

Retinal Dysplasia

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BASIC INFORMATION

Description

Retinal dysplasia is abnormal development of the retina that results in retinal folds or round, medallion-shaped lesions in the retina. If the retina is severely affected, it may detach, which results in blindness. Retinal dysplasia is present at birth, and, with the exception of retinal detachment, the lesions do not change or worsen with time. Usually, both eyes are affected.

Causes

In purebred dogs, the condition is often inherited. It occurs in numerous breeds, such as the American cocker spaniel, Labrador retriever, golden retriever, Pembroke Welsh corgi, English springer spaniel, Akita, Rottweiler, Samoyed, Bedlington terrier, and others. Retinal dysplasia may occur alone, or it may be accompanied by other inherited ocular defects.

Retinal dysplasia can also be caused by certain neonatal infections and events. The retina continues to develop for several weeks after birth, so is highly sensitive to agents that disrupt retinal development in the neonatal period. Infections that can cause retinal dysplasia include canine adenovirus, herpesvirus, and parvovirus in the dog and feline panleukopenia and leukemia virus in the cat. Exposure to toxins or radiation and a dietary deficiency of vitamin A are also potential causes.

Clinical Signs

Retinal dysplasia can be classified into three forms:

- The mildest form is single to multiple retinal folds. No clinical signs or alteration in vision are caused by these folds.
- Geographic, medallion-shaped lesions are a moderate form of the disease. These lesions involve more of the retina but do not often cause clinical signs or detectable vision abnormalities. On retinal examination, it may be difficult to tell these lesions from retinal scars secondary to inflammation, especially when the animal is an adult.
- The most severe form is widespread retinal folding that may lead to retinal detachment or be accompanied by that ocular defects such as cataracts, abnormally small eyes, and vitreal problems. In the Samoyed, the German shepherd dog, and some Labrador retrievers, severe retinal dysplasia is accompanied by skeletal dwarfism. Retinal detachment from severe dysplasia usually occurs within the first 6-9 months of life

and leads to complete blindness. Occasionally, bleeding in the back of the eye or secondary glaucoma may occur with retinal detachment.

Diagnostic Tests

Retinal dysplasia is diagnosed in most animals by examination of the retina with an ophthalmoscope. Since the condition is present at birth or develops soon after birth, it can be seen as early as 6 weeks of age in most animals. Retinal examination is facilitated by application of drops to dilate the pupils. It is common for entire litters of puppies to be examined by a veterinary ophthalmologist at 6-7 weeks for retinal dysplasia and other inherited eye defects. Examination at an early age helps to differentiate retinal dysplasia from retinal scars that may show up later in life.

Retinal dysplasia must be differentiated from normal folds in the retinas of growing animals. Normal folds tend to appear as white, worm-like (vermiform) streaks in the dark part of the retina. Vermiform streaks occur in both purebred and mixed-breed animals, and more than 80% disappear as the retina reaches its adult size.

TREATMENT AND FOLLOW-UP

Treatment Options

No treatment exists for retinal dysplasia. To date, no effective treatment is available to prevent the retinal detachments associated with this condition. Most affected animals should not be used for breeding.

Follow-up Care

Animals with severe retinal dysplasia may be rechecked for several months to monitor for retinal detachment. Notify your veterinarian if any decrease in vision occurs. If retinal folds are believed to be vermiform streaks, the animal may be re-examined periodically to check for their disappearance.

Prognosis

Prognosis is excellent for animals with mild or moderate folds. Because the offspring of affected dogs may develop more severe forms of retinal dysplasia, breeding of even mildly affected dogs is discouraged for most breeds. Prognosis is poor for animals with severe retinal dysplasia, because many go blind before 1 year of age.