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HUMAN ENVENOMING BY *ATRACTASPIS CORPULENTA CORPULENTA* (REPTILIA: ATRACTASPIDIDAE) IN GABON, WESTERN CENTRAL AFRICA: A FIRST CASE REPORT

Olivier S. G. Pauwels[1,2], Jean-Claude Mbini[3], Patrick Péaud[3] and Elie Tobi[1]

[1]Smithsonian Institution, National Zoological Park, Monitoring and Assessment of Biodiversity Program, B.P. 48, Gamba, Ogooué-Maritime, Gabon.
Email: osgpauwels@yahoo.fr, elie_tobi@yahoo.fr

[2]Mail address: Département des Vertébrés Récents, Institut Royal des Sciences naturelles de Belgique, Rue Vautier 29, 1000 Brussels, Belgium

[3]Clinique Hervé Morand, Yenzi, B. P. 48, Gamba, Ogooué-Maritime, Gabon.
Email: JeanClaude.Mbini@shell.com, Patrick.Peaud@shell.com

ABSTRACT.– The first documented case of envenoming by *Atractaspis* in Gabon is described. The patient, an adult male, suffered local lymphangitis and paraesthesiae, but following immediate medical monitoring and proper treatment, recovered completely within five hours.

KEY WORDS.– Atractaspididae, *Atractaspis corpulenta*, envenomation, treatment, Gabon, Ogooué-Maritime, Africa.

INTRODUCTION

One of the main objectives of the Smithsonian Institution's Monitoring and Assessment of Biodiversity Program in Gabon is the increase of knowledge on the local biodiversity. Species inventories organized by the Smithsonian Biodiversity Centre in Vembo, Gamba, in Ogooué-Maritime Province, aim to build reference collections for the local biodiversity. On 22 January 2007, a snake of the genus *Atractaspis* caught in a pitfall trap in dense secondary forest in Vembo was brought back alive to the Centre in order to gather biological observations. On 23 January 2007, a group of unexpected visitors entered the Centre. Unnoticed to have left the group, a Caucasian male of French nationality (born 1957, height 1.7 m, weight 70 kg) approached the terraria and, confusing the *Atractaspis* with the harmless and locally common legless skink, *Feylinia grandisquamis* Müller, 1910 (Scincidae), put his hand in the terrarium. He was bitten on the right index finger before he could even grab the snake. Immediate squeezing of the bitten finger oozed out a drop of blood from the bite mark. Reported cases of envenoming by *Atractaspis* spp. are rare (Barrière et al., 2005), and the present case is the first documented one for Gabon. Following are the signs and symptoms observed and the management regime taken. It is to be noted that the medical team in charge is not specialized in snake bite treatment.

RESULTS

Identification of the snake.– The adult male had a total length of 460 mm, including a tail of 43 mm. The head is small and the neck is not marked. The dorsal and ventral colour is uniformly black. The fangs are well developed and erectile. Main morphological characters are: 26–27–19 dorsal scale rows, counted respectively at one head length behind head, at midbody (above the ventral corresponding to half of the total number of ventrals), and at one head length before vent; 4 preventrals and 186 ventrals (counted after Dowling, 1951); single anal scale; 1 divided + 23 undivided subcaudals (terminal pointed scute excluded); 5/5 supralabials, 3rd and 4th reach eye; 4th supralabial the largest; 6/6 infralabials, the first pair widely in contact medially behind the mental scale, the second pair fused with the first and only pair of sublinguals, the third pair separated by 5 small gular scales; 2 internasals; 2 prefrontals; nasal divided; no loreal; 1/1 preocular; 1/1 postocular, about

the same size of the preocular; 1/1 supraocular; 1+3/1+3 temporals, the anterior one much larger than the 3 posterior ones. The dorsals, ventrals and subcaudals are all smooth and shiny. The vertebral row is not enlarged. The rostral scale is large and visible from above. The frontal scale is subtriangular and wider than long. The eye is small, slightly larger than the postocular. These characters all agree with the description and keys provided by Chippaux (2006) and Meirte (1992) for *Atractaspis corpulenta corpulenta* (Hallowell, 1854), except that the present specimen has a completely black tail, while Chippaux (loc. cit.) said it to be partly white. The specimen will be deposited in the herpetological collections of the United States National Museum, Washington, D.C.

Symptoms and treatment.– The bite, by a single fang as is typical of *Atractaspis* spp., occurred at 0750 h. Within a minute after the bite, one of us (ET) squeezed the patient's index finger in order to bleed as much as possible. However, only a large drop could be eliminated. The patient was immediately advised by the Centre's biologists to go as quickly as possible to the nearby Hervé Morand Clinic. He was thus driven there by car and arrived and was admitted at 0805 h (15 min after the bite). The whole upper surface of the right index had already turned to dark purple, confirming envenoming. The patient was then administered 4 mg of Celestene (betamethasone) by direct intravenous injection at 0815 h and kept under observation, lying on a bed. His body temperature was 36ºC and remained stable with no fever. A lymphangitis appeared and a dark reddish patch extended from the index to the forearm, and reached the level of the elbow at 0840 h. This patch did not spread above this point. The progression of the patch was accompanied by a disagreeable sensation of formication and a slight but continuous pain. Examination for the blood one hour after the bite was normal (no decrease of the blood platelets with 383 10^3/mm^3). The lymphangitis began to slowly regress at 0915 h, but at the same time a paresthesis on the upper surface of the whole right hand appeared. Both lymphangitis and paresthesis had significantly regressed at 0930 h, when a plaster with Fucidine (sodium fucidate) was applied. All symptoms and pain had stopped at 1015 h, but a pain on the whole right hand reappeared at 1100 h, and the patient was then given two tablets of 500 mg Paracetamol. The pain mostly disappeared around 1130 h, except at the bite site, and the patient left the clinic. At 1300 h (five hours after the bite) the colour of the right hand and arm had completely turned back to normal, but the pain at the bite site persisted until 1500 h. The patient could however do his administrative work from 1400 h, and the total work interruption due to the incident was thus half a day.

