



An Overview of Eye Disorders in Frenchies Part Two



In the last issue we discussed the anatomy of the eye, common presentations of ocular disease, and diagnostic tests commonly used to differentiate eye problems. The specific disorders of juvenile cataracts and glaucoma were discussed in detail. Key points from the last article include the following: different eye disorders often present with similar signs, and never ignore a red, weeping, cloudy or squinting eye. We also noted that Frenchies tend to have bulging eyes and are prone to corneal and conjunctiva disease. They also tend to have a slightly elevated ocular pressure. Lastly we covered juvenile cataracts and glaucoma. Juvenile cataracts are the primary inherited disorder of Frenchies. French Bulldogs develop glaucoma, which is usually secondary to another disease process. Glaucoma is a serious condition and is considered an emergency. I like to refer these patients to a veterinary ophthalmologist.

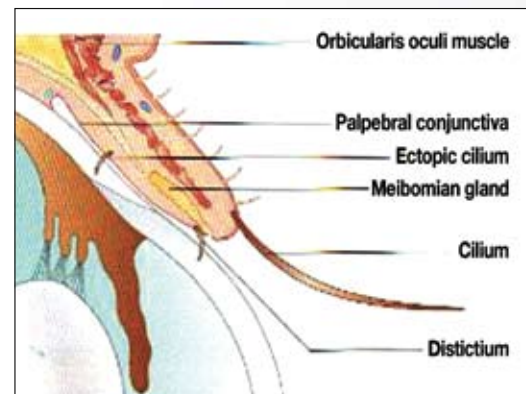
In this issue we will cover common problems with the surface of the eye (cornea) and the periocular structures (nasolacrimal system, conjunctiva, and eyelids).

Prolapsed nictitans gland is a problem seen in younger dogs, and is most common in the brachycephalic breeds (e.g. Bulldogs, Pekineses), Cocker, and larger mastiff-type breeds. It may be present in one eye but often will eventually occur in the other eye. There may be some genetic predisposition to the problem, (e.g. the brachycephalic breeds have a shallow orbit) but a direct inherited link has not been proven. The fibers, which attach the gland to the bony orbit become loose and stretch, allowing the gland to protrude from under the lower lid. Debris can get caught in the pocket under this prolapsed gland, so in a short period of time the gland and conjunctiva can become irritated and infected. Surgical reattachment of the gland is curative. It **is never recommended to remove this gland** since it produces one-third of the tears!

Entropion is a rolling in of the lid margin, compared to ectropion, which is a rolling out of the lid margin. Entropion allows fine eyelid hairs to rub on the surface of the eye and cause irritation, tearing and pain. In French Bulldogs entropion usually occurs on the inner (medial) lower lid margin. Treatment for primary entropion is surgery. A crescent-shaped wedge of skin is removed just underneath where the eyelid is rolling inward, which

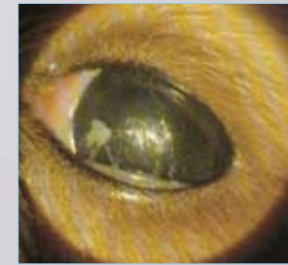
results in proper anatomical position of the lid margin. To determine how much tissue to excise can be tricky. I always look at my patient when they are awake, with a topical ocular anesthetic. The eyes should not be painful and squinting when making the assessment as to what size wedge needs to be removed. If too much skin is removed, ectropion could occur, and if too little – a second surgery will be necessary. There are cases of chronic severe ocular pain causing such squinting of the eye that **secondary entropion occurs**. Treating the pain and underlying condition will cure this type of entropion.

