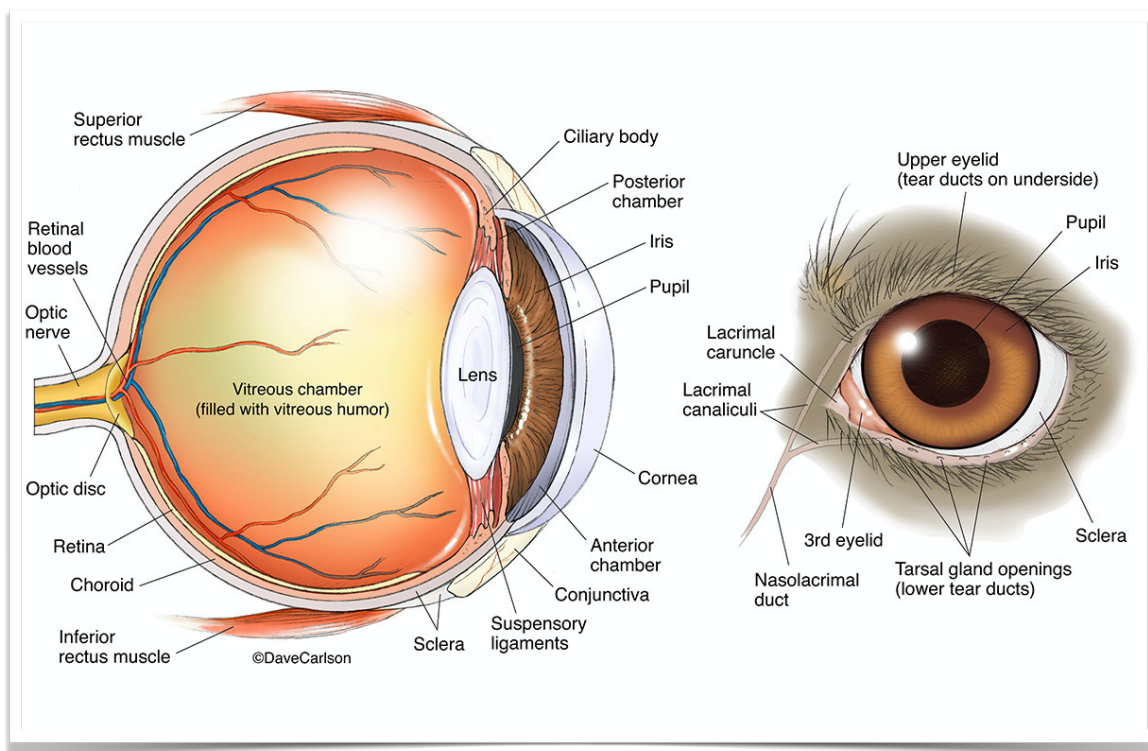


GLAUCOMA

Glaucoma and Glaucoma Surgery



What is glaucoma?

Glaucoma is a diverse group of diseases that are characterized by an increase in the pressure inside of the eye. This increase in eye pressure (intraocular pressure) is painful and can lead to irreversible damage to the retina and optic nerve - the structures that transmits visual information to the brain. Normally, the front of the eye (anterior chamber) is filled with a clear fluid called aqueous humor. This fluid is continually produced by the ciliary body to provide nutrition to the intraocular structures and maintain the shape of the eye. From the ciliary body, this fluid flows through the pupil and drains into the blood stream through the iridocorneal angle (drain). The delicate balance between fluid production and drainage is what determines the pressure within the eye.

Breeds Predisposed to Develop Glaucoma

Glaucoma is a leading cause of vision loss in dogs and certain breeds of dogs are known to be predisposed to develop glaucoma including:

Basset Hounds

Cocker Spaniels

Beagles

Shar Peis

Chow Chows

Jack Russell Terriers



What causes the intraocular pressure to increase?

Elevated intraocular pressure in animals is generally the result of decreased fluid drainage from inside of the eye. It is important in animals to classify the glaucoma as either primary or secondary in nature. Your veterinary ophthalmologist will determine the cause of the glaucoma based on the initial eye examination. Often gonioscopy, direct viewing of the iridocorneal angle, will be used during the exam to aid in this determination.

