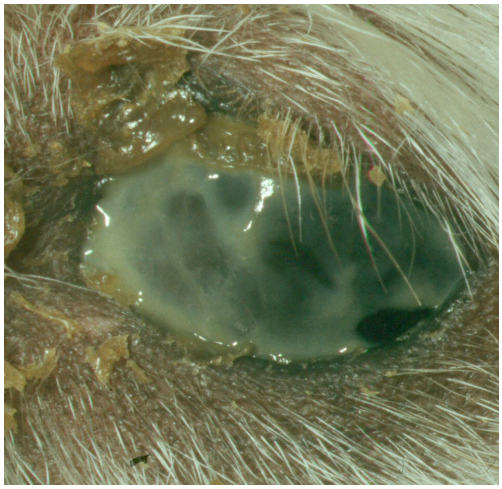
Dry Eye

Keratoconjunctivitis sicca (KCS), or dry eye, is a common disease in the dog population, and is a leading cause of conjunctival and corneal disease in the dog. Not only does dry eye lead to permanent eye irritation, but the long term effects on the cornea will lead to permanent blindness.

Although some breeds such as West Highland White Terriers and Cocker Spaniels appear predisposed, any dog can be affected by dry eye. The earliest symptom of KCS is conjunctivitis. This is inflammation of the membrane around the eye, leading to redness and ocular discharge. Typically in dry eye the discharge is seen as mucous threads that are often adherent to the cornea (the eye's clear window). Owners of affected animals often report how often they need to clean their pet's eyes.

Since the conjunctivitis is caused by dryness, in the early stages the condition seems to respond to any of the topical antibiotic or anti-inflammatory drops that may be prescribed, simply because these drops are providing lubrication to the eye. However, when the course of drops is finished, the conjunctivitis quickly recurs. A history of chronic or recurrent conjunctivitis is characteristic of dry eye.



Severe dry eye in a West Highland White Terrier

Without proper diagnosis and treatment, the conjunctivitis progresses to include keratitis, which is inflammation of the cornea. The cornea loses its natural shine and becomes very dull and lack-lustre in appearance. This is accompanied by invasion of the clear cornea by blood vessels, scarring and pigmentation, leading to reduced vision and eventually blindness.

There are many causes of dry eye in the dog. Without doubt, the leading cause of bilateral dry eye in dogs is autoimmune disease. This is similar to autoimmune disease in people, such as rheumatoid arthritis and some thyroid conditions, in which the patient's own immune system begins to attack their own tissues. In canine dry eye the tear-producing gland (the lacrimal gland) is the target tissue, leading to destruction of the gland and reduced tear production. This condition affects both eyes simultaneously. The main significance of autoimmune disease is that it can be controlled but not cured, and thus life long treatment is required. Removing the animal from treatment will allow a recurrence of disease and relapse of the symptoms. However, with proper diagnosis and treatment, this disease can be well controlled and blindness can be prevented.

Although auto-immune disease is the most common cause of bilateral dry eye, there are many other causes, and correct identification of the cause of the dry eye is of paramount importance to correct treatment. Some infectious diseases, such as distemper, can lead to damage of the lacrimal gland, and occasionally certain drugs can also damage the gland. It is also possible for the nerve supply to this gland to be damaged by trauma to the side of the face or the eye, or sometimes by inner ear infections leading to a unilateral (i.e affecting one side only) dry eye. On other occasions, dry eye can be caused by surgery on the third eyelid, such as removing the third eyelid gland in cases of "Cherry Eye." It is thus vitally important that Cherry Eyes are treated by replacing the gland and not removing it. Each of these different causes may require specific treatment, so accurate identification of the cause of the condition is very important.

The diagnosis of canine dry eye is made on the history of chronic or recurrent conjunctivitis, the presence of a typical ocular discharge, the presence of conjunctivitis and keratitis (inflammation of the cornea), and by performing a Schirmer tear test (STT).

The STT is a simple and painless procedure in which strips of absorbent paper are placed into the eye for one minute and the amount of tears that track up the paper are then measured.
This is very simple to perform and is well tolerated by the patient.

A STT being performed

There are various treatment options available for dry eye. The simple use of artificial tears can be beneficial in the early stages. However, to provide good lubrication and prevent progression of the disease these lubricants need to be applied frequently throughout the day. Surgery is also available to increase lubrication to the eye by transposing a salivary duct into the eye to allow saliva to lubricate the eye (parotid duct transposition). Antibiotic drops and anti-inflammatory drops may help treat secondary infection or inflammation, and also provide some lubrication, but do nothing to treat the underlying reduced tear production.

In bilateral autoimmune dry eye, the only drugs that truly address the underlying cause are immunosuppressant drugs such as cyclosporine and tacrolimus. Cyclosporine is available as a licensed veterinary product called Optimmune®. These drugs are immunosuppressive agents that are applied to the eyes twice daily. The active agent reaches the tear-producing gland and reverses the immune-mediated destruction, leading to regeneration of the gland and improved tear production. Very little of the drug reaches the rest of the body, so potential side effects of the treatment are unlikely to be a problem.

Early diagnosis is essential for treatment to be effective, as dogs with severely reduced tear production generally do not respond as well as those detected early in the disease process. Treatment is required for the life of the patient. The great benefit of these immunosuppressive drugs over all other treatment options is that they restore the animal's own tears, which are an essential component of the ocular surface's lubrication, nutrition and defense against infection. Animals with correctly diagnosed dry eye receiving the appropriate treatment can retain normal comfort and vision throughout their lives.