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ENVENOMATION BY THE NEOTROPICAL COLUBRID *Boiruna maculata* (BOULENGER, 1896): A CASE REPORT

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SUMMARY

This is a case report of a *Boiruna maculata* snake bite in a child admitted to the Hospital Municipal de Pronto Socorro de Porto Alegre, Porto Alegre, RS, Brazil. The patient was bitten on the lower left limb, and exhibited pronounced local manifestations of envenomation. She was treated with *Bothrops* antivenom and was discharged from the hospital five days later with marked improvement of envenomation.

KEYWORDS: *Boiruna maculata*; Human envenomation; Snake bites; Symptoms.

INTRODUCTION

Boiruna maculata is an opisthoglyph snake belonging to the family Colubridae, found in the meridional area of South America and is also known as *Clelia occiptolutea* (Boulenger, 1896)²¹ (Fig. 1). This species is not aggressive and usually feeds on small mammals, lizards and snakes. It can grow up to 1.5 m in its total size. Young *B. maculata* have a predominant red color dorsum and in the adult it turns completely black with a greyish venter⁵.

Envenomation by Colubrids has already been reported^{7,8,9,11,14,15,16}. In a case report of a *Clelia clelia plumbea* (Wied) snake bite, the patient presented edema, prominent ecchymotic lesions and local hemorrhage at the site of the bite¹⁷.

The Duvernoy gland, responsible for venom production in the colubrids is well developed in the *Clelia plumbea*²². Some toxins from aglyph and opisthoglyph snakes have been studied^{13,10,12,13}, nevertheless, little is known about their mechanisms of actions.

This paper deals with the first record of a human snakebite caused by the colubrid snake *Boiruna maculata*, discussing the criteria of the diagnostic and treatment, as well as the *Bothrops* antivenom administration, on such cases.

CASE REPORT

An 1.3 year-old Caucasian girl, weighting 8 kg, was admitted to Hospital Municipal de Pronto Socorro de Porto Alegre (HPS), RS, Brazil, at 00h 30 min on November 27th, 1997, 1 hr after a snake bite. The child was bitten on its left ankle while sleeping in her cradle at night. The

snake was killed and taken to the Hospital by the child's parents where it was positively identified as a young male specimen of *Boiruna maculata*. Shortly after the bite, a tourniquet was placed above the knee. The tourniquet was removed by the attendants after the arrival at the Hospital. Fang marks were evident in the ankle as well as edema, local erythema and discrete cyanosis. Clotting time was normal (5min, 30 s) and the patient was discharged without any treatment.

Seven hours later she was readmitted to the hospital exhibiting pronounced edema and pain, ecchymotic lesions, enlarged inguinal lymph nodes, cyanosis of ankle and foot and high local temperature of the bitten limb. Vital signs, clotting time and urinalysis was within normal parameters. No systemic manifestations were noticed.

Despite snake identification, the patient was given 200 ml of *Bothrops* antivenom i.v. (Instituto Butantan), diluted in 250ml of saline solutions. She was also treated with symptomatic measures: elevation of the bitten ankle, analgesics (aminopyrine), hydration (glycoside serum 250ml i.v.) and a liquid diet. Laboratory data showed creatinine 1.4 mg/dl (control = 0.6-1.3 mg/dl), urea 49 mg/dl (control = 15-40 mg/dl) and partial thromboplastin time 33 sec (control = 23-39 sec). On the third day the pain and cyanosis started decreasing. On the fifth day the edema and the ecchymosis also decreased and the patient was discharged from the hospital on the following day presenting mild ankle edema and ecchymotic lesions.

DISCUSSION

Even though the components of the *Clelia* venom are unknown, the symptoms presented by the patient suggested a proteolytic venom action. Tourniquet should not be placed in patients bitten by snakes whose venom

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Fig. 1 - Young specimen of *Boiruna maculata*.



Fig. 2 - Local signs – severe edema and echymosis – presented by the patient.

have proteolytic effects since their use can aggravate the local symptoms and thus cause a greater tissue destruction⁷. In this case the patient did not present any necrosis, local hemorrhage and systemic manifestations. In accident by *Clelia clelia plumbea*, involving a four year old child, symptoms included extensive ecchymotic lesions and edema up to the inguinal region of the bitten limb, but without any evidence of systemic manifestations¹⁷. Similar symptoms were evident in a patient bitten by *Philodryas olfersii*, who presented severe pain, edema and the enlargement of lymph nodes^{1,15,19}. Bites by *Clelia clelia* and *Philodryas sp.*, leading to local inflammation, necrosis and haemorrhage have also been reported⁶. Such symptoms were not observed in our present case. It has been reported that bites by species of *Philodryas*, as *P. baroni*¹¹ and *P. patagoniensis*^{1,16}, presented some symptoms similar to bothropid envenomations, which seems to be the case of *Boiruna maculata*.

Patients bitten by colubrids and present local manifestations are usually treated with *Bothrops* antivenom^{16,17,20}. In this case, despite the snake identification, the patient was treated with *Bothrops* antivenom. Early reactions to snake antivenom are common and depend on antivenom protein content, on the given amount and on the infusion rate⁴. Fortunately, the patient did not present any reaction to the antivenom.

Little is known about the efficacy of *Bothrops* antivenom in this kind of envenomation. However, according to study about *Philodryas olfersii*, apparently its venom share few antigens in common with the *Bothrops* species². Nevertheless, the hemorrhagic activity of *P. olfersii* was neutralized not only by the *Bothrops* antivenom but also by their specific anti-hemorrhagins². Isolated myotoxins of *P. olfersii* were compared to those of *Bothrops*, showing important similarities¹⁸. The composition of the *Boiruna maculata* venom and its possible similarities with the *Bothrops* venom are, till now, unknown. It was not possible to assess if the use of antivenom influenced the time-course of envenomation or if improvement can be attributed to the symptomatic treatment.

This paper shows that *Boiruna maculata* snake bite is potentially dangerous to men, especially to children. Thus, colubrid venoms should be studied to assess their biological and biochemical aspects and their pathology, so that a proper treatment can be developed, avoiding the unnecessary and potentially harmful use of non-specific snake antivenom.

RESUMO

Envenenamento por Colubrídeo Neotropical *Boiruna maculata* (Boulenger, 1896): registro de um caso

Este trabalho relata o envenenamento por serpente do gênero *Boiruna maculata* em criança admitida e posteriormente hospitalizada no Hospital Municipal de Pronto Socorro de Porto Alegre, RS, Brasil. A paciente foi mordida no membro inferior esquerdo e apresentou sinais de envenenamento local pronunciado, foi tratada como acidente botrópico e permaneceu no hospital por cinco dias, recebendo alta após melhora.

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