Abnormal Eyelashes



Conjunctivitis is redness of the membranous tissue which lines the eyelid and exposed sclera. The conjunctiva prevents drying of the eye, allows eyelid mobility and provides a barrier to microorganisms and foreign bodies. For example, if a piece of plant material (e.g. grass seed) gets in the eye, it often gets lodged in the conjunctiva, thereby protecting the eye. Dogs with conjunctivitis will present with red, swollen conjunctiva and ocular discharge. One or both eyes can be affected and they may be itchy. In primary conjunctivitis the cornea is normal. Primary conjunctivitis is from infections (bacterial, viral), allergies or from irritants (chemical, foreign body). Diagnosis involves a close eye exam with a magnified lens and topical anesthesia. Extensive examination of the conjunctiva to look for a foreign body, and cytology of the affected tissue will help rule out a foreign body or infection. It is important to rule out secondary conjunctivitis, in which the conjunctiva is inflamed, because of a problem with the cornea or lids. Treatment will often be empirical and includes topical antibiotic drops. If there is an infection, improvement should be seen in 48 hours. If the eye is still irritated, consider a work up for allergic conjunctivitis (allergy testing) and treatment with topical steroid drops or zaditor, a topical antihistamine. **BE SURE to rule out a corneal ulcer or conjunctival foreign body before steroids are used.** Steroids suppress immune function and can make a bacterial or viral infection much worse.

Keratoconjunctivitis Sicca (KCS) is dry eye, and can lead to significant corneal disease, even partial blindness, if not treated. KCS is most commonly

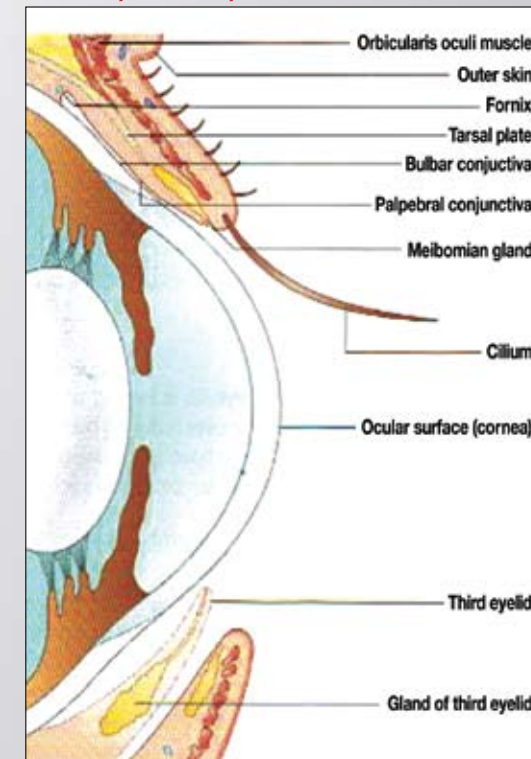


caused by an immune condition damaging the lacrimal gland. Trauma or inflammation of the lacrimal gland, drug toxicity (e.g. sulfa medication), hypothyroidism, and congenital aplasia of the gland are some of the other causes of KCS. Dry eye is defined by insufficient

tear production. The conjunctiva and sclera are usually red, with a thick, mucous discharge. The cornea may be pigmented and scarred or even ulcerated in chronic cases. Patients with KCS are often in pain. Diagnosis is confirmed with a Schirmer tear test, a paper strip which measures tear production. It is possible for Frenchies to have a normal test and still have dry eye; the tears may not be adequately covering the surface of a specially large and exposed globe. The eyes should always be stained with fluorescein to rule out secondary corneal ulceration. Treatment includes topical antibiotic ointment or drops (I prefer drops) to treat a secondary bacterial infection, and topical medication to stimulate tear production (cyclosporine or tacrolimus). In the rare, extreme cases of dry eye, surgical implantation of the salivary duct may be required to moisten the eye.

Chronic epiphora is defined as tear overflow and these patients have wet eyes with brown tear stain of the fur and no discomfort. The cause of tear overflow can be from a misshapen tear duct or duct opening (puncta).

