

## Cataract Surgery at Animal Eye Care



### What Is A Cataract?

A cataract is an opacity of the lens. The lens is normally clear and transparent and when a cataract forms the lens itself goes cloudy. A cataract is not a film or coating of the eye, but it is the lens protein, inside the lens capsule that becomes cloudy.



A cataract can affect just a small part of or the entire lens. Small cataracts may not have any affect on vision. If the cataract involves the entire lens in both eyes then vision will be absent. In the more advanced cataracts, you may notice that the pupil, which normally appears black, has undergone a colour change and becomes bluish or white. As the pupil opens and closes, this cloudiness may appear larger or smaller. The cataract is simply being covered and uncovered by the iris.

### What Can Cause A Cataract?

There are many possible causes e.g. diabetes, inherited causes in purebred dogs, and PRA (progressive retinal atrophy), **but often we do not find a specific cause**. Breeds seen at Animal Eye Care with inherited cataracts include Cocker Spaniels, Poodles, Australian Cattle Dogs, Maltese, Boston Terriers, and Golden Retrievers. It is difficult (except in some diabetics) to look at a cataract and determine the cause.

### Why Do We Check The Retina?

The retina (the nerve tissue at the back of the eye) must be healthy for cataract surgery to restore vision. Many purebred dogs such as Labradors, Australian Cattle Dogs, Australian and Silky Terriers, Poodles, and Cocker Spaniels can have PRA:



progressive retinal atrophy. This is the cause of the poor vision and the cataracts. PRA in the early stages can cause poor night vision, followed by poor day vision and eventually cataracts. In many cases the early signs of PRA are overlooked, even by the most diligent of owners, and it is assumed that the cataracts are the cause of the vision loss. **In these cases the dog is blind because of the PRA, so cataract surgery will not restore vision.**

### Electroretinography

If we cannot see the retina because the cataract is too cloudy, an ERG (electroretinogram) will be performed. This is an electrical test of the retina performed under light anaesthesia. Using a computer we measure the electrical response to bright lights being flashed into the eye. If the retina is healthy the ERG will show a normal wave pattern; if the retina is diseased with PRA the ERG is flat. If the ERG shows that the retina is not working, then cataract surgery will not help to improve vision. The ERG will not show early retinal detachments.

As part of the general workup before surgery we may perform ocular ultrasonography. This is usually done at the same time as the ERG. The ultrasound is used to image the inside of the eye; in these cases we are checking to make sure that the eye is healthy enough for surgery. In particular we are looking for advanced degenerations of the

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### **What Is Cataract / Lens Induced Uveitis (Inflammation)?**

As cataracts form, the lens protein inside the eye changes. This change may allow the lens protein to leak into the inside of the eye. This causes inflammation inside the eye, and this must be treated. **Diabetic dogs seem to be especially prone to this inflammation.** Lens induced uveitis can cause painful outcomes such as glaucoma and/or lens luxation. Pre-operative lens induced uveitis can lower the success rate of cataract surgery.

Lens induced uveitis can be controlled in most cases with long-term drops (Pred Forte or Maxidex) and in some cases tablets. Surgery is helpful in most cases to help control the lens induced uveitis as the protein that is causing the reaction is removed.

The cataracts that develop because of the PRA will often cause this lens-induced uveitis. **Watch for signs of redness on the whites of the eye. If treated early, painful outcomes such as glaucoma and lens luxation can be avoided.**



### **What Is The Treatment For Cataracts?**

Surgery is the only effective method to remove the cloudy lens from the eye. There are no known preventative treatments for cataracts. From time to time various drops, lotions, pills, and special diets have been suggested to help with cataracts. These have not been proven to help dissolve or reduce a cataract.

## **CATARACT SURGERY**

### **Should My Pet Have Cataract Surgery?**

Most blind animals cope very well as they have good senses of smell, hearing and they know their home environments extremely well. However successful cataract surgery can greatly improve an animal's quality of life. Factors that need to be considered include the patient's age, general health, and the health of the eyes themselves

The decision on whether to remove a cataract is a joint one between you, your local veterinarian and Animal Eye Care. Please feel free to speak to us at any time if you have any additional questions regarding cataracts or cataract surgery.

### **Is My Pet A Good Candidate For Cataract Surgery?**

Cataract surgery is an involved and intricate surgery. We need to make sure that your pet is healthy and is free of any problems that might interfere with the success of cataract surgery. In some older dogs we may recommend that your local veterinarian decided whether your pet requires a physical examination and preoperative blood & urine tests, and in some cases chest X-rays and heart examination.

Age alone is not a deterrent to cataract surgery. With the use of modern anaesthetic agents cataract surgery has been successfully performed on dogs and cats as old as 19 years. One concern with older dogs is that their retinas may also have age related degeneration. Senility is also an issue with older dogs, and specific drugs or a Prescription Diet may be recommended to help boost poor brain function.

