



EARLY WARNING
Fully developed cataracts leave the eye functionally blind, increasing the importance of early identification and client awareness.



MEET THE AUTHOR

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Early Detection and Management of Cataracts in Dogs

Cataracts are an opacity in the lens of the eye, and when mature can lead to loss of vision. Cataracts are not typically brought to the attention of a veterinarian until owners report their dogs bumping into furniture or developing a cloudy appearance to their eyes. From here, the general practice veterinarian often refers the patient to a veterinary ophthalmologist. Referral to a veterinary ophthalmologist can offer suspected cataract patients targeted care and establish the best plan of treatment to preserve or restore a dog's vision.

Tyler is currently working in Florida as a relief veterinary nurse in areas including ophthalmology, emergency medicine, and general practice. Tyler also works with the Uncharted Veterinary Conference, contributing to their social media marketing. Tyler's clinical interests include ophthalmology, anesthesia, low-stress handling, and the human-animal bond. She is also passionate about providing veterinary teams an opportunity at wellness in practice through her relief services, SOS Vet Relief. Tyler has written articles for several online publications on topics from client communication to mental wellness in the profession.

One of the most intriguing parts of working as a veterinary nurse in an ophthalmology practice is managing cataracts. Upon consultation, the veterinary nurse should talk with pet owners about how to keep eyes with cataracts comfortable by medically controlling the inflammation/uveitis caused by the developing cataracts, and the ultimate potential of restoring their dog's sight. Once the veterinary ophthalmologist prescribes treatment, the veterinary nurse can advise owners that maintenance therapy, such as anti-inflammatory eye drops and eye lubricants, can help limit potential complications caused by cataracts. While cataract formation itself is not a painful condition, owners should be aware that without any maintenance therapy, secondary conditions, such as glaucoma, can cause discomfort. If the client elects to pursue surgical removal of the cataracts, the veterinary nurse can discuss what to expect with the care of a pet's eyes before and after the procedure.

There is nothing quite as rewarding as telling a client their dog could see again. However, there are a variety of reasons that restoring a dog's vision may not be possible. Some of those reasons are beyond anyone's control, but early detection and management of cataracts offer the opportunity of restored sight. This means that we must educate clients in what a cataract is, both in their interactions with their general practice veterinary teams and the veterinary ophthalmology teams. While the referring veterinarian may not prescribe treatment, understanding ways cataracts can be managed and setting pet owners' expectations prior to their visit to the veterinary ophthalmologist will build more confidence in the entire veterinary team and help provide clients with consistent information.

WHAT ARE CATARACTS AND WHY DO THEY DEVELOP?

A cataract is a permanent change in the thin, clear, highly organized protein fibers that make up the lens of the eye.¹ This change transforms the clear protein into a milky, white, opaque one. Once the proteins change throughout the entire lens, it is like a frosted pane of glass, and as the lens thickens it becomes more difficult for the pet to see around. A cataract that is fully developed (mature) leaves the eye functionally blind. It is often at this point that clients note their pet bumping into things, especially in dim lighting. Some light and shadow awareness can be present, so advising clients to give their dogs with developing cataracts adequate lighting in the home is a helpful tip.

Cataracts can develop for many reasons, although the most common reason in dogs is a genetic inherited condition.² Owners often ask if their pet's cataracts could have been prevented, and it is important to stress that for most genetically predisposed pets, cataracts were likely to develop regardless of care. Other common reasons cataracts may develop are the result of a secondary effect of metabolic disease (e.g., diabetes mellitus), trauma to the eye, toxicities, or in rarer cases, nutritional deficiencies.¹ Some toxins that can lead to cataract development are ketoconazole and disphenol.³ Cataracts due to nutritional deficiencies are less understood but have been suspected to be linked to deficiencies in amino acids, such as tryptophan, during development of puppies when they are given commercial milk replacers.⁴

THE IMPORTANCE OF EARLY DETECTION AND MANAGEMENT

If a cataract is managed and monitored early, there are many options to keep the eye healthy and comfortable. Think about cataracts as being as individual in nature as the dogs that have them. The rate at which they will progress from pinpoint, incipient spots on the lens to fully mature cataracts is completely variable.

