DETECTION OF RICKETTSIA, EHRLICHIA, ANAPLASMA, AND BARTONELLA IN TICKS AND FLEAS FROM DOGS AND CATS IN BANGKOK

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Rickettsia, Ehrlichia, and Anaplasma as agents of rickettsioses, ehrlichioses and anaplasmosis, respectively, are transmitted by ticks. As well, fleas can transmit Rickettsia and Bartonella. The presence of Rickettsia, Ehrlichia, Anaplasma and Bartonella in ticks and fleas on dogs and cats from various sites in Bangkok during June 2006 to Dec 2007 were investigated by PCR and sequencing of the gltA and 17 kDa genes for Rickettsia, the 16S rRNA gene for Anaplasmataceae, and the pap31 and its genes for Bartonella.

A total of 152 flea-clones (5-10 fleas/dog or cat) from 98 dogs and 54 cats were identified as 78 Ctenocephalides canis and 74 C. felis. All 304 tick-clones (5-10 ticks/dog) from 304 dogs were Rhipicephalus specie.

Rickettsia felis-like DNA was detected in 66 of 98 (67.4%) fleas-clones from dogs, including C. canis (49/65, 75.4%) and C. felis (17/33, 51.5%). All sequences were identical to Rickettsia sp. RF2125 which had a 97.9% similarity to Rickettsia felis. The number of rickettsial DNA detected in fleas from dogs with fever (17 of 26, 65.4%) was higher than that in fleas from dogs without fever (30 of 54, 55.6%). All flea-clones collected from cats and tick clones were negative for Rickettsia DNA detection.

Bartonella DNA (8 B. henselae and 2 B. clarridgeiae) were detected in 10 of 54 flea-clones (18.5%) from cats. Six C. felis and 2 C. canis clones contained B. henselae. In addition, 2 C. felis clones contained B. clarridgeiae. All flea-clones collected from dogs were negative for Bartonella DNA detection.

Anaplasmataceae DNA were detected in 19 tick-clones (6.3%):10 Ehrlichia canis (3.3%), 7 Anaplasma platys (2.3 %) and 2 Wolbachia pipientis (0.66%).

In conclusion, this is the first finding that dog fleas carry Rickettsia felis-like organism. Thus, further studies of its pathogenicity and biology should be investigated. In addition, this is also the first finding of Bartonella in C. canis fleas and E. canis, A. platys, W. pipientis in dog ticks.