Leptospirosis, a commonly silent animal transmissible disease to humans. The case of dog carriers.

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Leptospira infection in dogs, cattle, horses and swine is usually subclinical, however acute and fatal cases with systemic failure also may occur. After recovery from an acute infection, dogs may become asymptomatic carriers harboring virulent leptospires in the convoluted tubules of the kidneys and shedding to environment in the urine for long periods of time. We present here a retrospective study involving 10 canine leptospirosis cases, confirmed by isolation and identification. Four *Leptospira* isolates (LOCaS28, 31, 34 y 46), were obtained in a study from the renal tissue and urine from 4 out of 58 asymptomatic dogs (6.89%). Dogs were destined to destruction from a Canine Control Center in Mexico City. No signs of disease were observed in those 58 sampled dogs. Six additional isolates were obtained from independent studies. Two isolates were obtained from asymptomatic dog carriers in the states of Mexico and Yucatan (CEL60 and UADY22 respectively). Another isolate (AGFA24), from an asymptomatic male dog in the state of Queretaro that was a pack companion of another dog with clinical leptospirosis. Finally, three isolates from dogs that died of clinical leptospirosis in Mexico City, the state of Queretaro and the state of Nayarit (LOCaS59, Citlalli and Nayar1). After purification, nine out of the ten isolates were identified as serovar Canicola and one as serovar Copenhageni (Nayar1), by cross adsorption agglutination tests using reference strains and reference antisera. In addition, the identity was genetically confirmed as serovar Canicola sequence-type ST34 by MLST. In contrast, the isolate identified as Nayar1 was a serovar Copenhageni sequence-type ST2. An interesting and revealing observation was that every asymptomatic dog from which a *Leptospira* isolated was obtained showed a very high antibody titer (≥ 1:3,200), against serovar Canicola in the MAT test and lower titers against other *Leptospira* serovars. In addition, all isolates showed different degrees of virulence when tested in the hamster infection model. All these observations confirmed that dogs may act as carriers of virulent leptospires and that they may spread these infecting organisms to the external and home environments, representing an important public health risk. On the other hand, our results show that serovar Canicola sequence-type ST34 is the prevalent clone among the canine population in México. Finally, the old-fashioned MAT represents a very useful tool to detect potential asymptomatic dog carriers and spreaders of pathogenic *Leptospira*.

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