

## Endolaser cycloablation surgery.

In eyes with vision, **endolaser cycloablation** surgery is our best long term therapy. This is a surgery where the lens is removed (which also helps lower pressure in the eye) and using small endoscope and a diode laser, some of the fluid producing cells in the eye are destroyed. This helps permanently lower pressure in the eye.

### Success rate of laser surgery.

Endolaser cycloablation helps control glaucoma in approximately 85% of dogs. It does NOT eliminate the glaucoma, it simply makes it much easier to control the glaucoma and preserve vision. *Dogs still require long term medications after laser surgery.* There are few long term studies looking at the success rate past 18 to 24 months. But the success rate decreases with time and some pets will require repeat laser surgery years later.

### The response is not immediate.

Endolaser cycloablation improves the ability to control the pressure in the eye after 4 to 6 weeks. However, initially the pressure can be more difficult to control due to inflammation inside the eye. Most pets spend 4 to 7 days in the hospital after surgery for close monitoring. Approximately 50% of pet's will require a second surgery 2 to 7 days after laser surgery to implant a drainage tube to help manage the pressure the first few weeks after surgery. *The first 4 weeks are often a roller coaster ride of good days and bad days.* Frequent pressure checks, often 2 to 3 times a week for the first month, are critical to maintaining vision. Intermittent fluid removal from the eye is commonly required the first few weeks. The closer we monitor a pet's progress, the greater the potential for maintaining vision.

### Laser surgery is not 100% successful.

Unfortunately, the laser surgery itself can cause loss of vision due to retinal detachment or excessive inflammation inside the eye. Or, the glaucoma can remain difficult to control even with laser surgery. For this reason, 15% of pets will lose vision despite laser surgery and potentially require additional surgery to prevent discomfort if the pressure remains elevated.



### Signs of Glaucoma:

The signs can unfortunately be subtle and look like many other eye diseases.

- Elevated third eyelid (inner red membrane).
- Dilated pupil even in bright light
- Intense redness of the white part of the eye
- A sudden cloudiness or hazy appearance to the eye
- Keeping the eye partially closed
- Lethargic, withdrawn, or less active
- Restless at night
- Change in vision.

### MORE INFORMATION:

See our web site at:

[www.animaleyecarenc.com](http://www.animaleyecarenc.com)

and click on the Glaucoma icon on the bottom of the main page.



## Glaucoma and Therapy Options

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## What is Glaucoma?

Glaucoma is elevated pressure in the eye that leads to loss of normal function. In most animals, the pressure in the eye is normally between **8 mmHg and 25 mmHg**. The pressure varies throughout the day but rarely varies from this range.

## What causes glaucoma?

The eye produces a clear fluid (aqueous humor) to nourish structures inside the eye. This fluid is produced in the ciliary body at the equator of the eye and drains back into the blood system via the iridocorneal angle where the iris meets the white sclera. Slow fluid drainage leads to fluid retention in the eye and elevated pressure. This fluid has nothing to do with the tears on the surface of the eye.

### Surgical treatments for Glaucoma:

For eyes with VISION:

**Endolaser cycloablation** (see above)

For eyes with NO VISION:

**Eye Removal** (enucleation)

**Prosthetic Eye** (evisceration)

**Chemical Ablation** (intravitreal gentocin injection)

Most dogs develop glaucoma as a primary or inherited condition. Unlike humans who have a slowly progressive open angle form of glaucoma, most dogs develop painful, rapidly progressing closed angle glaucoma. Most cats develop glaucoma secondary to inflammation in their eye.

## Treatment of Glaucoma:

The treatments for glaucoma are all aimed at lowering pressure in the eye. The loss of vision and the pain are both due to the pressure being elevated. *Even if all vision is lost, an eye with glaucoma is still painful.*

- **Medical Therapy.** The medications used to lower pressure in humans with glaucoma also are beneficial in pets. **HOWEVER**, because pets have closed angle glaucoma, medications will almost never keep the glaucoma controlled and most pets will lose all vision and be persistently painful with only medical therapy.

- **Surgical Therapy.** Fortunately there are several surgical therapies that are successful at controlling glaucoma in humans and pets. Which surgery is most appropriate depends on whether vision is present and the desired cosmetic appearance.



Chemical Ablation eye



Prosthetic eye

## Why is Glaucoma a Problem?

Glaucoma causes two problems.

- **Loss of Vision.** Elevated pressure decreases blood flow to the optic nerve and retina and causes mechanical damage to the optic nerve. This causes loss of vision. Initially, the pressure elevations are intermittent and often occur at night. Pets can wake up with reduced or no vision from an eye or have discomfort at night. When only one eye is involved, the change in vision is nearly impossible to detect. The pressure eventually remains elevated leading to rapid and permanent loss of vision.

- **Pain.** Elevated pressure also causes pain in the form of a headache. When acute, pets are depressed, may even vomit due to the pain and are sensitive to touch of the eye. But in many pets the pain causes no outward signs, the pet just becomes more withdrawn, and



Removed eye