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# *Liophis poecilogyrus sublineatus* (Serpentes: Dipsadidae) bite and symptoms of envenomation

Fernando Marques Quintela[1]

The genus *Liophis* comprises more than 50 species of aglyphous dipsadid snakes (Curcio et al., 2009) spread from southern Central America (Costa Rica and Panama) to southern Argentina (Dixon, 1989). *Liophis poecilogyrus* is a widely distributed aglyphous dipsadid in South America. There are four recognized subspecies (Dixon and Markezich, 1992; Giraudo, 2001) being *Liophis poecilogyrus sublineatus* (Fig. 1) the southernmost ranged, occurring in the Brazilian State of Rio Grande do Sul, Uruguay and part of Argentina (Giraudo, 2001; Quintela and Loebmann, 2009). In the south of Rio Grande do Sul State *L. p. sublineatus* is an abundant species, occupying varied habitats such as grasslands, marshes, coastal dunes, forest fragments and even urban areas (Quintela et al., 2006; Quintela and Loebmann, 2009). Herein, I report an event of a *L. p. sublineatus* bite, which occurred in an urban area in southern Rio Grande do Sul, and describe its consequent symptoms.

On 18 January 2010 at 08:07 pm, a female *L. p. sublineatus* specimen (snout-vent length 317 mm, tail length 68 mm) was found in a sidewalk in a highly disturbed urban area in the city of Rio Grande (32º01'52"S, 52º05'34"W). Immediately after its capture, the specimen bit the author (adult male, 31 years old, 1.71 m tall, 71 kg weight) on the right thumb for a few seconds. The bite was followed by local ardor and bleeding (Fig. 2). Fifteen minutes after the bite I observed a moderate swelling in the right thumb finger and part of the right hand, which lasted about seven hours (Fig. 3). Approximately one hour after the bite I felt moderate pain and paresthesia from the right hand, forearm and biceps. Three hours after the pain had spread to the right armpit and the following parameters were taken at Unimed Litoral Sul Hospital: body temperature = 37.2ºC; blood pressure =14/9 kPa; heart frequency = 84 ppm; respiratory frequency = 21 rpm.

1 Programa de Pós-Graduação em Biologia Animal, Universidade Federal do Rio Grande do Sul, Avenida Bento Gonçalves 9.500, Bairro Agronomia, Porto Alegre, RS, CEP 91501-970; e-mail: fmquintela@yahoo.com.br

**Figure 1.** Specimen of *Liophis poecilogyrus sublineatus*. Photo: F.M. Quintela.

**Figure 2.** Bleeding after *Liophis poecilogyrus sublineatus* bite on the right thumb. Photo: Chyntia Ibarra.

The moderate muscular pain remained until around 14:00 h on the next day (18 hours after the bite). After that, a slight muscular pain remained for the next three days from the right hand to the armpit, being intensified during muscular activity. On the fifth day muscular pain stopped completely. Two small areas of ecchymosis were observed in the forearm and biceps, disappearing on the fifth day. No medication was taken during this period. The snake was collected and deposited in the herpetological collection of Museu de Ciências e Tecnologia of Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), being registered under the catalogue number MCN 16943.

Documented cases of snakebites involving South American aglyphous colubrid/dipsadidae species have been recorded for *Chironius* (Ayerbe et al., 1979), *Drymarcon corais* (Silveira and Nishioka, 1992), *Leptophis* (Ayerbe et al., 1979), *Liophis miliaris* (Albolea, 1998; Santos and Di-Bernardo, 2001), *Lystrophis* (=*Xenodon*) (Costa, 1997), *Hydrodynastes gigas* (Manning et al., 1999; Hill and Mackessy, 2000) *Mastigodryas bifossatus* (Kouyoumdjian et al., 1990; Costa, 1997; Silveira and Nishioka, 1992), *Helicops infrataeniatus* (Costa, 1997), *Helicops modestus* (Albolea, 1998), *Helicops* spp. (Kouyoumdjian et al., 1990), *Rhadinea* (=*Psomophis*) (Prado- Franceschi and Hyslop, 2002), *Spilotes* (Prado-Franceschi and Hyslop, 2002), *Simophis rhinostoma* (Silveira and Nishioka, 1992) and *Xenodon merremii* (Kouyoumdjian et al., 1990; Silveira and Nishioka, 1992; Costa, 1997). Symptoms observed from a *H. gigas* bite included pain, edema, muscle paralysis, numbness in the bitten limb and muscle pain and weakness for two months after the bite (Manning et al., 1999). In another case involving *H. gigas* profuse bleeding from the wound, pain, edema and ecchymosis occurred, with a seven-day recovery (Hill and Mackessy, 2000). An analysis of 78 bites of *H. modestus* (Albolea, 1998) showed pain, edema and ecchymosis as the most common symptoms. For the cogenus *L. miliaris*, symptoms comprise copious bleeding from the wound, edema, erythema, local pain and ecchymosis (Albolea, 1998; Santos-Costa and Di-Bernardo, 2001).

Therefore, envenomation symptoms here described for *L. poecilogyrus sublineatus* resemble those recorded for *L. miliaris*, but for the absence of erythema. In the case of human envenomation by *L. miliaris* as reported by Santos-Costa and Di-Bernardo (2001), the symptoms lasted for 40 minutes, a period of time much shorter when compared to the period in which symptoms of envenomation by *L. poecilogyrus sublineatus* were observed in the present case. Swelling, paresthesia and ecchymosis observed here could be probably caused by proteases present in salivary secretions, as suggested for *L. miliaris* (Santos-Costa and Di-Bernardo, 2001). Those proteases can play a role in prey immobilization, as observed for infralabial gland secretions in dipsadid species *Atractus reticulatus*, *Dipsas indica* and *Sibynomorphus mikanii* (Oliveira et al., 2007).

Biting could be considered a rare defensive behavior of *L. p. sublineatus*, since this is the first occurrence in more than 264 encounters proceeded by manual captures in southern Rio Grande do Sul State (pers. com.). Defensive behaviours commonly observed during encounters in the area include cloacal discharge and dorsal-ventral flattening, which is also pointed out by Marques et al. (2001) for *L. p. poecilogyrus* in southeastern Brazilian Atlantic Forest. Stress conditions, internal injuries, diseases or other unknown conditions could have affected this particular specimen, triggering the bite. However, despite its typically non-aggressive behaviour, *L. p. sublineatus* can eventually bite, causing non-severe envenomation.

**Figure 3.** Swelling of the right thumb and hand two hours after a *Liophis poecilogyrus sublineatus* bite. Photo: Chyntia Ibarra.

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