

# Cataract Surgery

## What is a cataract?

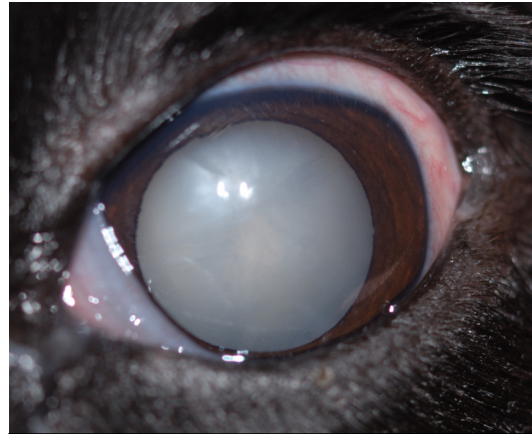
Cataract is an opacity or clouding of the lens inside the eye, which makes the lens look white in the affected area.

The lens is suspended deep within the eye, behind the iris (coloured part of the eye). It focuses the light on the retina (the sensitive tissue on the back of the eye that carries the image to the brain). The lens is normally clear, the pupil looking black because you are seeing the darkness inside the eye showing through it (see "Anatomy of the eye" information sheet).

Cataracts can form in one or both eyes, and can progress from small opacities to complete cataracts. The speed of progression can vary, and can be very gradual or very rapid. It is not known why most cataracts develop. They are more common in older dogs, but can occur in young dogs and can be congenital. They can be inherited in some breeds and they can occur as a result of other problems such as sugar diabetes or diseases within the eye (inflammation, trauma and retinal disease).



Leo, a Cocker Spaniel with mature diabetic cataracts in both eyes



Leo's left eye with mature diabetic cataract

## What treatment is there for cataracts?

At the moment the only proven treatment is surgery. Not every cataract warrants surgery and not every cataract is suitable for surgical treatment. A full examination by an ophthalmologist is necessary to assess each patient and decide on the best management.

## The surgery

Your pet would usually be admitted on the morning of the surgery and no breakfast should be given. Water should not be withheld overnight. In diabetic patients it is usually advised that both food and insulin are withheld that morning, and decisions regarding feeding and insulin dosing are made based on blood glucose tests taken on admission and repeated throughout the day.

After your pet is admitted, a pre-medicant is given for sedation and pain relief and eye drops are applied every 15 minutes to prepare the eye(s) for the operation. The drops help to dilate the pupil(s) and reduce the effects of inflammation which always happens after intra-ocular surgery.

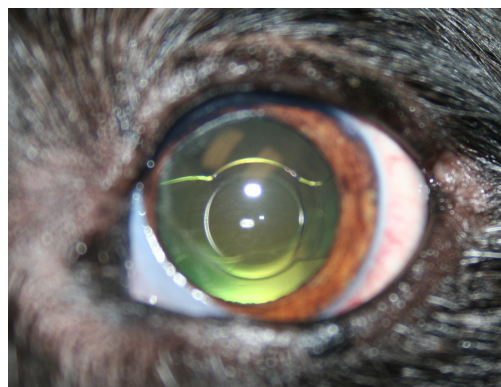
Once sedated, an ultrasound scan of the eye(s) is performed to look at the structures in the eye which are obscured by the cataract. This is to check for problems that may prevent or complicate surgery such as detachment of the sensory layer of the eye (retina) or rupture of the lens.

Cataract surgery is performed under a full general anaesthetic and a muscle relaxant is given so that the eye comes into the correct position for the operation and there is no pressure from the muscles behind the eye. This means that a ventilator is needed to inflate the chest during the procedure. Every patient is monitored very carefully during the surgery with modern monitoring equipment and specially trained staff.

The operation is very delicate and involves the use of an operating microscope and very tiny instruments. Two small cuts are made at the edge of the cornea, where it joins the white of the eye. The eye is then filled with a gel substance called viscoelastic which protects the structures within the eye and helps to keep the eyeball inflated. The lens is surrounded by a very delicate bag of tissue called a capsule. An area of this capsule is removed to get access to the cataract. The cataract is then removed using a technique called phacoemulsification, which is an ultrasound procedure that breaks the lens into tiny pieces which are sucked out of the eye. Fluid is also being flushed into the eye at the same time.

The rest of the capsule is left within the eye, and in most patients it is possible to put an artificial lens into the capsule where the old lens was. Modern lenses are made out of a soft acrylic material which means that they can be folded and injected into the lens capsule, minimising the length of the cut that has to be made in the cornea. Artificial lenses make the vision in the eye similar to what it was before the cataract developed. The lenses used in

our patients are made especially for dogs and cats, as they are bigger and more powerful than human lenses.



Jess, a diabetic collie with an intraocular lens implant in place after cataract surgery

It is not always possible to implant a lens in some eyes. Not having a lens implanted does NOT make the difference between being blind and having sight – it is like someone who is very longsighted not wearing their glasses.

At the end of the surgery the viscoelastic material is flushed out of the eye and the wounds are closed with very fine dissolving sutures that are absorbed over the following few weeks, leaving only tiny scars.

