



Animal Eye Clinic

of Waterloo Region

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EQUINE CATARACTS

What is a cataract?

A cataract is an opacity within the lens tissue. The lens is a flattened crystalline ball that is located behind the iris, in the pupil. The lens helps to focus light onto the retina. In order for an animal to have vision, light must reach the retina which is located at the back of the eye. The retina is the nerve layer in the eye that converts light stimulus into electrical impulses that travel to the brain via the optic nerve. The brain processes the information that it receives from the retina, and interprets that information into an image. If the lens becomes opaque, the light will not be able to reach the retina and vision will be impaired.

Many cataracts begin as an opacity in a small area of the lens but this may eventually progress to an opacity involving the entire lens, which will cause the animal to become visually impaired. There are four main classes of cataracts: incipient, immature, mature, and hypermature.

What causes cataracts?

In general, cataracts are the result of molecular changes in the lens fibres and proteins which results in a loss of transparency. There are many different causes of cataracts.

In horses the most common causes include:

Equine Recurrent Uveitis (ERU): This is the most common cause of cataracts in horses.

Inflammation within the eye due to ERU creates an inhospitable environment for the lens. As a result, the lens forms a cataract, becoming opaque.

Congenital: Some foals are born with cataracts, or cataracts may develop shortly after birth. The reasons for this are unknown. Cataracts may also be inherited by the foal from its sire or dam.

Age: Although it is less common, animals are also susceptible to age-related cataracts. In these cases, the cataracts often take several years to develop to the point where the animals' vision is impaired.

Ocular Injury or Disease: Cataracts can be caused by toxins, deficiencies in dietary nutrients, lens injuries (i.e. perforation or trauma), and as a result of other disease processes such as intraocular inflammation, retinal degeneration, and glaucoma.

How do I know that my animal has a cataract?

Sometimes the first indication of cataract formation is visual impairment. You may notice that your horse cannot navigate its paddock or stall without bumping into things. They may also refuse to navigate unknown surroundings and spook uncharacteristically.

You may also notice a bluish white opacity in the normally black pupil. Other signs include squinting, redness of the eye, and ocular discharge.

How are cataracts treated?

Cataracts can only be removed by surgery. The only way to restore vision is to physically remove the opacity. There is no medication that will return the lens back to a clear structure.

In order to determine whether an animal is a viable candidate for cataract removal surgery, the animal will need to have his/her eyes evaluated by a veterinary ophthalmologist. In addition to a basic eye

examination, further diagnostic testing may be required. Typically, an electroretinogram (ERG) is performed to assess the function of the retina. A special contact lens is placed on the horse's eye and light is flashed on the eye. The information is transferred to a computer and analyzed to determine retinal function. Additionally, an ultrasound of the eye may be required to ensure the retina is not detached. If the retina does not function properly, removing the cataract from the lens will not restore the animal's vision.

Not all types of cataracts need to be removed. Some cataracts remain small enough so that they do not impair the horse's vision. In these cases treatment may not be necessary, however regular check-ups by your veterinarian are advised.

In foals who are born with congenital cataracts that impair their vision, surgery is indicated. Cataract removal in foals has a very high success rate.

In an adult horse, cataracts may only be removed if there is no evidence of inflammatory disease such as ERU. The success rate for cataract surgery in adults is lower than it is in foals, but the chance of restoring vision is still quite high.

CATARACT SURGERY

Cataract surgery is one of the most common surgeries performed by veterinary ophthalmic surgeons. Specialized training and equipment has dramatically improved the success rate of cataract surgery over the past few years.

How are cataracts removed?

Cataracts are removed by a process called phacoemulsification. A small probe is introduced into the eye through a tiny incision at the limbus. This instrument produces high frequency ultrasonic waves that break the lens material into a liquid, which can then be vacuumed from the eye. The corneal incision is then closed with tiny sutures that are resorbed over the next six weeks.

How much will cataract surgery cost?

Cataract surgery can only be performed by a veterinary ophthalmologist using specialized equipment. The total cost of cataract surgery runs from \$5000 to \$7500, barring any complications.

