



## Glaucoma

Glaucoma is a disease of the eye that results in an increased pressure within the eye. It is painful and can lead to blindness. Glaucoma can occur spontaneously in certain breeds (called primary glaucoma) or due to an eye injury or disease (called secondary glaucoma).

### Eye Anatomy

The eye has two major compartments separated by the lens. The iris (the colored part of the eye) is in front of the lens and the vitreous body is behind it.

The pupil is a space within the iris that allows light in.

There is fluid within the eye made by the iris. It travels to the front of the eye and then out of the eye through the drainage angle. This fluid gives nutrients to the inner eye.

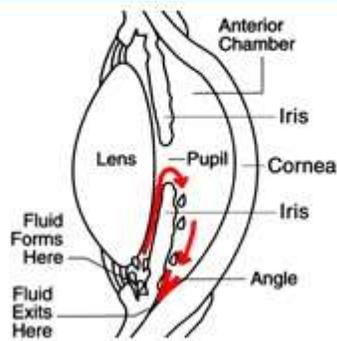
### Primary Glaucoma

In primary glaucoma, there is usually a genetic abnormality with the drainage angle. This means that the fluid cannot drain properly from the eye. Instead, it builds up. As it accumulates, the pressure within the eye (intraocular pressure or IOP) increases.

Primary glaucoma often occurs in one eye initially. Within weeks to months, it affects the second eye.

Primary glaucoma commonly affects dogs between 3-7 years of age, but can occur at any age.

### THE ANATOMY OF GLAUCOMA: WHEN FLUID FLOW IS BLOCKED



The most commonly affected breeds include Cocker Spaniels, Poodles, most terrier breeds, Beagles, Chow-Chows, Basset Hounds, and Dalmatians. However, it can occur in any breed. It is rare in cats, though Burmese and Siamese are more predisposed.

### Secondary Glaucoma

In secondary glaucoma, an underlying problem interferes with the drainage angle of the eye. Common eye problems that can cause secondary glaucoma include lens luxation (movement of the lens from its normal location), cataracts, inflammation of the eye, trauma, or cancer of the eye. Inflammation can be a result of a variety of things including whole body problems such as fungal infections.

The cause in cats is usually uveitis, a severe inflammation of the eye. Several things including viruses can cause uveitis. Test cats for feline leukemia virus and feline immunodeficiency virus.

### Signs

Redness of the eye is an early sign of glaucoma. As the fluid builds, the eye may develop a bluish-white hazy appearance. Your pet may squint as it becomes painful. As the fluid builds, it causes damage to the optic nerve and retina (at the back of the eye) which leads to blindness.



The fluid accumulation can occur very quickly. A dog with glaucoma can go blind in 24-48 hours. Glaucoma that is severe and lasts more than 10-14 days will cause the eye to enlarge and appear to bulge.

Glaucoma is an emergency because of the danger of blindness. Pets with a red, painful eye need an exam quickly to check for glaucoma. Most cats have significant vision loss by the time you notice signs.

### Diagnosis



A complete ophthalmic exam will help rule out other causes of red eye. A tool called a tonometer measures eye pressure. This tool taps the eye surface to determine the pressure. The exam is not painful.

Normal pressure in dogs is 12-15 mm Hg while in cats it is 15-35 mm Hg. Both eyes should be similar in pressure. An eye that has inner eye inflammation should have a lower eye pressure than normal. Therefore, in cases where inflammation is present, the eye may have “normal” pressure, but may still be abnormally high.

A specialist is able to perform more testing including gonioscopy that involves looking at the draining angle, and eye ultrasound to look at the back of the eye.

### Initial Treatment

Once diagnosed, we need to reduce the eye pressure as soon as possible. Glaucoma eye drops are put in your pet's eyes every 5 minutes and the eye pressure is checked 30 minutes later. If the eye pressure is starting to come down, we'll continue the drops for another 30 minutes so the pressure can get lower. If the pressure does not come down, a medicine may need to be given IV (in the vein). This medicine essentially dehydrates your pet and that in turn will dehydrate the eye.



### Long Term Treatment

Glaucoma can be treated medically, surgically, or a combination of both. The treatment will depend on the underlying cause of glaucoma, as well as what you decide is best for your pet and family.

#### Primary Glaucoma

Medical treatment: Glaucoma eye drops are given 2-4 times a day depending on the severity. Usually there are two different medicines given 5 minutes apart. Even if the other eye looks completely normal, you will treat both eyes. Medical therapy is limited and will eventually fail for primary glaucoma.

Surgery: There are several surgery options available. Surgery on the drainage angle will try to increase flow. A shunt in the eye will drain the excess fluid into a sinus in the head. Another option is complete removal of the eye itself. In this case, your pet can get a prosthetic eye or will have the eyelids closed.

#### Secondary Glaucoma

Medical treatment: Glaucoma eye drops are given 2-4 times a day depending on the severity. Depending on the underlying cause, your pet may need other eye medicines or oral medications.

Surgery: Your pet may need surgery to correct the underlying cause. With a luxated lens, your pet will need surgery to remove or replace the lens. If cataracts are the cause, your pet will need cataract surgery. It may be possible to remove some tumors from the eye while other pets may require complete removal of the eye.

The goal of treatment is to slow or stop the fluid accumulation. Unfortunately, many forms of glaucoma are difficult to treat. Often, even with medicine and surgery, your pet will lose its vision. At this point, the goal is to keep your pet comfortable. Most pets are able to function quite well without their vision.