



# PET KARE CLINIC

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## GLAUCOMA

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### About the Problem

**Cause:** Glaucoma is increased pressure within the eyeball. If this intraocular pressure remains high, it can damage structures within the eye and lead to blindness. The increased pressure is caused by an imbalance in the production and drainage of normal fluid within the eye. In a healthy eye, this fluid, known as aqueous humor, produces a fairly constant pressure, and this ensures the eye keeps its normal, round shape. However, if the outflow of this fluid (through microscopic pores at the edge of the eye) is obstructed, excessive fluid accumulates and glaucoma results. Glaucoma can occur in dogs and cats.

Symptoms of glaucoma include a cloudy appearance of the cornea (the clear part of the front of the eye), redness in the white part of the eye (bloodshot eye), signs of ocular pain such as squinting or resentment to being touched around the face, and a dilated pupil. With longstanding glaucoma, the eye itself can enlarge and become clearly bigger than the normal eye.

Glaucoma is classified as primary or secondary, depending on the cause. Primary glaucoma occurs without any other precipitating disease or injury. Some forms of primary glaucoma are inherited genetically in breeds such as the beagle, poodle, American and English cocker spaniel, basset hound, Siberian husky, and Samoyed. Secondary glaucoma is not genetically linked but rather is caused by an injury to the eye such as blunt trauma, cancer inside the eye, inflammation, and spontaneous dislocation or "luxation" of the lens (the lens is the internal structure within the eye that focuses light rays onto the back of the eye to produce the images that the animal sees).

In dog breeds predisposed to glaucoma that develops the disease in one eye, the other eye usually goes on to develop glaucoma as well, within 1 year of onset of glaucoma in the first eye.

**Diagnosis:** Your veterinarian will perform a thorough physical exam and take a complete history. It is important to share all information regarding the dog or cat's medical history, including the appearance and duration of symptoms, past medical problems if any, medications given recently or currently being given, and so on. Ocular reflexes may be assessed. Several reflexes of the eye are characteristically decreased or absent with glaucoma. Tonometry is performed to measure the intraocular pressure. This test involves numbing the surface of the eye with a few drops of liquid anesthetic and then gently placing an instrument on the surface of the eye several times. It is the definitive test for glaucoma.

For further testing, your veterinarian may refer you to a veterinary ophthalmologist who is specialized in diagnosing and treating diseases of the eyes. Further testing aims to assess any damage within the eye caused by glaucoma and involves examining the inside of the eye to look at the lens, retina, and optic nerve. Goniometry uses a special lens to assess the area where drainage of aqueous humor occurs (the pores that can become blocked, preventing the outflow of aqueous humor). By examining this area, the veterinarian can better

determine the future course of the disease and overall outlook for recovery (prognosis). Ultrasonography helps to see the inside the eye to look for complications such as blood clots or tumors if the lens is luxated and blocking the view or if the cornea is too cloudy. All of these tests can help to determine if the glaucoma is primary or secondary and the best method of treatment.

### **Living with the Diagnosis**

Glaucoma may require lifelong treatment that can be expensive. Treatment with combinations of drugs and regular visits to the veterinarian usually helps temporarily but is not always effective. For these reasons and because glaucoma is painful if it is not controlled, pets that have recurrent or uncontrollable glaucoma often need eye surgery for relief of chronic pain.

Blindness is a serious and common complication of glaucoma; pets with glaucoma affecting both eyes may lose their eyesight entirely. If your dog or cat is blind as a result of glaucoma, it is important for you to know that many dogs and cats have an absolutely normal quality of life with vision in only one eye and even with vision loss in both eyes. Dogs and cats rely on other senses, especially the sense of smell, much more than we humans do, and as a result they often adapt very well to loss of sight.

### **TREATMENT**

Treatment is either medication-oriented or surgical. All treatment is aimed at normalizing the amount of fluid inside the eye by increasing the outflow or decreasing the inflow of aqueous humor, or both. The ultimate goals are to treat the cause of the disease when possible, to prevent blindness or save remaining vision, and to lessen pain. The treatment method depends on the cause of glaucoma.

Medication-oriented treatment involves giving topical medications (drops) and/or oral medication. Medications alone may be effective in treating some types of primary glaucoma; however, if the response to such therapy is not satisfactory, surgical treatment is needed to attempt to save any remaining vision. Cryosurgery (freezing) and laser cycloablation are both surgical techniques that involve selectively removing some of the tissue that produces aqueous humor. The intention is to reduce aqueous humor production within the eye to levels that match the reduced outflow of aqueous humor from within the eye (reduced outflow is the fundamental problem that causes glaucoma). Another method involves surgically implanting a small tube into the front chamber of the eye through which aqueous humor can drain.

Secondary glaucoma caused by spontaneous lens luxation may require surgical removal of the lens to save any remaining vision. If inflammation within the eye is the cause of glaucoma, then treatment must involve determining the cause of the inflammation.

If the eye is blind and painful and medical treatment has failed, the pain is likely to persist even if vision in the eye is permanently lost. Therefore, in order to end the pain of chronic glaucoma, surgery in which the contents of the eyeball (evisceration) or the whole eyeball (enucleation) are removed may be the best course of treatment.

## **DOs**

- If your dog or cat experiences an injury to the eye, seek veterinary treatment immediately.
- On any veterinary visit, inform your veterinarian if your pet has ever been diagnosed with a medical condition and is taking medication.
- Give medication exactly as directed by your veterinarian, and if you are concerned about possible negative effects, discuss them with your veterinarian immediately rather than simply discontinuing the treatment.
- Seek the opinion of a specialist. Veterinary ophthalmologists are known as Diplomates of the American College of Veterinary Ophthalmology.
- Remember that glaucoma develops quickly and that permanent damage resulting in irreversible blindness can occur on the scale of hours to days after the first symptoms.

## **DON'Ts**

- Do not stop giving medication if your dog's or cat's glaucoma-affected eye(s) begin to look better. The cause of glaucoma is still present, and the intraocular pressure rises when medication is discontinued.
- Do not underestimate cloudiness in the eyes or "bloodshot eyes"; these can be the first symptoms of glaucoma. Early assessment by a veterinarian can lead to treatment at a point when blindness in the eye can still be avoided.

## **When to Call Your Veterinarian**

- If you cannot keep a scheduled appointment.
- If you are unable to give medication as directed.
- If symptoms that you saw originally when glaucoma first occurred are apparent once again.

## **Signs to Watch For**

- General signs of illness: lethargy, weakness, vomiting, decreased appetite, weight changes, changes in behavior (hiding more than usual, aggressiveness, disorientation).

## **Routine Follow-Up**

- Follow-up visits are routinely scheduled to measure intraocular pressure to determine if the dosage or type medication needs to be changed.
- Follow-up visits are important because medication may no longer be effective and surgery may need to be discussed.