ARTÍCULOS ORIGINALES

UNIVERSIDAD CENTRAL DE VENEZUELA
SECCIÓN DE INMUNOQUÍMICA DEL INSTITUTO DE MEDICINA TROPICAL
DEPARTAMENTO DE ZOOLOGÍA Y ECOLOGÍA DEL INSTITUTO DE ZOOLOGÍA TROPICAL

Picaduras venenosas en el mundo tropical: accidente por mordeduras y picaduras de un enjambre de abejorros en una selva lluviosa venezolana

Dr. Alexis Rodríguez -Acosta,[1] Dr. Ricardo Guerrero,[2] Lic.Matías Reyes[3] y Téc. Bárbara Szymanska[4]

RESUMEN

Se describen 2 casos de envenenamiento producidos por el ataque inusual de colonias de insectos de la familia Bombidae, conocidos de forma popular como abejorros. Este tipo de envenenamiento puede llegar a ser de toxicidad severa y se analiza a la luz de los últimos hallazgos, caracterizados por síntomas hemorrágicos tales como hematemesis y melena.

Descriptores DeCS: MORDEDURAS Y PICADURAS DE INSECTOS; VENENOS DE ABEJA/envenenamiento; ABEJAS; HEMATEMESIS/etiología; MELENA/etiología; MEDICINA TROPICAL; VENEZUELA.

The published literature in Venezuela on wasp-sting or bumblebees-bites (or sting) allows no mean of the determination of the incidence of this envenomation.

The literature about behavior of these insects reported it as animals of life in society, building its nets with vegetable litter in the ground, flying accompanied when they are going to mate.[1] Since scientific point of view they belong to *Bombus* Latreille, 1802 genus. This genus is distributed from the Nothern hemisphere with a deep penetration in South America, invading different habitats such as humid and hot climes in tropical zones to cold clines in high mountains. *Bombus morio* has been reported in Brasil, Ecuador and Bolivia (*Moure* and *Sakagami*), but as far as we known it has not been reported for Venezuela. Potentially, those insects are very hazardous, being able to provoke serious accidents and death with an alone stung.[2,3] In the national or international literature[4] has been reported swarm bumblebees massive attacks anywhere, such as it is seen in the africanized bees or common bees (*Apis melifera*).

The accidents produced by bees are generally of allergic or anaphylactic nature.[5] As far we as known, it has not been described other toxic activities in bumblebee venom.

[1] Profesor Titular en Medicina Tropical. Instituto de Medicinal Tropical de la Universidad Central de Venezuela.
[2] Profesor Titular. Instituto de Zoología Tropical de la Universidad Central de Venezuela.
[3] Profesor Instructor en Medicina Tropical. Instituto de Medicina Tropical de la Universidad Central de Venezuela.
[4] Técnico. Instituto de Zoología Tropical de la Universidad Central de Venezuela.

In this paper we are reporting a swarm of bumblebees (*Bombus morio*) bites and stings accident occurred to a researchers team working in a Venezuelan rainforest, whom presented a non-described bumblebees venon activity clinical picture, characterized by hematemesis, melena as well as inflammatory and bites dermic lesions.

METHODS

Bumblebees. An specimen of bumblebee was collected by Dr. *Ricardo Guerrero* and classified as *Bombus morio* by the entomologist *Matías Reyes.*

Locality. Place named Madre Vieja, located at 1 km north from Puerto Catatumbo, Zulia state, Venezuela: 9° 7'56'' north latitude and 72°, 40'40'' west longitude. At 45 m of altitude.

The area is a typical humid tropical forest characterized by high pluviometric rate, dense vegetation, temperatures range between 28-36 ºC. Animals were living in a colony built in the ground, which look like a termites nest.

Cases. Two (female and male) researchers suffered a massive attack when accidentally walked on the bumblebee nest, around a dozen of insects at a time were stinging and biting. Symptoms immediately appeared, characterized by strong intensity pain without concomitants located in arm, leg and abdominal regions, which in about 10 min, after topic application of ice began to decrease of intensity. The sting on the skin showed a small edema and erythema, letting an reddish-orange spots and two erythematous and bleeding traumatic lesions in the site of the bite.

Two hours after the accident began the nauseas, chills, vomits (in number of 6 or 7; clear at the beginning and then took dark reddish-brown coloration with a very bitter flavor). Vomits spontaneously slackened 5 h after the stings. Both patients presented profuse sweating, dizziness, hypothermia sensation, astenia, drowsiness and discreet headache. Urines were always normals. At 24 h, feces were also dark-brown stained.

Patients came to the Tropical Medicine Institute consultation when they leave the forest, 6 d after the accident. Both patients recovered well and they only presented small scabs in the bitten area.

