**Glaucoma**

Glaucoma is a disease associated with elevated pressure inside the eye. In a normal eye, there is a balance between fluid production and drainage that maintains the eye pressure within a normal range. Glaucoma occurs when the drainage is impaired, resulting in accumulation of fluid and pressure build-up. High intraocular pressure causes damage to the optic nerve and retina in the back of the eye resulting in vision loss.

There are two main types of glaucoma: primary and secondary. Primary glaucoma occurs when the drainage of the eye is not formed well. It is a hereditary condition very common in many dog breeds, including Cocker Spaniel, Basset Hound, Shar Pei, Chow-Chow, Labrador and Great Dane. In primary glaucoma, one eye is usually affected first but the second eye will also develop glaucoma eventually. Secondary glaucoma occurs as a complication of other ocular disease, such as inflammation (uveitis), cataracts, trauma and blood inside the eye, or a tumor.

Elevated pressure can be very painful resulting in squinting, tearing, decreased activity or appetite. Clinical signs also include redness, enlargement of the eye, a large pupil, cloudiness and vision loss. A diagnosis is made based on complete ophthalmic examination and intraocular pressure measurement. Glaucoma is a progressive disease that cannot be cured and ultimately results in blindness. Treatment options are available to help slow down progression and preserve vision for as long as possible. Once diagnosed, treatment of glaucoma is lifelong.

In acute glaucoma, intense medical treatment is used to quickly reduce the intraocular pressure to try to restore vision. If the pressure does not improve, additional procedures can be considered to achieve immediate relieve of the high pressure. Long term medical therapy is then prescribed to try to maintain the pressure within normal range and preserve vision. In cases of primary glaucoma, the unaffected eye is also started on medication as prophylactic treatment has shown to delay the onset of glaucoma in the second eye. Unfortunately, there is no treatment to prevent glaucoma.

Given the progressive nature of the disease, recheck examinations are important to allow for adjustments to the medical therapy as necessary. Eventually, medical therapy will become unsuccessful in controlling the pressure. The choice of surgical treatment depends on whether or not the eye has vision.

Laser surgery is often the best option for eyes with vision or a chance for vision return. This is a short procedure that requires general anesthesia. The laser beam is applied from outside in to destroy the structure that produces the fluid inside the eye. Essentially, it aims to reduce production of fluid to achieve a new balance sustainable by the abnormal drainage. Some eyes may need more than one laser treatment to control the pressure. The laser energy applied temporarily increases the irritation in the eye, so the eye may be worse before it gets better. Following the laser, the eyelids may be stitched halfway shut to minimize the risk of corneal ulcers in some eyes.

For end-stage, blind or painful eyes unresponsive to therapy, other surgical options include intraocular ablation injection, intraocular prosthesis and removal of the eye. Each option has risks and benefits to be discussed with your veterinary ophthalmologist.