

## Information on some of the most common eye disease/disorders

### Cataracts

What is a cataract? The lens is a unique living ocular tissue that is usually clear or transparent and is referred to as 'the crystalline lens' by doctors. The normal lens focuses light on the light-sensitive nervous tissue located in the back of the eye which is known as the retina. A cataract is an opacity (or cloudy change) of the lens that scatters light and looks gray or white. The word cataract literally means "to break down." The word applies to waterfalls and rapids as well as to the lens. Cataractous changes of the lens may appear as small insignificant dots, microscopic blisters, a cracked-glass appearance, a diffuse haze, a "pearl-like" sheen, white streaks or a completely white lens. The cataract usually starts as small dots or microscopic blisters and progresses to involve larger areas of the lens. The rate of progression is difficult to predict and may be very slow or quite rapid. At times the cataract appears to worsen overnight. Cataracts may develop in one or in both eyes. If a large portion of the lens becomes white, it prevents formed images from reaching the retina and blurred vision results. When a light is shined into the eye of a patient with a complete cataract, the patient only sees a white light and no images can be seen. Visit: <http://www.eyevet.info/ataract.html> for more information on cataracts.

### Glaucoma

Glaucoma is the elevation of pressure inside the eye, known as intraocular pressure (IOP) beyond a specific point at which vision is compromised or is no longer possible. Glaucoma is a frequent cause of blindness in humans and animals.

To understand glaucoma, it is necessary to understand how the normal flow of intraocular fluid maintains normal intraocular pressure. The fluid inside the eye is called the aqueous humor which is produced in the ciliary body which is located behind the iris. This fluid flows through the pupil and drains from the eye through a sieve-like network located at the junction of the cornea and the iris called the iridocorneal cleft or drainage angle. The aqueous humor is produced and drains from the eye at approximately the same rate, resulting in a stable pressure inside the eye of 15 to 20 mmHg (millimetres of mercury). Glaucoma occurs as a consequence of inadequate outflow of aqueous humor and a subsequent buildup of pressure inside the eye. The resulting high pressure damages the optic nerve and results in blindness. For more information on glaucoma visit:

<http://www.eyevet.info/glaucoma.html>

### Diabetes

Diabetic dogs can live healthy lives. Unfortunately, a common complication of diabetes in dogs is cataracts (cloudy lenses). In fact, 75% of dogs develop cataracts and blindness in both eyes within one year of being diagnosed with diabetes. The cataracts develop very quickly—sometimes overnight! If untreated, the cataracts cause intraocular inflammation called Lens-Induced Uveitis (LIU) that harms the eyes by causing glaucoma (increased intraocular pressure). If the LIU is uncontrolled and glaucoma develops, cataract surgery might not be possible. Glaucoma causes a chronic headache (similar to a migraine). Once it is apparent that cataracts are forming, it is important to have your pet examined by a veterinary ophthalmologist as soon as possible. For more information on glaucoma visit:

<http://www.animaleyecare.net/diseases/CataractsBlindnessDiabeticDogs.htm>

### PRA. (also known as PRD)

Progressive retinal degeneration (PRD) is also known as progressive retinal atrophy (PRA) and refers to retinal diseases that cause blindness. Some breeds have blindness by abnormal development of the retina and this is called dysplasia. Other breeds have a slowly progressive degeneration or death of the retinal tissue and this is degeneration. These two types of diseases affect many breeds. In general these diseases are thought to be inherited but inherited differently

in each breed. In all animals with PRD the outcome, age of the patient and what the veterinary ophthalmologist sees are the basis for the classification of exactly what type of condition the patient has. Different breeds of dogs have variations in the age the problem starts and speed with which the blindness develops. The condition of PRD has been seen in almost every registered breed and in mixed breed dogs as well. This same condition occurs in humans and is known as retinitis pigmentosa. For more information on P.R.A. visit: <http://www.eyevet.info/prd.html>

### **SARDS (Sudden Acquired Retinal Degeneration Syndrome)**

Veterinary ophthalmologists are aware of a vision loss syndrome \* with changes in appetite and water consumption in dogs. This condition, known as sudden acquired retinal degeneration syndrome (SARDS), may strike any pure or mixed breed of dog. These pets are generally between the ages of 7 and 14 years of age, with females predominating over males. Research indicates these pets have total destruction of the visual cell layer (the rods and cones) of the retina with subsequent blindness. Visit: <http://www.eyevet.info/sards.html> for more information on SARDS.

