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KERATOCONJUNCTIVITIS SICCA (KCS; ‘DRY-EYE’)

What is KCS?

Keratoconjunctivitis sicca is an eye condition in which there is a deficiency of tears on the eye, resulting in drying of the surface of the eye. This results in inflammation of the exposed tissues of the eye – the cornea (the normally clear outer window of the eye) and the conjunctiva (the pink tissue around the eye).

What breeds are usually affected?

KCS can affect any breed of dog. However, certain breeds feature more prominently and these have a breed predisposition for KCS. Such breeds include:

- West Highland White Terrier
- Cavalier King Charles Spaniel
- Shih tzu
- English Bulldog
- Lhaso apso

What causes KCS?

Tears are produced by the glands around the eye, and they are essential to keep the eye healthy by keeping it moist and lubricated. The lacrimal gland is above the eye and produces much of the tears. The nictitans gland is at the base of the third eyelid, and it produces a significant quantity of tears also. With KCS, these glands are not producing sufficient tears to keep the eye healthy. There are several possible causes, including:

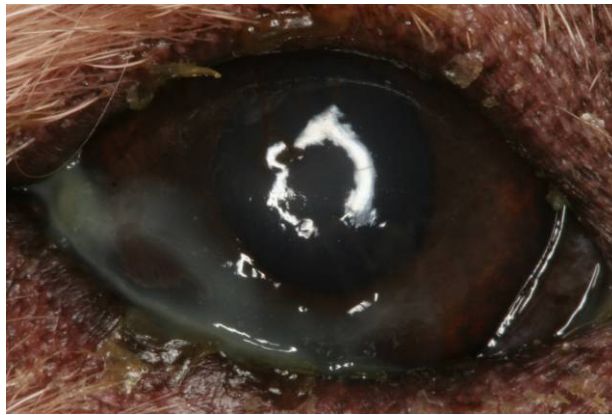
1. Immune-mediated destruction of the glands: this is the cause in the majority of cases, where the body’s immune system attacks itself, in this case destroying the tear-producing glands
2. Trauma – damage to the nerves to the glands can stop tear production
3. Removal of a tear gland – for example if the third eyelid gland is removed in ‘Cherry Eye’ surgery
4. Present at birth – occasionally an animal may be born with very small lacrimal glands that produce little tears
5. Chronic conjunctivitis – if the conjunctiva is inflamed for a long time, it can scar over the ducts which are conveying the tears from the glands where they are produced to the eye

What are the signs of KCS?

The signs depend on whether the condition has just occurred, or if it has been present for some time, in which case the symptoms will be more severe.

Varying combinations of the following may be present:

- dry, tacky discharge which may be grey, yellow or green in colour
- dry, crusty discharge on the eyelids
- eye held half shut or eyelids stuck together, with some spasming of the eyelids
- red eye with inflamed conjunctiva
- dry, lack-lustre appearance to the cornea
- colour change to the cornea, with some white or black areas
- dry nostril on the affected side
- ulcers may occur on the cornea which your vet may diagnose, and these can get deeper and threaten to rupture the eye



How is KCS diagnosed?

The signs listed above will alert you or your vet to the possibility that your pet has KCS. Your vet will do a test called a Schirmer Tear Test. This involves placing a Schirmer test strip of paper hooked over your pet's eyelid for one minute. The amount of wetness of this strip is measured after one minute. From this result, your vet will know if your pet has KCS, is borderline for KCS or does not have KCS. The test is also used to monitor the response to treatment.

How is KCS treated?

Treatment of KCS is usually medical, although a surgical option exists for those cases which do not respond to medical treatment. No matter what treatment is chosen, the eyes need very regular bathing to clear away the discharge which builds up very quickly. KCS can only be managed, not cured, and therefore treatment needs to be continued for the life of the animal.



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Medical treatment:

Artificial tears

As tears are in short supply, these can be replaced by an array of artificial tear drops, gels or ointments. Unfortunately they do not last very long on the surface of the eye and need to be administered very frequently, which many owners cannot manage. However, they do help soothe the eye and can be used with other medications without problems.

Cyclosporin (Optimmune)

This drug stimulates the glands to produce tears, protects the gland against the body's immune system from attacking it and it is anti-inflammatory. It is available as an ointment called Optimmune. Occasionally if Optimmune does not work, your vet can formulate cyclosporine in a stronger concentration. The eye can take up to six weeks to respond to this drug. Therefore, if treatment does not appear to be working initially, it is still worth persisting with the treatment unless the eyes are very sore as a result or if your vet tells you to stop.

Tacrolimus

Tacrolimus is a relatively new powerful immunosuppressant drug which may be more successful in treating KCS in cases where Optimmune or stronger cyclosporine have failed. Unfortunately it is only available as a human skin ointment in this country, and therefore the treatment would have to be discussed in detail before it could be recommended.

Steroid drops

Occasionally the eyes are so inflamed that your vet will prescribe steroid drops. These drops are effective at reducing the redness of the eye. The only concern is that eyes with KCS are prone to developing corneal ulcers, and steroids can prevent corneal ulcers from healing and allow them to progress to be very deep ulcers, with the possibility of rupture of the eye.

Antibiotic drops

Your vet may prescribe antibiotic drops initially as infection can be present at the same time as KCS. However, these are usually given short-term.

Surgical treatment:

Dogs that have very exposed eyes (for example Shih tzus, some Cavalier King Charles Spaniels, Pugs etc) may benefit from having the size of their eyelid openings reduced by surgery.

Corneal ulcers may need to be surgically repaired when they are deep, suturing some graft tissue over the ulcer to allow it to heal.

In cases which do not respond to treatment despite persisting with it for two months, a surgical procedure may provide moisture to the eye, called parotid duct transposition surgery. The parotid salivary gland is located at the base of the ear, and eating stimulates it to secrete saliva along its duct into the mouth. The duct can be re-routed so



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that the gland empties its saliva into the eye instead of into the mouth. Therefore the eye gets moist every time the animal salivates. This operation is very successful but only in the right cases. Saliva is not exactly the same as tears, and white minerals can build up on the eye after a while. To control this, another drop may have to be given.

DVD:

There is a DVD which explains KCS and Optimmune treatment which has been made by the manufacturers of Optimmune. If you would like to borrow a copy of the DVD, please let Crescent Veterinary Clinic know and this can be provided for you.