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### **It's All in the Diagnosis** **Linda Aronson, DVM**

When you think about it no matter what is ailing our animals, which system is affected, there are only so many ways disease can manifest. Breathing problems might make us look at the respiratory system, but might also indicate a heart problem. Other symptoms are even more general, itching, skin lumps and bumps, baldness/hair loss, vomiting, diarrhea, increased urination, increased drinking, seizures, anemia, coma, even abnormalities like increased levels of nitrogen in the blood are very non-specific. Treating symptoms without a diagnosis is like shooting in the dark, sometimes you kill the intruder, and sometimes you shoot the toaster. If I may carry the analogy a bit further, the group of symptoms, just like the kitchen chair falling, can give you an idea of the direction in which to shoot, but unless the light comes on, further investigation is warranted to locate the problem.

Reaching a diagnosis is rather akin to solving a crime. Right from the get-go there are problems when it comes to diagnosis. If we assume we know the diagnosis before we start, our line of questioning and testing will follow us along the path to that diagnosis/perpetrator, right or wrong. However, we have to formulate a list of rule-outs for each symptom, and then try to explain all that we are seeing assuming one or at most two disease processes to find the most likely cause. One symptom/clue can be a red herring and unrelated to the primary illness, however. If we are not careful in our information gathering we can arrive at the wrong conclusion, and offer the wrong treatment. The original illness goes untreated and the wrong treatment may contravene that most basic of tenets – first do no harm.

Much though we would like to believe that medicine is a science it is very much an art. Often diagnosis is a matter of interpretation, and suspicion replaces certainty. There may not be a test, or the one that gives the right answer wasn't done. Sometimes it may seem that the bill is being cranked up unnecessarily, and sometimes the ground work done more thoroughly could avoid this, but some testing is definitely required. Diagnoses ultimately are often made on the basis of probability, and sound logic and sufficient knowledge is needed to make as accurate a diagnosis as possible.

It is an unfortunate fact that most veterinary hospitals allow 15 to 30 minutes for an appointment. That is not enough time to take a thorough history and do a complete physical exam let along reach an accurate



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diagnosis or to order the right tests. Short cuts will be made. Diagnoses will be made based on intuition, one definition of which is a rapid method of reaching the wrong conclusion. Worse yet, that same busy doctor may never learn of his misdiagnosis, the animal recovered anyway, the owner went elsewhere, and he will become increasingly confident in his intuition based powers of diagnosis.

Unfortunately, preconceptions run rampant in all of us no matter how much they hamper our ability to function on so many levels. Some things that seem to be obvious are just wrong. Take eclampsia – a condition seen in pregnant and nursing bitches due to insufficient calcium. Intuitively the urge is to increase the calcium in the diet of the pregnant bitch. Do this though and you shut down the bitch's ability to regulate calcium, so that when she needs to draw calcium from her bones during lactation she can't respond and she shows signs of eclampsia. Similarly, for years human doctors counseled patients with calcium oxalate urinary stones to limit calcium intake. This increased the frequency of calcium oxalate stones.

Medicine is a rapidly expanding field, and no-one can hope to keep up. Fortunately, we now have more tools than ever to help us, if we know how to use them. As stated above there are a finite number of ways in which disease can manifest so we need to recognize the problems a dog can have and be able to describe them. In observing the problem though we must avoid making interpretations. You see your dog squatting and straining. That is the observation, but how many people go from there to "My dog is constipated?" Maybe he is, but perhaps he has a urinary stone and is actually straining to pee. If you rush to the interpretation and give him pumpkin or an enema, you delay accurate diagnosis (maybe his bladder ruptures). The observant owner can say, I watched my dog pee against that bush, or in a puddle on the ground, so his straining is most likely because he needs to poop as he hasn't had a bowel movement for three days (because I'm a good owner who picks up after my dog). The owner who just lets his dog go out in the yard alone, but happens to glance out in the yard while sipping his coffee, can only say my dog looks uncomfortable and he seems to be straining to produce something! Or might even conclude, he's squatting repeatedly he must have diarrhea!

Some of the signs we observe are caused by disease and some are the body's response to that disease process and are an attempt to correct it. Treating symptomatically the body's own attempts to heal itself are



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counterproductive and may be dangerous. A dog with kidney failure cannot concentrate urine so pees excessively. To compensate he drinks more. He can maintain balance as long as he has access to water and electrolytes. Limit this and he goes rapidly into shock. Fever is the body's response to infection and while excessively high temperatures should be corrected it can help immobilize infectious organisms.

We all need to be precise in our language. Often we use the terms disease and failure synonymously, but they aren't and the prognosis can be totally different. A dog with kidney failure needs dialysis or he will die. A dog with kidney disease may have adequate kidney function to live quietly with support and unchallenged for a considerable time.

As a species we are by nature superstitious, and this must have had some evolutionary advantage, but medically it can get us in some hot water. Just because one thing follows after another it is dangerous to assume that the second occurrence was caused by the first. Even though in veterinary school we are taught that usually all the symptoms tie into a single disease process this may well not be the case. Likewise because we do something to treat a supposed illness and the patient recovers it doesn't mean that what we did helped, it may have even slowed the recovery. Still we will repeat the treatment even if subsequent patients do not recover. Of course, we are assuming here that they also had the same condition as the initial patient, and may explain away the subsequent failure because say dog one scratched his ear with his left hind leg, while subsequent dogs have used the right leg. Many diseases resolve on their own, without any intervention, and provided we do not do serious harm the patient will get better no matter what we do or don't do.