### **Corneal Ulcer**

A corneal ulcer is a break in the outer layer or epithelium of the cornea. Uncomplicated ulcers, although initially painful, should heal in 3 to 4 days with appropriate treatment. Those ulcers that persist longer than this period of time often prove to be complicated ulcers. For more information on Corneal Ulcer visit: [http://www.eyevet.info/corneal\\_ulcer.html](http://www.eyevet.info/corneal_ulcer.html)

### **Corneal Dystrophy**

In most breeds, corneal dystrophy appears as gray-white, crystalline or metallic opacities in the center of the cornea or close to the periphery. These opacities may affect any layer of the cornea, the epithelium (outer layer), the stroma (the thick, middle layer), or the endothelium (the inner layer). The opacities are usually oval or round and are sometimes doughnut-shaped. For more information on Corneal Dystrophy visit: [http://www.eyevet.info/corneal\\_dystrophy.html](http://www.eyevet.info/corneal_dystrophy.html)

### **Retinal Dysplasia**

Retinal dysplasia is a type of retinal malformation. The word "dysplasia" simply means "a defective development of an organ or structure". Retinal dysplasia occurs when the 2 primitive layers of the retina do not form together properly. Mild dysplasia manifests as folds in the inner retinal layer. These are called "retinal folds". In "geographic" retinal dysplasia there are larger areas of defective retinal development. In the severe form of dysplasia, the 2 retinal layers do not come together at all and retinal detachment occurs. Retinal dysplasia is not progressive. It is a congenital defect and animals are born with as severe a condition as they will ever get. For more information on Retinal Dysplasia visit: [http://www.eyevet.info/ret\\_dysplasia.html](http://www.eyevet.info/ret_dysplasia.html)

### **Dry Eye (KCS)**

Keratoconjunctivitis sicca (KCS) or "dry eye" describes the changes in the eye which result from lack of tear production. To understand "dry eye" it is helpful to know how tears help keep the cornea healthy. The cornea is the optically clear portion of the eye that allows entry of light into the eye. Like all living tissue, the cornea requires a supply of oxygen and energy to remain healthy. Oxygen and nutrients are supplied to most tissues by the blood that moves through the area in blood vessels. The healthy cornea has no blood vessels, if it did it wouldn't be clear, so the oxygen and nutrients are supplied through the three-layered 'tear film.' For more information on Dry Eye visit: <http://www.eyevet.info/kcs.html>

## Cherry Eye

A prolapsed gland of the third eyelid (or "cherry eye") is thought to be \* with a laxity of a small ligament which holds the gland in a normal position behind the third eyelid. The gland is a tear producing gland, and produces about 30% of the tears, while the main orbital lacrimal gland produces the rest. Dogs that have had the gland of the third eyelid surgically excised have a greater risk of development of a dry eye (KCS ) than dogs with intact third eyelid glands. It is thought that should the main orbital lacrimal gland be damaged later in life that there is no "back-up" for tear production. Dry eye is a serious eye condition that is difficult to treat, and requires lifelong treatment which may be costly. If the chance of the development of a dry eye can be lessened by tacking the gland back into a normal position so that it stays functional, then this is the most desirable way of handling "cherry eye". For more information on Cherry Eye visit: <http://www.eyevet.info/cherry.html>

## Lens Luxation

The lens can either become loosened (subluxated) or completely detached (luxated). When the lens completely tears free of its zonular attachments and falls forward into the anterior chamber, we call this an anterior luxation. It is also possible for the lens to luxate posteriorly into the vitreous body. Since lens luxation may cause glaucoma, and since glaucoma may cause lens luxation it is important to determine which disease came first. When lens luxation occurs secondarily to glaucoma, it usually occurs late in the disease once the elevated pressure within the eye has caused the sclera to stretch, and the zonular ligaments to tear. This does not occur until long after vision has been lost. In such a case, attention must be given to resolving the pain \* with glaucoma. For more information on Lens Luxation visit: <http://www.eyevet.info/luxlens.html>

## Lethal White - A Genetic Defect that is Preventable...

A lethal white is a term used to refer to the more politically correct double merle (MM) gene, or homozygous genetic defect. In people terms: A merle bred to a merle will always produce a lethal white. At least one, maybe more. A Lethal White pup w/MM gene will be blind or deaf or both. The double merle genetic defect can be found in the Australian Shepherd, Great Dane, the Dachsund, the Sheltie, the Collie - any dog with the merle or dapple coat. There is a group in Arizona whose sole purpose is to educate, inspire, and rescue these Australian Shepherd lethals from certain death. They can be found at: at <http://www.aussielads.com/> or <http://www.AmazingAussies.com>

## Horner's Syndrome

Horner's syndrome is not uncommon and occurs in dogs, cats, horses and many other species. The symptoms generally include a sunken in eye (enophthalmia) with a small pupil (miosis), a droopy upper eyelid (ptosis) and a prominent third eyelid. Horner's syndrome must be differentiated from Uveitis which also produces a constricted pupil and a droopy looking eye. For more information on Horner's Syndrome visit: <http://www.eyevet.info/horner.html>

## Uveitis

Uveitis is a viral infection which can often occur in horses and humans, but rarely in dogs. Uveitis means "inflammation of the uvea", or the middle layer of the eye. The uvea consists of three structures: the iris, the ciliary body, and the choroid. The iris is the colored structure surrounding the pupil, visible in the front of the eye. The ciliary body is a structure containing muscle and is located behind the iris which focuses the lens. The choroid is a layer containing blood vessels that line the back of the eye and is located between the inner visually sensitive layer, called the retina, and the outer white eye wall, called the sclera. Inflammation occurring in any of these three structures is termed "uveitis". For more information on Uveitis visit: <http://www.veterinarypartner.com/Content.plx?P=A&A=1714&S=1&SourceID=42>

