

Molecular Prevalence and Epidemiological Risk Factors of *Bartonella henselae* Infection in Owned and Non-Owned Cats in Ahvaz district, Iran

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Abstract

Bartonella henselae (*B. henselae*) is a zoonotic bacterium for which domestic cats serve as the primary reservoir host, maintaining persistent bacteremia and facilitating transmission mainly through the cat flea, *Ctenocephalides felis*. Given the public health significance of feline infection and the limited molecular epidemiological data available from southwestern Iran, this study aimed to determine the molecular prevalence of *B. henselae* and identify independent epidemiological risk factors associated with infection in owned and non-owned cats in Ahvaz, Iran. A cross-sectional study was conducted involving 160 cats, equally distributed between owned and non-owned populations. Adult cats constituted 65% of the study population, whereas juveniles accounted for 35%; 55% were male and 45% were female. Domestic Shorthair cats represented the predominant breed type (51.9%). Whole-blood, oral-swab, and nail samples were collected and analyzed using conventional polymerase chain reaction (PCR) targeting a 414-bp fragment of the *htrA*, followed by sequencing confirmation of representative amplicons. Associations between potential risk factors and infection were assessed using univariable and multivariable logistic regression analyses, and population attributable fractions (PAFs) were estimated. *B. henselae* DNA was detected in 16.9% of cats (95% CI: 11.4–23.7). The prevalence of infection was significantly higher in non-owned cats (26.3%) than in owned cats (7.5%) (OR = 4.39, 95% CI: 1.66–11.58; $p = 0.002$). Population attributable fraction analysis indicated that 67% and 36% of infections were attributable to outdoor exposure and flea infestation, respectively. These findings demonstrate that environmental exposure and ectoparasite infestation are major determinants of *B. henselae* infection, highlighting the importance of effective flea control and restricting outdoor access to reduce the burden of infection and mitigate zoonotic risk.

Key words: *Bartonella henselae*; Cats; Molecular prevalence; Epidemiology; Zoonosis

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