

Anaphylactic Reaction to Leptospirosis Vaccine

SUDDEN DEATH, OR WHY I'M LEAVING OUT LEPTO

by Alison G. Freehling, January 2007

He was born the day before Easter so we called him Peter Cottontail, P.C. for short. In a litter of three, he was the only male and was bigger, bolder and more gregarious than his sisters. He was everybody's favorite — playful, loving, spoiled. He never stopped living life to its fullest until his sudden, horrific death at 14 weeks of age.

We had been in Kentucky just four days when I took P.C. and April Fool to the nearby small animal clinic for their "routine" second shots. Four weeks earlier in Connecticut, both puppies had had this same combination vaccine — DHLPP — without experiencing any reaction. Today would be different.

After giving the puppies' medical history to the receptionist, I took P.C. and April into the vet's office. When Dr. Eckert arrived, my anxiety about having a new vet abated. From first impressions, Dr. Eckert loved puppies, was easy to talk to and took time to answer clients' questions. He also had Norwich as patients. He checked both puppies, pronounced them healthy, and gave each a big hug.

"Okay, who's first?" the vet asked. Because P.C. was braver, I chose him. Within seconds of the inoculation, my puppy started screaming. His eyes looked panicky. Dr. Eckert and I briefly teased him about not being a "big boy." As the piercing wails continued, however, the vet checked P.C.'s gums. Seeing their pale color, Dr. Eckert told me P.C. was having an allergic reaction to his shot and would have to go to the clinic's emergency room for treatment.

When he returned about ten minutes later, Dr. Eckert explained that P.C. had experienced acute anaphylaxis, a systemic hypersensitivity reaction resulting in vomiting, diarrhea, labored breathing, blood pooling, reduced cardiac output and shock. Stunned by the report of P.C.'s condition, I questioned whether such a young puppy could bounce back. Dr. Eckert said he had treated numerous dogs and cats for allergic reactions to vaccinations and, in sixteen years of practice, had never lost one.

As April and I were leaving, Dr. Eckert reassured me about P.C. and promised to keep in close contact. His first phone call, about 1 1/2 hours later, was mildly upbeat. P.C.'s temperature was 97.4°F., up a degree, and he was slightly more responsive to treatment. The second call, however, was somber, concluding with "we're not out of the woods yet." I thought I was prepared for the worst; but when Dr. Eckert called soon afterwards to say P.C. had died, I reacted with numb disbelief. While battling my own emotions, my heart went out also to my brand-new vet for the ordeal he had experienced. "I'm supposed to save life, not take it away" are the words I remember most from his final call.

An autopsy performed at the University of Kentucky Livestock Diagnostic Center confirmed Dr. Eckert's diagnosis of anaphylactic shock with extensive hemorrhaging of the liver and colon. Conversations with a vet at Smithkline Beecham, manufacturer of the vaccine, ruled out the possibility of a bad batch. This vet echoed Dr. Eckert's view that the leptospirosis (lepto) component of the combination vaccine was most likely responsible for P.C.'s reaction. Veterinary articles on anaphylaxis I have read since P.C.'s death likewise incriminate the lepto component.

Why? Leptospirosis is a bacterial rather than a viral disease. Consequently, the canine lepto shot is not a modified live virus vaccine, but is a chemically inactivated bacterium containing more potential antigens

(individual disease units) capable of causing reactions. As in P.C.'s case, anaphylaxis does not occur after the first inoculation, but after the second or third when antibodies produced by the puppy's immune system become hypersensitive.

Allergic reactions are not the leptospirosis shot's only drawback. Existing leptospirosis bacterium provide neither as high a level nor as long a duration of immunity as modified live canine vaccines. Of the four most common leptospires known to infect dogs [L. canicola, L. icterohemorrhagiae, L. pomona and L. grippityphosa], the leptospirosis shot currently available contains only two bacterium: L. canicola and L. icterohemorrhagiae. The primary immunization series, usually requiring three inoculations, provides only six months protection against the disease. Subsequent vaccination programs, normally based on annual boosters, are thus inadequate. A 1989 Tufts University study of 17 dogs with confirmed leptospirosis showed all 17 to be infected with L. pomona and L. grippityphosa which are not currently included in leptospirosis vaccines. Nine of the 17 dogs had been vaccinated against leptospirosis within the previous six months. I

If I needed further reasons to discontinue the leptospirosis shot, my dogs' genes, lifestyle and locale provided the clinchers. Regarding genetics, canine veterinary literature suggests that certain breeds or certain lines within a breed may be more sensitive to vaccinations. Small breeds, especially closely bred small dogs, seem at greater risk of vaccine reactions than large breeds and outcrossed dogs. An offspring of an uncle-niece mating, little P.C. fits the "risky" profile. My other six Norwich, with similar genes, do also.

As for lifestyle and locale, transmission of leptospirosis among dogs most often results from their ingesting water or food contaminated by the urine of infected wild and domestic animals. Dogs (L. canicola), rats (L. icterohemorrhagiae), voles (L. grippityphosa), cows and pigs (L. pomona) are the known primary reservoir hosts. My Norwich spend their days in a fenced yard adjacent to the house or atop sofas and dog beds in the family room and kitchen. They take on-leash walks, but do not run free or drink from ponds or streams. Their kibble is stored in a rodent-proof container in the mudroom. The risk of such 'couch potatoes' being exposed to leptospirosis in the natural environment thus seems minimal. Moreover, this area of Kentucky does not have a high incidence of the disease. In 17 years of practice here, my vet has not seen a single case in dogs.

For my line of Norwich, then, my vet and I have decided on a vaccination program without leptospirosis. What seems most appropriate for my Bluegrass terriers may not be best for other dogs in other regions. I urge all Norwich and Norfolk owners to discuss the benefits versus risks of leptospirosis vaccinations with your vet — prior to inoculation! Also, please delete the word "routine" from your veterinary vocabulary. Whether the subject is vaccinations, tail-docking or spaying, these common medical procedures all have the potential for serious complications and, in extreme cases like P.C.'s, the loss of a beloved companion.

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