

Dr. Roughie's Questions and Answers

Glaucoma and Lens Luxation-Sorting Out the Facts

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Many of you may be aware of reports of lens luxation and glaucoma in Petits Bassets Griffons Vendeens in continental Europe, Great Britain and here in the United States. Although the problem is not yet widespread in the U.S., we should familiarize ourselves with the terminology and the diagnostic techniques used to define these disorders. Let's start by defining some of the terms used in discussing these conditions. The following definitions are quoted from the text, *Ocular Disorders Proven or Suspected to be Hereditary in Purebred Dogs*, prepared by the American College of Veterinary Ophthalmologists.

Luxated lens-Partial (subluxated) or complete displacement of the lens from the normal anatomic site behind the pupil. Lens luxation not associated with trauma or inflammation is presumed to be inherited. Lens luxation may result in elevated intraocular pressure (glaucoma) causing vision impairment or blindness.

Glaucoma-an elevation of intraocular pressure (IOP) which, when sustained, causes intraocular damage resulting in blindness. The elevated IOP occurs because the fluid cannot leave through the iridocorneal angle. Diagnosis and classification of glaucoma requires measurement of IOP (tonometry) and examination of the iridocorneal angle (gonioscopy). Neither of these tests are part of a routine breed eye screening exam.

Tonometry-measurement of the intraocular pressure.

Gonioscopy-a specialized procedure which uses a contact lens to examine the iridocorneal angle.

Lens luxation commonly causes glaucoma in the affected eye. Glaucoma, occurring as a primary event, may sometimes cause lens luxation. However, each of these conditions may exist as separately inherited disorders in purebred dogs. Breeds affected with lens luxation include Australian cattle dogs, border collies, fox terriers, Jack Russel terriers and Norwegian Elkhounds. Breeds affected with glaucoma include basset hounds, Samoyeds, chows, and beagles.

Persistently increased intraocular pressure results in blindness due to irreversible damage to the retina and optic nerve at the back of the eye. Glaucoma is also a painful condition. It is essential that the signs of glaucoma be recognized by the owner of the affected dog and treated promptly if vision is to be preserved. Ophthalmic examination early on is also necessary to determine which condition came first. If the angle formed by the cornea and the iris (iridocorneal angle) is open, and glaucoma and lens luxation are present, then the implication is strong that the lens luxation caused the glaucoma. Similarly, if glaucoma is present, the iridocorneal angle is closed in both eyes, but only one eye has a luxated lens, then the implication is strong that closed iridocorneal angles caused the glaucoma and the lens luxation is a secondary event. If a rise in intraocular pressure is noted fortuitously, and this rise precedes the development of lens luxation, the implication once again is that glaucoma is the primary problem, with lens luxation following as a secondary event.

It is important to understand that both lens luxation and glaucoma may occur very suddenly. There is no way at the present time to screen an animal for the propensity for lens luxation. If the lens is in the proper anatomic position at the time of ophthalmic examination, no prediction as to the chance of luxation at a later time can be made. In breeds where closed or narrow angle glaucoma are a problem, some prediction of the propensity to develop glaucoma may be derived from the technique of

gonioscopy. In general, animals with closed iridocorneal angles have a high probability of developing glaucoma. Animals with narrow angles may or may not develop the condition.

How may we as breeders or pet owners apply the above information in a useful manner with regard to our own dogs? What should our goals be to better define the extent of the problem in our breed, particularly in the U.S.?

First, regarding eye clearances in breeding animals, it is important to note that tonometry and gonioscopy are not routinely performed unless requested by the dog owner. I encourage all of you to request these procedures with future ophthalmic examinations. We must simultaneously accept the limitations of the procedures for a given abnormality. In other words, if lens luxation is not present now, it does not mean that it may not be next week or next year. The examination is reflecting a moment in time, particularly with regards to lens luxation and the presence or absence of glaucoma. The usefulness of the procedures is that they will help to build a database for the breed and may produce values and normals for the individual animal to compare back to at a later time.

Glaucoma and lens luxations are adult dog problems. In breeds where these conditions are a problem, most affected dogs are from 3 to 7 years of age. Therefore, in affected breeds, annual eye examinations of breeding animals are recommended by the American College of Veterinary Ophthalmologists. Even with annual examination, some animals may suddenly develop problems between check-ups. As the costs of tonometers (instruments used to measure ocular pressure) have decreased, many private, non-specialty veterinary practices are adequately equipped to screen for glaucoma and to examine for lens luxation. While these examinations do not have “official status” regarding eye certification, it may place the necessary technology closer to the patient.

As breeders and dog owners we must learn to recognize early signs of a problem. Glaucoma causes a red, painful eye. Dogs with eye pain will often squint and may rub the eye. Dogs may also act sluggish due to pain, and may be apprehensive or move slowly due to visual impairment. Red eyes should be examined immediately. It is far better to rush in for ophthalmic examination, only to discover that the problem is conjunctivitis or some other easily treated condition, than to wait and find that vision has been lost in spite of treatment due to irreversible optic nerve or retinal damage.

We have been fortunate up to now that our breed has had relatively innocuous eye problems. We have also been fortunate in that these problems could be screened for at a young age, prior to making breeding decisions. Lens luxation and glaucoma, if they become established in the breed, will be more problematic than our previous problems. It is inevitable with lens luxation and glaucoma that animals may be bred in good conscience, only to develop the problem later. Most forms of glaucoma in dogs respond poorly to conservative medical management. The only treatment for lens luxation is surgical removal of the luxated lens prior to the development of severe glaucoma. In all breeds of dogs where lens luxation and glaucoma are present, the advice from the American College of Veterinary Ophthalmologists is that affected animals not be bred. Now is never too soon to begin more frequent screening of Petits Bassets Griffons Vendeens used for breeding.