

Retinal Detachment in Cats – Causes, Symptoms & Treatment

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What is a retinal detachment?

Retinal detachment (RD) is a common, serious and sight-threatening disorder which occurs when the retina detaches from the underlying retinal pigment epithelium layer.

The retina is the thin, transparent layer of light-sensitive tissue which lines the rear (posterior) wall of the eye, working in a similar way to that of the film in a camera. Photosensitive cells known as rods and cones convert light into electrical impulses which are carried to the brain via the optic nerve.

Anatomy of the inner eye:

The vitreous humor is a gel-like substance which fills the interior of the eye helping it keep its shape. The retina has nine neurosensory layers including *rods and cones* (responsible for vision) which are located in the innermost layer and the *retinal pigment epithelium* (RPE) behind the photosensitive layer.

In the centre of the retina is the optic nerve, which travels from the retina to the brain where it transmits visual information.

The choroid is a layer of tissue behind the retina which is rich in blood vessels to the retina with oxygen and nutrients.

There are three types of retinal detachment including:

1. *Rhegmatogenous retinal detachment (RRD)* occurs when there is a tear in the retina which leads to vitreous humor seeping through the tear and behind the retina, separating it from the underlying retinal pigment epithelium.
2. *Exudative (serous) retinal detachment* is due to a build-up of fluid between the photosensitive layer and the retinal pigment epithelium. The most common causes of exudative retinal detachment are inflammatory conditions.
3. *Traction retinal detachment* occurs when the retina is pulled off the retinal pigment epithelium due to tractional forces. The most common cause of traction retinal detachment is diabetes.

There are no breed predilections, it is seen more in older cats, but that is no doubt due to the increased incidence of systemic diseases such as hypertension and hyperthyroidism which occur as cats age.

Causes:

- Hypertension (high blood pressure) is one of the most common causes of retinal detachment in cats. High blood pressure causes fluid to leak from the blood vessels behind the retina which over time causes it to separate from the underlying layer it is attached to (*serous retinal detachment*). Hypertension may be primary or secondary (see below).
- Hyperthyroidism, usually caused by a benign tumour of the thyroid gland and is a common cause of high blood pressure in cats (see above).
- Kidney disease which can cause high blood pressure.
- Hyperviscosity syndrome (HVS) in which causes the blood to become thicker than normal due to increased proteins (hyperproteinemia), most often associated with multiple myeloma. This can lead to ruptures in the small blood vessels behind the retina.
- Advanced diabetes.
- Trauma may be a blunt force, penetrating injury or surgical trauma.
- Bacterial, fungal, protozoal or viral infection.
- Inflammation.
- Cancers: Lymphoma, multiple myeloma (cancer of the plasma cells), tumours of the eye (most commonly melanoma or ciliary body adenocarcinoma) and any primary cancer which has metastasised.
- Exposure to toxins or certain medications (griseofulvin, ethylene glycol/antifreeze, rodenticide).
- Glaucoma (increase in intraocular pressure within the eye), due to stretching of the retina as the eyeball increases in size.
- Congenital (present at birth) abnormalities of the eye or retina.
- Systemic lupus erythematosus (SLE) is an autoimmune disorder which can affect any organ in the cat, including the eyes.
- Vasculitis, inflammation of the blood vessels.
- Idiopathic (unknown cause).

Symptoms:

Retinal detachment isn't painful to your cat, and it is quite easy for the condition to go unnoticed. It may occur in one (unilateral) or both eyes (bilateral). When both eyes are affected, it is generally due to an underlying systemic disease.

- Sudden blindness or reduced vision. You may notice your cat becoming more clumsy.
- Pupils may be slow to dilate, with total retinal detachment the pupils will remain dilated.
- In some cases, hemorrhage in the front of the eye may be seen.

Diagnosis:

Your veterinarian will perform a complete physical examination of your cat including a thorough ocular examination. He will obtain a medical history from you including other symptoms you may have noticed, known medical disorders, the age of your cat, any medications he may be taking or exposure to toxins.

Diagnostic tests:

- Complete blood count, biochemical profile and urinalysis to evaluate the organs and look for signs of infection, poisoning or inflammation.
- Ophthalmoscopy which is an examination of the back part of your cat's eye, tonometry to measure pressure within the eye.
- Blood pressure check, this is performed in a similar way to humans, with an inflatable cuff placed on the cat's front leg or tail.
- Blood tests to check levels of T3 and T4 thyroid hormones in the blood.
- Radiographs and/or ultrasound of the chest and abdomen.
- If your veterinarian suspects multiple myeloma, a bone marrow biopsy will be necessary. This would reveal an overabundance of plasma cells.

Treatment:

The goal of treatment is address the underlying issue and repair the retina (if possible). Your veterinarian may refer you to a specialist eye veterinarian (ophthalmologist) to perform the surgery. There are several surgical options:

Other treatments depend on the underlying cause and may include:

- Medications to control high blood pressure.
- Surgical removal of the thyroid gland or radioactive iodine treatment to destroy the tumour for cats with hyperthyroidism.
- Prescription diet, phosphorus binders, and erythropoietin for kidney disease.
- Diet and where necessary insulin for cats with diabetes.
- Surgery for cats with trauma injuries or to remove tumours (where possible).
- Surgery and/or chemotherapy for cats diagnosed with a tumour. Chemotherapy may be a stand-alone treatment to slow down progress of an inoperable tumour.
- Radiation therapy or chemotherapy to treat multiple myeloma along with supportive care along with analgesics to relieve pain.
- Antibiotics, antivirals or antifungals to treat an infection.
- Corticosteroids to treat vasculitis.
- NSAIDS to treat SLE, limit sunlight exposure, and antibiotics to treat a secondary infection.
- Medications to bring down intraocular pressure, medications to relieve pain, steroids if inflammation is the cause and in some cases cryosurgery to freeze a portion of the ciliary body to reduce production of aqueous humour.
- Induce vomiting and administer activated charcoal for a cat who has ingested poison. Administration of ethanol for cats who have ingested antifreeze, or vitamin K for cats who have rodenticide poisoning. Sodium bicarbonate to correct acid

imbalances along with supportive care.

The prognosis can vary depending on the speed of treatment and the underlying cause. The prognosis is poor if the retina has been detached for more than 24 hours. This is an unfortunate outcome, however, cats can adapt very well to the loss of their sight.

Follow up care:

- Administer medications as directed by your veterinarian.
- Keep your cat indoors and restrict activity while h,
- is recovering.
- Regular follow-ups to monitor your cat's progress and blood pressure.

