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Bites by the colubrid snake *Philodryas olfersii*: a clinical and epidemiological study of 43 cases

L.A. Ribeiro^{a,*}, G. Puerto^b, M. T. Jorge^a

^a*Departamento de Clínica Médica, Universidade Federal de Uberlândia, Av. Pará 1720, 38400-902
Uberlândia MG, Brazil*

^b*Herpetology Laboratory, Instituto Butantan, São Paulo, Brazil*

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Abstract

Less than 10 cases of bites by *Philodryas olfersii* (Colubridae) have been reported in the literature. In this study, 43 patients admitted to the Instituto Butantan, São Paulo, Brazil, with the diagnosis of *P. olfersii* bite from 1982 to 1990 were reviewed. The 32 male (74.4%) and 11 female (25.6%) patients presented mainly from November to February (65%). The most common clinical features were local pain (37.2%), swelling (34.9%), erythema (18.6%) and ecchymosis (9.3%). The 20 minute whole blood clotting test was performed in 11 patients and in all of them the blood was coagulable. Most of the accidents occurred during the hottest months and during daylight hours. The most common bite site was the hands. Severe envenoming is not frequent in these accidents. © 1999 Elsevier Science Ltd. All rights reserved.

1. Introduction

In Brazil, about 20,000 cases of venomous snake bites are reported annually (Resende et al., 1989). Among eight cases of bites by *Philodryas olfersii* (Fig. 1) that have been reported in the literature (Martins, 1901–1917; Nickerson and Henderson, 1976; Silva and Buononato, 1983–1984; Silveira and Nishioka, 1992; Centro de Informações Toxicológicas do Rio Grande do Sul, 1996; Araújo and Dos Santos, 1997) and another case related by Irony et al. (unpublished data), the

* Corresponding author. Fax: +55-34-218-2349.



Fig. 1. Brazilian *Philodryas olfersii*.

symptoms usually present were local swelling and ecchymosis and regional lymphadenopathy. If the physicians do not take a full history and evaluated the information given by the victim about the snake, these signs can be misinterpreted as envenoming by *Bothrops* species (Cardoso et al., 1993; Ribeiro and Jorge, 1997), who are present in the same region (Campbell and Lamar, 1989). The presence of ecchymosis at the bite site without coagulopathy (Silva and Buononato, 1983–1984) suggested that the venom possesses haemorrhagic activity, like the venom of *Bothrops* species (Jorge and Ribeiro, 1990). This haemorrhagic activity of *P. olfersii* venom was confirmed later in experimental animals (Assakura et al., 1992). One metalloproteinase with hemorrhagic activity was also isolated later (Assakura et al., 1994). The present study aimed to describe the epidemiology and clinical features of *P. olfersii* bites.

2. Materials and methods

The medical records of 43 patients presenting at Hospital Vital Brazil–Instituto Butantan (HVB–IB), São Paulo, Brazil, with the final diagnosis of *P. olfersii* bite from 1982 to 1990 were retrospectively analyzed. The 20 minute whole blood clotting test (WBCT20) was used following the method of Warrell et al. (1977, 1986) for the blood coagulation evaluation. *P. olfersii* bites were confirmed in all cases by identification of the snakes at the Herpetology Laboratory of IB. Most of the snakes were also measured and arbitrarily classified as big (more than 50 cm) and small (less than 50 cm long).

3. Results

Of the 43 patients 32 were males (74.4%) and 11 females (25.6%) distributed according to age as shown in Table 1. Most of the cases occurred from 12 a.m. to 6 p.m. (25; 58.1%), and from 6 a.m. to 12 a.m. (12; 27.9%). The monthly cases were as follows: Jan. (23.3%), Feb. (13.9%), Mar. (9.3%), Apr. (7.0%), May (0.0%), Jun. (4.7%), Jul. (2.3%), Aug. (9.3%), Sep. (0.0%), Oct. (2.3%), Nov. (16.3%), Dec. (11.6%). Among the 41 snakes measured, 37 (90.2%) were more than 50 cm and 4 (9.8%) less than 50 cm in length. There were records of the exact length of 21 snakes that were between 20 and 138 cm long (with a mean of 87.7 cm). Of the 12 snakes classified according to sex, 10 were females and 2 males. At the exact moment of the bite, 12 victims were handling the snake, 12 were working and eight children were playing (without the reference if they were or not handling the snakes). The other were doing other activities: 4 were at home, 2 of these were sleeping. The most common bite sites were as follows: hands (31 patients; 72.1%, 24 of them were bitten in the finger) and feet (9; 20.9%). Transient bleeding from the fang punctures occurred in 17 (39.5%). Twenty seven patients (62.8%) had symptoms possible caused by venom. The other 16 patients (37.2%) showed no evidence of envenoming. The most common local signs or symptoms were as follows: local pain (16 patients, 37.2%), swelling (15; 34.9%), erythema (8; 18.6%) and ecchymosis (4; 9.3%). The WBCT20 was performed in 11 patients on admission and all of them had coagulable blood. A tourniquet had been applied proximal to the bite in 6 cases (14.0%). The interval between bite and admission to the hospital was less than 3 h for 31 patients (72.1%) and more than 6 h for 6 patients (14.0%).

