Canine Leptospirosis

Leptospirosis is a zoonotic, multisystemic disease found worldwide and is caused by Leptospira species spirochetes. There are over 200 pathogenic serovars of Leptospira species. Those identified in the latest canine outbreaks of leptospirosis include grippotyphosa, pomona, autumnalis, icterohaemorrhagiae, and bratislava. The major reservoirs for these Leptospira species are rodents, raccoons, opossums, cattle, and swine. Dogs are the reservoir host for the serovar canicola. The organism is shed in the urine of infected animals, and transmission usually occurs via contact of mucous membranes, abraded skin, or water-softened skin with urine or urine-contaminated objects (including contaminated water). Leptospira species can survive outside the host for several weeks, and survival is enhanced in warm, moist environments with neutral to mildly alkaline pH. Reportedly, intact, middle-aged, male working or sporting dogs are most likely to be infected; however, urban and suburban dogs are also at risk.

There are several presentations in infected dogs. There may be no signs of clinical illness, or a dog may present with peracute signs of sudden fever, acute hemorrhagic disease, myalgia, and vomiting. Other more common presentations currently reported include acute renal failure and hepatic involvement. Acute renal failure is thought to be most common. Leptospirosis has also reportedly been associated with chronic hepatitis in dogs. Abnormal laboratory findings include azotemia, increased liver enzymes, hyperbilirubinemia, thrombocytopenia, hypoalbuminemia, leukocytosis, and nonregenerative anemia. A number of diagnostic tests may be considered, but serologic testing using the microscopic agglutination test is the criterion standard for diagnosis. A negative test during the acute phase of infection is common, and testing should be repeated in 2 to 3 weeks if infection is still suspected with an initial negative result. Although cross-reactivity exists, multiple serovars should still be included in testing, such as grippotyphosa, bratislava, autumnalis, icterohaemorrhagiae, canicola, pomona, and hardjo. The author recommends ampicillin or another type of penicillin for 2 weeks to treat the initial leptospiremia. This should be followed by treatment with doxycycline for another 2 weeks to minimize shedding and, it is hoped, to eliminate or minimize the carrier state. Aggressive supportive care is usually needed in clinically infected dogs. Staff and client education on the zoonotic potential of leptospirosis is important to help prevent human infection. Vaccination for dogs is available for icterohaemorrhagiae, canicola, pomona, and grippotyphosa.

COMMENTARY: Leptospirosis may be one of the most important, yet underdiagnosed, infectious diseases of dogs. Any dog with acute renal failure that does not have an immediately obvious cause (eg, ethylene glycol, bacterial pyelonephritis, aminoglycosides) should be a suspected case of leptospirosis. Atypical presentations of the disease are less common but can include nonazotemic polyuria and polydipsia and “fever of unknown origin.” Leptospirosis is a worldwide zoonotic disease, and even arid regions in which the disease is believed not to exist may experience an outbreak during aberrant weather patterns, particularly excessive rain and flooding.—Kenneth R. Harkin, DVM, Diplomate ACVIM (Small Animal Internal Medicine)