Breaking the Silence
An Odyssey in Renal Dysplasia - Part 2

SIDEBAR

Have you thought you were adequately screening for kidney problems using BUN, creatinine and specific gravity tests?

Have you assumed that if your puppies live beyond six months that your line is free of kidney problems?

Have you suspected a kidney problem, only to have the lab results come back inconclusive?

Have you had adults dogs die from really strange things?

Have you had puppies mysteriously die?

Have you had a really thin lhasa?

After careful thought and much study, I've decided to address the RD issue within my breeding program like shih tzu breeder Janet Edwards did. I do not want to produce another dog with RD. I do not want to use mildly affected dogs in my breeding program. Because diagnosis can only be made with wedge biopsy, (1) and mildly affected dogs will lead a normal asymptomatic life, (2) these affected dogs can inadvertently be used in a breeding program. A less drastic approach, certainly in my situation, is not appropriate because there is no other effective way at this time to screen breeding stock.

Janet Edwards, also chairman of the American Shih Tzu Club's RD committee, (3) has successfully dealt with this illusive disease in her breeding program. The disease is the identical in both the lhasa apso and the shih tzu. All dogs kept for breeding are biopsied because, as she wrote to me, "they do not know the mode of inheritance for sure so I approach it like trying to breed out hip dysplasia. Use dogs with normal biopsies for breeding and as those dogs "accumulate" in the pedigrees the chances increase of you producing normal pups."

If I hadn't approached Gabrielle's death in such a combative manner, I would still think she had an isolated case with kidney disease. In the past six months, twenty-one lhasas from my bloodline have been biopsied. Toto, owned by a family that dearly loved him, was six years old and healthy until the last month of his life. Only two of the dogs had small, irregular shaped kidneys. The other nineteen dogs had kidneys of normal size and normal shape. The test results aren't back on four of the dogs, however seven of those nineteen dogs are affected in varying degrees!

Chiata	severely affected	40% fetal glomeruli
Mocha	moderately affected	15% fetal glomeruli
Cisco	moderately affected	15% fetal glomeruli
Hatter	mildly affected	5% fetal glomeruli
Latte	mildly affected	4% fetal glomeruli
Danielle	mildly affected	3% fetal glomeruli
Olivia	mildly affected	3% fetal glomeruli
Vinnie	normal	

Linda Lou	normal
Dorina	normal
Kicker	normal
RePlay	normal
Kruzer	normal
Lynyrd	normal
Birdie	normal
Bru	results not back
Rica	results not back
Adie	results not back
Lisa	results not back
Gabrielle	DEAD
Toto	DEAD

Startling? Shocking? I believe so! I also believe if all breeding stock was biopsied , I wouldn't be the only one with statistics like this.

All of my dogs have normal values, including Chiata. She is severely affected, has a six month life expectancy, but currently her BUN, creatinine and specific gravity levels are normal! Those values won't change until she's in kidney failure. Have I startled you yet? Let me repeat, all of my dogs have normal values at this time, yet at least seven of them are affected. Only two of the seven will die early from RD, but five more are affected. Two of those animals were used for breeding prior to knowing about this silent disease. At least one more would have been used. Understand that the mildly affected animals will live an asymptomatic normal lifespan because dogs can function, apparently normal, with only 30% of their kidneys working.

"The disease is poorly recognized because many animals are only slightly affected. They show no clinical signs, and the presence of the disease in many mildly affected dogs may fail to be detected by routine laboratory tests, including urinalysis, serum creatinine, BUN, radiographs of renal size, and ultrasound. Many affected dogs with less than 10% fetal glomeruli will live a normal life span with apparently normal renal function and can pass on the defect to their offspring. Due to the nature of this disease it can go undetected for many generations or be ignored by knowledgeable breeders because only a small percentage of animals are severely affected and will die of renal failure. The disease is going to be with us for a long time because it is transmitted in a very silent fashion by many animals that appear clinically normal." (4)

Renal Dysplasia is a genetic disease that affects the development of the kidneys. All dogs are born with immature kidneys, made of fetal kidney tissue. The kidneys will have developed into mature kidneys by about eight weeks of age. This transition does not complete itself if the dog is affected with Renal Dysplasia. It is manifested by the presence of fetal or immature glomeruli and/or tubules within an otherwise mature kidney. (1) Small, irregular shaped kidneys *may* be seen. The percentage of immature glomeruli present determines the dog's lifespan. (2)