What happens when my horse is admitted for surgery?

Once your horse is deemed an appropriate candidate for cataract surgery, a date will be set for the surgery. We typically schedule cataract surgeries on Wednesdays. Your horse will need to be admitted to the hospital on the Tuesday before for a pre-surgical evaluation and bloodwork. These tests will screen for any preexisting conditions that may make surgery inadvisable at this time.

*Please bring all of your horse's medications with you when you bring them in for surgery. We will need to administer their regular medications, while they stay with us.

Following surgery, the patients are admitted into our Intensive Care Unit (ICU) for one to two weeks before being discharged. Your horse is monitored closely following surgery to ensure that they are recovering well from the surgery and that their intraocular pressure remains in a safe range. Extremely strict rest is required for the first 24-48 hours.

What postoperative care will my horse require?

Initially, your horse's postoperative care is very labour-intensive. Patients must receive frequent medication, both intravenously and topically, for several weeks after surgery. This is a very important part of your horse's recovery. Initially your horse will require several different eye medications, to be administered four or more times daily via a subpalpebral lavage system. Intravenous antibiotics and anti-inflammatories will also need to be administered once or twice daily. The frequency of the medication administration will be gradually tapered over the recovery period. Eye medications will

likely need to be administered for three to four months post-operatively, depending on your horse's recovery.

Your horse's exercise must be restricted to the absolute minimum for two to four weeks after the surgery and excitement should be avoided. During this time, the horse should be kept in a darkened stall and exercise should be limited to hand walking two to four times per day. Your horse will require time to adjust to his or her new vision.

Excessive head shaking, self-induced or other trauma can contribute to postoperative complications. Owners should refrain from bathing or grooming their horse, especially around the head, for four weeks after surgery.

There are usually a number of post-operative evaluation appointments at two, four and six weeks post-operatively. If complications arise, more appointments will be necessary to monitor your horse's progress. We then recommend rechecks every six months, and then yearly.

What are the possible complications of cataract surgery?

Several postoperative complications can develop regardless of the surgical method used to remove the cataract. These include:

- **Uveitis**, which is an inflammation inside the eye. This is the most common postoperative complication and is unavoidable when performing intraocular surgery. This inflammation will usually begin to subside within three weeks. However, low-grade inflammation can persist for weeks to months. Treatment with intravenous and topical anti-inflammatories will help to decrease inflammation.
- **Corneal ulcers** can occur following surgery and may be due to the exposure and drying of the corneal surface during surgery. The healing of such ulcers can be delayed due to decreased tear production and the administration of anti-inflammatory drops. Artificial tears can help to keep the cornea lubricated.
- **Transient Increases in Intraocular Pressure** have been reported in horses during the 12-72 hours following surgery. Intraocular pressure is monitored after surgery and pressure elevations are treated in hospital. Most horses respond to treatment.
- **Glaucoma**, which is a persistent increase in intraocular pressure, may develop weeks to months after surgery. This type of glaucoma usually develops as a result of permanent structural changes in the region of the eye where fluid normally exits.
- **Retinal detachments** may occur postoperatively. Some of these can be surgically repaired but the prognosis for vision is guarded. The prevalence of retinal detachments as a complication of cataract removal has been reported to be low and may be decreased with early intervention.
- **Bleeding in the Eye** can occur during or after surgery due to bleeding from the incision site, sudden changes in pressure inside the eye, trauma to the iris during surgery, severe intraocular inflammation, pre-existing clotting problems, or retinal tears. Postoperative activities that may contribute to bleeding include: vigorous activity, head shaking, and blunt trauma. Thus, minimal activity is essential and excitement must be avoided.
- **Corneal edema** (fluid in the cornea) can result from damage to the inner layer of the cornea. Edema causes the cornea to become cloudy, which can affect vision.
- **Opening of the incision** can occur secondary to trauma, or infection. This requires immediate attention by the ophthalmologist.
- **Infection** is a risk after any surgical procedure.

It should be noted that some of these complications can lead to blindness and, in extreme cases, may require surgical removal of the eye or eyes.