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First ever report of a bite by *Nabis argentinus* Meyer-Dür (Hemiptera: Heteroptera: Nabidae) on a human

Primer registro de una picadura de *Nabis argentinus* Meyer-Dür (Hemiptera: Heteroptera: Nabidae) en un ser humano

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Abstract

Herein, we described the first ever reported bite of *Nabis argentinus* Meyer-Dür 1870 on a human. The bite was registered in the locality Santa Rosa La Pampa, Argentina (36°37'29.02"S, 64°17'19.13"W). The insect was not provoked by the victim, and thus, the bite was probably not in self-defense. We therefore concluded that the insect bite the victim because it was searching for sources of hydration.

Key words: adventitious bite, nabids, predaceous habit, record, symptomatology.

Resumen

Se describe el primer caso de una picadura adventicia en un ser humano por *Nabis argentinus* Meyer-Dür 1870, en la localidad de Santa Rosa La Pampa, Argentina (36°37'29.02"S, 64°17'19.13"W). El insecto no fue provocado por la víctima, por lo que probablemente la picadura no fue en defensa propia. Por lo tanto, concluimos que el insecto picó a la víctima en búsqueda de recursos de hidratación.

Palabras clave: hábito predador, nábidos, picadura adventicia, registro, sintomatología.

Research evidence confirmed that members of Heteroptera occasionally bite or annoy humans. While they have been observed probing their mouthparts on humans (Myers, 1929; Usinger, 1934; Krisnky, 2002), only a few feed on human blood, including bed bugs (Cimicidae) and kissing bugs (Reduviidae: Triatominae) (Schuh & Slater, 1995; Sweet, 2000). The latter have medical significance as vectors of the causative agent of Chagas' disease (American trypanosomiasis) (Garcia *et al.*, 2000). All other heteropterans (i.e. bugs) feed on plants and animals and bite humans only adventitiously (Schaefer, 2000).

Bite of hematophagous bug species on humans are reported to be painless, by contrast, bites of predaceous and phytophagous bugs on humans can be painful (Krisnky, 2002). The pain is probably produced by enzymes present in the saliva of the bug, which in turn, are used by heteropterans to digest insect and plant tissues (Krisnky, 2002). Beyond being occasionally painful, bug bites do not cause great harm and symptoms generally disappear soon (Oliva, 2002). According to Schaefer (2000), insect bites on humans are usually defensive or to obtain water and/or solutes. Some factors such as perspirations, strong light, and/or extreme hunger may promote insect bites on humans (Schaefer, 2000). Humans are generally bitten by predatory insect species when they enter areas of active predation or when insects, attracted by light, enter homes (Krinsky, 2002).

In Argentina, there are few records of adventitious bites by Heteroptera on humans. Oliva (2002) reported bites of members from family Notonectidae, Belostomatidae, Pelocoridae, Pentatomidae, Reduviidae (i.e. Harpactorinae and Peiratinae) and Coreidae. The bite of the last two above mentioned heteropterans may cause alarm in people because they morphologically resemble to kissing bugs. Faúndez & Carvajal (2011a) reported bites of phytophagous *Leptoglossus concaviusculus* Berg, 1892 (Coreidae) (as *Leptoglossus chilensis* (Spinola, 1852), Faúndez & Carvajal, 2016) on humans.

In family Nabidae, Koschel (1971) reported mentioned bites of *Himacerus apterus* Fabricius, 1798 on humans, but most reports belong to bites from *Nabis* Latreille. Faúndez (2016) has recently published a compilation of cases of this genus in the United States. Besides, Faúndez & Carvajal (2011b) cited *Nabis punctipennis* Blanchard, 1852 from Chile. Faúndez & Carvajal (2014) also conducted some experiments to examine the hematophagous potential of *Nabis faminei* Stål, 1859.

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Figure 1: *Nabis argentinus* on bare skin.

Figura 1: *Nabis argentinus* sobre piel desnuda.

The members of family Nabidae are characterized by a predaceous habit, and are generalists, feeding on small invertebrates, especially arthropods (Harris, 1928; Lattin, 1989). Nabids are present in all biogeographic regions of the world (Henry, 2009). In Argentina, they are represented by 15 species (Cornelis *et al*., 2016; Coscarón, 2017). *Nabis argentinus* Meyer-Dür, 1870 (Fig. 1) integrates the *Punctipennis* complex and is distributed in Argentina and Uruguay (Harris, 1939; Cornelis & Coscarón, 2013). The objective of this contribution is to describe *N. argentinus* bites on humans.

