

NOTAS

**HUMAN ENVENOMATION BY AN AGLYPHOUS COLUBRID SNAKE,
LIOPHIS MILIARIS (LINNAEUS, 1758)**

MARÍA CRISTINA DOS SANTOS-COSTA & MARCOS DI-BERNARDO

Laboratório de Herpetologia, Museu de Ciências e Tecnologia, Pontifícia Universidade Católica do Rio Grande do Sul, Av. Ipiranga, 6681, CEP 90619-900, Porto Alegre, Rio Grande do Sul, Brazil. E-mail: mcosta@puers.br / madibe@puers.br

In Brazil, some snakes of the family Colubridae, usually regarded as not venomous, are responsible by serious and even so fatal accidents. Some opisthoglyphous snakes that occur in southern Brazil, as *Philodryas olfersii* (Lichtenstein, 1823), *Boiruna maculata* (Boulenger, 1896), *Phalotris lemniscatus trilineatus* Boulenger, 1889 and *Thamnodynastes strigatus* (Günther, 1858) deserve greatest attention because they have already caused human envenomation as reported by many authors (Hoge, 1952; Lema, 1978a; Salomão & Di-Bernardo, 1995; Santos-Costa *et al.*, in press). There is at least one record of a fatal accident caused by *Philodryas olfersii* (Salomão & Di-Bernardo, 1995) and many other records of serious accidents, with the patients showing edema, pain and enlarged axillary lymph nodes (Nickerson & Henderson, 1976; Silva & Buononato, 1984; David & Ineich, 1999). *Phalotris lemniscatus trilineatus*, a fossorial snake, deserves attention by the gravity of its envenomation, which may cause hemorrhagic manifestations, local pain, paresthesia and acute renal failure (Lema, 1978b).

Accidents by aglyphous snakes are little reported. Some species may cause high-gravity envenomations, like *Rhabdophis tigrinus* (Boie, 1826). This snake has very toxic venom that acts directly on prothrombin time, provoking hemorrhagic manifestations and blood coagulation disorders. In Japan some deadly cases were registered (Mittleman & Goris, 1976; Ogawa & Sawai, 1986; David & Ineich, 1999). Seib (1980) suffered an accident by *Urotheca elapoides* (Cope, 1860) and presented intense

local pain followed by ecchymosis and inflammation of the axillary lymph nodes. He was successfully treated with anti-Crotalus serum.

At 20h 40min of November 4th, 1996, in the Municipality of Capinzal, State of Santa Catarina, Brazil, the junior author (33 years old, 1.76 m high, 71 kg weight) was bitten in the fifth finger of the right hand while capturing a juvenile *Liophis miliaris* (Linnaeus, 1758) (27,45g; 472,0 mm total length; housed in Museu de Ciências e Tecnologia da PUCRS under number MCP 7763). While biting, the snake chewed several times, releasing after few seconds. Subsequently there was intense local bleeding and, three minutes later, edema, first on finger and progressively expanding to the entire hand and wrist, with intense itching, local pain and paresthesia, the latter on the right side of the hand. This process continued for 40 minutes, evolving to the cure without treatment.

The paresthesia and edema reported in this case are probably consequences of the proteolytic properties of the saliva. Experiments testing extracts of oral glands of the aglyphous *Sibynomorphus neuwiedi* (Ihering, 1910) showed proteolytic activity on casein; this same extract, inoculated in rats and slugs, occasioned change of behaviour and paralysis (Laporta-Ferreira & Salomão, 1991).

The intense local bleeding here reported was also accounted, regarding accidents by *Rhabdophis tigrinus tigrinus* (Sakai *et al.*, 1990). Although the patients mentioned in that report suffered serious blood coagulation disorders, this fact was not observed in the present case.

Little is known on the chemical nature of the

saliva of aglyphous snakes, and what to do in the presence of accidents with signs of envenomation. We propose a reevaluation of the concepts related to envenomations caused by snakes generically called 'not venomous', and intend to alert professionals of the health area about the necessity of attending carefully accidents involving these animals.

ACKNOWLEDGMENTS

We are grateful to Marcio Borges Martins, Ronaldo Fernandes and Patrick David for suggestions and corrections on the draft manuscript. The contract established between the Museu de Ciências e Tecnologia da PUCRS and ELETROSUL provided the opportunity for conducting the field study on which this report was based.

CITED LITERATURE

- DAVID, P. & I. INEICH. 1999. Les serpents venimeux du monde: systématique et répartition. *Dumerilia* 3:3-499.
- HOGUE, A.R. 1952. Revalidação de *Thamnodynastes strigatus* (Günther, 1858). *Mem. Inst. Butantan* 24(2):157-172.
- LAPORTA-FERREIRA, I.L. & M.G. SALOMÃO. 1991. Morphology, Physiology and Toxicology of the Oral Gland of a Tropical Cochleophagous Snake, *Sibynomorphus newwiedi* (Colubridae - Dip-sadinae). *Zool. Anz.* 227:198-208.
- LEMA, T. 1978a. Cobras não venenosas que matam. *Natureza em revista* 4:38-46.
- _____. 1978b. Relato de um envenenamento por uma cobra não venenosa. *Natureza em revista* 4:62-63.
- MITTLEMAN, M.B. & R.C. GORIS. 1976. Death caused by the bite of the Japanese colubrid snake *Rhabdophis tigrinus* (Boie). *J. Herpetol.* 12(1):108-109.
- NICKERSON, M.A. & R.W. HENDERSON. 1976. A case of envenomation by the South American colubrid, *Philodryas olfersii*. *Herpetologica* 32:197-198.
- OGAWA, H. & Y. SAWAI. 1986. Fatal bite of the Yamakagashi (*Rhabdophis tigrinus*). *The Snake* 18:53-54.
- SAKAI, A.; M. HATSUSE & Y. SAWAY. 1990. Study on the pathogenesis of envenomation by the Japanese colubrid snake, Yamakagashi, *Rhabdophis tigrinus tigrinus* - 4. Hematological and histological studies. *The Snake* 22:11-19.
- SALOMÃO, E.L. & M. DI-BERNARDO. 1995. *Philodryas olfersii*: uma cobra comum que mata. Caso registrado na área da 8ª Delegacia Regional de Saúde. *Arquivos da SBZ* 14/15/16: 21.
- SANTOS-COSTA, M.C.; OUTEIRAL, A.B.; D'AGOSTINI, F.M. & CAPPELLARI, L.H. (IN PRESS). Envenomation by the Neotropical colubrid *Boiruna maculata* (Boulenger, 1896): a case report. *Rev. Inst. Med. Trop. São Paulo*.
- SEIB, R.L. 1980. Human envenomation from the bite of an aglyphous false coral snake, *Pliocercus elapoides* (Serpentes: Colubridae). *Toxicon* 18:399-401.
- SILVA, M.V. & M.A. BUONONATO. 1984. Relato clínico de envenenamento humano por *Philodryas olfersii*. *Mem. Inst. Butantan* 47/48:121-126.