

MOLECULAR DETECTION AND TREATMENT OF TICK-BORNE PATHOGENS IN DOMESTIC DOGS IN KHON KAEN, NORTHEASTERN THAILAND

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Abstract. We determined the prevalence of tick-borne pathogens in domestic dogs using microscopy and polymerase chain reaction (PCR) techniques. A total of 303 EDTA blood samples were collected from domestic dogs in Khon Kaen Province, Thailand, in May 2013. Microscopic observation of Giemsa-stained smears and molecular diagnosis using conventional PCR were performed. Infected dogs were treated with imidocarb dipropionate, a combination of imidocarb dipropionate and doxycycline, or doxycycline alone. Seventy-one (23.4%) out of 303 dogs were positive for DNA of tick-borne pathogens. Of the 303 animals, 13.2% and 1.3% were positive for a single infection with *Babesia* spp or *Ehrlichia canis*, respectively using microscopy; whereas 19.5% and 3.0% were positive using the PCR technique. Co-infection with *Babesia* spp and *E. canis* was observed in 0.7%, and co-infection with *Hepatozoon canis* and *E. canis* in 0.3%. Infected dogs were treated with the assigned drugs, and elimination of the pathogens was demonstrated by microscopy and PCR. The results indicated that while both microscopic and PCR diagnostic techniques were useful for tick-borne pathogen detection, PCR was more effective. Imidocarb dipropionate and doxycycline were found to be effective for treatment of babesiosis and ehrlichiosis, respectively. The present study suggests that the PCR technique has high sensitivity and specificity for *Babesia* and *Ehrlichia* diagnosis as well as for detection of *Babesia* spp, *E. canis* and *H. canis* DNA in EDTA blood specimens.

Keywords: ticks, blood pathogen, *Babesia*, *Hepatozoon*, *Ehrlichia*, domestic dogs, Thailand

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