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What's Up, Doc? Common and Uncommon Presentations of Autoimmune Diseases in Beardies

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A lot of calls I get are from Beardie owners and their vets who are stumped by the signs of illness which their dogs are displaying. In some cases they thought they had a diagnosis, but the dog isn't responding to the treatment, and in others they're just plain baffled. One owner had survived 26 appointments with five different veterinary hospitals, including a veterinary teaching hospital, before she got a diagnosis of her Beardie's condition. Unfortunately, not everyone is that persistent, some conditions are never correctly diagnosed, and some Beardies don't make it to diagnosis. Part of the problem is that the veterinarian may not have had enough experience with autoimmune disease to pick it up, but equally problematic is that many of these diseases just don't follow the text book, in fact, one of them (SLE) can present in so many different ways that it's been nick-named the "great imitator."

Hypothyroidism: This is the most common autoimmune disease, and probably the one that can present with the most diverse signs, including none at all (or at least none that the owner feels are worth mentioning to their veterinarian). The "classic" presentation is a dog with bilateral alopecia (baldness on both sides of its body, the skin that is exposed may also be excessively pigmented), dry hair coat, and pustular skin eruptions. The dog may appear to shed constantly, is excessively cold sensitive, is lethargic and mentally dull, infertile (bitches may have infrequent heat cycles or they may be absent entirely), fat, with a slow heart rate and fluid accumulations in the skin especially over the eyes and on the shoulders. Hey, wait a minute, we don't see too many Beardies that look like that (let's hope we got them to the vet a long time before it got that bad. Actually, in general the skin and coat problems are most frequently, thin and or dry coat, with frequent hot spots, itching, and ear infections. While fear may be the most common behavioral symptom, I have found that all the aggressive Beardies I've treated are low thyroid, as are the hyperactive-can't concentrate-on-anything types. (The hyperactive ones are climbing the walls and, far from being fat and lethargic, are usually skinny and never still.)

While the symptoms of hypothyroidism are very diverse, it is relatively easy to diagnose. To start with, if your vet has done a routine blood biochemistry profile on your dog and has found an elevated blood cholesterol it doesn't mean



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he needs a low fat diet; he's almost certainly low thyroid. I gather that the OFA thyroid registry is running into difficulties because the tests are expensive, impractical and not always accurate (as described in the April 1996 newsletter, there are three required tests for the registry, and all descriptors do not obtain to each test). The so-called "gold standard" test for hypothyroidism is the equilibrium dialysis test. But it is expensive (appellation "gold" is not for nothing), technically rather difficult, and only performed at one laboratory. So what's a Beardie owner to do? The thyroid panel (done at several laboratories) is relatively cheap (less than \$25), and has proved to have greater than 98% accuracy against the "gold standard." Admittedly, a straight T4 done by most vets is even (slightly) cheaper, but it doesn't tell you much until your dog has already lost two-thirds of its thyroid. MY recommendation is that we start testing our Beardies at about 18 months, and repeat the test every year or two (remember, test bitches three months after the start of their last heat). Animals showing any symptoms of disease should be tested earlier, as should any animal which you plan to breed.

The condition is so common in the breed that I feel testing all Beardies is warranted. What if your Beardie has no apparent symptoms and yet tests low? You can try a course of treatment for 6-8 weeks; you may be surprised that some of the behaviors or minor irritations (flea allergy anyone?) that you took for normal, improves; if not you, can wean the dog off the medication and have lost nothing. You still have the information if later on more overt signs of disease appear. Because so many Beardies test low, I am asked whether Beardie normals aren't just lower than for other dogs. How can they be if I administer synthetic thyroid hormone to these dogs and their physical and mental conditions clear up? Yes, being hypothyroid isn't life-threatening. The big problem is that the less common autoimmune problems all show up in hypothyroid dogs-dogs with normal thyroids just don't seem to have the problems.

Addison's disease: The second most common autoimmune disease in the breed is more properly called "hypoadrenocorticism "-Addison's disease is the human condition. While this is supposed to be a disease most commonly occurring in middle-aged female dogs, it can strike either sex (intact or spayed/castrated) and at any age (6 weeks to 14 years in Beardies). The symptoms are vague: dogs are depressed, lethargic, weak (especially in the hind legs, off their food and exhibiting significant, usually abrupt, weight loss. In some cases the dog appears to have gastrointestinal disease (vomiting and diarrhea) or less often kidney disease (excessive thirst and urination). Some dogs start to shake and have tremors, others show significant abdominal pain.



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Onset is usually quite sudden (some dogs experience heart failure and just drop dead due to the elevated potassium and depressed sodium levels), less than 10% of owners report that the disease has shown a waxing and waning appearance which is responsive to stressors the dog has experienced. Get your veterinarian to do a biochemistry profile on any Beardie which seems off. Even if it isn't Addison's disease, the information will be useful for future reference and may just save his life. The signs to look for on the panel are an elevated blood potassium level with a depressed sodium. In rare cases, changes in blood electrolytes are not seen, but this is by far and away the cheapest and quickest way to diagnose the disease, and speed may be paramount if you are to save your pal. Some Beardie owners have their veterinarians do a routine sodium/potassium yearly, especially if their dog is felt to be at increased risk of getting the disease.

