

Letter to the Editor

Regarding the Ecoepidemiology of a Tick-Borne Spotted Fever Southernmost State of Brazil

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DEAR EDITOR,

The first case of tick-borne spotted fever (SF) reported in Rio Grande do Sul, which is southernmost state of Brazil, was registered in 2005 in the Northwest region of the State [1].

Analyzing the records of the Notifiable Diseases Information System of Ministry of Health (MH) of Brazil, from 2007 to 2016, it was reported 64 suspected cases of SF, of which were laboratory confirmed 8 cases that met the definition of SF as proposed by the MH [1].

The cities where infections occur were Cerro Largo, Porto Xavier, Toropi, Rosário do Sul, Canela and Lindolfo Collor encompassing the distinct biomes of Rio Grande do Sul (Atlantic forest and Pampa).

The epidemiological characteristics on this series of cases show that SF mainly affects men (5-8), at the age of 20-49 (4-8) and white individuals (7-8). The highest number of infections was observed in the countryside (5-8) and the affected individuals reported exposure to ticks (8-8), dogs and cats (7-8). Most cases began to show symptoms of the disease in October (3-8). Just one case needed to be hospitalized and none of the cases caused death.

The most usual symptoms were headache (8-8), fever (7-8), myalgia (6-8), rash (6-8), and lymphadenopathy (5-8). Other less common symptoms were conjunctival hyperemia, respiratory distress, prostration, diarrhea, nausea, vomiting, abdominal pain and necrosis.

In the epidemiological research it was also possible to identify the scar of eschar inoculation in a patient of Cerro Largo city (lesion at the site where the tick was joined) (Figure 1).

These data corroborate with the findings of Krawczak et al. [2], which described cases of SF in the state of Santa Catarina, caused by *Rickettsia* sp. strain Atlantic rainforest and has clinical features, as the presence of lymphadenopathy and scar of eschar inoculation. This study were accomplished through the molecular biology of rickettsia strain by biopsy of the lesion and eschar inoculation, which is therefore the necessary laboratory method

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to determine the species that causes SF on Rio Grande do Sul.

Krawczak et al. [3], conducted a research with vectors of fauna, host and species of rickettsia in these areas, and the data found makes us suggest that *Rickettsia* sp. strain Atlantic rainforest is the specie responsible for infections in the Cerro Largo city and the vector is the tick *Amblyomma ovale*.

Vizzoni et al. [4], investigated an infection environment in the municipality of Lindolfo Collor and identified *A. ovale* parasitizing humans and verified that this tick was infected with *Rickettsia* sp. Strain of the Atlantic Forest.

Weck et al. [5], studied another infection area of the municipality of Rosário do Sul identifying *R. parkeri* strain Portsmouth as the infector of *Amblyomma tigrinum*, suggesting that it could be the probable vector and that this etiological agent caused a human disease in this area.

The evidences we have so far point to a transmission scenario in southern most of Brazil (Rio Grande do Sul of state) involving the domestic dog as an amplifier of the distribution area of ticks *A. ovale* and *A. trigrinum*. The transmitter sites of the *Rickettsia* sp. strain Atlantic rainforest and *R. parkeri* strain Portsmouth shows as common characteristics the presence of forest environments in the proximity of houses and occurrence of infections when the dog does translocation of ticks to the domicile and/or around,



Figure 1 A. Inoculation eschar in the abdomen (lesion at the site where the tick was stuck) in confirmed case of tick-borne spotted fever in the city of Cerro Largo. B. Approximate image of the injury Source: Department of health the municipality Cerro Largo, Rio Grande do Sul.

or when individuals goes into the forest fragments, coming to be parasitized for this specie of tick.

Regards,

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