

Keratoconjunctivitis Sicca

ABOUT THE DIAGNOSIS

Keratoconjunctivitis sicca (KCS), also known as “dry eye,” is a disease that results when the eye does not produce enough tears. Glands lining the eyelids normally produce a tear film that coats the eye. If these glands are damaged or have reduced function, there are not enough tears to keep the eye moist. The cornea (the clear “window” that makes up the front of the eye) and the conjunctiva (the thin pink membrane covering the white of the eye) become dry and inflamed. KCS is a chronic problem that usually remains for the rest of an animal’s life. If not treated correctly, KCS can result in discomfort and pain and, if not recognized and treated, it can lead to blindness.

KCS affects dogs more often than cats. The disease happens disproportionately often in certain breeds such as the cocker spaniel, shih tzu, and pug. It also can be found occurring at the same time as generalized disorders such as hormone imbalances (hypothyroidism) or generalized adverse reactions to certain medications such as sulfa-type antibiotics. Other recognized causes of KCS include trauma to the tear glands or chronic infections of the eye. If your dog has had a prolapsed third eyelid (cherry eye), an improper repair procedure (removal of the gland altogether) can sometimes cause reduced tear formation months or years later.

The most common cause of KCS is immune-mediated. This means that the dog’s own immune system “mistakenly” attacks the tear-producing glands and reduces their function. When KCS occurs, both eyes are usually affected. The eyes try to make up for the loss of moisture by producing more mucus, which appears as a green or yellow thick discharge from the eyes. Other symptoms include redness, squinting, discomfort (rubbing or pawing at the face), cloudiness of the cornea, and signs of vision loss such as bumping into objects. If KCS is allowed to progress without treatment, the cornea will become thickened and pigmented because of constant irritation. Eventually the normally transparent cornea takes on a leathery, opaque appearance, and the dog is permanently blind.

To make a diagnosis of KCS, your veterinarian will perform a complete physical and eye exam. Schirmer’s tear test is a simple but essential test that measures tear production. For this test, a small strip of paper is held against one eye, between the dog’s eyelids. The Schirmer’s tear test strip wicks up the tears produced. The extent of moistening of the strip during one minute’s time is measured to see if tear production is adequate. Another ophthalmic (eye) test is the application of a fluorescent green dye (fluorescein) to the eye to detect corneal scratches or corneal ulcers. Ulceration of the cornea occurs often with KCS because a dry eye is easily damaged, and if a corneal ulcer is present, treatment must be given to help the cornea heal. A swab of the eye may be taken to check for abnormal bacteria, fungi, or viruses. Blood tests may also be necessary, to reveal systemic problems such as hypothyroidism.

LIVING WITH THE DIAGNOSIS

Keratoconjunctivitis sicca is a chronic disease, meaning that it continues indefinitely and often is present for the rest of a dog’s or cat’s life. In most cases, there is no cure. It is progressive and will result in blindness if not detected and treated. However, with medication given at home, the majority of dogs with KCS maintain normal vision, have comfortable eyes, and the discharge and pain of the affected eye(s) resolve completely. In other words, when it

is identified early and treated appropriately, this vision-threatening disease can be kept entirely at bay and affected dogs and cats can enjoy a normal quality of life and normal life expectancy.

Specific treatments can involve applying several types of eye drops or ointment (see below) and having to clean the discharge from the eyes daily. This mucoid discharge is produced in an attempt to lubricate the eyes in the face of reduced tear production, but it can trap bacteria and is uncomfortable. Applying a lukewarm, damp facecloth to the haired surface around the eyes and face to soften the thick sticky mucus or using an eye irrigating solution may help loosen ocular mucus and bring comfort. Cautiously trimming the hair around the eyes in the case of a long-haired dog will also make this task easier.

Because this is a lifelong ailment, dogs with KCS will need to see a veterinarian on a regular basis to monitor whether or not the treatment is effective and to watch for changes in the eyes. It is important to be attentive to any signs that the disease is worsening, such as increased redness or discomfort or signs of vision loss such as bumping into furniture.