Primary glaucoma is an inherited or developmental abnormality of the drain and often becomes evident at some point in adulthood. Primary glaucoma is often seen in certain breeds of dogs although it can be seen in any breed or even mixed breed dogs. **Being inherited, primary glaucoma is**



usually considered a bilateral disease (affects both eyes eventually). Without treatment, the contralateral (unaffected eye) can develop glaucoma in an average of about 6 months. Early treatment can often delay the onset of glaucoma in the unaffected eye for up to several years. Since the drain itself is defective, primary glaucoma can be difficult to control and often results in vision loss over time.

CLOUDY EYE

The surface of the eye will appear cloudy or opaque.

RED EYE

The whites of the eye may look very red and irritated.

BLIND EYE

There may be little to no vision in the affected eye.

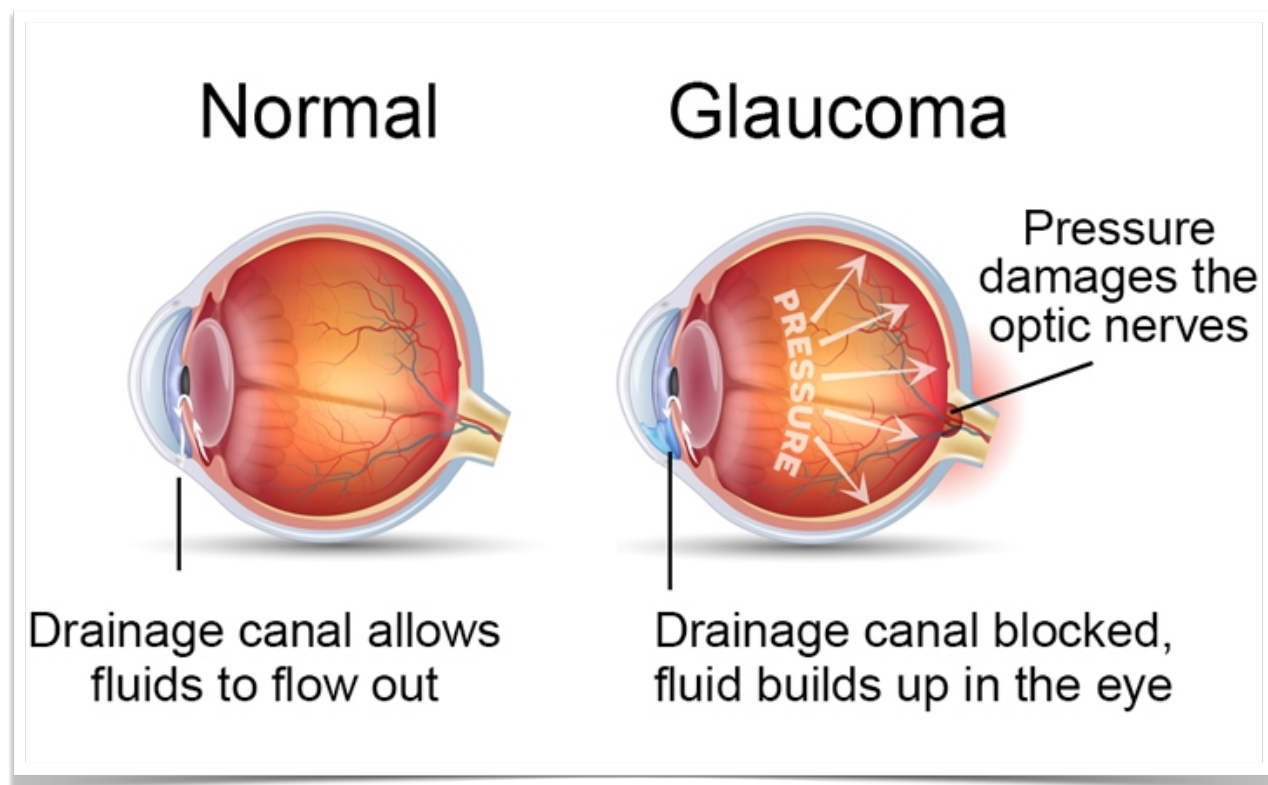
Secondary glaucoma occurs when an otherwise normal drain becomes plugged from some other condition. Any animal can develop secondary glaucoma. Common causes of secondary glaucoma include uveitis (inflammation inside of the eye), cataracts, lens luxation, and neoplasia (cancer). If the underlying cause of the glaucoma can be resolved, the prognosis for secondary glaucoma is more favorable than with primary glaucoma. Thankfully, with secondary glaucoma, the unaffected eye is not at risk unless it develops the same underlying cause.

