Gonioscopy in Golden Retrievers
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Glaucoma is an eye disease that is painful and quickly results in the loss of vision. Glaucoma is increased fluid pressure inside the eye (intraocular pressure or IOP) and is being diagnosed in Golden Retrievers with increasing frequency. It is not really common i.e. seen every week, however we would probably see between 5-10 cases per year. The underlying cause is malformation of the drainage angle inside the eye (the irido-corneal angle) whereby lack of drain holes results in a sudden increase in the pressure and associated pain. Malformation of the drainage angle is called goniodysgenesis and can be diagnosed by gonioscopy whereby a special thick contact lens is placed onto the cornea, allowing the eye specialist to see around the corner into the drain.

Glaucoma can be primary (associated with a malformed drainage angle) but also secondary to inflammation, tumours, lens luxation and bleeding into the eye. Checking the drainage angle at eye examination and determining whether or not the drain is wide open, narrow but open, or malformed = goniodysgenesis will help prevent a more prevalent problem in the breed – as was seen in Flat-Coated Retrievers in the United Kingdom some years ago.

A dog with complete goniodysgenesis is likely to develop glaucoma at some time later in life. Many of the Golden Retrievers we see are 6-7 years old at first presentation. There is not much we can do to treat glaucoma in Golden Retrievers, and eye removal or intrascleral prosthesis are the only options for a blind, painful eye. We then place the fellow eye on prophylactic drugs (glaucoma drops and cortisone drops) to attempt to delay the onset of glaucoma in that eye. Fifty percent of dogs have glaucoma develop in the fellow eye within 9 months; however this interval can be increased to a median of 30 months with prophylactic mediation. When glaucoma occurs in the second eye, emergency glaucoma medications are used to try to control the pressure however if this fails eye removal or prosthesis is performed. Diode laser cyclophotocoagulation is used with fair success in most breeds however does not appear to work in Goldens.

Dr Tony Read, now in Adelaide, was actively involved with researching and putting measures in place to reduce glaucoma in Flat-Coated Retrievers in the UK. He has given us recommendations to help reduce the incidence of goniodysgenesis in Goldens. In his experience, he suggests that the drainage angles can improve with selective breeding, and that the prevalence should be greatly reduced within 2 to 3 generations.

It is probably not wise to breed with a dog with complete goniodysgenesis, however if all other attributes of that dog are ideal, it could be bred to a dog with wide open drainage angles and it is expected that there will be a dilution of the severity of the closed drain. In Flat-Coated Retrievers, an ‘averaging’ of the drains was seen, with a spread or mixture of differently affected drainage angles. For example of 10 puppies you would expect most of the dogs to have mildly to moderately closed drains, a couple may be normal and a couple may be severe. It is recommended that the
puppies of such a litter be checked. The earliest that this is possible is approximately 12 weeks of age, but it is best if left until 5-6 months of age.

A dog with a mild or moderately closed drainage angle should be bred to one with a wide-open drainage angle, and it is unlikely that any of the offspring would have severely closed drainage angles.

Our recommendations include:

1. Gonioscopy on all adults to determine status of the drainage angle at ACES examination. This is done once when dogs are young, then usually when the dogs are 7 or 8 years old at the final examination to check whether or not the drainage angle has narrowed with time.
2. Breeding of mildly and moderately closed drains (preferably less than 50% of the drainage angle affected) to dogs with wide open normal drainage angles.
3. If dogs with goniodysgenesis are bred, breed to dogs with wide open drainage angles and assess all puppies, then breed with offspring with improved drainage angles.

Hopefully following these guidelines, the prevalence of goniodysgenesis will be minimised and over time we will see fewer Golden Retrievers presenting with glaucoma. In our experience owners with pet Goldens are devastated when their middle-aged dog goes blind. We can work together to try to eradicate this condition and therefore improve the Golden Retriever breed.