A 1 year-old child which was bitten in the arm and in the head, while he was sleeping, by a 104 cm long snake presented local pain, swelling and ecchymosis. His brother, a 4 year-old child was bitten in the left leg by the same snake while he was sleeping and presented the same symptoms. Both of them were mistreated with 2 ampoules of IB *Bothrops* equine polyspecific antivenom. A 2 year-old child bitten in the finger by a 68 cm long snake, while he was playing, presented with

Table 1
Distribution of *P. olfersii* bites according to the age of the patients, HVB-IB, from 1982 to 1990

Age	Number	Percentage
0–9	11	25.6
10–19	6	14.0
20–29	6	14.0
30–39	9	20.9
40–49	4	9.3
50 and +	7	16.2
TOTAL	43	100.0

local pain, swelling and ecchymosis and transient bleeding from the bite site punctures. He also had abdominal pain and vomited three times.

4. Discussion

The distribution of *P. olfersii* bites by month and time of day were similar to those caused by *B. jararaca* (Ribeiro and Jorge, 1990) and by *Crotalus durissus* (Jorge and Ribeiro, 1992). These data were also collected from HVB–IB medical records. It suggest that peak incidence of snake bite depends on the seasonal variation in human activity, often occupation related (Warrell, 1992) more than on the species of snake (Ribeiro et al., 1995). This observation also appears to be true also for bites occurring at particular periods of the day. *B. jararaca* and *C. durissus* are snakes of nocturnal habits (Campbell and Lamar, 1989) and *P. olfersii* has a diurnal habit (Sazima and Haddad, 1992). Bites are more common with large snakes, which is similar to those caused by *C. durissus* (Jorge and Ribeiro, 1992) but different from those by *B. jararaca* (Ribeiro and Jorge, 1990). In Brazil, men are more frequently bitten than woman (Resende et al., 1989); this is also true in São Paulo State (Ribeiro et al., 1993). The great frequency of bites in hands is due, at least in part, to the fact that this snake, like the others colubrids, is more capable of biting narrower anatomic regions when manipulated by the victim (Warrell, 1992), and commonly climb up bushes (Sazima and Haddad, 1992).

Most of the manifestations at the bite site could be caused by the mechanical trauma of the bite alone. However, the child who presented with abdominal pain and vomiting is a reported case of systemic envenoming by *P. olfersii*. A fatal case was reported in the literature without information about the clinical feature or the cause of death (Centro de Informações Toxicológicas do Rio Grande do Sul, 1996), and another one had a bruising, at a distant from the bite site (Irony et al., unpublished data). None of the other described cases of *P. olfersii* envenoming in the literature had comproved systemic manifestation due to the venom itself (Martins, 1901–1917; Nickerson and Henderson, 1976; Silva and Buononato, 1983–1984). Although the *Bothrops* equine polyspecific antivenom was inappropriate, in the two cases of this study, antivenoms produced with *Bothrops* venoms have neutralizing activity on venom components of *P. olfersii* snakes (Assakura et al., 1992). The observation that, among the 43 bites by *P. olfersii*, the clinical manifestations were so mild that it almost always could be due to the mechanical trauma of the bite, what suggests that the severe envenoming is a rare occurrence among victims of these bites.

It is concluded that the *P. olfersii* accidents are caused mainly by larger specimens, occur mainly in the hottest and wettest months and during daylight. The bites are most commonly in the hands, may cause oedema and ecchymosis at the bite site and severe envenoming, as reported in the literature, is not common.

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