

CONFORMATION OF THE FRONT LEGS IN GLEN OF IMAAL TERRIERS – RADIOGRAPHIC STUDY

Background: The Glen of Imaal terrier is a rare chondrodystrophic (also known as chondrodysplastic) dog breed with genetically determined short-limbed phenotype (Parker et al. 2009). They are disproportional dwarfs with short bowed long bones of the limbs but with a normal axial skeleton (Martinez et al. 2007). Chondrodystrophy predisposes to growth disturbances of the limbs; premature closure of the growth plates can cause excessive limb deformity causing lameness of the front limbs. It has been postulated, that the problem is hereditary in Skye terriers (Lau 1977).

Elbow incongruity has been studied radiographically in Skye terriers in Finland. It is common, and is clearly associated with lameness both in young and adult dogs. Dogs with mild incongruity are seldom lame, but lameness is common in dogs with moderate or severe incongruity (Lappalainen et al. 2015).

Aim of the study is to test the radiographic screening protocol used in Skye terriers in Finland in other chondrodystrophic breeds, such as Glen of Imaal terrier. This study is a part of a larger study utilizing biomechanical methods in evaluation of movements of chondrodystrophic breeds (Glen of Imaal and Skye terriers).

Methods: Radiographs (mediolateral and craniocaudal images of both fore arms) of Glen of Imaal terriers are evaluated by Anu Lappalainen. The radiographic procedure is described separately. The result of an individual dog is given to the owner; otherwise results of the study are presented anonymously.

Timetable: Now – 02/28/2016

References:

Lau, R.E. (1977) Inherited Premature Closure of the Distal Ulnar Physis. *Journal of the American Animal Hospital Association* **13**, 609-612

Martinez, S., Fajardo, R., Valdes, J., Ulloa-Arvizu, R., Alonso R (2007) Histopathologic study of long-bone growth plates confirms the basset hound as an osteochondrodysplastic breed. *Canadian Journal of Veterinary Research* **71** 66-69

Parker, H. G., VonHoldt, B. M., Quignon, P., Margulies, E. H., Shao, S., Mosher, D. S., Spady, T. C., Elkhoulou, A., Cargill, M., Jones, P. G., Maslen, C. L., Acland, G. M., Sutter, N. B., Kuroki, K., Bustamante, C. D., Wayne, R. K. & Ostrander, E. A. (2009) An expressed *fgf4* retrogene is associated with breed-defining chondrodysplasia in domestic dogs. *Science* **325**, 995-998

Lappalainen, A.K., Hyvärinen, T., Junnilla, J., Laitinen-Vapaavuori, O. Radiographic Evaluation of Elbow Incongruity in Skye Terriers. Submitted to *Journal of Small Animal Practise*

Questionnaire to the owners of Glen of Imaal terriers participating in the Radiographic Study of the Front Limbs.

Dog

Name: _____

Date of birth: _____ Sex: _____

Weight _____ kg

Owner

Name: _____

Email: _____

Puppy limp:

- The dog has never been lame < 12 months of age
- The dog has been lame more than one week < 5 months of age
- The dog has been lame more than one week > 5 months of age

Answer the following questions, if the dog has been lame:

When the limping started? _____

How long did it last? _____

Did you consult a veterinarian? If your answer was positive, tell the diagnosis and treatment as accurately as possible (use the back side of the paper).

Was the treatment effective? _____

If you did not take the dog to the vet, did you treat it somehow (rest, pain killers etc.)? How? Did it help?

Lameness (> 12 months of age)

- The dog has never been lame > 12 months of age
- The dog has been lame more than one week > 12 months of age

Answer the following questions, if the dog has been lame:

Which limb? _____

How long limping lasted? _____

How was it treated? _____

Reason for lameness? (accident, slip?) _____

Radiographic procedure for forearm evaluation of Glen of Imaal Terriers

Two radiographs are taken from both front limbs (= 4 images). Identification of the images includes register number of the dog, date and mark of the limb (left, right) in all images. The dog must be adequately sedated for the study.

Projection 1:

Mediolateral projection of the forearm. Center in the middle of the radius, elbow joint and carpus are visible in the image. The elbow joint is in neutral position (the opening angle 90° or more). The joint space should be visible as clearly as possible. Let the carpus rotate if the forearm is crooked.

Projection 2:

Craniocaudal projection of the forearm. Centering as in projection 1. The elbow joint should be straight. Let the carpus rotate if the forearm is crooked.



Projection 1
Neutral mediolateral

Projection 2
Craniocaudal

Sending the images:

Images must be in the DICOM-format. They can be sent to Anu Lappalainen (anu.k.lappalainen@helsinki.fi) by e.g. Dropbox or as a CD to address:

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Information of the dog (name, register number, date of birth) and owner (e-mail address) is required.