particular part of the cornea. However, overall, performing a conjunctival graft tends to allow a pet to retain a comfortable eye with reasonable vision, whereas without the procedure, the eye could be lost completely.

INDOLENT ULCER

A normal, shallow ulcer should heal in 5-7 days. However, in some cases, an ulcer remains shallow and does not get infected, but simply does not heal. These ulcers are known as indolent ulcers or SCCEDS (superficial chronic corneal epithelial defects). It is thought that dogs with this type of ulcer have a genetic abnormality that stops the cells of the cornea linking together properly as they attempt to spread across the ulcer and repair it. This can make the ulcer appear to heal temporarily, but because the new corneal cells are not properly fixed in place, the repair is very fragile and rubs off again as the dog blinks.

Indolent ulcers are treated by rubbing away the loose corneal cells (this is usually done with a cotton bud rubbed across the surface of the eye) and then carrying out a minor surgical procedure known as a keratotomy to roughen the corneal surface and give the corneal cells a framework to fix onto. This can be performed using a diamond burr or a needle.

After a keratotomy, most indolent ulcers will heal within 1-2 weeks (success rate of 75%). If the ulcer does not heal, the procedure can be repeated after 3 weeks (success rate is 75% again). If the ulcer still fails to heal, a keratectomy can be performed - this involves actually cutting the section of damaged cornea away completely. The success rate of this procedure is around 100% but it requires a surgeon with particular expertise and specialist equipment and

is significantly more expensive than the keratotomy. For this reason, it tends to be reserved for cases where keratotomy is unsuccessful.

UVEITIS

Sometimes, when the cornea is damaged, a condition known as uveitis can develop. This is a painful spasm of the iris and usually means that the pupil in the damaged eye is smaller than the pupil in the other eye.

Uveitis is usually treated with a drop of atropine into the eye. This should make the pupil enlarge (often to become much larger than the "normal" eye). This enlargement can last for up to a week and is nothing to worry about. Often, a single drop of atropine is sufficient to enlarge the pupil, but sometimes additional doses are required. It is not uncommon for dogs and cats to salivate a lot after having the atropine drops applied, because they do cause a temporary bitter taste in the mouth.

What does a healing corneal ulcer look like?

Normally, the cornea is transparent and does not contain any blood vessels. However, as an ulcer heals, a border of red blood vessels can be seen developing from the edge of the cornea, bringing oxygen and nutrients to help the ulcer heal. Pet owners can often worry that this is a sign of something going wrong, but actually it is a very healthy sign. Once the ulcer has healed, the blood vessels will gradually fade away. A faint white scar usually remains, although this should become fainter over time.

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