

## GLAUCOMA

### What is glaucoma?

Glaucoma is a condition of the eye in which a build-up of pressure inside the eye causes degenerative changes that damage the retina and optic nerve, therefore resulting in blindness.

### What causes glaucoma?

The eye is filled with a fluid called the aqueous humour. This fluid is made by an area behind the iris called the ciliary body. It then circulates forwards, and provides essential nutrients and oxygen to the eye and absorbing the waste products. It is then drained out of the eye through the drainage angle, which is between the back of the cornea and the base of the iris.

Anything interfering with this circulation of fluid can cause glaucoma. Glaucoma can be inherited, in which case it is called primary glaucoma. Primary glaucoma is more common in people than in domestic animals. Certain breeds are more prone to this type of glaucoma, such as the Springer Spaniel, Cocker Spaniel, Basset Hound, Beagle etc. In this case, the drainage angle is narrow or has few drainage holes, and this is called goniodysgenesis. Secondary glaucoma happens when another condition within the eye has a side effect of interfering with the fluid dynamics. Such conditions include uveitis (inflammation inside the eye), lens luxation (where the lens is dislocated out of its normal position), hyphaema (blood within the eye), intraocular neoplasia (tumour within the eye).

### What does an eye with glaucoma look like?

#### Signs of glaucoma include:

- the animal may be dull and depressed with a poor appetite (due to pain)
- red eye due to congestion of the blood vessels
- blueness of the cornea due to oedema (water-logging)
- the pupil is likely to be dilated
- watery discharge from the eye
- blindness
- enlargement of the eye, most easily seen when compared with the other eye





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## **How is glaucoma treated?**

Regardless of the treatment method chosen, it is important that treatment is started as soon as possible, in order to attempt to save vision. It is also very painful, therefore the animal needs pain relief sooner rather than later. Early and urgent referral to a veterinary ophthalmologist is recommended.

Glaucoma treatment is either medical or surgical. In some cases it depends on the underlying cause, where this can be determined. Your vet will take into account important factors such as the degree of vision present, the underlying cause of the problem and the findings of a test called gonioscopy.

### **1. Medical treatment:**

Treatment is usually needed life-long (or as long as the animal retains the eye). Various eye drops (which are all developed for use in people) can be used to attempt to reduce the pressure within the eye. Some drops reduce the amount of fluid produced by the ciliary body, while other drops open up the drainage angle to encourage the fluid to exit the eye. Occasionally both types of drops are used for maximal effect. Not every case responds to this treatment, and some that initially respond, disappointingly become unresponsive as time goes on.

Eye drops may be used to address the underlying disease – for example, steroid drops help to control uveitis (inflammation inside the eye).

Pain relief – your vet may give an injection or prescribe pain killers. The glaucoma drops are pain relief in themselves, in that once they start working, the pain reduces.

### **2. Surgical treatment**

Various treatments have been tried to destroy much of the ciliary body which is producing the fluid (this operation may not save vision, and may cause other complications), such as endolaser, laser cyclophotocoagulation or cyclocryotherapy, where laser or cold is applied around the eye.

The laser could also be used to create a hole under the sclera, creating a filtering bleb, allowing some fluid to leak out and therefore reducing pressure.

Glaucoma implant surgery involves inserting a small valved tube implant which allows fluid to drain from the eye. This is a successful operation in humans but in domestic animals we have limited success as unfortunately the valves get blocked up and cease working after some months. Many vets don't offer this type of surgery because the success rates are disappointing, although there are ongoing efforts to improve this procedure.



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Enucleation (removal of the eye) is unfortunately an option which has to be done in those cases in which the pressure is not low enough, despite frequent drops, or if there is a suspicion of a tumour causing the glaucoma. An eye with uncontrolled glaucoma is painful and cannot see. Therefore it may be a lot kinder for your animal to have the pain removed and this is the most effective method of pain relief that we can offer in this circumstance. Many owners report a great improvement in the demeanour of their pet after this procedure.

### **What about the other eye?**

The other eye needs careful examination as it may be prone to developing glaucoma. Your vet or veterinary ophthalmologist will examine the eye carefully for early signs of glaucoma, will measure the intraocular pressure if this eye using a specialised instrument called a tonometer, and will examine the angle where the fluid drains from the eye using a procedure called gonioscopy.

It is possible that glaucoma drops will be prescribed for this eye in order to prevent, or more likely delay the onset of glaucoma in this eye.

### **What will be required by the owner?**

You need to adhere closely to your vets instructions, applying the drops at intervals spread out over 24 hours.

You need to closely monitor the eye, and if there are changes, such as increased redness of the conjunctiva or sudden blueness of the cornea, you will need to make an appointment to be seen urgently.

You need to have very regular check-ups to so that your vet can monitor the intraocular pressure using a tonometer. This intraocular cannot be guessed by feeling how hard the eye is, the more expensive equipment is required to ensure that your animal is on the appropriate treatment and getting the best care possible.

You need to be prepared that in the future, the eye may need removal to make your pet as comfortable as is possible.