No two patients are the same in health or disease. Few diseases have a single defining pathognomonic sign or test result that will give a definitive diagnosis, although there are exceptions. Different signs may predominate in different patients and not all will be present in every case. Textbook descriptions can be of surprisingly little value in the real world.

So how do we make the diagnosis? Each sign is consistent with a number of possible causes. Some are more probable than others. Basically the whole of dermatological medicine on initial presentation can be boiled down to itchy versus non itchy. If the former your vet will immediately want to rule out the most likely cause – fleas. Don't be offended that your assurance



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your dog doesn't have fleas will not instantly rule them out in his mind. Some dogs become intensely itchy after the bite of a single flea which is long gone before you see his bald butt, so ruling out the most likely cause of itchiness purely on lack of positive evidence may be a dangerous and expensive mistake.

Combining the list of possible causes from the totality of symptoms in the patient's history, physical examination and basic diagnostic tests (usually blood biochemistry, complete blood count, urinalysis and fecal exam, but these may be modified depending upon the patient's age, sex and presenting signs) a shorter list of probable causes can be drawn up. Still, even after a large body of clinical data has been amassed a clear diagnosis may not emerge. It must also be remembered that absence of clinical evidence of a suspected disease is not the same as evidence that the disease is absent and can be ruled out. Of course at some point, due to financial and temporal constraints, in this process your veterinarian may have to make an educated guess, and offer a presumptive diagnosis rather than a definitive one. Even so, while some patients are beyond help, none is beyond harm, and this must be borne in mind when initiating treatment.

OK, I can hear the murmurs out there. This is all sounding expensive, and to confirm the presumptive diagnosis we can be doing X-rays, biopsies, endoscopies, MRIs exploratory surgeries and who knows what else. As I said before, in many cases patients will get better simply with tincture of time and no intervention on our part. (Remember this next time you feel helpless and you want to do something – anything – to feel like you are helping, because nothing feels worse than doing nothing. Something on the other hand can be detrimental – any something in the wrong situation.)

What is an owner to do? First know your Beardie. What is normal for him in terms of eating, drinking, urinating defecation? Does he regularly miss meals or is he a chow hound? If the former leaves breakfast untouched you wait for further observation, but if it's the chow hound this is likely serious and requires follow-up. So what are the normal quantity, frequency and regularity of each? In terms of poop you are probably familiar with the normal consistency and can spot abnormalities, unless your dog is taking care of business on his own. One advantage of the Beardie is that the tail and pantaloons help even if we are less intimately involved in the process of elimination. Be familiar with his normal resting heart and respiration rates and body temperature. Weigh him and keep tabs on loss or gain of



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weight. Get intimately involved with the feel of his body and smell of his breath and other emanations. Use grooming time to go over every centimeter of him, check his ears, eyes and teeth, look for abnormal resistance to manipulation and changes in his personality and demeanor. If a change is mild and/or transient make note of it, but it likely doesn't require treatment. If you are not sure take your dog to the veterinarian. He may suggest waiting, or simple tests to check it out. This is a reasonable approach, but if symptoms are persistent and especially if they are progressive and become worse a more aggressive diagnostic approach is called for.

If there is a reproducible and objective diagnostic finding or group of findings your vet may be able to confidently diagnose your Beardie's problem. If his condition is mild treatment may still not be warranted, but your vet can tell you what to watch for in case things progress or become more serious. More serious problems will possibly require further testing to determine severity, exact location etc. Repeated testing may also be necessary to determine whether the problem is resolving, static or becoming worse.

Pathophysiologic syndromes are not diagnoses. These would include conditions such as renal failure, congestive heart failure, encephalopathy, malabsorption syndrome. They are basically glorified symptoms, we recognize which system is in trouble, we even know how it is malfunctioning, but they are not diagnoses because we do not know what brought them to that state. Sometimes the cause is moot, and does not warrant further diagnostic effort. Instead treatment is directed at relief of symptoms and support of the patient. However, finding the cause is not always academic in these cases, and may diagnose a treatable cause that can offer cure or at least a much improved prognosis. It can offer information on prognosis, what supportive and compensatory measures will help improve the patient's comfort and quality of life, and identify those signs that represent compensatory effort on the part of the dog's own body and which should be supported rather than suppressed.

A specific diagnosis may be satisfying, but is not always in the patient's best interest, and can be neither necessary nor desirable in many cases. It may require invasive techniques and subject the dog to needless risk. The decision must be made based on the patient's status at any time, and may need to be rethought if what appears to be a mild transient disease



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progresses to something more worrisome. However, any diagnosis should not be over-stated. If you have a clear-cut diagnosis it can aid greatly in making the right decisions as regards treatment and in advising as to prognosis. An assumed diagnosis over-stated may well be a misdiagnosis, with misprognosis. It can lead to an inappropriate and sometimes contraindicated treatment plan. Iatrogenic conditions are those created by medical treatment, and better avoided.

Be a proactive owner. Know your dog. Formulate a list of problems not suppositions. Keep a time-line of when you observed each symptom, but do not assume that one thing led to another. Be clear, it may be relevant that something happened years ago when your dog was just a pup, but if it is not something that is happening now make that very clear. Live in the here and now with your dog. What are his current problems? How is he doing right now? Veterinary appointments are far too short, we don't have much time. Stay on topic. If there is one thing that never ceases to strike me it is that owner and veterinarian could often be describing totally different cases. Why is this? For the sake of your Beardie make sure you are both seeing the same problems and working together.