DISCUSSION

In our country, the knowledge about the poisonous animals, always it has been surrounded of a superstition halo, fear or mystery. Most of the people feel a deep rejection by the wasps and bumblebees, based on atavistic sensations, that probably were originated in the first contacts of the man with these biological groups, where its bites or stings beside provoke pains and damages, in occasions very intensive. This fear is not exclusive of the individual injured, but in many occasions of the physician, who by ignorance of the topic, does not know to try the accidents, or even worse, they improvises, causing serious damages to the luckless patient.

Of all deaths in the United States from 1950--1959 as a result of attacks by venomous animals and insects, 50 % of deaths were caused by the stings of hymenopterous insects: of 229 of such deaths, 124 deaths resulted from bee-stings.[6] Thus, after snakes, bees have been the third most common venomous animal to be responsible for human fatalities in the United States.[2] As far as we known, this is the first report of a massive attack from a large group of bumblebeess living in a multibored colony located in the land in Venezuela. Authors[7-9] reported the bumblebees aggressive behavior. Normally, colonies attack when are disturbed; sometimes, even if only are being observed. These insects have pointed stings which are retained in victim skin; the venom induce transient local reactions; however, some allergic reactions can be systemic, rarely inducing severe morbidity and mortality due to allergic reactions.[10] In addition, the venom can induce hemolysis[11] and the secretagogue activity seems to be due to mechanisms that cause cell membrane disturbance and lysis with consequent serotonin release, producing one of the multiple allergic activities, as it has been described in wasp venom.[12,13] If we accepted dark reddish-brown coloration with a very bitter flavor vomits as hematemesis and very dark-brown feces as melena, we would be in the presence of a hemorrhagic activity until now non-described in *Bombus* genus. Our laboratory will be involve in the bumblebee venom studies in order to describe and characterize such possible hemorrhagic fraction (s).

SUMMARY

Two cases of poisoning produced by the unusual attack of colonies of insects from the family Bombidae, commonly known as bumblebess, are described. This type of poisoning may become severe toxicity and

it is analyzed in the light of the latest findings. It is characterized by hemorrhagical symptoms, such as hematemesis and melaena.

Subject headings: INSECT BITES AND STINGS; BEE VENOMS/ poisoning; BEES; HEMATEMESIS/etiology; MELAENA/etiology; TROPICAL MEDICINE; VENEZUELA.

REFERENCIAS BIBLIOGRÁFICAS

1. Moure SJ, Sakagami Sh. As mamangabas sociais do Brasil (Bombus Latreille) Hymenoptera, Apoidea). Studia Ent 1962;1-4:65-195.
2. Southcott RV. Some harmful Australian insects. Med J Aust 1988;149:656-62.
3. Machado-Allison A, Rodríguez-Acosta A. Animales venenosos y ponzoñosos de Venezuela. Caracas: Consejo de Desarrollo Científico y Humanístico de la Universidad Central de Venezuela, 1997:1-90.
4. Harwood, RF, James MT. Entomology in human and animal health. New York: Mc Millan, 1979:1-268.
5. Fonseca F. Animais peconhentos. Sao Paulo: Inst. Butantan, 1949:1-186.
6. Parrish HM. Analysis of 460 fatalities from venomous animals in the United States. Am J Med Sci 1963;245:129-41.
7. Lehring R. Biologishe Beobachtungen an brasilianischen Bombus-Nestern. Allgem Zs Entom 1903;8:447-53.
8. Ducke A. Enumeracao dos hymenopteros coligidos pela Comissao e revisao das especies de abelhas do Brasil. Hist Nat Zool 1916;35(5):1-175.
9. Moure JS. Notas sobre as mamangabas. Bol Agric Curitiba 1946;4:21-50.
10. Warrel D. Venomous and poisonous animals. En: Warren K, Mahmoud AAF, eds. Tropical and geographical medicine. New York: Mc Graw-Hill Book, 1985:517-41.
11. Rosenfeld G. Animais peconhentos e toxicos do Brasil. En: Da Silva-Lacaz C, Baruzzi R, Siqueira W, eds. Geografia medica do Brasil. Sao Paulo: Universidad de Sao Paulo, 1972:1-568.
12. Costa H. Biochemical characterization of the venom of social wasp *Agelaia pallipes pallipes* (Hymenoptera-Vespidae). J Venom Anim 1997;3:51.
13. Sabotka AK, Franklin RM, Adkinson NF. Allergy to insect stings. II. Phospholipase A: the major allergen in honey bee venom. J Allergy Clin Immunol 1976;57:29-40.

Recibido: 12 de mayo de 1997. Aprobado: 11 de octubre de 1997.
Dr. *Alexis Rodríguez-Acosta.* Apartado 47423, Caracas 1041 A, Venezuela.