Occurrence of ticks in dogs in a hospital population in the state of Espírito Santo, Brazil

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Ticks, along with fleas, are considered the main ectoparasites affecting dogs in Brazil. The literature is rich in reports on the occurrence of ticks, which are vectors of diseases in both dogs and humans. The study of the epidemiology of these arthropods provides important data that can help control the infestation in residential areas where dogs are present. Thus, the study of their occurrence in urban areas and veterinary services is very important. The aim of the present study was to determine the occurrence of ticks in dogs in a veterinary hospital population in the state of Espírito Santo, Brazil. Over a one-year period (July 2012 to July 2013), 1483 dogs brought to veterinary services in south-eastern Brazil were examined. Among the dogs examined, 8.97% presented tick infestation, of which 100% were identified as Rhipicephalus sanguineus sensu lato. Given that this species of tick acts as a vector for diseases, it is important that the official health services monitor the occurrence of infestation in dogs and humans, in order to identify diseases transmitted by these ticks in this region.

INDEX TERMS: Ticks, dogs, Rhipicephalus sanguineus sensu lato, Espírito Santo, Brazil, parasitoses.

INTRODUCTION

In Brazil, the coexistence of dogs and humans can be evaluated using population estimates, which in 2009, indicated the existence of 23,513,039 dogs (Dotti 2005, Otranto et al. 2013). This figure
northern Paraná, of the 71 tick samples collected, 4% were ticks by the number of dogs seen, and the result was multiplied. The prevalence was obtained by dividing the number of dogs with ticks by the number of dogs seen, and the result was multiplied. If ticks were present in the dog’s fur, ectoparasite samples were collected, either manually or using tweezers, and stored in plastic bags. If ticks were collected, the dog was inspected for the presence of fleas, to be the main ectoparasite affecting dogs throughout the year. The ticks were collected from the dogs after gaining the approval of the ethical committee of Universidade Vila Velha (process number 215-2012). The samples were collected only after the owner of each animal had signed an informed consent form.

RESUL TS AND DISCUSSION

From a total of 1483 dogs, 40.5% (600) male and 59.5% (883) female, of various breeds and ages (mean age 4.1 years) brought to the Veterinary Hospital of University Vila Velha during the study period, only 9.87% (133) presented ticks. A total of 665 tick specimens were collected. The mean intensity of infestation observed was 5, while the mean abundance of infestation was 0.45. This result is relatively low, given that other studies have shown higher frequencies of dogs infested with ticks, Rhipicephalus sanguineus s.l. being the species most commonly found. In urban areas of Minas Gerais, Linardi & Nagem (1973) found this tick species in 32.9% of 282 dogs. In Juiz de Fora (MG), a prevalence of 35% was found in dogs kept as pets in homes (Soares et al. 2006). In the state of Espírito Santo, a study performed in the inner cities verified the presence of R. sanguineus s.l. in 10 dogs living in a rural area and 2 dogs living in an urban area (Spolidorio et al. 2010). In 2011, a study in the city of Pinheiros, north of the state of Espírito Santo, 27 ticks were collected from dogs belonging to rural properties, with 24 identified as R. sanguineus s.l. (Acosta et al. 2011). In Porto Alegre, Ribeiro et al. (1997) found this species in 93.2% of the infected animals; however their findings differed from those of the present study due to the fact that they analyzed stray animals. Another study found a prevalence of 67.5% among stray dogs in Goiania (Rodrigues et al. 2001). The fact that stray animals were analyzed may explain the high frequency of tick infestations compared to the findings of the present study, which analyzed only domesticated animals, which are subjected to basic hygiene care, and live mostly in apartments, given that this a large urban center where this type of construction is prevalent. We also note that the lower prevalence observed in this study may be due to the easier accessibility to ectoparasiticides by the population, and also better access to information.

