Lens luxation of the Parson Russell Terrier

Dr Guillaume Queney
ANTAGENE laboratory

The lens luxation, an incapacitating eye disease.

The lens luxation corresponds to a lens displacement in the eye. The lens is essential to vision by converging the light to the retina.

The lens is held in position within the eye thanks to suspensory ligaments. The ligaments that hold the lens become distended, eventually leading to partial or total dislocation of the lens. The lens becomes mobile in the eye, entailing various disruption: an increase of the eye pressure (glaucoma), retinal detachments, bleeding inside the eye.

Lens luxation is genetic in the Parson Russell Terrier breed and usually occurs between 3 and 8 years.

If not treated, this leads to blindness. A surgery to remove the dislocated lens may allow the animal to keep a good vision on a long term.

A common disease in the breed

The Lens luxation of the Parson Russel Terrier is a hereditary disease with recessive expression. This eye disease is caused by a mutation of the ADAMTS17 gene.
22% of Parson Russel Terrier are carriers of the mutation responsible of the Lens Luxation.

A dog develops the disease if it carries two mutated copies of the gene, it is "mutated homozygous » (affected). The "heterozygous" dog (healthy carrier) carries a normal copy and one mutated copy of the gene: it does not develop the disease, but it transmits the mutation to 50% of its offspring.

Inadequate screening in the breed led to spread the mutation, and to increase the number of carriers without notice of the breeders, veterinarians.

A DNA test to easily detect the Lens Luxation

Any veterinarian who suspects Lens luxation of a Parson Russell Terrier can implement the PLL-A DNA test to confirm the genetic origin of the disease and confirm that the symptoms are not the result of another eye problem. DNA testing can be done very early on a Parson Russel Terrier which even shows minor eye problems.

With a frequency of 22%, The Parson Russell Terrier breeder has a strong chance of mating unknowingly two carriers and as a consequence, of producing affected puppies. The breeder wouldn’t even notice it because affected puppies do not usually develop the disease before the age of 3 years old. Affected dogs may also be matted before the onset of symptoms and thus transmit the mutation to 100% of their offspring.

A suitable selection and reasoned through DNA testing

DNA testing is done using a simple cheek swab sample performed by a veterinarian. The veterinarian authenticates the sample and ensures necessary medical monitoring of affected dog which develops symptoms later. The sample is analyzed within a few days by the laboratory. The result is valid for life and whether the dog is homozygous normal (Clear), heterozygous (carrier) or homozygous mutated (affected).

The result is displayed on a certificate and can be provided as a guarantee for other breeders or to proove the production of puppies free from this eye disease. By testing its main stud dogs and brood bitches, the breeder will secure his selection work and breeding.

As the disease is common in the Parson Russell Terrier, it is strongly recommended not to exclude from reproduction heterozygous dogs (carriers) at risk of losing genetic diversity in the breed, ameliorative features many stud dogs and brood bitches and to let other genetic problems emerge.

As long as breeders test their stud dogs and brood bitches, they can easily assure buyers that their Parson Russell Terrier puppies will not develop this lens luxation, common in the breed.

ANTAGENE's webpage on dna tests available for the Parson Russel Terrier:
http://www.antagene.com/en/chien/parson-russell-terrier

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