### **Cataract Surgery**

Diabetic dogs make excellent candidates for cataract removal. The increased sugar levels in the lens make the cataract softer and easier to remove with the new technique of phacofragmentation. Diabetic patients can potentially have problems as their wound healing is slower and they are more prone to infection. We use extra sutures and antibiotics to prevent these problems. Overall diabetics seem to have a higher success rate.

Cases in which there has been pre-existing reaction against the cataract (lens induced uveitis) tend to have poorer success rates. This reaction will increase the risk of more inflammation after surgery, glaucoma, retinal detachment, bleeding and cloudiness in the eye.

### **When Is The Best Time To Operate?**

In the past cataract surgery was usually delayed until the cataract had matured and the patient had gone totally blind. We now know that surgery is considerably more successful if the cataract is removed before it matures. We now decide to remove the cataract if it is likely to progress. This can usually be predicted by considering the animal's age, breed, and the size and location of the cataract. In some cases the most predictable thing about cataracts is that they are unpredictable.

Allowing the cataract to grow and mature will reduce the success rate for a number of reasons. Firstly more mature cataracts are more likely to develop uveitis – inflammation, which can lower the success rate by as much as 20 to 30%. Secondly more mature cataracts can cause vitreous degeneration which may lead to cloudiness in the jelly of the eye. Thirdly the risk of retinal detachment is increased. Fourthly the capsule which holds the lens can become cloudy and opaque.

### **Surgery - How Is It Done?**

Cataract surgery is performed using the latest proven technique of phacofragmentation. This is the same to what is presently done in humans. The surgery is performed with the aid of an operating microscope. A very specialized general anaesthetic is given, and a neuromuscular block is administered, which helps to improve access to the eye. Whilst under the general anaesthetic the animal is carefully monitored including measurement of blood pressure, and blood oxygenation by pulse oximetry.



Two small incisions, the first is 1mm the second is 2.8 mm long, are made into the eye. The anterior capsule is removed with a fine pair of forceps. The cataract is then removed by phacofragmentation which is ultrasound energy used to break down the cataract. In some cases part of the posterior capsule is removed. The incision in the eye is then enlarged to between 4 to 8 mm through which the intraocular (plastic) lens is then inserted. See the photo of the IOL. The incision is then stitched closed with fine hair like dissolving sutures. Laser is not used to remove the cataract; in humans laser may be used after surgery to remove scars, but it is not used to actually remove the cataract.



### **Cataract Surgery**

## **Success and Potential Complications**

Our success rate at Animal Eye Care is comparable to other veterinary eye specialists around the world. We regularly discuss and review our techniques with our colleagues. In young animals with early cataracts we record our highest success rate of over 93%. This means 93 out of every 100 eyes regain useful vision that is maintained 12 months. Several years after surgery the success rate is reduced to around 90%. In cases where the cataract is mature and particularly those with pre-existing inflammation in the eyes a much lower success rate is to be expected.

With cataract surgery both in animals and humans there are a number of potential complications. These include glaucoma (increased pressure in the eye), uveitis (inflammation in the eye), cloudiness of the lens capsule, corneal oedema (a blue haze to the eye), retinal detachment, sudden retinal degeneration, and haemorrhages in the eye. **In some cases we do not get any vision because of complications.**

We will check the drainage angle of the eye to determine whether or not the eye is predisposed to glaucoma. Eyes that are predisposed to glaucoma will most likely require long term drops to control the intraocular pressure. In some cases it is not possible to control the pressure and vision may be lost.

## **Maximising the Success**

Carefully follow all of the pre and postoperative instructions. If you are unsure at any stage please call Animal Eye Care at any time.

Retinopexy can be used to reduce the risk of retinal detachment. In certain breeds (Bichons, Bostons, Poodles, Shih Tzus), if the eye is inflamed, if the cataract has been present for some time, if the lens appears to be loose, or if the posterior lens capsule is accidentally ruptured or needs to be removed, the risk of retinal detachment is greatly increased and retinopexy is recommended. Retinopexy is laser surgery to 'spot weld' the retina onto the back of the eye. If problems arise during surgery, the retinopexy can be done immediately after surgery. **Even with retinopexy it is still possible for the retina to detach, but it occurs much less frequently.**

## **When Can My Pet Come Home?**

All patients are able to return home the night of surgery. However they need to return the following morning for a check-up. We need to do this to monitor the IOP (intraocular pressure), as an increase above 30 is diagnostic of glaucoma.

## **Prior to Surgery**

If the cataracts are mature or the eyes are inflamed at the time of the initial appointment, then Pred Forte or Maxidex eye drops are commenced. These eye drops are increased to three times daily starting 3 days before surgery. We also start oral anti-inflammatory tablets (Prolet, Rimadyl, Metacam or cortisone) 3 days before surgery, normally twice daily. It is important to stop any other anti-inflammatories e.g. cortisone (Prednisolone, Delta Cortef) whilst we are on the Prolet, Rimadyl or Metacam tablets.

