

SHORT COMMUNICATION

Sylvatic Vectors Invading Houses and the Risk of Emergence of Cases of Chagas Disease in Salvador, State of Bahia, Northeast Brazil

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During the last twenty years, several adults of Triatoma tibiamaculata infected with Trypanosoma cruzi have been spontaneously caught by inhabitants, inside their houses in the new habitational district of Pituacu of Salvador, Bahia. In this communication the authors call attention to the necessity of studies about the possibility of occurrence of new human cases of Chagas disease, to clarify the obscure origin of some positive blood donors in Salvador.

Key words: Triatominae - *Triatoma tibiamaculata* - Chagas disease - *Trypanosoma cruzi* - Bahia - Brazil

Chagas disease in the city of Salvador, Bahia has previously been a serious problem of public health there during many years, with high triatomine numbers showing natural infection by *Trypanosoma cruzi* (Chagas, 1909) being captured simultaneously with the registration of countless cases of autochthonous chagasic cardiopathy (Pondé 1946).

In those years, two triatomine species, *Panstrongylus megistus* (Burmeister, 1835) and *Triatoma rubrofasciata* (De Geer, 1773) were found to be naturally infected with *T. cruzi* and *Trypanosoma conorhini* (Donovan, 1909) (Gonçalves 1912).

After extensive surveys of triatomines inside houses in Salvador, starting from 1950 (Costa 1955, Aragão et al. 1955), a large scale campaign to combat those vectors with insecticides was begun in the city. Due to intense and frequent application of insecticides, the control of the triatomines was achieved, causing an accentuated reduction in their populations, in the main neighborhoods of the city (Leal et al. 1965). However, some outlying foci persisted, infested by *P. megistus* infected by *T. cruzi*, with transmission of the disease to several families that lived in the districts of Acupe de Brotas and Federação (Silva 1966). Finally, in 1974, in one of the last published surveys of triatomines carried out in the city of Salvador, 601 *P. megistus* and *T.*

rubrofasciata were collected and examined among which 16% were infected by *T. cruzi* (Sherlock & Serafim 1974).

From 1996, we began to think about the possibility of occurrence of new human cases of Chagas disease in Salvador transmitted by triatomines, besides those 1.6% acquired by vertical transmission (Bittencourt 1999) or some others by blood transfusion (Bastos 1999), because some inhabitants spontaneously have brought to the Laboratory of Parasitology and Entomology of CPqGM-Fiocruz (Lapen) specimens of infected triatomines collected inside their dwellings. Our hypothesis was reinforced by the findings of positive xenodiagnosis of some autochthonous patients from Salvador, without connexions either with living in rural endemic areas, blood transfusions or congenital infection (unpublished data of Lapen) and results observed recently by Bastos (1999).

In the Table, we show the number and places of triatomines collected by the inhabitants. The specimens were identified as two *Triatoma pseudo-maculata* Correa & Spinola, 1964 and 11 specimens of the sylvatic *Triatoma tibiamaculata* (Pinto, 1926). This species is highly susceptible to infection with *T. cruzi* (Dias-Lima & Sherlock 1997). As noted in this Table, some of the specimens examined were infected with *T. cruzi*.

But we have to emphasize that besides the specimens mentioned in the Table, several other triatomines have been recently collected also by the inhabitants in other districts and around Salvador, such as *Panstrongylus megistus*, *P. lutzi* (Neiva & Pinto, 1923), *P. geniculatus* (Latreille, 1911) and

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Received 18 August 1999

Accepted 7 April 2000

Triatoma melanocephala Neiva & Pinto, 1923.

The Metropolitan Park of Pituvaçu, 13°50'S/48°00'W, is a preserved area composed of Atlantic forest remains and secondary forest, located between the Avenue Luís Viana Filho - Paralela (inland) and the Avenue Octávio Mangabeira (in the littoral). This area still contains remnants of the original fauna that are being preserved by an official project. Nowadays, a great number of people reside in the proximities of the area of the Park. Urbanization groups, including habitational buildings, luxurious mansions, and precarious invasion dwellings penetrate the natural ecotopes and come into contact with the habitats of the wild vectors of *T. cruzi*.