Another higher number of ticks was observed on female host dogs (57.3%, i.e. 381 individuals, with a confidence interval of 95% estimated at 53.5%, 61.1%) in relation to the males (42.7%, i.e. 284 individuals, with a confidence interval of 95% estimated at 38.9%, 46.5%). The highest incidence of dogs with parasites was observed in the month of March, with 41.93% (56), followed by May (20.43%; 27) and April (13.97%, 18). However, no collections were made in December (13.97%, 18). The samples were collected only after the owner of each animal had signed an informed consent form.

RESULTS AND DISCUSSION

From a total of 1483 dogs, 40.5% (600) male and 59.5% (883) female, of various breeds and ages (mean age 4.1 years) brought to the Veterinary Hospital of University Vila Velha during the study period, only 9.87% (133) presented ticks. A total of 665 tick specimens were collected. The mean intensity of infestation observed was 5, while the mean abundance of infestation was 0.45. This result is relatively low, given that other studies have shown higher frequencies of dogs infested with ticks, Rhipicephalus sanguineus s.l. being the species most commonly found. In urban areas of Minas Gerais, Linardi & Nagem (1973) found this tick species in 32.9% of 282 dogs. In Juiz de Fora (MG), a prevalence of 35% was found in dogs kept as pets in homes (Soares et al. 2006). In the state of Espírito Santo, a study performed in the inner cities verified the presence of R. sanguineus s.l. in 10 dogs living in a rural area and 2 dogs living in an urban area (Spolidorio et al. 2010). In 2011, a study in the city of Pinheiros, north of the state of Espírito Santo, 27 ticks were collected from dogs belonging to rural properties, with 24 identified as R. sanguineus s.l. (Acosta et al. 2011). In Porto Alegre, Ribeiro et al. (1997) found this species in 93.2% of the infected animals; however their findings differed from those of the present study due to the fact that they analyzed stray animals. Another study found a prevalence of 67.5% among stray dogs in Goiania (Rodrigues et al. 2001). The fact that stray animals were analysed may explain the high frequency of tick infestations compared to the findings of the present study, which analyzed only domesticated animals, which are subjected to basic hygiene care, and live mostly in apartments, given that this a large urban center where this type of construction is prevalent. We also note that the lower prevalence observed in this study may be due to the easier accessibility to ectoparasiticides by the population, and also better access to information.

A higher number of ticks was observed on female host dogs (57.3%, i.e. 381 individuals, with a confidence interval of 95% estimated at 53.5%, 61.1%) in relation to the males (42.7%, i.e. 284 individuals, with a confidence interval of 95% estimated at 38.9%, 46.5%). The highest incidence of dogs with parasites was observed in the month of March, with 41.93% (56), followed by May (20.43%; 27) and April (13.97%, 18). However, no collections were made in December, January or February, as the Hospital where the research was conducted was closed for the holidays, therefore it was not possible to suggest data relating to seasonality.

A hundred percent of the ticks collected in this study were identified as R. sanguineus s.l. This result may be linked to the fact that most dogs attended by the Veterinary Hospital of the University Vila Velha are raised in urban environments, not having access to forests and areas where wild carnivores and other mammals live, which would facilitate the occurrence of R. sanguineus s.l. only (Labruna & Pereira 2001). This result is in agreement with other studies that reported high frequency

According to Dipéolu et al. (1982), in urban areas, the availability of habitats for the free-living stages of *R. sanguineus* s.l. is abundant, as this tick has a habit of penetrating small holes or cracks in cement or wood surfaces, carpets and rugs, which can easily be found inside and around houses. These characteristics may have contributed to the fact that only ticks of this species were found in this host population. Thus, prevention and control of this ectoparasite in dogs is important for public health, as the dog can spread infected ticks to the home environment, from pet shops as well as veterinary hospitals or kennels. Therefore it is important to raise awareness among the general public about the diseases that can be transmitted to humans and animals through tick bites. For this purpose, this study suggests an informative booklet.

Given that this is a species of tick that acts as a vector for diseases, it is important that the official health services continually monitor the occurrence of infestation in dogs and humans, in order to identify diseases transmitted by these ticks.

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REFERENCES