Once a cataract reaches maturity, it is more likely to cause increased inflammation within the eye (uveitis). This inflammation can prevent a pet from being eligible for vision-restoring surgery by causing secondary issues. Eyes that develop cataracts will all have some level of low-grade inflammation;⁵ thus a major part of effectively managing cataracts is managing the inflammation they create early in their development. This inflammation is not typically painful (unless cataracts develop quickly, as this results in more significant uveitis) but can be irritating and can later lead to glaucoma, which is a painful condition. Management of mild uveitis is often achieved with daily use of non-steroidal anti-inflammatory drug (NSAID) eye drop medications. Moderate to severe uveitis typically requires topical corticosteroid medications to control.

Other complications that are secondary to the development of mature or hypermature cataracts are lens luxation and glaucoma. The lens of the eye is held in place by the lens capsule. This thin shell is stabilized by fibrous suspensory ligaments called zonules on either side of the eye, which can break down or weaken. Damage to either of these structures



GLOSSARY

Cataract An opacity in the lens that impairs vision

Glaucoma A group of diseases characterized by increased intraocular pressure with resultant retinal and optic nerve destruction

Uveitis Inflammation of the uveal tract of the eye

Zonules A ring of fibrous strands that connects the ciliary body with the crystalline lens of the eye

can cause the lens to luxate, or freely move within the eye. These structures can be weak due to genetic predispositions or the development of a hypermature cataract. Lens luxation will require surgery to repair, but because it causes severe strain on all aspects of eye health, it may not be visually restorative when these cataracts are removed. Glaucoma is an increase in pressure within the eye resulting from fluid buildup. Inflammation caused by cataracts can obstruct the iridocorneal angle that allows fluid to flow from the eye as it normally should, which can eventually lead to glaucoma. If a pet has glaucoma, they're not often a candidate for cataract removal surgery.

CLIENT EDUCATION ABOUT CATARACT MANAGEMENT OPTIONS

For pets that have been diagnosed with diabetes mellitus, statistics show 75% of these dogs will develop mature cataracts within 6 to 12 months of diagnosis.⁶ When talking to owners of diabetic dogs, this is an important thing to discuss. Many owners of diabetic patients have expressed that they were unaware of the eventual impact of their dog's metabolic disease on their quality of life through sight. Even though it was most likely discussed at the time they received the diagnosis, there is a large amount of information to process. Create a plan with your veterinary team to reiterate the secondary effects of their pet's diagnosis after the initial discussion. It is crucial as advocates for our patients' care that veterinary nurses give these owners the best opportunity to manage the visual aspect of their dog's disease and refer to a veterinary ophthalmologist as soon as possible.

There are 2 options for managing cataracts: medical management or surgical removal. The only treatment that will restore vision in an eye with a cataract is surgical removal. Unfortunately, there are currently no medications or other treatments proven to slow, halt, or reverse the vision loss caused by cataract development.

Medical Management

The primary goal of medically managing an eye with a cataract is maintaining comfort and managing inflammation to prevent the secondary complications previously stated. While this option does not involve visual restoration, it is equally important for the client to understand the consequences of unaddressed cataracts. When there is no intervention with cataract development, a normally non-painful process can lead to secondary, painful ones, including lens luxations, glaucoma, and corneal ulcerations. The first question clients will ask is, "Is my dog in pain?" Addressing the cataract development from this perspective can incite the urgency and importance of maintaining even early cataracts.

