

Dr. Roughie's Questions and Answers

Summary of Ophthalmic Findings in PBGVs on April 2, 1999 (In conjunction with the PBGVCA National and Eastern Regional Specialties)

Kasmin D. Bittle DVM

40 PBGV's examined:

22 normal CERF's

18 abnormal CERF's with one or more of the following abnormalities:

* Persistent pupillary membranes

10 iris to iris

2 iris to cornea

*Cataracts

2 posterior cortical--bilateral--intermediate

2 anterior cortical--bilateral--intermediate

1 unilateral--anterior cortical--punctate (likely trauma induced)

Intraocular pressures

* Greater than 20 and less than 30 mm Hg--3 dogs

Gonioscopy (performed in 22 dogs)

* 10-25% sheeting (covering) of iridocorneal angle--5 dogs. All had IOP (intraocular pressure) of less than 15 mm HG

* Narrow ICA (iridocorneal angle)--2 dogs. Both dogs had IOP of 20 to 30 mm Hg

There was no evidence of lens luxation. I would suspect based on your description that these dogs have primary glaucoma (either "open angle" with abnormal pectinate ligaments or narrow angle) and secondary lens luxations. Some of the dogs had significant PPMs and cataracts. These three problems may become significant conditions in your breed.

Brian C. Gilger, DVM, Diplomate ACVO

Comments to Dr. Gilger's Findings

It is clear from the findings of the eye clinic done in conjunction with our specialty shows that the frequency of eye abnormalities was 46 percent. This figure is consistent with the most recent Canine Eye Registration Foundation (CERF) summary for the breed, where about 62 % of animals were normal. While some of Dr. Gilger's findings were "expected" in terms of persistent pupillary membranes (PPMs), other findings were a bit more surprising. Four dogs had cataracts that by their appearance and location were presumed to be hereditary. It is important to place emphasis on the phrase "presumed to be hereditary". Until genetic studies are performed and further data on eye abnormalities within the breed is gathered, abnormalities that resemble inherited conditions seen in other breeds are presumed to be inherited. This means that breeders should be cautious about breeding affected animals.

Also significant was the finding of 5 dogs with relatively mild goniodysgenesis. Goniodysgenesis is defined by the American College of Veterinary Ophthalmologists as "a congenital anomaly characterized by the persistence of a sheet of tissue between the base of the iris and the inner corneoscleral junction in the area where drainage normally occurs." During gonioscopy, the angle between the cornea and the iris is viewed with a special lens. During this procedure, both the width of the angle and the appearance of the pectinate ligaments are viewed. A very strong association has been made between pectinate ligament dysplasia and a predisposition to glaucoma in some breeds, while in other breeds the relationship between pectinate ligament dysplasia and the development of glaucoma is more tenuous. However, it is plausible that a tendency toward worsening of this condition may

contribute to the development of glaucoma in the breed. While it is reassuring that all dogs with pectinate ligament dysplasia had normal intraocular pressures, only continued examination of PBGVs will reveal whether dogs with more extensive involvement exist and whether an association with glaucoma may be seen over time.

The final significant finding during the eye clinic was the presence of increased intraocular pressures in three dogs, two of which had narrowed iridocorneal angles (but not pectinate ligament dysplasia). It is also important to note that most dogs with pressures in these ranges will be asymptomatic in terms of ocular pain and redness while by definition they are dogs affected with glaucoma.

It is clear from the findings of our eye clinic that eye examinations for breeding stock should be performed multiple times throughout their breeding lives. A single eye examination performed at a young age may not be sufficient to detect some of the above abnormalities. It is also clear that eye examination, particularly of mature animals, should include both gonioscopy and tonometry, neither of which are normally included during CERF examination. It is therefore important that dog owners request that these additional tests be performed prior to the start of the examination. Only the conscientious application of testing which is readily available in most areas of the country will reveal the significance of these findings over time. Serious consideration should also be given to the establishment of "open" eye registries, whereby sharing of information can be achieved. International cooperation and standardization of testing would also facilitate more rapid progress in better defining the eye problems within the breed.