Leptospirosis: A tropical disease in the Midwest

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Leptospirosis is a disease most prevalent in tropical countries surrounding the equator, with the incidence of new cases decreasing as you move north. It is a zoonotic disease, with rodents as the common host, contributing to about 1 million cases worldwide with up to 58,000 deaths per year.\(^1\)\(^-\)\(^2\) Reported cases throughout the United States is about 3 per 100,000 population. The number of reported cases in the Midwest is low, but unfortunately, may more often be missed. Based off a Detroit study, there was a correlation between degree of rat infestation and seropositivity rates. Approximately \(30\%\) of children in urban Detroit demonstrated serologic evidence of previous leptospirosis infections.\(^3\)\(^-\)\(^4\) However, patients with severe symptoms requiring hospitalization in Detroit is still rare. Therefore, acquiring a thorough history, including investigation of pertinent exposures, is paramount in early diagnosis of Leptospirosis. With suspicion early on the disease course, treatment can be initiated early to prevent poor outcomes.

### Case Presentation

Infectious disease was brought on board due to persistent symptoms of infection, about 2 days into his hospital course. On their evaluation, they caught a key component of his past exposure history, which pertained to his occupation, and home pets. The patient informed the infectious disease team he works as a home exterminator of rats. He also has multiple domesticated pet rats at home. This was missed on his initial admission history taking. The patient’s overall clinical presentation was consistent with Leptospirosis. He was promptly started on IV ceftriaxone. Serologies for Leptospirosis were sent out and came back positive for Leptospira IgM, and positive on Leptospira PCR. The patient completed a 7-day course of ceftriaxone and his liver function tests and blood counts improved. The patient made a full recovery.

### Discussion

Although rare diseases generally are not on the top of diagnostic differentials, this case presentation shows how adhering to the fundamentals of obtaining a thorough history of present illness can prevent rare diseases from being missed or overlooked. In this case, the patient presented with clinical symptoms of an ongoing infection with an unusual exposure history that was noted later during his hospital course. If the patient’s significant exposures were noted early on, then the treatment may have been initiated sooner, and reducing the risk of complications related to Leptospirosis, or even death.

### Risk Factors

**Occupational exposure**
- Farmers, veterinarians, sewer workers, exterminators

**Recreational Activities**
- Freshwater swimming, camping, canoeing
- Household exposure
- Infestation by infected rodents, domesticated livestock, rainwater catchment system

### Figures

![Schiropsiaria of genus Leptospira. 21 species are considered pathogenic.](image1.png)

![Figure 1. Conjunctival Suffusions](image2.png)

**References**