

## Leptospirosis in Dogs

Leptospirosis is an infection of bacterial spirochetes, which dogs acquire when subspecies of the *Leptospira interrogans* penetrate the skin and spread through the body by way of the bloodstream. Two of the most commonly seen members of this subspecies are the *L. grippityphosa* and *L. Pomona* bacteria. Spirochetes are spiral, or corkscrew-shaped bacteria which infiltrate the system by burrowing into the skin.

Leptospire spread throughout the entire body, reproducing in the liver, kidneys, central nervous system, eyes, and reproductive system. Soon after initial infection, fever and bacterial infection of the blood develop, but these symptoms soon resolve with the reactive increase of antibodies, which clear the spirochetes from most of the system. The extent to which this bacteria affects the organs will depend on your dog's immune system and its ability to eradicate the infection fully. Even then, *Leptospira spirochetes* can remain in the kidneys, reproducing there and infecting the urine. Infection of the liver or kidneys can be fatal for animals if the infection progresses, causing severe damage to these organs. Younger animals with less developed immune systems are at the highest risk for severe complications. The *Leptospira spirochete* bacteria is zoonotic, meaning that it can be transmitted to humans and other animals. Children are most at risk of acquiring the bacteria from an infected pet.

## Symptoms

The primary signs are vomiting, diarrhea, fever, polyuria (increased urination), polydypsia (increased thirst), dehydration and jaundice (yellowing of the skin from liver damage)

## Causes

The infection rate for domestic pets has been increasing in the U.S. with infections occurring most commonly in the fall season. Dogs will typically come into contact with the leptospira bacteria in infected water, soil, or mud, while swimming, passing through, or drinking contaminated water, or from coming into contact with urine from an infected animal. This last method of contact might take place in the wild. Hunting and sporting dogs, dogs that live near wooded areas, and dogs that live on or near farms are at an increased risk of acquiring this bacteria. Also at increased risk are dogs that have spent time in a kennel. However there have been many cases of Leptospirosis in dogs living urban areas from exposure to infected rodents and other infected dogs.

## Diagnosis

Because leptospirosis is a zoonotic disease, your veterinarian will be especially cautious when handling your pet, and will strongly advise you to do the same. Protective latex gloves must be worn at all times, and all body fluids will be treated as a biologically hazardous material. Urine, semen, vomit, and any fluid that leaves the body will need to be handled with extreme caution.

You will need to give a thorough history of your dog's health, including a background history of symptoms, recent activities, and possible incidents that might have precipitated this condition. The history you provide may give your veterinarian clues as to what stage of infection your dog is experiencing, and which organs are being most affected.

Your veterinarian will order a chemical blood profile, a complete blood count, a urinalysis, an electrolyte panel, and a fluorescent antibody urine test. Urine and blood cultures will also be ordered for examining the prevalence of the bacteria. response to the infection, by measuring the presence of antibodies in the bloodstream. This will help to definitively identify leptospira spirochetes and the level of systemic infection.

### **Treatment**

Dogs with acute severe disease should be hospitalized. Fluid therapy will be the primary treatment, in order to reverse any effects of dehydration. If your dog has been vomiting, an anti-vomiting drug, called an antiemetic, may be administered, and a gastric tube can be used to nourish your dog if its inability to eat or keep food down continues. Antibiotics will be prescribed by your veterinarian, with the type of antibiotic dependent on the stage of infection. Prognosis is generally positive, barring severe organ damage.

A vaccination for the prevention of the leptospirosis infection is available. Your veterinarian can advise you on the availability and usefulness of this vaccine.