

## An Introduction to Ehrlichiosis



Misty and Nicole, adopted by Janice and Tom Cleveland of Cedar Knolls, N.J.

Greyhound adoption brings dogs across thousands of miles for placement in adoptive homes. The Greyhound may spend his early life on a farm in Kansas, race in Florida or Wisconsin, and find an adoptive home with a family in Wyoming. These journeys can bring into the spotlight diseases that may not normally occur in the adoptive area, but are common at one of the stops along the way. Two 8-month-old Greyhound puppies that traveled from central Florida to Michigan inspired this article.

The *canids* (dogs, foxes and coyotes) are the host of ehrlichia, a rickettsial organism that is transmitted by brown dog ticks in endemic areas. There are seven species of ehrlichia. (This discussion focuses on the most common of the seven forms, *Ehrlichia canis*.)

A bite from a tick carrying ehrlichia can produce Ehrlichiosis. The tick feeds on an infected animal, ingesting organisms that it later passes to an unaffected animal through another bite. Ehrlichiosis can spread across the country in this manner.

Upon entering the body, the ehrlichia organism invades the cells of the liver, spleen and bone marrow where it divides. After eight to twenty eight days, ehrlichiosis may enter into three possible phases. In the early or acute stage, some Greyhounds will effectively kill the infection and expel the ehrlichia from their bodies. These Greyhounds never show illness, but a blood test will usually show usually a low titer (level of antibodies fighting the disease).

Other Greyhounds will enter an acute phase. In this phase, some dogs may demonstrate symptoms of infection. These symptoms may include fever, lethargy, loss of appetite, enlarged spleen or lymph nodes, diarrhea, vomiting, unusual bleeding or bruising, swollen legs or lymph nodes, nerv-

ous system disorders (stiff gait, tilt/stalt, seizures, twitching), and pale gums and/or inner eye membranes. Many of these symptoms are characteristic of other diseases, which makes diagnosis difficult. What's more, other infected dogs may demonstrate no symptoms at all.

In the chronic phase, the ehrlichia inhabits the body for years. The dog may never show signs of illness until years after the infection, but the Greyhound is a breeding ground of ehrlichiosis.

After examining the Greyhound, the veterinarian performs laboratory tests. The Complete Blood Count (CBC) results usually indicate a slight anemia, a dramatic decrease in platelets (platelets assist the blood in clotting, thus the bleeding or bruising) and perhaps an increase in lymphocytes. Recently, an in-clinic test for ehrlichia has become available. The Canine SNAP® 3DX™ Test (3DX) by Iddexx Laboratories tests for occult ("hidden") heartworm disease, Lyme disease, and ehrlichiosis. Test results are available in just minutes, allowing an early treatment regime. An ehrlichia titer test to monitor treatment is usually indicated after the 3DX positive results. The titer test indicates the level of antibodies to the ehrlichia, and allows the veterinarian to be assured the Greyhound has cleared the disease. Depending on the titer level, it may take six to nine months for results to return to normal. However, the Greyhound may have a positive titer for the rest of his life.

An alternative to 3DX is to examine the serum of the dog using the immunofluorescent antibody (IFA) test. Unlike 3DX, the IFA test must be performed at a licensed diagnostic laboratory. ProtaTek Reference Laboratory of Chandler, Arizona is one of these facilities. Because of the ProtaTek staff's interest in making testing affordable to the Greyhound owner, they offer a panel with a special discounted fee for diagnosis of ehrlichiosis, babesiosis, Rocky Mountain spotted fever, Lyme disease, and valley

fever. For details, visit our website at [www.protatek.com](http://www.protatek.com).

Once ehrlichiosis is diagnosed, it can be treated with antibiotics. The tetracycline family of antibiotics is the drug of choice, with doxycycline being the favorite. The Greyhound should be dosed at 5 mg per kg twice daily for two weeks. Ehrlichiosis may also be treated by administering Imizol® (Imidocarb dipropionate; Schering-Plough) by injection. (Since Imizol® is currently approved in the United States only as a treatment for babesia, its use as a treatment for ehrlichiosis is off-label. The U.S. Food and Drug Administration has observed that Imizol® injections frequently produce side effects, including injection site swelling and vomiting.)

Following treatment, the veterinarian should monitor titers and platelet counts every two to three months. This is to assure the Greyhound is not relapsing or that the treatment was ineffective. Once the titer and the platelet count are normal, you can be confident the Greyhound has cleared the infection. However, the Greyhound does not have protective immunity to ehrlichia, and may become reinfected at a later date.

The chronic phase of ehrlichiosis is more difficult to interpret. Greyhounds in the chronic phase present as perfectly healthy, and then show positive on a screening test such as the 3DX. The difficulty is determining whether the titer is from an old infection that has cleared the body, or a sign of chronic infection. The veterinarian has two options. First, assume the chronic infection, treat it, and then perform laboratory tests to monitor. Or, simply monitor the patient using the laboratory tests, especially platelet counts, to indicate an ehrlichia infection. I believe that the Greyhound should be treated, since the cost of the doxycycline is minimal. (Remember, never administer doxycycline with high calcium foods, such as dairy products. The calcium binds with the medication, inhibiting absorption.) Test-

ing should be considered whether the Greyhound is treated or not.

Ehrlichia testing should be considered if the Greyhound may have been in an endemic area during its career. The availability of an accurate and quick in-clinic test allows for early intervention and treatment. Treatment is effective and inexpensive, allowing placement of a healthier Greyhound in a loving home. ■

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*Dr. Jim Bader is a CG regular contributor.*

#### References:

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- [www.protatek.com](http://www.protatek.com)



Zero, adopted by Bill Geese and Vanessa Varian-Geese of Jenkintown, Pa.