Cushing's disease/syndrome (hyperadrenocorticism): Cushing's disease refers to excessive adrenal secretion of glucocorticoid hormones as a result of excessive secretion of the adrenal stimulating hormone ACTH by the pituitary, while Cushing's syndrome refers to excessive blood levels of glucocorticoids from any cause excessive pituitary activity, adrenal tumor, tumors elsewhere in the body which secrete ACTH or even human (iatrogenic) administration of too much glucocorticoid (e.g., prednisone)). Most of these dogs are older, at least six and more often ten (unless it's iatrogenic); dogs with adrenocortical tumors tend to be older than those with pituitary-dependent disease. The disease is slightly more common in bitches. The dogs are usually not critically ill at presentation. Some of the symptoms are very similar to hypothyroidism: bilaterally symmetrical alopecia (failure to regrow shaved hair, increased skin pigmentation, increased susceptibility to bruising, itchiness, susceptibility to skin infections which are reluctant to heal, lethargy, obesity (although with wasting of muscles and fat on the legs so it's more strictly a weight redistribution) and infertility. Increased thirst and urination, increased appetite, pot-bellied appearance (due to enlarged liver), muscle weakness, pressure sores because they are reluctant to move, shortness of breath and excessive panting.

An uncommon symptom, but one which is diagnostic, is the appearance of firm plaques caused by calcium deposits under the skin; these are most often seen on the top of the head, neck, along the back on the abdomen and in the groin. Other less frequent occurrences are thromboemboli and sudden acquired retinal degeneration. Cushing's isn't particularly common in Beardies, and is usually quite easily diagnosed.



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Inflammatory bowel disease (IBD): This is something of a disease of exclusion. In general, the term is applied to dogs with chronic vomiting and/or diarrhea, which have excessive numbers of inflammatory cells in mucosal samples taken from the stomach, small and large intestines, and which do not have evidence of other causes of the gastrointestinal upset. IBD is probably a group of diseases rather than a single entity', but they do tend to respond to the same therapy. The type (lymphocytic/plasmacytic vs. eosinophilic refers to the predominant type of inflammatory cell found in the mucous (other types exist, but these are the most common forms). The exact signs depend on which part(s) of the gastrointestinal tract is affected. Dietary antigens, infectious agents, immunologic mechanisms and genetic influences as well as environmental stress are probably involved in expression of the condition, which, is managed by both dietary and pharmacological manipulation. A condition which I have seen and heard a lot about recently in Beardies (but which my gastroenterology colleagues seem not to have encountered yet) is a mild recurrent hemorrhagic gastroenteritis. Dogs produce stool which is almost pure red blood, this often smells bad and has a)am-like consistency. Sometimes, Beardies will be sick enough that they require supportive therapy (intravenous fluids) although often they just seem to recover in a day or so with no apparent ill effects. Some dogs get it frequently, in others it may only occur once (so far?).

Stress seems to induce the condition, which is often accompanied by abdominal pain so the dog assumes a praying or bowing position. Tylan, metronidazole, and/or sulfasalazine may help speed recovery, but as it appears transient their impact is moot. Maintenance on these drugs is not preventative, changing to a hypoallergenic or new diet (e.g., fish and potatoes) may help, as may increasing dietary fiber with daily Metamucil. Is it also an autoimmune disease? I don't know yet. If you have any information I'd like to hear, though.

Autoimmune hemolytic anemia (AIHA): While hemolytic anemia can occur from repeated blood transfusions, bacteria, parasites, inherited metabolic diseases, and drugs, in the autoimmune version of the disease the body forms antibodies against its own red cells. The most obvious sign is pale or yellowish (icteric) gums, tongue, and other nonpigmented skin areas. Animals are weak, listless (depressed) and reluctant to move, exercise intolerant, with increased respiratory rate and heart rate. They may be cold sensitive. Often they are off their food, some may exhibit pica (eating abnormal items including feces and dirt), vomiting and/or diarrhea.



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Immune mediated thrombocytopenia (ITP): This may accompany AIHA, SLE, or rheumatoid arthritis, or occur alone. In this case it is the platelets of the blood which are destroyed. Platelets are needed to stop bleeding from any injury to the body including tiny lacerations of the gastrointestinal tract). Usually the presenting symptom is nose bleed, but bleeding is the first symptom recognized. The mucous membranes are usually have petechiae (have red spots of blood blisters), bruising may be seen on the body, black or occasionally red feces and/or blood in the urine may sometimes be seen. Lethargy, weakness, increased heart and respiratory rate may be noticed, but are not the primary cause of concern.