Medical management of cataracts starts with a visit to a veterinary ophthalmologist to determine the level of inflammation and assess whether it is appropriate to start topical NSAIDs (e.g., diclofenac or ketorolac) and eye lubricants, or if more intensive therapy is needed. Poor corneal health, determined by tear film assessment with Schirmer tear testing and fluorescein staining for active or recent ulcerations, may limit the use of NSAID medications and should be utilized judiciously in senior and diabetic pets. Corneal ulcerations and the resulting scarring are painful complications that can prevent a pet from having the option of cataract removal surgery. Keratitis sicca, or dry eye, is another condition to be monitored for closely in dogs who may be eligible for cataract removal. Patients with retinal degeneration or detachment are not typically candidates for surgery, as they would not visually benefit from cataract removal.

Long-term medical management can vary from daily NSAIDs and lubricants to managing ongoing developments in eye pressure changes and corneal health. Many dogs can lead perfectly happy lives with cataracts as long as they are able to maintain pain-free eyes. They can adapt to life without vision by memory mapping familiar environments and their acute sense of smell.

Surgical Removal

Surgical removal is the second option for managing cataracts and the only vision-restoring option. A cataract does not have to be fully mature before surgery is an option. In fact, it is preferred to do this procedure while the cataract is immature. There are many factors that ophthalmologists take into consideration to see if each pet is a good candidate for surgery. Cataract removal surgery causes temporary additional inflammation which is potentially dangerous to the vision. If a dog already has significant inflammation or glaucoma in the eye, surgery would only cause more damage, as it incites a large amount of inflammation initially after surgery. Therefore, the retina may end up damaged and vision may be lost. If the eye already has severe, ongoing inflammation, the health of the back of the eye (retina), where light is converted into neural signals and sent to the brain, may already be impaired.

Prior to surgery, ophthalmologists will do a series of tests to evaluate the retinal function, such as an electroretinogram and ocular ultrasound. These tests are important because an ophthalmologist cannot see through the cataract into the eye, just as the pet cannot see through it out into the world. If the retina appears healthy, the dog will have a chance at vision when the cataracts are removed.

Cataracts are removed by a process called phacoemulsification. This requires the use of a special piece of surgical equipment that pulverizes the lens into small pieces that the surgeon is then able to remove from the lens capsule. If the lens capsule is stable, a lens implant can be placed to help maintain a normal level of focusing capability. If a lens implant cannot be placed, the dog's vision will still be significantly improved. The lack of a lens will not allow the dog to focus well up close, and their vision will be better in the mid to far visual fields.⁷ Despite the diminished visual acuity, dogs tend to adapt well to the ability to distinguish items and objects in their environment.

Recovery from cataract surgery involves the client medicating the surface of the eye for several weeks. Additionally, the owner will be responsible for giving the pet oral medications to control pain and inflammation and prevent infection. Owners must also be educated regarding the importance of the dog wearing a hard-sided Elizabethan collar for a minimum of 2 weeks. Frequent follow-up examinations within the first month of surgery are extremely important for which the client must comply. In my experience, most

clients are more than willing to undertake this level of care for a chance to restore their pet's vision. However, it is important for owners to realize that recovery from cataract surgery in dogs is much different than in humans. Therefore, client education regarding the disease, management options, and follow-up care is of the utmost importance.

KEY TAKEAWAYS

A dog's ability to see is something which deeply affects the human-animal bond. Dealing with a functionally blind dog at home is very challenging for owners. In the case of cataracts, there is more the veterinary team can do to make vision-restoring surgery an option for more dogs. The key points to remember about cataracts in patients are that early detection and management are imperative. Dogs with diabetes mellitus will develop cataracts, and quickly. This should be a part of your initial conversation with owners of diabetic dogs so they can consult with an ophthalmologist sooner. Low-grade inflammation is present in eyes even with immature cataracts. Therefore, controlling this inflammation gives more dogs the chance to have vision saving surgery before secondary issues remove them from candidacy.

Veterinary nurses are advocates for their patients' care, and giving owners information about what options are available to them is an important part of that advocacy. To increase the likelihood of a patient's chances of restoring vision, early detection is crucial. Not every dog is going to be a candidate for cataract removal surgery, and there are many factors to consider before an ophthalmologist will perform this procedure, but it is a potentially life-altering option we can provide our patients and their owners. **TVN**

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