



# Glaucoma in Dogs

## What is Glaucoma?

Glaucoma is the medical term used to describe an increase of pressure inside the eye. In a normal eye, fluid is produced, circulates through the eye and drains out at the drainage angle where the cornea (clear part of the eye) meets the sclera (the “white” of the eye). If this drainage angle is blocked or too narrow, then fluid builds up in the eye causing an increase of pressure.

There are two types of glaucoma. **Primary glaucoma** is an inherited condition affecting certain breeds of dogs (see list below). It is caused by a genetic defect in the eye that prevents the fluid in the eye from draining properly. The clinical form of this disease may present anywhere from 10 weeks of age to 13 years of age. **In many cases, the pressure in the eye is elevated and damage is occurring months to years before any obvious signs can be observed.** For this reason, it is important for at-risk breeds to be tested yearly for glaucoma. In all most all cases of primary glaucoma, both eyes are affected, although the condition may not become apparent in both eyes at the same time.

**Secondary glaucoma** occurs when trauma, infection, or some other disease process causes the drainage angle to become clogged, blocked, scarred down, or otherwise narrowed. Hyphema (blood in the eye), hypopion (pus in the eye), anterior uveitis (inflammation in the front part of the eye), and traumatic eye injury are all common causes. In secondary glaucoma, it is possible for only one eye to be affected.

## What are the Signs of Glaucoma?

**In its earliest stages, glaucoma may not cause any noticeable signs in a dog.** While it is likely that the dog senses the pressure and may have mild to moderate headaches, dogs may not complain or give any indication of discomfort. This is especially true in primary glaucoma which progresses slowly and gradually over months to years.

As the condition progresses, the eye becomes quite painful. This may result in tearing, squinting, rubbing/pawing at the eye, and/or depression. The pressure also damages the optic nerve which leads to blindness. If the glaucoma is not treated immediately (on an emergency basis), the blindness may become permanent. In cases of chronic glaucoma, the eye itself, stretches and becomes visibly larger. Corneal edema (a bluish haze over the clear part of the eye), and lens luxation may occur at this point.

## Should my Dog be Tested for Glaucoma?

Any dog with red, blind, or painful eyes should be tested. All dogs with traumatic eye injury, blood in the eye, pus in the eye should also be tested. In addition, all **dogs in the following breeds should be screened yearly for glaucoma:**

Akita	Cocker Spaniel	Maltese	Siberian Husky
Alaskan Malamute	Dachshund	Miniature Pinscher	Skye Terrier
Basset Hound	Dalmation	Miniature Schnauzer	Smooth Fox Terrier
Beagle	Dandie Dinmont	Norfolk Terrier	Tibetan Terrier
Border Collie	English Springer Spaniel	Norwegian Elkhound	Welsh Springer Spaniel
Boston Terrier	German Shepherd	Norwich Terrier	Welsh Terrier
Bouvier des Flandres	Giant Schnauzer	Poodle—Toy/Miniature	West Highland White
Brittany Spaniel	Greyhound	Samoyed	Wire Fox Terrier
Cairn Terrier	Irish Setter	Scottish Terrier	
Cardigan Welsh Corgi	Italian Greyhound	Sealyham Terrier	
Chihuahua	Lakeland Terrier	Shih Tzu	

## **What is Involved in Testing for Glaucoma?**

The test for glaucoma is straight forward and non-invasive. The eye is first numbed so that the dog does not experience any discomfort or distress during the test. Once the numbing drops have taken effect, an instrument called a Tono-Pen is used to gently touch the surface of the eye and measure the pressure inside the eye. Several readings are taken to ensure an accurate average. If there is too much discrepancy between the readings due to animal or eye movement, the test will be repeated to ensure the most accurate results.

Until recently, this is a test that could only be performed by referral to a Board Certified Ophthalmologist due to the expense and sophistication of the equipment. Clermont Animal Hospital has invested in a Tono-Pen and is now happy to be able to provide this service in-house for the convenience of our clients. Hopefully this will allow for more dogs of at-risk breeds to be routinely tested so that action can be taken before permanent damage is done to the eye. This should also allow for easier follow-up care for patients being treated by the ophthalmologist for eye conditions requiring regular pressure monitoring.

## **How can Glaucoma be Treated?**

The treatment plan for a dog with glaucoma is custom-tailored to the individual patient. Therapies will depend on the stage and severity of the glaucoma, the underlying cause of the condition, and whether or not the eye is already permanently blind. With sudden-onset blindness (less than 24 hours in duration), aggressive emergency in-patient treatment is required to quickly drop pressures and (hopefully) restore vision to the affected eye. In non-emergency situations, topical medications are available to lower and control the pressure in the eye. These are used in most cases of glaucoma, especially early in the course of treatment. Animals being treated medically for glaucoma will require frequent follow-up monitoring to ensure that the pressure is well controlled with the medications.

Due to the expense and inconvenience of regular and prolonged use of these medications, a more permanent solution is often sought. In cases of secondary glaucoma it is important to identify and treat the underlying cause whenever possible. As the underlying cause resolves, the glaucoma may improve spontaneously, reducing or eliminating the need for further treatment. In cases of primary glaucoma in a sighted eye, a surgical procedure is available to place a shunt which allows fluid to drain out of the eye. In cases where the eye is permanently blinded from the glaucoma (primary or secondary), enucleation (surgical removal of the eye) is often the treatment of choice. If the globe of the eye has not been too distended, it is also possible to remove all of the structures on the inside of the eye and replace them with a prosthesis. This produces a more cosmetic result for owners concerned about the outward appearance of their pet.

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