

## GLAUCOMA

Glaucoma is defined as an increase in pressure inside the eye that is detrimental to the eye's health and maintenance of vision. The normal physiology of the fluid (aqueous humor) in the eye is such that the fluid is made in one structure behind the pupil (ciliary body), travels through the pupil, and exits the space between the cornea and iris (iridocorneal angle). When the fluid cannot properly drain from the eye, the pressure in the eye increases. An analogy would be a clogged sink drain.

For convenience, the glaucoma syndrome can be divided into 3 major groups: 1) primary, 2) secondary, and 3) congenital. Primary glaucoma is hereditary and exhibits no overt abnormalities to account for the abnormal elevation in intraocular pressure (IOP). Primary glaucoma occurs in breeds such as the Beagle, American Cocker Spaniel, Bassett Hound, Chow Chow, and Siberian Husky. Common causes of secondary glaucoma include intraocular inflammation (uveitis), lens luxation, and intraocular tumors. The congenital glaucomas are characterized by malformations of the anterior chamber angle (goniodysgenesis).

Glaucoma is unique in that it eventually involves all tissues of the eye. The disease is quite painful, especially when the eye pressure is very elevated. Clinical signs of glaucoma commonly observed are a cloudy cornea, redness, an enlarged eye, dilated pupil, vision loss, and ocular pain manifested by increased tearing, squinting, and pawing at the eye. Your pet may also exhibit unusual aggressiveness, lethargy, and loss of appetite.

Glaucoma is an ophthalmic emergency and must be treated immediately. If the pressure remains elevated for even a few hours, permanent vision loss can occur. Treatment of glaucoma is aimed at lowering the IOP, relieving pain and maintaining vision (if possible). The disease is difficult to treat and no single treatment regime works for every patient. However, several options are available depending on whether the patient still has vision, the specifics of the patient, financial considerations, etc. Some of the options include medical management with pills and eyedrops, laser treatment to reduce the fluid production, and removal of the blind and painful eye with a cosmetic prosthesis or complete removal. There are pros and cons to each of these treatments, and these variables are discussed below.

**Medical Management:** The first line of treatment for glaucoma is the use of eyedrops and/or pills to lower the intraocular pressure. The primary advantage of this conservative treatment option is that no anesthesia is required; the owner administers medications at home. For some patients, medications alone can control the pressure inside the eye, but in other cases, medical management alone is not sufficient. Although initially the cost of medical management is lower than the surgical options, the medications quickly add up when used over long periods of time.

**Diode Laser Cyclophotocoagulation:** In this surgical procedure, a laser is used to destroy the fluid-producing structure of the eye (ciliary body). While the patient is under general anesthesia, the laser probe is applied to the outside of the eye. The laser energy is absorbed only by pigmented tissue, so the

beam passes safely through the white sclera and destroys only the dark ciliary body tissue beneath. The treatment of glaucoma with the use of a laser has only been an option for a few years. In eyes that have glaucoma, the laser treatment has been about 70% effective in bringing the intraocular pressure back down to the normal range. In some patients, the pressure may become elevated again after several weeks or months. In these cases, the laser procedure may be repeated.

**Intrascleral Prosthesis (Cosmetic Implant):** This surgical option is used only on a blind eye. Under general anesthesia, the inner contents of the eye are removed and replaced with a black silicone implant. The patient keeps the outside of the eye, including the eyelids, cornea, sclera, and extraocular muscles, so that the eye moves and looks fairly normal. Instead of the colored iris, the cornea has a cloudy or grayish appearance but can be white depending on the amount of cloudiness in the cornea before surgery. The advantage of the procedure is that once the contents of the eye are removed, there is no more painful glaucoma to treat or worry about in that eye. Furthermore, the removal leaves the patient looking cosmetically more ‘normal’ than enucleation. After surgery, the patient must wear an Elizabethan collar for 2 weeks and must have eye drops or ointment administered several times a day for several weeks. This surgical procedure relies on a healthy cornea and sclera, so therefore this option is NOT available to patients who have ulcerated, severely enlarged or deteriorating globes. Since the outer eye remains intact, superficial ocular problems such as corneal ulcers, KCS (dry eye) and conjunctivitis can still occur.

**Enucleation:** This option is only for a blind eye. Under general anesthesia, the eye and eyelids are completely removed and the skin is sutured shut. Facial hair grows over the incision so that the patient eventually looks like he is perpetually “winking”. Once the eye is removed, there is no more painful glaucoma in that eye to treat or worry about. The patient wears an Elizabethan collar for 2 weeks after surgery until the sutures are removed and there are usually no postoperative medications.

**Glaucoma is managed, not cured. Client compliance and follow-up visits are important** if we are to manage your pet effectively. It is important to establish consistent time intervals between medications daily. **ON THE DAY OF YOUR PET’S RECHECK, GIVE ALL MEDICATIONS AS PRESCRIBED SO THAT THEIR EFFECTIVENESS IN CONTROLLING THE GLAUCOMA CAN BE EVALUATED** (unless directed otherwise).

An important note about oral antiglaucoma medications (carbonic anhydrase inhibitors): Sometimes these medications can promote nausea, hyperventilation (heavy breathing), and disorientation. Always give these medications with some food. If these clinical signs should occur, discontinue the oral medications but continue the topical medications and call our office or your regular veterinarian. If you have any questions, please feel free to call the practice at (562) 943-3728.