

First case of human latrodectism in Venezuela

Primeiro caso de latrodectismo humano na Venezuela

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ABSTRACT

The first case of envenoming by *Latrodectus geometricus* in Venezuela is described. The accident occurred at the victim's home, in Aragua de Barcelona, Anzoátegui State. The 31-year-old female victim was bitten twice on the left scapular region, in quick succession (within seconds). She developed a hyperactive state of the central, autonomic and peripheral nervous systems with minor local symptoms.

Key-words: *Latrodectus geometricus*. Araneae. Theridiidae. Latrodectism. Venezuela.

RESUMO

Descreve-se o primeiro caso de envenenamento por *Latrodectus geometricus* na Venezuela. O acidente ocorreu na residência, em Aragua de Barcelona, Estado Anzoátegui. A paciente de 31 anos de idade foi picada, consecutivamente duas vezes, em segundos, na região escapular esquerda. Ela desenvolveu um quadro de hiperatividade do sistema nervoso central, autonômico e periférico com escassa sintomatologia local.

Palavras-chaves: *Latrodectus geometricus*. Araneae. Theridiidae. Latrodectismo. Venezuela.

Latrodectism is the result from envenoming by species belonging to the genus *Latrodectus*^{8 13} (Araneae: Theridiidae) and is associated with neurotransmitter discharge, particularly in the autonomic system^{6 11}. A number of *Latrodectus* species are responsible for severe arachnidism around the world¹², due to their cosmopolitan distribution and the high toxicity of their venoms^{1 8 10 12}.

There have been no previous reports of human envenoming by *Latrodectus* species in Venezuela. In this study, we report the first case of latrodectism in this country, which was recorded in the village of Aragua de Barcelona, Anzoátegui State, northeastern Venezuela. The causal agent was identified as *Latrodectus geometricus* (Araneae, Theridiidae).

CASE REPORT

A 31-year-old woman from the village of Aragua de Barcelona, Aragua municipality, Anzoátegui State, Venezuela, reported having been bitten by a spider (on two consecutive occasions) in her left scapular region on September 26, 2006, at 9:00p.m. The envenoming took place inside her home while she was sitting

on a metal chair. The patient immediately developed pain (of a burning nature) at the envenoming site, but she underestimated its importance. She caught the specimen, placed it inside a glass jar and sprayed the chair with insecticide, which allowed her to collect two additional spiders.

Four hours later (at 1:00a.m. on September 27, 2006), she woke up complaining of continuous, oppressive, intense frontal headache. She presented burning pain of moderate intensity in the left scapular region and also redness accompanied by paresthesia irradiating towards the entire ipsilateral arm. Immediately, she presented persistent palpitations and abdominal pain (colicky type). Because of this, she was taken by relatives to Hospital Dr. Rafael Rangel, a type I hospital in Aragua de Barcelona, where she was admitted at 1:30a.m.

The patient was agitated during the physical examination. She was algid, with facial pallor and bilateral eyelid edema. Her blood pressure was 150/100mmHg; heart rate, 120 beats per min; respiratory rate, 26 per min; and oral temperature, 38.5°C. Two punctiform erythematous lesions, 2cm apart, were found at the envenoming site, encircled by a clear halo, which was then surrounded by a hyperemic area of 3cm in diameter. Her chest

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presented normal expansion and normal respiratory noises. Sinus tachycardia was shown by electrocardiographic examination. Her pulse was rapid and broad and her venous pulse was normal. Her abdomen was painful and resistant to deep palpation, without visceromegaly and augmented peristalsis. Her superior brain functions were normal and her cranial nerves were intact. She presented generalized fasciculation, cramps in all four limbs, augmented muscle tonus, increased tendon reflexes and steady muscle strength. Her blood glucose level was 200mg/dl. It was normal when a second blood sample was analyzed on September 28, 2006. Symptomatic treatment was administered consisting of parenteral hydration (0.45% dextrosaline), non-opiate analgesics, hyoscine and thiocolchicoside.

The red area located in the scapular region extended progressively over the following 12 hours after the envenoming until it reached a diameter of approximately 10cm after 48 hours. The patient was discharged in good health and with treatment consisting of antispasmodics, muscle relaxants and analgesics. These were not needed after a few days, when she had completely recovered.