"BUN and creatinine are two common blood tests of renal function. They are not elevated until 70-75% of the kidney is nonfunctioning and are therefore of little use in identifying mildly or moderately affected dogs. Having a BUN and creatinine in the normal range means that the dog has at least 30% kidney function. It does not mean that the dog is free of renal dysplasia." (4) "The specific gravity of urine tells you about kidney function. It does not tell you that your dog is free of renal dysplasia." (4) "You may be able to detect the presence of the disease with ultrasound, although a normal ultrasound will not prove that your dog does not have renal dysplasia." (4) "A needle (trucut) biopsy does not supply enough tissue for diagnosis of renal dysplasia and therefore is of no value." (4) "Wedge biopsy is recommended for reliable diagnosis or renal dysplasia because characteristic lesions (e.g., fetal glomeruli) are distributed in a segmental pattern."

(1) I feel that wedge biopsy is the only worthwhile tool for screening for RD available to us right now even if biopsy won't identify carriers. Currently, there is no way to determine if a dog is a "carrier" as even test breeding has been inconclusive. Biopsy will, however, let us know if we could be using mildly affected dogs without knowing it! f

It is imperative that the wedge biopsy is read at a pathology laboratory reports fetal glomeruli percentage. I would have been aware of renal dysplasia six years ago, if I had known this. Toto's sister had died before she was a year old of kidney problems. Her kidneys were sent to a respected laboratory. Inconclusive results were returned and her problem was attributed to an infection that her litter had at four weeks of age. I realize, now, that she had classic RD symptoms. When Cisco was euthanized for what appeared neurological problems (later found to be a brain infection) at 3 months of age, one kidney was sent to the UN of PA and the other kidney was sent to CSU. CSU results stated that "the single kidney that was available for examination histologically was normal. Glomeruli are immature but overall, the tubular development and glomerular development are appropriate for this age." UN of PA results showed Cisco was moderately affected with 10% fetal glomeruli. I selected UN of PA not only because I am able to get fetal glomeruli percentage, but also because Dr. Ken Bovee, one of the world's leading RD authorities, is at the UN of PA. Biopsy specimens should be preserved in formalin and sent to: University of Pennsylvania, School of Veterinary Medicine, Laboratory of Pathology, attention: Dr. Michael Goldschmidt, 3800 Spruce Street, Philadelphia, PA 19104-6051 Phone calls must come from your veterinarian. Dr. Bovee's phone number is 215/898-8857.

The biopsy procedure has been videotaped. Dr. David Manobla, my veterinarian, will be glad to talk with your vet about the surgical procedure of a wedge biopsy. If anyone is interested in a copy of the tape for their veterinarian I will send you one for the cost of a blank videotape, postage and the mailing envelope. Dr. Manobla's phone number is 303/670-0838.

If you learn nothing else from my articles, I want you to understand that, at this time, wedge biopsy in the only way to assure you are not breeding affected animals. I want you to know that the biopsies have to be read at the right laboratory. I want you to know that it is very possible that you could have a mildly affected dog in your breeding program and be unaware of it. Just because a dog is alive and well at an old age doesn't insure the dog is not diseased. Just because your dog's BUN and creatinine and specific gravity are normal doesn't mean your dog is unaffected. Just because your dog's kidneys look normal on ultrasound or x-ray doesn't mean your doesn't have the disease. It might mean your dog will live an asymptomatic normal lifespan, but it doesn't mean your dog's genes are clear of renal dysplasia. Hopefully, a DNA test will be available in next several years and biopsies will be obsolete, but until a DNA test is available, wedge biopsy is the best diagnostic tool we have.

REFERENCES

1.George E. Lees, DVM, MS Congenital Renal Diseases Veterinary Clinics of North America Small Animal Practice Volume 26 Number 6 November 1996
2. Kenneth Bovee, DVM telephone conversation with Dr. David Manobla November 1996
3. White, Jo Ann AKC Gazette November 1995 Shih Tzu columnist
4. American Shih Tzu Club brochure, Renal Dysplasia in Shih Tzu

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