Systemic lupus erythematosus (SLE): This condition can affect a number of different organ systems, so that it can present in a great many different -ways. Onset may be sudden or gradual, and signs may wax and wane so that immediate veterinary help is often not sought. Various involved systems may include:

- 1. Stilted gait and shifting leg lameness due to polyarthritis (inflammation of many joints) or polymyositis (inflammation of many muscles) is the number one presenting sign in most breeds, but seems to occur less frequently in Beardies. It occurs in 75% of dogs with the disease, but may not be present initially. The muscles are usually painful to touch, and there may be diffuse muscle wasting.**
- 2. Many skin problems may also occur in SLE, lesions may be symmetric or focal and can affect the legs, body, head, ears, face, the mouth, and the junctions between skin and mucous membranes. These lesions may be Ulcers, erythematous (raised red weals), crusty or oozing and can result in bald spots and patches. Cellulitis (inflamed connective tissue), furunculosis (boils) and leukoderma (patches of white/depigmented skin) may also be seen. Skin and oral lesions seem to be more common initial signs of SLE in Beardies.**
- 3. Kidney disease (glomerulonephritis) usually manifests itself as blood and protein in the urine and edema. Vasculitis, which results in leaky blood vessels, may also occur. Other signs are less specific, like fever of unknown origin, weakness, and loss of appetite. Pleuritis, myocarditis, and pericarditis as well as enlarged lymph nodes may be found by the veterinarian. Dementia and seizures also seem to be more common in Beardies than they are in other breeds with SLE. AHIA and or ITP may occur concurrently.**



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Pemphigus: There are four recognized variants of this autoimmune skin disorder where the autoantibodies react against antigens found in the spaces between the epidermal (skin) cells. The actual appearance of the lesions is variable, they may be ulcers, large blisters, scaly spots, or raised and wart-like. Immunoglobulins and acanthocytes (abnormal red cells) are deposited between the epidermal cells. *Pemphigus foliaceus* is the most common form of the disease. Pustules are found either all over the body or in patches on the face or feet. The latter, particularly between the toes, seems to be most common in Beardies. In other breeds, the top of the muzzle is the most common site. Normally, crusty and scaly with hair loss, the lesions tend to become ulcerated when the condition periodically worsens, or if the dog licks and fusses with the area. Often the lesions are red, and may even look like targets. (Incidentally, the Beardie, along with the Newf, Akita, and Schipperke, is noted as the breed most prone to this condition.) *Pemphigus erythematosus* is thought to be either an abortive form of *P. foliaceus* or a crossover between that disease and SLE; it is not common. *P. vulgaris* usually affects the mouth and nail beds, may be associated with generalized systemic illness and is painful and itchy. *P. vegetans* is a milder version of *P. vulgaris* and neither of these variants is common.

Myositis: This is sometimes called masticatory, atrophic, or eosinophilic myositis. It affects the jaw and temporal muscles (across the top of the head). Acutely these muscles become painful and swollen. Chronically, the muscles atrophy symmetrically. Sometimes the muscles appear to be constantly contracted, so that the mouth cannot be opened, due to fibrosis of muscle tissue. In other cases the jaw remains in the open position, probably due to secondary paralysis of the nerve. Polymyositis of the limbs resulting in weakness which is made worse by exercise, is seen concomitantly with a number of other autoimmune diseases, including SLE, rheumatoid arthritis, and myesthesia gravis. It may also occur as a result of infection with *Toxaplasma gondii*, a protozoa, various viruses, and as a result of treatment with certain drugs, including the antibiotic trimethoprim-sulfadiazine. Idiopathic polymyositis has not been reported in the Beardie, but is seen in other herding breeds.

Rheumatoid arthritis: This is an inflammatory disease of the joints. Genetic predisposition is one of many factors involved in the development of this disease. Distemper antigens may be another. Lameness may be of variable severity, from stiffness after rest to being so severe that the dog is nonambulatory; the condition may involve a single joint or limb or be widespread. However, the disease is progressive, so that it will spread to



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include at least one other joint over a three month period. The lameness often appears to shift from one limb to another. Most often the presentation is of symmetrical joint involvement. Some animals develop the disease acutely in many joints, together with fever, lethargy, and loss of appetite. The affected joints are usually swollen and painful. As the disease progresses they become grossly deformed, with abnormal motion, and grinding of the bones against each other may be heard. Stretching and rupture of ligaments and joint capsule secondary to inflammation may cause the joint to become unstable and collapse. Osteoarthritic changes also occur. Any limb or spinal joint may be affected. Sometimes upper respiratory infection or pneumonia may also be present. The spleen and/or lymph nodes may be enlarged, and amyloid may be deposited in the kidneys.

Autoimmune uveitis: The uvea is the pigmented layer of the eyes which includes the blood vessels, iris, and ciliary body. It can become inflamed as the result of a number of parasitic and infectious diseases or tumors as well as autoimmune disease. I am not aware of a case in a Beardie.

Myasthenia gravis: In this condition the body makes antibodies against the acetylcholine receptors on the muscle. As a result it becomes increasingly difficult for the body to stimulate the muscles to contract. Muscle weakness is exacerbated by exercise. The dog may appear lame, may collapse, regurgitate, drool, have uncontrollable tremors or have trouble lifting its head. Enlargement of the esophagus (megaesophagus) is common, and can result in the dog regurgitating food from the stomach into the lungs, causing pneumonia. Again, this isn't a disease I've seen in Beardies.