TREATMENT

The treatment plan involves cleaning the discharge from the eyes and applying ointment or drops. The most commonly used medication is cyclosporine, an immune suppressing drug, to slow the immune-mediated attack on the tear-producing (lacrimal) glands. If an eye infection or ulcer is present, antibiotic ointments or drops will also be needed. Note that any of these medications should *not* contain cortisone or cortisone-like ingredients, since these make corneal damage worse.

Replacing the tear film with an artificial tear product is also helpful. The medicated ointments usually need to be applied every 12 to 24 hours, but artificial tears need to be used often through the day, typically every 6 hours or so. Your veterinarian can help you determine whether artificial tears are necessary. A follow-up visit shows whether tear production has improved thanks to treatment, which it often does. In such cases, cyclosporine treatment continues, but other ointments or drops can be reduced or stopped.

There is also a surgical procedure performed by veterinary eye specialists, which moves a salivary gland duct so that it drains saliva onto the surface of the eye for constant lubrication. This would only be considered if medications did not work, which is uncommon.

DOs

- Follow your veterinarian’s instructions regarding medication and recheck appointments. If you are applying many different medications to the eye(s) several times per day, it may be helpful to prepare a chart to keep track of treatments.
- Note any changes in eye color, redness, corneal cloudiness, or comfort level and contact your veterinarian if these occur.
- Make sure any veterinarian seeing your dog knows of his or her condition.
- If the treatment schedule involves more than one medication and you need to apply drops and ointment at the same time, apply the drops first and wait at least 5 minutes between medications. Otherwise, the ointment will be diluted by the drops, or will simply be blinked off the surface of the eye and serve no purpose at all.

- Try to clean discharge from the eyes using warm moist compresses to soften the material. An irrigating solution, available at any drug store, can also be helpful.
- Trim any long hair on your dog's face around the eyes to make cleaning easier.
- Realize that with a good response to treatment, normal tear production can return, but that maintaining this tear production requires ongoing daily treatment of the affected eye(s).

DON'Ts

- Do not ignore any changes in your dog's eyes. Some complications can occur quickly, such as corneal ulcers, and mild changes such as reddening of the whites of the eyes may be the first clue that allow you to prevent these from worsening.
- Do not stop administering medications prescribed by your veterinarian just because the situation looks better—a relapse can occur easily if medications are decreased or stopped.

WHEN TO CALL YOUR VETERINARIAN

- If you are unable to give any medication prescribed as directed.
- If you note any worsening of signs or symptoms as listed below.

SIGNS TO WATCH FOR

- If your dog has not been diagnosed with KCS, watch for these signs, especially in the breeds predisposed to KCS (cocker spaniel, shih tzu). If you already have a diagnosis, watch for these symptoms as a warning of possible worsening of the condition:
 - Redness, squinting of the eyes.
 - Recurrent (day after day) thick, yellow or green discharge accumulating in the corners of the eyes or even directly on the surface of the eyes, often worse in the morning.
 - Loss of vision.
- Note that a small amount (pinhead-size) of black discharge is normally formed every day in the corner of the eye of most healthy dogs. This is not a concern; rather, if the discharge is yellow or green, moist, matting the eyelashes, or occurring at

the same time as the symptoms mentioned just above, KCS may be present, and a visit to the veterinarian is warranted.

ROUTINE FOLLOW-UP

- Follow up appointments will be necessary after KCS is confirmed. At first, these may be frequent, in order to make sure the medications are working and the disease progression is stabilized.
- The frequency of the appointments will depend on the severity of the disease and the response to therapy.

ADDITIONAL INFORMATION

- Several other disease processes can have the same signs as keratoconjunctivitis sicca. Inflammation of the cornea, sclera (whites of the eye), conjunctiva, and tear glands can happen for a variety of reasons. Other conditions (pannus and pigmentary keratitis) result in abnormal pigment forming on the sclera and cornea, but tear production will be normal. It is important to have specific tests done to identify whether KCS or another problem altogether is the cause of the eye symptoms.

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

- How to Administer Eye Medications

