

LEPTOSPIROSIS

About the Diagnosis

Leptospirosis is a bacterial disease that is a worldwide problem. An important cause of acute and chronic disease in dogs, leptospirosis can cause disease in other animals including humans. Leptospirosis in cats is very rare. Dogs are routinely vaccinated for prevention of two types of *Leptospira* bacteria, but other strains (or "serovars") can still infect vaccinated dogs. The vaccine is not effective against these other strains. The disease is more common in dogs that are exposed to large numbers of other dogs or have access to ponds or wet areas. This is because transmission of the disease can occur directly from one animal to another via exposure to an infected animal's urine (most common), postabortion discharge, or sexual contact. The infection can also be contracted from contaminated environments. *Leptospira* bacteria can penetrate intact or broken skin and mucous membranes. The organisms can persist in soil and standing water, especially in warm, wet climates. Wildlife harboring *Leptospira* can contaminate ponds and other areas with standing water, and these animals and cattle are a major source of the *Leptospira* organisms. Dogs at increased risk for leptospirosis include those with access to wet areas or ponds, such as hunting dogs. Also, dogs with high exposure to other dogs, such as urban dogs or show dogs, are at higher risk.

Most infected dogs will show no illness, but they may become chronic carriers of the disease and shed bacteria in the urine which can then infect other animals or humans. Dogs that become ill can show a variety of symptoms, including fever, stiffness, sore muscles, weakness, lack of appetite, vomiting, diarrhea, bleeding, cough, excessive thirst and urination, yellow mucous membranes, and death. In animals with leptospirosis, the bacteria spread throughout the body, invading and multiplying in the liver and kidneys. Acute kidney failure and liver disease (leptospirosis hepatitis) are common in dogs that become ill. Even dogs that do not show signs of infection may harbor the bacteria in the kidneys indefinitely and may later develop kidney failure. In pregnant animals, abortion and stillbirths can occur following infection.

In acute leptospirosis, routine laboratory tests such as a complete blood count, chemistry profile, and urinalysis may indicate dehydration, kidney failure, and liver disease. Serum from a blood sample can be submitted to a laboratory for a leptospirosis antibody titer, which is an indicator of the body's active fight against a *Leptospira* infection. At the initial time of illness, the titer may be low. A second sample submitted 2 weeks later may be needed to confirm the diagnosis, since the test measures antibodies the dog makes in response to the infection and these antibodies typically are made during the infection and last for months thereafter. Other tests using fluorescent antibodies to *Leptospira* can be used to look for the organism under a microscope, using urine or tissue samples.

Living with the Diagnosis

Leptospirosis is a zoonotic disease, which means that it is a disease of animals that can be contagious to people. If your dog is diagnosed with leptospirosis, precautions need to be taken to avoid spread of the infection to humans or other pets. Since the spread is through body fluids and secretions, all bedding and kennels should be disinfected. Care should be taken to avoid exposure to urine or postabortion vaginal discharges. The bacteria can penetrate intact skin! The bacteria are shed in the urine and can survive in warm, moist environments. Therefore, any contact with body fluids of an animal with leptospirosis, such as a urinary "accident" indoors that needs to be cleaned up, must be done with gloves and strict hygiene in which there is no contact between the urine and any person or animal. Dogs in contact with the infected dog should be tested for unapparent infection. Dogs that have not shown signs of illness may become chronic carriers and shedders of the organism and, therefore, need to be detected and treated to avoid the risk of perpetuating the disease.

TREATMENT

Dogs with symptoms of illness caused by leptospirosis generally need intensive in-hospital treatment for dehydration, kidney failure, and other symptoms. Blood transfusions may be needed if significant bleeding has occurred, which is possible in cases of leptospirosis. Antibiotics are used to treat the infection. The outlook is variable; dogs which are treated early and have a mild case of the disease do well and regain a normal life after treatment, whereas severely affected dogs may develop irreversible liver and/or kidney failure and die or are euthanized as a result of this disease. Antibiotic treatment is necessary to eliminate the bacterial infection in apparently healthy carrier dogs.

DOs

- Avoid contact with dog urine. Even dogs that are apparently healthy can be carriers of leptospirosis and can shed the bacterium (creating the risk for human or animal infection), especially in the urine.
- If a pregnant dog aborts or has stillborn puppies, use impervious gloves and strict hygiene measures when handling the puppies or any bedding contaminated with discharges to prevent exposure to infection.
- Be aware of the environment where leptospirosis is most likely to be found and avoid it with your dog(s). Moist environments with stagnant water or wetlands, especially if downstream from farms or property where cattle are kept, are prime reservoirs for the *Leptospira* bacteria.
- Vaccinate your dog prior to the possibility of exposure. The vaccine helps fight off two (most brands) or four (newer vaccine) strains of leptospirosis. Vaccines are preventatives; a vaccine will not help (and cannot be given safely) once an animal has contracted the disease.
- Realize that some animals have allergic reactions to vaccines; therefore, the decision for whether or not to vaccinate against leptospirosis should be made after a discussion with your veterinarian regarding risk factors and likelihood of being exposed to leptospirosis.

DON'Ts

- Don't delay in seeking your veterinarian's help if your dog shows any of the symptoms listed above. Once a dog has contracted leptospirosis, the disease can move from being curable to being potentially fatal in a matter of days.

When to Call Your Veterinarian

- When the symptoms listed above are seen.
- If there appears to be any intolerance to medication; do not stop medication without first consulting the prescribing veterinarian. For example, premature ending of medications because a pet "looks fine now" may lead to a persistence of the bacteria in the system and a carrier state, which is a risk to other animals and humans.

Routine Follow-Up

- Visits should be scheduled to monitor treatment and recovery. A second blood sample for antibody titers may be needed in two weeks to confirm the diagnosis.

Additional Information

- The *Leptospira* component of canine vaccinations sometimes causes allergic reactions. If your dog cannot be vaccinated for leptospirosis due to allergic reactions, be sure to reduce its risk of exposure by keeping it confined away from ponds and low-lying, wet areas and limiting contact with other dogs. Because of the potential of the spread of the disease to people and the severity of the acute disease, all other dogs should be vaccinated. Dogs at high risk of exposure should be vaccinated every 3 to 6 months since immunity may not be sufficient to prevent disease for a full year. Vaccination with most vaccines only protects against two serovars of *Leptospira*; other strains can still cause illness in vaccinated dogs. Furthermore, although vaccination may prevent illness, it does not necessarily prevent the chronic carrier state. Therefore, you should inquire from your veterinarian if the general area where your dog is outdoors is known to harbor leptospirosis.