

HUMAN PARASITISM BY *Rhipicephalus sanguineus sensu lato* (ACARI: IXODIDAE) IN MATO GROSSO DO SUL, WEST-CENTRAL BRAZIL

Parasitismo humano por Rhipicephalus sanguineus sensu lato (ACARI: IXODIDAE) no Mato Grosso do Sul, Centro-Oeste do Brasil

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Abstract

Human parasitism by the brown dog tick *Rhipicephalus sanguineus sensu lato* (s. l.), an important parasite in medical and veterinary sciences, is only rarely reported in the American continent. The present investigation reports a *R. sanguineus* s. l. male tick parasitizing a human in the city of Campo Grande, State of Mato Grosso do Sul, west-central Brazil. This observation is of public health relevance, since *R. sanguineus* s. l. ticks are known as vectors of spotted fever group rickettsiae to dogs and humans.

Keywords: *Rhipicephalus sanguineus*. Tick. Human parasitism.

Resumo

O parasitismo humano pelo carrapato marrom do cão, *Rhipicephalus sanguineus sensu lato* (s. l.), um importante parasita para a saúde pública e veterinária, é raramente relatado no continente americano. Este trabalho relata o registro de um macho de *R. sanguineus* s. l. parasitando um humano na cidade de Campo Grande, estado do Mato Grosso do Sul, no Centro-Oeste do Brasil. Essa observação é relevante para a saúde pública, uma vez que os carrapatos desse complexo são conhecidos como vetores de riquetsias do grupo da febre maculosa para cães e humanos.

Palavras-chave: *Rhipicephalus sanguineus*. Carrapato. Parasitismo humano.

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Rhipicephalus sanguineus sensu lato (s. l.) (Latreille, 1806) (Acari: Ixodidae), also known as the brown dog tick, is an important parasite in medical and veterinary sciences, since it is a vector and reservoir of many human and animal pathogens (DANTAS-TORRES; OTRANTO, 2015). Recent studies based on molecular, biological, and morphological analyses have indicated that the taxon *R. sanguineus* is represented by two or more species (OLIVEIRA et al., 2005; SZABÓ et al., 2005; BURLINI et al., 2010; MORAES-FILHO et al., 2011; LEVIN et al., 2012; NAVA et al., 2012;

DANTAS-TORRES et al., 2013). Therefore, while this taxonomic problem remains unsolved, all ticks that fit taxonomically with '*R. sanguineus*' should be called *R. sanguineus* s. l. or *R. sanguineus* species complex (NAVA et al., 2015).

In Brazil, the Brazilian spotted fever (BSF) is caused by *Rickettsia rickettsii*, and the novel Brazilian spotted fever is caused by a *Rickettsia parkeri*-like agent. Both have been detected in *R. sanguineus* s. l. ticks (ROZENTAL et al., 2002; CUNHA et al., 2009; MORAES-FILHO et al., 2009; PACHECO et al., 2011; MEDEIROS et al., 2011; OGRZEWALSKA et al., 2012; ALMEIDA et al., 2013). While human parasitism by *R. sanguineus* s.l. is not common in Brazil, a few confirmed cases have been reported in the states of Pernambuco, Goiás, Rio de Janeiro, Pará, and Rio Grande do Sul (DANTAS-TORRES et al., 2006; LOULY et al., 2006; SERRA-FREIRE, 2010; SERRA-FREIRE et al., 2011; MENTZ et al., 2016). Extending previous information, the objective of this study was to

report the finding of a *R. sanguineus* s. l. parasitizing a human in Campo Grande, State of Mato Grosso do Sul, Brazil.

On February 2016, by the end of the day working in his farm with domestic animals (horses, cattle, and dogs), a 27-year-old veterinarian felt a little discomfort on his abdominal region. Analyzing the nuisance, he found a

brown tick attached to his skin (Figure 1). The tick was collected alive and sent to the laboratory, where it was morphologically identified as a male *R. sanguineus* s. l., following Barros-Batesti et al. (2006) and Nava et al. (2015). The specimen was deposited in the tick collection “Coleção Nacional de Carrapatos” under accession number CNC-3276.



Figure 1 – A brown dog tick (*Rhipicephalus sanguineus* sensu lato) parasitizing a human in Campo Grande, Mato Grosso do Sul, west-central Brazil

Considering the biogeographic classification according to Moraes-Filho et al. (2009), the present record of human parasitism by *R. sanguineus* s. l. in the Mato Grosso do Sul state corresponds to a tick included in the tropical species. The authors showed that the taxon *R. sanguineus* s. l. is represented in Brazil by two genetically distinct populations referred to as either ‘tropical’ or ‘temperate’ lineages. While the temperate species was only reported in the state of Rio Grande do Sul, the tropical species was found throughout the other regions of the country, including the west-central region (MORAES-FILHO et al., 2009). This observation supports previous records of other tropical populations of *R. sanguineus* s. l. parasitizing humans in the states of Pernambuco, Goiás, Rio de Janeiro, and Pará (DANTAS-TORRES et al., 2006; LOULY et al., 2006; SERRA-FREIRE et al., 2011). On the other hand,

there is at least one record of human parasitism by *R. sanguineus* s. l. temperate species in Rio Grande do Sul, southern Brazil (MENTZ et al., 2016).

The report of human parasitism by *R. sanguineus* s. l. is of public health relevance, since ticks of this complex are known as vectors of *Rickettsia* spp. of the spotted fever group for dogs and also humans (DANTAS-TORRES; OTRANTO, 2015). In fact, ticks of the tropical species have been found infected with *R. rickettsii* in the states of Minas Gerais, Rio de Janeiro, and São Paulo (ROZENTAL et al., 2002; CUNHA et al., 2009; MORAES-FILHO et al., 2009; PACHECO et al., 2011; OGRZEWALSKA et al., 2012), as well as in Mato Grosso do Sul (ALMEIDA et al., 2013). Therefore, considering the close relationship between men and this tick species and its capacity to harbor and transmit *Rickettsia*, human bites should be monitored.

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