How does increased intraocular pressure damage the eye?

Pain with glaucoma results from stretching of the corneal nerves from the elevated eye pressure. In humans with acute glaucoma they often describe the pain as “the worst headache in my life.” Animals appear to suffer similar pain and often exhibit squinting, pain in the area, depression, and decreased activity. If left untreated, over time the animal will start to show signs of more chronic pain which can be more difficult to recognize. Owners often report that pets with chronic glaucoma are sleeping more, less active, and generally “acting like an older dog.” Often owners notice an improvement in their pets behavior and that they are “acting like a new dog” once the pain is controlled.

Vision loss is a result of damage to the optic nerve. The optic nerve transmits visual information from the back of the eye (retina) to the brain. When the eye pressure

is increased, the signal transmission and blood flow to the optic nerve is interrupted. **The duration of this pressure elevation is a critical factor in determining the prognosis for vision in your pet.** If this interruption is temporary and normal pressure can be restored, your pet may regain vision. Prolonged interruption of this blood flow leads to permanent optic nerve damage and vision loss.

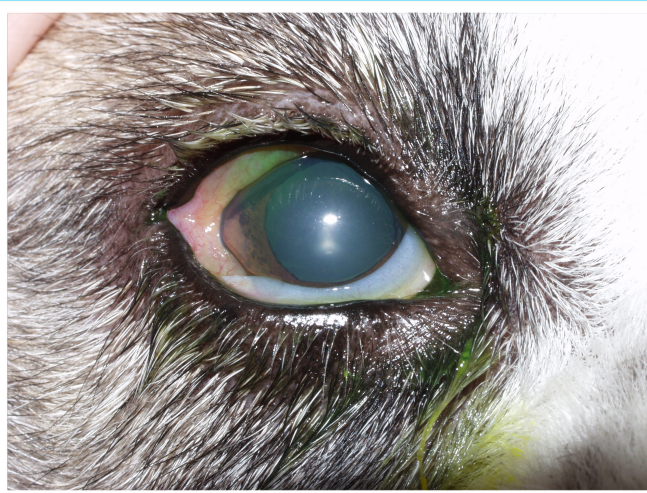


How is glaucoma treated?

Unfortunately, glaucoma can be very difficult to treat and there is no cure for glaucoma. Specific treatment for your pet will depend on his/her current pressure and visual status. Topical medications to lower fluid production inside of the eye will be used to maintain the eye pressure in the comfortable range and limit damage to the retinal and optic nerve. Usually a combination of medications will be used and the eye pressure will be monitored periodically to ensure the pressure is staying within an acceptable range. Topical medication may be effective for some time, but eventually glaucoma will overcome our ability to control the eye pressure medically.

Surgical treatment may be recommended for a visual eye that is failing medical treatment. Surgical options to be considered include:

1) Goniodrainage Device Implantation: During this procedure, a small tube is inserted into the eye that is attached to a one-way valve (Ahmed-valve) that allows fluid to exit the eye once the eye pressure reaches a certain limit. There is minimal discomfort with this procedure and the valve starts working immediately. The average duration of control after this procedure is one year, but can range from several months to several year.



PRE GLAUCOMA VALVE



2 WEEKS AFTER GLAUCOMA VALVE

2) Endolaser Cyclophotocoagulation: Another surgical procedure is a laser procedure inside of the eye to damage the ciliary body (fluid producing structure) in hopes of lowering fluid production and eye pressure. This procedure is not currently offered at Animal Vision Center, but we can refer you to an ophthalmologist who offers this surgery.

Will my pet lose vision completely?

Unfortunately, due to the nature of glaucoma, many patients lose vision despite the best treatment. Your pet's prognosis depends on early detection and his/her response to therapy. For the blind and painful eye, surgery is often recommended for permanent resolution of glaucoma. Please refer to "The Blind and Painful Eye" handout in our Client Education Series for further details.