# Leptospirosis at work and at play

In July 1998, 3 athletes who had participated in a triathlon in Springfield, Ill., were admitted to hospital with an acute febrile illness. One had acute renal failure. When leptospirosis was diagnosed, Lake Springfield, where the athletes had swum during the triathlon, was suspected as the source of infection. Since then, an ongoing investigation led by the US Centers for Disease Control and Prevention has found laboratory evidence of leptospirosis in at least 30 triathletes and 5 recreational users of the lake.[1]

In humans, leptospirosis is caused by *Leptospira interrogans*, a species with over 200 serovars. In many wild and domestic animals infection is asymptomatic, with organisms excreted in urine for weeks or for life. Thriving in warm, wet, alkaline conditions, the aerobic spirochete is usually transmitted to humans through exposure to urine-contaminated water, soil or vegetation, or through direct contact with animal tissues. Although incidence is highest in tropical and subtropical regions, peaks occur in temperate climates during the summer. Leptospires enter the human host through inhalation, ingestion, or contact with mucous membranes or abraded skin. There is no known person-to-person transmission.[2]

**Suspect leptospirosis when patients present with:**

- severe headache, myalgia and fever with risk factors for exposure;
- azotemia, jaundice without hepatocellular damage, hypotension, hemorrhage and bilateral nonlobar pulmonary infiltrates; or
- aseptic meningitis

The clinical course of leptospirosis is highly variable, and severity depends on the serovar. In 85% to 90% of patients the disease is self-limited and mild. The leptospiremic or febrile stage, during which organisms are present in the blood and cerebrospinal fluid, may be subclinical or present abruptly 2 to 20 days after exposure with nonspecific symptoms, including fever, chills, myalgia, conjunctival suffusion and gastrointestinal complaints. The convalescent or immune phase begins after about a week and may last up to 30 days: aseptic meningitis is its hallmark, and organisms are identifiable in the urine only. In fact, leptospirosis may account for about 10% of cases of otherwise undiagnosed aseptic meningitis. Weil's disease, a severe, icteric form of leptospirosis occurring in 5% to 10% of patients, causes extensive vasculitis with pulmonary involvement, hemolytic anemia, hemorrhagic rash, myocarditis and hepatorenal failure.[2,3]

Although the mortality rate is low, most deaths are due to complications of severe disease. A study in the French West Indies showed that dyspnea, oliguria, leukocytosis, electrocardiographic changes and alveolar infiltrates on chest radiograph are associated with an increased risk of death.[4]

Leptospirosis should be considered in the clinical scenarios presented in the box.[2] Diagnosis is frequently established by a 4-fold increase in antibody titres in acute- and convalescent-phase sera, or by special cultures or serologic tests. Patients should be treated with doxycycline or penicillin G and monitored for signs of severe disease, in which case supportive therapy and dialysis may be required.[2,3]

Although leptospirosis is rarely suspected in the typical family physician's office today, the recent outbreak in Illinois highlights the changing epidemiology of the world's most widespread zoonosis. Before 1970 most outbreaks occurred through occupational exposure in sewer workers, fish workers, miners, farmers, trappers, veterinarians, abattoir employees, rice- and sugarcane-field workers, and military personnel. Recreational exposure has become an increasingly important risk factor, as cases in swimmers, kayakers, white-water rafters, trail bikers, hunters and children playing in irrigation ditches are identified. Recently, transmission has been noted to occur via rodents and pets in urban and household settings.[2,3,5]

The global distribution of the many serovars also appears to be in flux. The incidence of uncommon serovars for which there are no vaccines, such as grippotyphosa, may be rising among dogs in the northeastern US.[6] In 1995 the first case of human infection by serovar bratislava in North America was identified among Quebec trappers.[7]

Since 1970 physicians in the US have reported about 40–120 cases annually.[2] The true incidence is unknown because leptospirosis is not nationally notifiable in Canada or the US. Suspected cases should be reported to the local

health authority to aid in diagnosing and treating exposed individuals, identifying the source of infection, eliminating contamination and prohibiting use of contaminated waters. Other preventive measures include providing protective clothing for individuals with occupational exposure, controlling rodent infestation, immunizing domestic animals and administering oral doxycycline to exposed individuals.[2,3]

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**References**

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