If we were unable to see the retina because the cataract was too cloudy we will need to do an ERG and ultrasound to see how healthy the retina is.

## **Cataract Surgery**

## Following Surgery

The dogs need to wear an Elizabethan Collar or Optivisor for one week. This may cause some disorientation for the first 24 hours or more however it is necessary to minimise the chance that the dog may accidentally damage the eye. It is very important to make sure that the E. collar is not rubbing the skin, especially underneath the neck. If your dog is prone to ear problems, make sure that the ears are cleaned regularly.

Generally there is little if any pain associated with the procedure. Most dogs settle down very quickly after the surgery. We routinely give a pain relieving injection on the morning of surgery, and the tablets which we use as an anti-inflammatory is also an analgesic.

Antibiotic drops (Soligental eye drops) will need to be given 4 times daily for 5 days after surgery. The cortisone drops (Pred Forte or Maxidex), which were given before surgery, are stopped for these 5 days, and are then usually given twice daily from day 6 after surgery for 6 to 12 weeks after surgery.

Usually 4 to 6 weeks after surgery the top of the eye may become a little red and blue. This is due to a reaction developing as the sutures dissolve out. This does not seem to be associated with any pain or discomfort. The cortisone drops will help reduce this reaction.

Surgery is usually performed on a Monday by Dr Robin Stanley, Tuesday by Dr Chloe Hardman and Wednesday by Dr Anu O'Reilly. Diabetics will go home that day and return the following day for examination, whilst non-diabetic dogs will stay overnight. We need to recheck the eye 1, 3-4, 10-14, and 24 days after surgery. Three post-operative visits are included in the surgery fee if seen at East Malvern, however at a travelling clinic a \$20 fee will be charged. If Saturday appointments are required, they should be booked when booking surgery, they tend to fill up quickly.

If an after hours consult is required, then a fee will be charged for an after-hours visit.

We then suggest visits every 6 to 12 months to monitor the progress and health of the eye. A fee is charged for these long term follow up visits.

## Vision after Successful Surgery

With the cataract successfully removed the dogs vision is greatly improved, and most dogs return to their previous activities. We routinely recommend that we replace the cataract lens with a plastic intraocular lens (IOL). We find that with an IOL, your pet will regain their vision much more quickly, and the lens also helps with their close-up vision and depth perception. An IOL would also seem to reduce the risk of secondary cataract from forming. However not all patients are suitable for an IOL and this may be discovered during surgery. Without a lens generally the patient's close up vision (less than 75 cms) is poor, but the mid to long distance vision is normal.

As in humans it can to take 3 to 7 days for the dog to regain useful vision. In some cases it may take up to 6 weeks for the dog to learn how to see again. This often the case where an IOL has not been implanted.

***One or Both Eyes?*** Until quite recently in humans only one eye would ever be done at a time. Most veterinary ophthalmologists are happy to do both eyes at the same time. There is a small risk that the surgery is may not be successful in both eyes if a complication such as an infection should develop. Fortunately this is very rare with the new small incision techniques of cataract surgery. The benefits of doing both eyes are that the surgery is substantially less expensive, and only one anaesthetic is required. The decision on whether to operate on one or both eyes is yours to make.

## **Cataract Surgery**

### **Will The Cataract Grow Back?**

No, all the lens protein is removed. In young dogs less than a year of age we can get cortical regrowth where the lens tries to regrow.

In some young dogs we can get scarring of the lens capsule. We remove the anterior (front) capsule, and generally leave the posterior (back) capsule. In some cases it is possible for the capsule to opacify, which may look like a cataract. In most cases this does not seem to affect the dog's vision, even though you may notice cloudiness. For dogs under the age of five we routinely recommend removing the posterior capsule at the time of surgery when a lens is implanted. This will require us to do retinopexy to reduce the risk of retinal detachment, which can follow posterior capsule removal. During surgery in some cases we find that the posterior capsule is cloudy after we have removed the cataract, and in these cases we will remove the capsule, and then do laser retinopexy immediately when the surgery is completed.

### **The Surgeons**

Animal Eye Care is one of Australia's leading animal eye care centres. Dr Robin Stanley has been doing cataract surgery since 1988. He has lectured and demonstrated surgical techniques to other eye specialists both here in Australia and also overseas. Dr Chloe Hardman & Anu O'Reilly also have a wealth of experience and talent. Our surgical techniques are being constantly reviewed to ensure that we maximize our success. We have had a number of specialists visit our clinic from overseas.

### **The Equipment**

Animal Eye Care has recently purchased new equipment, which is currently found in the more modern human cataract surgery centres. We are now using cold phaco which reduces the risk of intraoperative complications.



### **Payment**

As cataract surgery is an elective procedure full payment is required at the time of surgery. Payment can be made by cash, cheque, EFT, Mastercard or by Visa only.

***We have given you a lot of information in this handout; please feel free to contact us if you have any questions.***