DISCUSSIONS

When disturbed, all the specimens of *Atractaspis c. corpulenta* we caught in Gamba systematically adopted the typical *Atractaspis* defense behaviour. They arched their neck with the snout oriented towards the ground, forming an inverse U-shape with their forebody. They then laterally and violently project the head towards anything approaching too closely, the venomous fang being laterally positioned between the closed lips and ready to strike.

In Gabon, this nocturnal, slow moving, terrestrial and semi-fossorial snake is found in dense primary forest as well as in highly degraded secondary forest and in galery forest in coastal savanna. It is the only member of this genus which seems to be locally common in Gabon, although it is known so far with certainty only from Ogooué-Maritime and Woleu-Ntem provinces, from localities situated between near sea level and 530 m asl (Angel, 1933:220; Burger et al., 2004:153, 171; Laurent, 1950:41; Pauwels et al., 2002:62; 2006a:93, 97; 2006b:184).

Besides *Atractaspis c. corpulenta*, Gabon is home to *Atractaspis boulengeri* Mocquard, 1897, known from a few specimens from Ogooué-Ivindo, Moyen-Ogooué, Ogooué-Maritime and Woleu-Ntem provinces (Boulenger, 1900:456; 1919:298; Knoepffler, 1966:19: as *A. boulengeri matschiensis* Werner, 1897 and *A. b. mixta* Laurent, 1945; Laurent, 1950:29; Mocquard, 1897a:54–55; 1897b:16–17; Pauwels et al., 2006a:93, 97; Perret, 1960:133) and *A. reticulata* Sjöstedt, 1896, recorded from a single specimen from Ogooué-Ivindo Province (Knoepffler, 1966:20, as *A. reticulata heterochilus*). As indicated by the widely dispersed localities from where they are currently known, *A. boulengeri* and *A. c. corpulenta* are certainly

widespread in the country. Although few data exist concerning the danger represented by *Atractaspis* spp. (and all other venomous snakes) in Gabon, *Atractaspis c. corpulenta* is regarded as a highly venomous snake by villagers in the Cristal Mounts (Pauwels et al., 2002:62). A common and widespread belief in Gabon concerning these "little black snakes, is their ability to envenom people by the sand they project with their head", relating to the defensive behaviour of *Atractaspis* spp., as one of us (OSGP) noted in the Cristal Mounts. When biting, the fang of *Atractaspis* is nearly invisible, and sand or soil can indeed be sometimes projected by the violent lateral movement of the head. Since, unlike all other snakes, the *Atractaspis* do not bite nor open their mouth when striking, it is understandable that locals believe that the venom is contained in the soil particles projected. This belief seems to be widespread amongst the local inhabitants, and no Gabonese would manipulate them. Incidents would likely happen when villagers walk with bare feet at night and step near or on the snake, and when collecting firewood. The incident that is reported here led to the decision not to keep live venomous snakes in the Biodiversity Centre, to avoid any such incidents in the future.

Spawls and Branch (1995) indicated that the few reported bite cases for *A. corpulenta* involved "only pain, local swelling, fever and lymphadenopathy", based on the data provided by Corkill and Kirk (1954) and "Franz (1960)" (the actual authors are Gunders et al., 1960). Corkill and Kirk (1954) reported two cases of bite on two different persons by the same snake individual in 1913, first in Sierra Leone, second at London Zoo where the specimen had been sent alive. The first bite was described as such : "There was a burning pain, and one hour after the bite a sense of feverishness. Six hours after the bite there was swelling of the axillary glands, and at the site swelling and a continued pain like that of a bee-sting. He sucked the finger, went out to dinner, and felt well next morning." Concerning the second bite, the patient was ill for a week to ten days. The case reported by Gunders et al. (1960) only implied local pain and swelling and other minor symptoms, but was medically treated within half an hour of the bite. Based on the collecting localities of the two above-listed specimens, respectively Kennema, Sierra Leone, and Harbel, Liberia, these snakes can be identified as *Atractaspis corpulenta leucura* Mocquard, 1885. The case reported here seems thus to be the first documented one referring to the eastern subspecies, *Atractaspis c. corpulenta*.

Regarding the treatment that was applied in the present bite case, it should be noted that squeezing the bitten part is not recommended in first-aid for snake bite; moreover, the use of betamethasone was inappropriate (David Warrell, pers. comm.).

CONCLUSIONS

The danger represented by *Atractaspis* spp. in Gabon has never been evaluated. The genus being widespread in the country, and the toxicity and typical bite method being familiar to the Gabonese people, it is certain that many cases of envenomation occur throughout the country to maintain its reputation. Only the large cities of Gabon have the medical facilities to treat envenoming cases, and medical treatment is not accessible to all; these facilities do not exist in the countryside, where villagers also lack roads and transportation to medical centres, or refer only to traditional medicine practitioners (Tchoua et al., 2002). The above-described case shows the symptom evolution when the case is medically treated from its beginning, but it is probable that most cases are not treated and must lead to medical complications.

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