The specimens collected (including the one responsible for the envenoming) were sent to the Venomous Animals Collection at the Health Sciences Investigation Center (CICS), *Universidad de Oriente*, Anzoátegui Campus, Venezuela. They were identified with the following catalog numbers: MAV-CICS 071 (the specimen that inflicted the bites) and MAV-CICS 072 and 073 (complementary specimens). The taxonomic diagnosis enabled classification of all the individuals as *Latrodectus geometricus* Koch, 1841 (Araneae, Theridiidae). The identification was confirmed by Professor Jesús Manzanilla (Museum of the Agricultural-Zoological Institute, *Universidad Central de Venezuela*, Maracay, Venezuela) and Professor Pablo Cornejo-Escobar (Invertebrate Zoology Laboratory, *Universidad de Oriente*, Cumaná, Venezuela). The morphometric data, i.e. total body length (cephalothorax + abdomen), were as follows (obtained using a Mitutoyo® digital caliper under an Olympus SZH10® stereoscopic microscope): MAV-CICS 071 = 8.35mm; MAV-CICS 072 = 8.33mm; MAV-CICS 073 = 8.01mm.

DISCUSSION

In Venezuela, envenoming by Araneae is poorly documented^{4,7,9}. During the decade 1980-1990, spider bites were the fourth largest cause of mortality due to animal envenoming in this country, with a much lower frequency than for snake bites: snakes, n° = 586 (66.9%); bees, n° = 170 (19.4%); scorpions, n° = 91 (10.3%); spiders, n° = 3; (0.3%); centipedes, n° = 2 (0.2%); and others, n° = 25 (2.9%)⁵. However, no clinical reports or taxonomic diagnoses were made in any of those cases of spider bites. Among the Venezuelan arachnids of medical importance, scorpion remained the best-studied group^{2,3,5}. On the other hand, the clinical characterization of arachnidism, taxonomic analysis of the species involved and evaluation of their venoms have not been given sufficient attention. It is probable that arachnidism in Venezuela has been underreported, taking into

account its medical importance in neighboring countries such as Brazil^{1,8} and Chile^{8,10,12}.

Latrodectism is characterized by the predominance of general signs and symptoms over local ones¹⁰. Immediately after the bite, an acute, intense local pain begins, and this irradiates to the entire affected limb. Locally, slight cutaneous manifestations are evident, including erythema and edema^{1,8,13}. Muscle abnormalities are characterized by tremors, fasciculation, contractures (in severe cases, trismus, opisthotonus and rigidity of the abdominal wall are observed) and generalized myalgia, including hyperreflexia and hypertonia. Concomitantly, autonomic (both sympathetic and parasympathetic) abnormalities can develop, such as diaphoresis, sialorrhea, nausea, vomiting and piloerection. At the cardiovascular level, tachycardia and/or bradycardia, hypertension and/or hypotension can be observed (in cases with poor prognosis, bradycardia and hypotension are generally present). Central manifestations are characterized by restlessness that may evolve into convulsions^{1,8,13}. In some patients, a generalized skin rash may appear a few days after the envenoming, including erythema, maculopapular and vesicular lesions and cutaneous hyperesthesia¹³. In severe cases, *Latrodectus fasciae* can be observed, characterized by redness, diaphoresis, bilateral conjunctivitis with eyelid involvement and painful trismus¹³. A combination of bilateral eyelid edema and regional and generalized myalgia, together with fasciculation, could constitute the basis for diagnosing a case of latrodectism^{1,8,11,13}.

Souza et al¹³ commented that *Latrodectus geometricus* produces a venom that is weakly toxic to humans. However, the moderately severe case of latrodectism described here suggests that this arachnid is epidemiologically important, at least in Venezuela. The clinical relevance of envenoming of Venezuelan populations by *Latrodectus geometricus* should be further studied, especially taking into consideration that is a very common type of spider throughout the country, widely distributed in urban areas of northeastern Venezuela, as reported by Machado-Allinson and Rodríguez-Acosta⁷.

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