Case Report/Relato de Caso

Poisoning due to *Philodryas olfersii* (Lichtenstein, 1823) attended at Restauração Hospital in Recife, State of Pernambuco, Brazil: case report

Envenenamento por *Philodryas olfersii* (Lichtenstein, 1823) atendido no Hospital da Restauração do Recife, Estado de Pernambuco, Brasil: relato de caso

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ABSTRACT

Few papers have been published on snake bites caused by *Philodryas olfersii*. We report here the first case identified at the Centro de Assistência Toxicológica do Hospital da Restauração, Recife, State of Pernambuco. This case was described based on medical protocols, interviewing the patient and identifying the animal that caused the bite. The patient presented pain, heat, erythema, edema and ecchymosis, without other laboratory abnormalities or coagulation disorders. The treatment consisted of administration of eight ampoules of antibothropic serum, and post-administration allergenic reactions were observed. The importance of bites by opistoglyph snakes needs to be reconsidered in research and at specialized treatment centers.

Key-words: Snake bite. Toxinology. Colubridae. *Philodryas olfersii*.

RESUMO

Existem poucas publicações de acidentes ofídicos causados pela espécie *Philodryas olfersii*. Relatamos aqui o primeiro caso identificado no Centro de Assistência Toxicológica do Hospital da Restauração, Recife, Estado de Pernambuco. A descrição do caso foi realizada com base nos protocolos médicos, entrevista com o paciente e identificação do animal causador do acidente. O paciente apresentou dor, calor, eritema, edema e equimose, sem outras alterações laboratoriais ou distúrbios da coagulação. O tratamento executado mediante a administração de oito ampolas de soro antibotrópico apresentou reações alergênicas pós-administração. A relevância dos acidentes por serpentes opistóglifas deve ser reconsiderada na pesquisa e nos centros de tratamento especializados.

Palavras-chaves: Acidente ofídico. Toxinologia. Colubridae. *Phylodryas olfersii*.

INTRODUCTION

The snake *Philodryas olfersii*, Family Dipsadidae, Subfamily Xenodontinae[1], is known as *Cobra-cipó, Cobra de São João* or more frequently as the green snake because of its coloration. This species is found in Argentina, Paraguay, Uruguay and Brazil. In Brazil, its range of occurrence goes from the southern to the northeastern region. It is commonly found in open areas like the savanna (*Cerrado*) and arid scrub (*Caatinga*) vegetation zones, but it is more likely to be found in transition zones and in forests. In Pernambuco, these animals are widely distributed and can be found in all subregions: forest zone (*Zona da Mata*), semi-arid zone (*Agreste*) and arid zone (*Sertão*). It possesses Duvernoy's serum mucosa secretion gland, located in the posterior region of the maxilla. This is characteristic of opistoglyph snakes and is responsible for synthesis of the toxins involved in snake bite patterns[2,3]

The clinical characteristics of poisoning episodes caused in humans by this snake include edema, erythema and ecchymosis, regional lymphadenopathy, neurotoxic effects and myotoxic effects. These symptoms are similar to those from bothropic poisoning, but without coagulative disorders. The composition of *Philodryas olfersii* venom is 75-90% proteins, and these mainly cause a fast edematogenic process, hemorrhage and pain[3,4]. The lethal dose (LD_{50}) observed by Teixeira da Rocha and Furtado was 62.43µg/mouse. Some of these components act in a manner that is biologically similar to that of bothropic venom, but the effects develop faster than in *Bothrops* bites[4]. It might be possible to purify some of these components and use them as tools for studying biochemical cascade models.

Only a few cases of human poisoning caused by *Philodryas* have been described and published in the literature[2,4,5]. Some cases can be falsely diagnosed or confused as bothropic events because of the similar clinical aspects of the poisoning. Although government policies on treatments for snakebite poisoning encompass bites caused by the genus *Philodryas*, we believe that, given Brazilian healthcare realities in municipalities far from the metropolis, some units in Pernambuco may not be prepared to differentiate *Philodryas* from bothropic bites, or to treat it as a different diagnosis. This may be because of the importance of bothropic events and relative rarity of bites involving *Philodryas*. Some clinical backgrounds without coagulative disturbances that develop fast can only be neutralized and treated with antibothropic serum, as can be seen in the present case.

There are eleven healthcare units in Pernambuco focusing on anti-snake venom serum administration, and these are known as GERES (regional health management centers). Accidents involving poisonous animals throughout the metropolitan region of Recife are attended at the Toxicological Care Center (CEATOX) of Restauração Hospital (GERES I). We observed the presence of patients from municipalities regulated by other GERES centers who were seeking treatment at Restauração Hospital, perhaps because of the referral service of this toxicological center and complications in diagnosing and treating some cases. Few studies characterizing the injuries

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caused by venomous animals in Pernambuco have been conducted. We are currently developing some research on this topic[6].

