

The Diabetic Eye in Dogs



Diabetic cataract

Tear film

Cornea

Ocular neuropathies

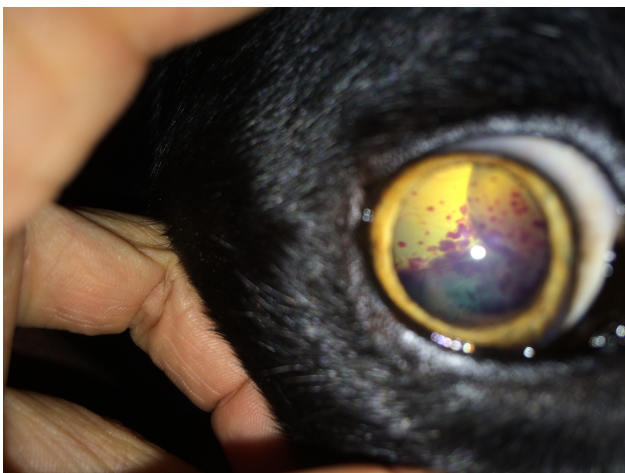
Lipid Aqueous

Cataracts

Hypertension

Overview

Diabetes is a disease that affects every single cell in the body. The ocular changes start at the level of the tear film and continue to the retina. Whilst rapidly advancing cataracts are obvious, patients should also be monitored for dry eye, corneal sensory reduction and hypertension. Patients with excellent diabetic control are easier manage when these problems develop.



Retinal haemorrhage with large retinal detachment



Lipid aqueous

KERATOCONJUNCTIVITIS SICCA (KCS)

Reduced tear film quality and quantity in diabetic dogs, especially following cataract surgery

Most common in small breed diabetic dogs

KCS diagnosed when tear reading is $<15\text{mm/min}$ in conjunction with clinical signs of dry eye

Increased bacterial load in conjunctiva may increase risk of corneal infection

Responds well to topical cyclosporine or tacrolimus eye drops

CORNEA

Reduced corneal sensitivity due to diabetic ocular neuropathy

Leads to decreased tear film quality as well as reduced sensitivity

Reduced capacity for healing corneal erosions/ulceration

Corneal endothelial cell loss in diabetic dogs predisposes to corneal oedema

LIPID AQUEOUS

Lipid in the anterior chamber that causes the aqueous to turn opaque, making it difficult to visualise the pupil

Secondary to hyperlipidemia and concurrent anterior uveitis, more common in diabetic dogs with concurrent Cushing's disease

Often self-limiting but responds well to treatment of anterior uveitis with topical NSAIDs + atropine

Treat the underlying cause of hyperlipidemia. Consider a low-fat diet.

CATARACTS

Common sequelae of diabetes in dogs

Caused by the reduced ability of the lens to metabolise glucose, which accumulates in the lens and causes an osmotic cataract

Can develop very rapidly and often result in lens-induced uveitis (LIU)

Topical NSAIDs will reduce incidence of LIU

Cataract surgery performed early has the highest success rate due to reduced risk of post-operative complications

HYPERTENSION

Can occur concurrently with diabetes in dogs, especially in dogs that also have Cushing's disease

May lead to hyphema, retinal haemorrhage, detachment and vision loss

Diagnosed when systolic BP $>180\text{mmHg}$ on Doppler

Treat underlying cause where possible but consider hypertension in cases with reduced vision, but no evidence of cataract development

DIABETIC OCULAR NEUROPATHIES

Similar pathogenesis to diabetic neuropathies in humans

May result in Horner's syndrome, facial nerve paresis and/or neurogenic KCS

Can be unilateral or bilateral

45% resolve spontaneously within 12 months

May require ongoing medical management

Often can be controlled, rather than cured