

RESEARCH NOTE

Search for *Trypanosoma cruzi* in the Anal Glands of Wild *Didelphis albiventris* from Santiago del Estero, Argentina

Oswaldo Conti, Nicolás J Schweigmann, Silvia Pietrokovsky, Victoria Bottazzi, Cristina Wisnivesky-Colli

Laboratorio de Ecología de Reservorios y Vectores de Parásitos, Departamento de Ciencias Biológicas, Facultad de Ciencias Exactas y Naturales, Pabellón II, 4º Piso, Ciudad Universitaria, 1428 Nuñez, Buenos Aires, Argentina

Key words: anal glands - opossums - *Didelphis albiventris* - *Trypanosoma cruzi*

The genus *Didelphis* is one of the most important sylvatic reservoirs of *Trypanosoma cruzi* (Barretto 1979 *Epidemiología*, p. 89-151. In Z Brener, ZA Andrade *Trypanosoma cruzi* e *Doença de Chagas*. Guanabara Koogan, Rio de Janeiro).

In a parasitological follow-up performed during 1984-1991 in the Departamento Moreno, province of Santiago del Estero, Argentina, *D. albiventris* showed annual prevalences of *T. cruzi* infection between 29 to 50% (NJ Schweigmann 1994 Doctoral Thesis). Since the low *T. cruzi* infection rate (about 1%, unpublished results) of the wild triatomines captured in the same area might not account for the high prevalence recorded for opossums, we decided to study other alternative routes of transmission.

MP Deane et al. (1984 *Mem Inst Oswaldo Cruz* 79: 513-515) described two coexisting cycles of *T. cruzi* in experimentally infected *D. marsupialis*: one involving bloodstream trypomastigotes and the other epimastigotes and metacyclic trypomastigotes in the lumen of the anal glands. Opossums of other genus such as *Lutreolina crassicaudata* also showed parasitized glands as a result of experimental infections (M Steindel, CJ Carvalho Pinto 1988 *Mem Inst Oswaldo Cruz* 83: 397).

Though unfrequent, positive anal glands of

naturally infected opossums were subsequently confirmed for Brazilian populations of *D. marsupialis* and *D. albiventris* (M Steindel et al. 1987 *Mem Inst Oswaldo Cruz* 82: 66, RD Naiff et al. 1987 *Resumos X Congr Soc Bras Paras*, Salvador, Bahia p.87, M Steindel et al. 1988 *Mem Inst Oswaldo Cruz* 83: 135-137, AJ Fernandes et al. 1987 *Mem Inst Oswaldo Cruz* 82: 65). These findings prompted us to examine the anal glands of *D. albiventris* from Santiago del Estero, as well as to consider their eventual role in the direct transmission of *T. cruzi*.

From the beginning of 1990, wild specimens of *D. albiventris* were confined in individual cages and kept in an animal house free of triatomines in the field. Three successive xenodiagnoses were performed on each animal at intervals of approximately 45 days, and they were considered as infected when at least one of these tests was positive. A total of 56 *D. albiventris* - 15 males and 41 females - were used. According to CH Tyndale-Biscoe and RB Mackenzie (1977 *J Mammal* 57: 249-265), animals corresponded to ages four (n = 18), five (n = 33) and six (n = 5). Of these, 38 were positive to *T. cruzi*.

The anal glands of positive and negative live opossums were examined in August and September 1990 and in February, June and October 1991. Five infected and four non-infected animals were re-analyzed in June and July 1991.

The perianal zone was thoroughly disinfected and the anal glands contents, obtained by direct puncture, were cultured in blood-agar biphasic medium (OE Souza 1985 *Rev Soc Bras Med Trop* 18: 23-27) as well as in Brain-Heart-Tryptose liquid medium (S Pietrokovsky 1991 *J Parasitol* 77: 643-645) and kept at 28°C. The microscopic examination was performed at days 10th and 30th post-culture in our laboratory in Buenos Aires.

Trypanosomes were never observed in the culture media suggesting that in naturally infected opossums anal glands are seldom or never parasitized, in agreement with other authors (Naiff *loc. cit.*, Steindel et al. *loc. cit.*, Fernandes et al. 1989, *Mem Inst Oswaldo Cruz* 84: 87-93).

We assume that our results can be made extensive to the whole *D. albiventris* population of the study area since the sampling involved an adequate number of animals of different seasonal periods, ages and sexes (Schweigmann *loc. cit.*).

We considered that even if there were some opossums having infected anal glands, the parasite transmission would be hindered by their solitary habits. Therefore, this mechanism of direct transmission should be extremely efficient as to account for the high opossum infection rates found in Santiago del Estero. Further research regarding other transmission routes is needed to explain this fact.

This research work was performed with financial support from Secretaría de Ciencia y Técnica, Universidad de Buenos Aires, Argentina.

Received 21 February 1995

Accepted 14 July 1995