Description of the bite of *N. argentinus* on a human

The incident occurred on the night of December 10th, 2014 inside a house in Santa Rosa, La Pampa, Argentina (36°37'29.02"S, 64°17'19.13"W). At the time of the bite, a large number of *N. argentinus* were inside the house, presumably attracted by the light or insect preys. The bite was perpetrated by a female specimen on the leg of a female human of 30 years old. The insect landed on bare skin and introduced its stylet. The insect was struck, killed, and collected for study right after the bite. The bite was described as pinprick-like pain by the victim. Few minutes later, the area became reddened and swollen and itched. Figure 2A shows the erythema, 4.4 cm in diameter, formed one hour after the bite. A red point corresponding to the site in which the stylet penetration was observed. The next day, the diameter of erythema was 5.3 cm (Fig. 2B). The itching continued for several days, and the symptoms disappeared in four days, the development of the bite was followed without treatment. The symptomatology and evolution of the bite agree with descriptions of other authors (e.g. Roberts & Knowlton, 1951; Faúndez, 2016). However the erythema is a little bit larger than previous known cases in *Nabis*. That difference may be explained by factors like the size of the specimen compared to the biting specimen from other bites, as well as some environmental conditions (Faúndez & Rojas-Porras, 2015).

Apparently, the bite of the bug on the leg of the victim was not in self-defense. We therefore hypothesized that the bug bite the victim because it was searching for sources of hydration (e.g. water). According to Faúndez (2016), insect bites may be more common in summer, when high temperatures promote insects to search for hydration sources; in this situation perspiration was apparently acted as an attractant.

This case is the first ever reported of a Nabidae bite on a human in Argentina. Just like for other Heteroptera members, there is no evidence showing that nabids transmit disease-causing agents through the bite. However, it is important to record these incidents, particularly for household insects, such as *N. argentinus*.

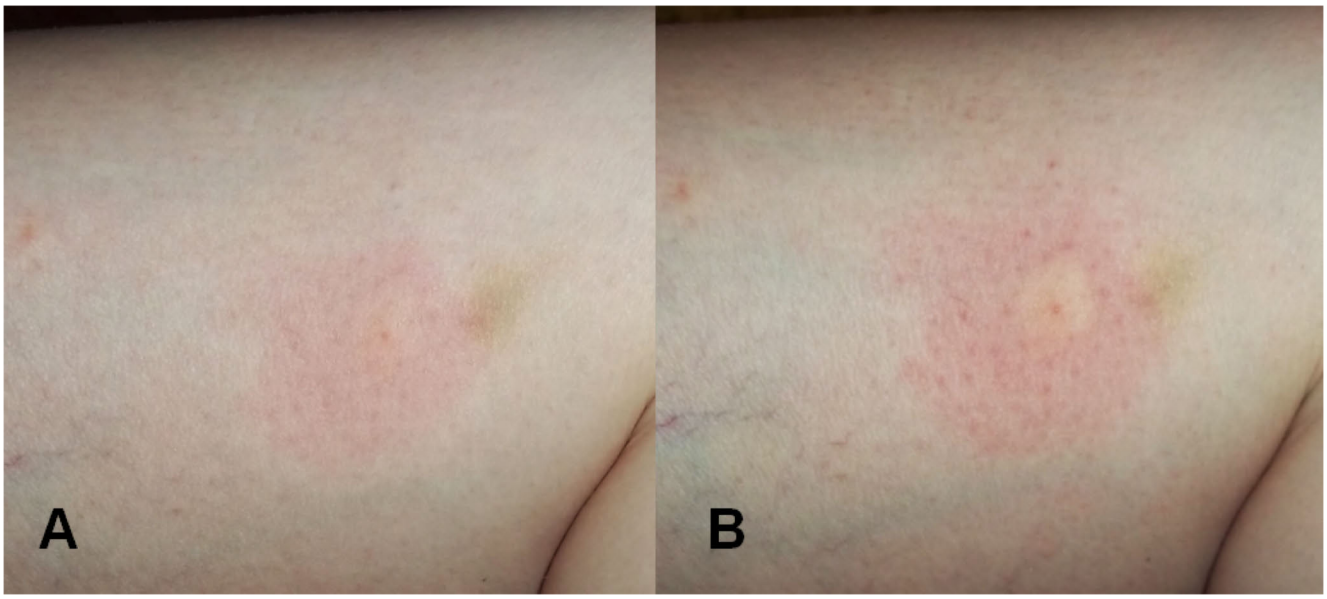

Figure 2: Erythema on human leg produced by the bite of *Nabis argentinus*. Evolution of the erythema: A) after 1 hour, and B) the following day.

Figura 2: Eritema en la pierna de un ser humano producido por la picadura de *Nabis argentinus*. Evolución del eritema: A) después de 1 hora, B) al día siguiente.

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