T. tibiamaculata is a sylvatic species, that has as its main habitat the marsupial and rodent nests in bromelias (Sherlock 1979, Carcavallo et al. 1997).

Barrett et al. (1980) demonstrated the presence of *T. tibiamaculata* infected with *T. cruzi* Zymodeme 1, particularly in association with marsupials. In addition, *T. cruzi* Z1 was isolated from a woman with chronic Chagas disease, in the city of Nazaré das Farinhas, approximately 60 km from Salvador, suggesting that *T. tibiamaculata* can act as a vector of *T. cruzi* to humans.

Moura et al. (1969) registered a human case of chronic chagasic myocarditis acquired in a sylvatic

enzootic focus in the littoral of Paraná and incriminated *T. tibiamaculata*, *P. megistus* and *R. domesticus* Neiva & Pinto, 1923, found naturally infected by *T. cruzi*, as the involved vectors.

Coura (1966) collected *P. megistus* and *T. tibiamaculata* infected with *T. cruzi* inside houses of Santa Tereza district, in Rio de Janeiro. But he did not believe in the possibility of the emergence of endemic Chagas disease, although he accepted the possibility of sporadic occurrence of human cases that could acquire the infection from the sylvatic zoonotic foci, where infected triatomine vectors and marsupials reservoirs coexisted.

The destruction of those ecotopes, can cause shortages and even the disappearance of the natural blood sources of the triatomines, resulting in the invasion of the human dwellings by those vectors, in search of blood meals on man, as it was observed, exposing the population to the risk of contracting Chagas disease.

Finally, we suggest the need for studies in the area of Pituvaçu and adjoining neighbourhoods, to investigate the fauna of mammals and triatomines, with emphasis on the dimension of its populations and the degree of infection by trypanosomes. This would allow us to evaluate the risk to the inhabitants of this area, for infection with the etiological agent of Chagas disease.

TABLE

Triatomines collected inside houses in Salvador, Bahia, spontaneously brought by inhabitants for identification and examination in the Laboratory of Parasitology/Entomology of Centro de Pesquisas Gonçalo Moniz-Fiocruz (1978 to 1999)

Species	Date	District	Infected by <i>Trypanosoma cruzi</i>	Observations
<i>T. tibiamaculata</i>	12/78	Valéria	+	Feeding on adult
<i>T. rubrofasciata</i>	1/80	Salvador	-	Inside house
<i>T. rubrofasciata</i>	2/80	Barroquinha	^a	Inside house
<i>T. tibiamaculata</i>	9/82	Salvador	^a	Inside house
<i>T. tibiamaculata</i>	12/82	Salvador	+	Inside house
<i>T. tibiamaculata</i>	12/82	Mussurunga	^a	Inside house
<i>T. tibiamaculata</i>	11/83	C. Branco	+	Inside house
<i>T. rubrofasciata</i>	11/83	Sé	^a	Inside house
<i>T. tibiamaculata</i>	12/83	Pituvaçu	+	First floor apartment
<i>T. tibiamaculata</i>	2/84	Salvador	+	Inside house
<i>T. tibiamaculata</i>	7/87	Salvador	^a	Inside house
<i>T. tibiamaculata</i>	12/87	F. Grande III	^a	Inside house
<i>T. tibiamaculata</i>	5/95	Pituvaçu	+	Feeding on a child at the first floor apartment
<i>T. tibiamaculata</i>	11/95	Pituvaçu	+	Inside house
<i>T. tibiamaculata</i>	8/96	Pituvaçu	^a	Fifth floor apartment
<i>T. tibiamaculata</i>	12/97	Brotas	+	Inside house
<i>T. tibiamaculata</i>	1/99	Pituvaçu	^a	First floor apartment

^a: not examined

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