Some dogs can have both eyes operated at the same time. The main reason for doing this is that it makes it more likely that the patient will have vision after surgery- if something goes wrong with one eye, hopefully it will not go wrong with the other one. However a dog with one good eye will have overall vision which is almost as good and that in a dog with two eyes so it is not essential to have both eyes operated on.

After the surgery, patients remain hospitalised overnight for monitoring of their intraocular pressure and intensive medication. Provided that their progress is satisfactory, they will be discharged the following day. Most dogs will see something the day after surgery, but it frequently takes a few

weeks for the vision to be at its best as the eye adjusts to the effects of surgery and the artificial lens, and as the intra-ocular inflammation subsides.

### **Aftercare**

The aftercare following cataract surgery is intensive. All dogs develop intra-ocular inflammation following intra-ocular surgery, and to a greater degree than in humans. There are several types of drops that are used, including anti-inflammatory drops, antibiotic drops/ointment, drops to dilate the pupil and drops to control the intraocular pressure. The anti-inflammatory drops are usually applied six times daily initially, but the number of applications gradually decreases over the next two months or so. There are also tablets that need to be given for a few weeks after surgery.

Your pet will need to be kept as quiet as possible for a few weeks after surgery. Pulling on a lead should be avoided for several weeks after surgery, as this puts up the pressure inside the eye and can encourage bleeding. This can be achieved by wearing a harness, and it is a good idea to buy beforehand, which can be fitted at the time your dog goes home. A plastic Elizabethan Collar also has to be worn for approximately one week after the operation.

There will be at least four or five re-examinations after surgery. These are mostly within the first two to three months after the operation. Some patients, especially those with complicated cataracts, may need longer term treatment and more check ups than average. These are best performed at Rutland House Referrals as the close monitoring of cases is very important in obtaining the best long-term result.

### **Risks and complications**

The success rate of cataract surgery in dogs is approximately 90 - 95% initially. This means that 5-10% of patients cannot see in the operated

eye after surgery. There are several reasons why not all patients have a successful outcome or may have a less than straightforward recovery than normal and these include:

**Inflammation** – Every patient gets inflammation after surgery, no matter how smoothly the operation goes. This is usually well controlled by the medications that are given. Occasionally there is more inflammation than average, and this can lead to changes within the eye and can result in reduced vision. Occasionally it is necessary to give an injection into the eye several days after surgery to dissolve inflammatory clot material. This is performed under heavy sedation. Inflammation is the most frequent complication and is the reason why frequent medications and regular post-operative check ups are required

**Infection** – This can be very serious, but is extremely rare. It is minimised by gas sterilisation of instruments, use of disposable (single use) instruments and tubing and peri-and post-operative antibiotic tablets and ointments.

**Wound breakdown** – This means that the wound gives way. Again this is uncommon, but if it occurs another general anaesthetic will be needed to re-stitch the wound

**Bleeding** – A small amount of bleeding at the time of surgery is not unusual, and this is not a major problem. Very occasionally a larger haemorrhage can occur and this can affect vision.

**Increased pressure** - The pressure in the eye can increase dramatically in the first few hours post-operatively (what we call a pressure spike) but this is only transient. It is one of the main reasons animals are hospitalised overnight, so that it can be managed if it occurs. The pressure can remain higher than normal in the first few days after surgery (associated with the

inflammation) and this is usually controlled with eye drops. Rarely, a more severe increase in pressure may occur (glaucoma). If this problem develops, it will involve additional medication, more intense monitoring and possibly surgery. It can lead to blindness and even loss of the eye in severe cases which don't respond to treatment.

Ulcers – Occasionally the cornea (window of the eye) loses the surface layer. This is usually a minor problem that normally resolves within a week.

Retinal detachment – This is an uncommon complication, but if the sensitive tissue at the back of the eye detaches, it can lead to loss of sight.

Poor vision – Some dogs have problems inside their eyes (e.g. with their retina), which cannot always be detected before surgery, and this means that the surgery is not always successful, or that vision is not as good as it once was. Some suspect cases may have an electrical test (an electroretinogram) performed on the eyes to look for retinal problems before surgery.

“After-cataract” – A small percentage of dogs that see well immediately after surgery may not continue to do so for the rest of their lives. This later

deterioration may happen for many reasons such as some of the complications mentioned). However one such problem is known as after-cataract, in which a white membrane can grow across the pupil inside the eye. In most patients the amount of after-cataract that forms is not significant, but it can occasionally affect vision long term. Having a lens implant has been shown to help prevent the membrane growing over.

If after-cataract is very severe it can be removed surgically, although this is rarely necessary.



In conclusion, the success rate of cataract surgery is high and the great majority do well after their operation. It is a major undertaking for the owner however, both with respect to the need for aftercare (medication and re-examinations) and financially, and we need owners to be fully informed before they make the decision to proceed with surgery.

**If you have any further questions do not hesitate to contact the Ophthalmology department at Rutland House Referrals on 01744 853510.**