

First report of pathogenic *Leptospira* spp. isolated from urine and kidneys of naturally infected cats

ABSTRACT

Leptospirosis is one of the most widespread zoonotic diseases and can infect both humans and animals worldwide. Healthy cat, as a potential source of exposure to humans, are likely underestimated owing to the lack of overt clinical signs associated with *Leptospira* spp. infection in this species. The aim of the study was to determine the exposure, shedding, and carrier status of leptospires in shelter cats in Malaysia by using serological, molecular, and bacteriological methods. For this study, 82 healthy cats from two shelters were sampled. The blood, urine, and kidneys were tested using the microscopic agglutination test (MAT), polymerase chain reaction (PCR), and bacterial culture. On the basis of serological, molecular, and/or culture techniques, the total detection of leptospiral infection was 29.3% (n = 24/82). Through culture techniques, 16.7% (n = 4/24) of the cats that tested positive were carriers with positive kidney cultures, and one cat was culture positive for both urine and kidney. The *Leptospira* spp. isolates were identified as pathogenic *L. interrogans* serovar *Bataviae* through serological and molecular methods. Through serological techniques, 87.5% (n = 21/24) had positive antibody titers (100–1600) and most of the *Bataviae* serogroup (n = 19/21). Using PCR, 16.7% (n = 4/24) of cats were shown to have pathogenic *Leptospira* spp. DNA in their urine. Furthermore, three out of four culture positive cats were serology negative. The present study reports the first retrieval of pathogenic leptospires from urine and kidneys obtained from naturally infected cats. The results provide evidence of the potential role of naturally infected cats in the transmission of leptospires. Additionally, leptospiral infection occurs sub-clinically in cats. The culture isolation provides evidence that healthy cats could be reservoirs of leptospiral infection, and this information may promote the development of disease prevention strategies for the cat population.