Anatomy of the Eyelid



This is the duct which normally drains tears into the nasal passage. This congenital epiphora is not that common in Frenchies; Poodles and Spaniels are noted for it. Frenchies more commonly have wet eyes from excessive tear production, usually from irritation to the eye. These patients may be in pain. Nasal folds or eyelashes rubbing the cornea, an inverted eyelid (entropion), or a history of previous eye infection are common causes of excessive tear production. Excessive tear production is also noted in patients that are painful (for example, a corneal ulcer). Diagnosis includes a magnified exam of the eye and lids, corneal stain, Schirmer tear testing and nasolacrimal duct flushing. Surgery may be indicated to repair misshapen ducts, to repair entropion, or to remove ectopic (misplaced) eyelashes.

Keratitis is an inflamed or irritated cornea. Presenting signs are similar to conjunctivitis, except the conjunctiva is usually not swollen, unless the dog has been rubbing the eye. Brachycephalic breeds like the French Bulldog are prone to corneal lesions for a number of reasons. They have globes which protrude more from the socket, exposing the cornea to external irritants; they often have eyelash hairs, face folds or lower lid entropion which can rub on the cornea; and they are more prone to dry eye which can leave the corneal surface unprotected. This chronic irritation can lead to intermittent superficial corneal ulceration. Low grade, intermittent ulceration may have subtle signs of tearing and redness which may go unnoticed. The dog may be minimally painful. Over days to weeks the eye responds to this chronic inflammation with neovascularization. This is when blood vessels from the sclera travel over the surface of the cornea in an attempt to heal it. Over weeks to months, permanent corneal pigmentation will develop, called **brachycephalic pigmentary keratitis**. Pigment cells from the margin of the eye (the limbus) migrate onto the eye with the blood vessels, depositing a layer of dark brown pigment. This corneal pigmentation will eventually obscure vision and is

not reversible. Treatment involves determining the cause of the chronic irritation and treating it.

Corneal ulceration goes along with keratitis, as a sequel to chronic irritation of the surface of the eye. Frenchies, with their nosy and playful personalities, are prone to traumatic eye ulcers. A corneal ulcer by definition is an abrasion of the outer surface cells (the epithelium) of the cornea. Ulcers are classified as superficial or deep. Deeper ulcers extend into the protein layer or stroma of the cornea. If the ulcer is more than 4mm. deep, the defect reaches an elastic acellular membrane called **Descemet's membrane**. Just below this membrane is the inner layer of cells called the **endothelium**. Once an ulcer is close to reaching Descemet's membrane, there is risk of eye rupture. These patients are candidates for an emergency surgery called a third eyelid flap. This is a temporary cover over the globe to protect the cornea.



Fortunately, most ulcers are superficial and uncomplicated and heal within a week. In brachycephalic breeds some of these ulcers do not heal well and persist for weeks to months. These **indolent ulcers** usually have an underlying cause, as mentioned above for keratitis. Resolution of these indolent ulcers can be difficult. Any underlying eyelid defect, nasal fold irritation, KCS or infection must be treated in order for the ulcer to heal. In addition the dogs cannot be allowed to rub the eye. Many of these ulcers need a grid keratotomy to help stimulate healing of the cornea. This is a simple procedure done with topical ocular anesthesia. Topical antibiotic drops (I prefer drops to ointments – they are less irritating), topical serum, and topical lubricating drops 2-3 times daily and an e-collar will usually allow these ulcers to heal. If left untreated the ulcers can become larger, deeper, and lead to severe pigmentary keratitis (partial blindness), or rupture of the globe, requiring enucleation of the eye).

The French Bulldog owner needs to always be vigilant for any signs of ocular pain, inflammation or tearing. Any eye problem I always consider an emergency. Be sure to pursue a second opinion from a board-certified ophthalmologist if there is an ulcer which isn't healing, if there is glaucoma, severe KCS, or uveitis. There is so much information about eyes I have not covered in this article, but hopefully you have the basics to understand when a problem occurs and how to best care for it! Your eye emergency kit should always include eye saline, sterile gauze pads, artificial tear drops (I like gentalube drops), and possibly an antibiotic ointment or eye drops. 🐾

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