The objective of this report was to present and describe the first confirmed case of poisoning by *Philodryas olfersii* that was treated in the Restauração Hospital, at CEATOX, the main healthcare center for treatment of poisoning in the State of Pernambuco, located in the state capital, Recife.

CASE REPORT

A 17-year-old male patient came to the Restauração Hospital from Curado IV, a neighborhood of the municipality of Jaboatão dos Guararapes, Pernambuco (8° 6′ 46″ S, 35° 0′ 54″ W). He was admitted to the hospital on January 4, 2009, at 1:44 PM, approximately 18 hours after being bitten on his right hand. He reported local pain and edema. The physical examination revealed the presence of erythema, significant edema and ecchymosis in the entire arm (**Figures 1A and 1B**). No systemic abnormalities were observed. The following laboratory tests were requested: bleeding time, coagulation time, prothrombin time, fibrinogen, creatine kinase, lactate dehydrogenase, urea, creatinine and urine summary. Upon request from a vascular surgeon, Doppler ultrasonography was also requested. The proposed treatment was intravenous (i.v.) hydration, painkiller if necessary, corticoid (30' before serum administration) and eight vials of antibothropic serum (i.v.). After administration of the specified serum, the patient presented early allergic reactions that progressed to erythematous plaques with itching on his arms, chest and neck, and regressed after corticoid administration. On the next day, there was regression of the edema and ecchymosis in the affected region, laboratory examinations did not present any abnormalities and ultrasound was normal (**Figure 1C**). The patient was discharged without symptoms on the third day after admission, with just slight edema in his right hand. The animal that caused the bite was properly identified as the species *Philodryas olfersii* by Pinho, M.S.S, at the Venomous Animals and Toxins Laboratory (LAPTx/UFPE), and the specimen was deposited in the scientific collection at CEATOX, as nº 70 (**Figure 1D**).

FIGURE 1 - A) Lesion after the snakebite in the present case. The arrow indicates the site of inoculation by the opistoglyph dentition, on the right hand. B) Patient's right hand presenting edema and ecchymosis after poisoning. C) Regression of symptoms after patient's serum therapy. D) *Philodryas olfersii* specimen captured.

DISCUSSION

The present study describes a case of poisoning caused by a snake of the genus *Philodryas*, which is distributed throughout South America and is responsible for most of the accidents caused by opistoglyph snakes[1,7].

Some behavioral characteristics probably contribute towards facilitating human contact with these snakes. *Philodryas* has active foraging behavior during the hottest periods of the day, and occasionally this snake visits the backyards and interiors of homes (mainly those next to native vegetation). Its behavior coincides with people's activity period, thus enlarging the chances of contact between snake and man. The first reaction of the snake when encountering man is to escape, but when threatened, it can attack through bites, thereby inoculating humans with its venom[2].

Some human accidents caused by this genus have been described[5,7-9]. Although most of the reports indicate that the poisoning caused by opistoglyph snakes is mild, Salomão and Di Bernardo reported one occurrence of death.

Because of the similarity of pathophysiological background, poisoning caused by *Philodryas* can be identified as or confused with poisoning caused by the bothropic group[3-5]. In some cases, antibothropic serum has been administered[5]. The venom of

Philodryas olfersii consists of enzymes that are commonly found in bothropic venom, which are responsible for edematogenic, hyperalgesic and hemorrhagic activities, thereby promoting erythema, ecchymosis and regional lymphadenopathy, with normal coagulation[4,5]. With greater clinical implications, there could be evolution to compartmental syndrome[8]. These observations explain the presence of pain, heat, erythema and significant edema in this report.

This report shows that intervention policies for snakebite treatment and updated predictions are not clear in relation to all venomous snakes[10]. Snakebite treatment centers need to be able to identify, describe, characterize and publicize cases caused by opistoglyph snakes, thereby clarifying their clinical and epidemiological importance. Lastly, intervention policies need to make it possible to include and recognize these kinds of snakebite occurrences within clinical and toxicological practice.

Concluding, the clinical picture of this case resulting from poisoning by *Philodryas olfersii* regressed successfully following antibothropic serum therapy. The allergenic reaction provoked by intrusive proteins that was observed during serum administration may suggest that there is a need for specific serum therapy in order to diminished the incidence of this reaction in specific treatments. In other words, research on clinical treatments for cases of poisoning due to *Philodryas* venom, in animal models with the specific polyvalent antivenin currently used in Brazil could clarify the question of a possible need for *Philodryas*-specific serum. Again, it should be noted that failure to neutralize toxins, because of the antibothropic serum treatment that is administered in some cases, could compromise the affected region and organs or cause death.

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