Ichthyosis in the Golden Retriever.

By J. Hodges

Ichthyosis, whose name is derived from the Greek word for "fish" due to the fish-like scales that are observed on dogs with the disease, is a common inherited dermatosis observed in the Golden Retriever. Dogs with Ichthyosis may develop white scales on the skin soon after birth. The scales persist through the animal's life and may progressively blacken, becoming dry and rough with age but typically do not cause itching. Secondary infectious complications (bacterial, fungal or parasitic) are occasionally associated with the condition. This condition has been around for years, but has recently become more familiar due to a new genetic test developed by Antagene (based in France) now available for Golden Retrievers, and hence more discussion amongst breeders and veterinarians worldwide.

Ichthyosis is a known genetic condition (Golden Retriever Ichthyosis is inherited as an autosomal recessive trait). A dog must have two defective copies (one from each parent) of the mutated gene to be affected by the disease.) Ichthyosis occurs in many breeds of dogs, including American Bull Terriers, Jack Russell Terriers, West Highland White Terriers, Cairn Terriers, Boxers and Golden Retrievers. It is also a common condition in humans.

The level it affects certain dogs breeds varies and some forms are more serious and can make life a misery for dogs affecting their feet and making the skin crack, other forms appear to be rather self limiting such as in Golden's, and they do not appear to suffer much more than constant falling skin. (Fish like flakes) the severity varies considerably and may only be present in times of stress. Some dogs may be affected and show little or no sign.

It has a simple autosomal recessive mode of inheritance, so is not difficult to breed out, simply by careful selection. In the perfect world a dog with this condition or one that is a carrier would be best to go to a clear partner, so that incidence is reduced in their offspring. Puppies can be tested before they leave so that clear puppies can be kept for future breeding. Affected puppies will usually be seen before 8 weeks (by brushing, but the disease can take 1-2 years to appear) By doing the DNA test we accurately know the status of each puppy/adult. A carrier will show no signs of the condition. Scaling is only seen on affected dogs.

Expected results for breeding strategies using the Ichthyosis (ICT-A) test			
Parent 1 Genotype	**Parent 2 Genotype**		
	Normal/Clear	Carrier	Affected
Normal/Clear	All = Normal/Clear	1/2 = Normal/Clear 1/2 = Carrier	All = Carrier
Carrier	1/2 = Normal 1/2 = Carrier	1/4 = Normal/Clear 1/2 = Carrier 1/4 = Affected	1/2 = Carrier 1/2 = Affected
Affected	All = Carrier	1/2 = Carrier 1/2 = Affected	All = Affected

Diagram taken (with permission) from the Opitgen web site.

This condition is believed to be quite wide spread throughout some European line's, and in America and yet many breeders take little notice of it. Based on what lines we have in Australia there is little doubt that we do have the condition here. I have spoken to several vets, and they had never heard of Ichthyosis, but when you mention flaking skin, they have certainly seen this, usually attributing it to allergies, thyroid or poor diet. Statistically in Europe the latest data (over 500 dogs tested) shows 30% clear dogs, 40% of carrier and 30% affected. (data from ANTAGENE)

No specific or efficient treatments for Ichthyosis are currently available. Treatments mainly rely on increased hygiene measures (e.g. frequent brushing, kerato-regulating shampoo, weekly emollients, moisturising spray such as Humilac) and providing a fatty acid-enriched diet. In Golden Retrievers it does not appear to have any other effect on the dogs overall health or life span.

It is important that if you dog does suffer constant skin flaking that you can now suggest this condition to your vet, as some vets may think it may be an allergy or has other causes. They may put the dog on steroids and try other treatment methods. It is worth keeping Ichthyosis in mind as it requires a different type of management (diet and hygiene) , and is a lifelong condition. A simple DNA test will give you a definitive answer.

A link to the site where the test is performed is listed below. Kits can be ordered via email and blood and cheek swabs can be taken and posted to Antagene in France. Results are back in 3-4 weeks. Cost is approximately $95 AU.

- http://www.antagene.com/index.php?langue=L2
- http://www.antagene.com/uploadfichier/Anglais/ICT-A.pdf
- http://www.optigen.com/opt9_ichthyosis_gr.html

- The Ichthyosis research that led to the mutation's discovery and the DNA test's validation was conducted by a canine genetic team from CNRS-University of Rennes (Dr. Catherine André), Dr. Eric Guaguère (Clinique Vétérinaire Saint-Bernard, 59160 Lomme, France) as well as their partners at ANTAGENE laboratory. Antagene owns the international license for testing Ichthyosis (patent pending).

Below are photos of affected dogs

Scales in coat when parted & a far more serious case (result of grooming)

References:

- **USA OptiGen®, LLC · Cornell Business & Technology Park · 767 Warren Road, Suite 300 · Ithaca, New York 14850**
- **Aniagene Laboratory– Immeuble Le Meltem - 2, allée des Séquoias - 69578 Limonest cedex- France**
- **Journal of Small Animal Practice (2009) 50, 227–235DOI: 10.1111/j.1748-5827.2009.00730.x**
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