

On a bite case of *Steatoda triangulosa* (Walckenaer) (Arachnida: Theridiidae) on a human being

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Sobre un caso de mordedura de *Steatoda triangulosa* (Walckenaer) (Arachnida: Theridiidae) en un ser humano

RESUMEN. Se reporta el segundo caso de una mordedura de la “falsa viuda” *Steatoda triangulosa* en un ser humano. El ataque constó de dos mordeduras y ocurrió en San Vicente, Provincia de Buenos Aires, Argentina y la víctima es una mujer de 31 años, que se encontraba durmiendo y despertó al sentir las molestas y divisar la araña. El caso incluyó síntomas típicos del steatodismo como dolor local y radiante, y malestar general por cerca de un día. Adicionalmente se observaron eritemas en ambos sitios de las mordeduras que duraron cerca de 10 días, mientras que en el sitio de la primera mordedura apareció también un hematoma cuya duración fue de 3 días. Se discuten las implicancias de la mordedura en el contexto de las investigaciones actuales sobre steatodismo.

PALABRAS CLAVE. Aracnidismo. Araña. Especie cosmopolita. Sinantrópico.

ABSTRACT. The second case of a bite by the “triangulate false widow” *Steatoda triangulosa* is reported on a human being. The case occurred in San Vicente, Buenos Aires, Argentina on a female 31 years old victim, who woke up felling a nuisance and spotting the spider on her arm. The spider inflicted two bites causing typical steatodism symptoms including local and radiating pain and malaise which lasted for about a day. In addition, the appearance of an erythema on each bite side that lasted about 10 days plus a haematoma in the first bite site which lasted for 3 days. The implications of the case in the context of current research in steatodism is discussed.

KEYWORDS. Arachnidism. Cosmopolitan species. Spider. Synanthropic.

Steatoda triangulosa (Walckenaer), commonly known as “triangulate cobweb” or “triangulate false widow”, is a cosmopolitan and synanthropic spider, widely distributed in all continents except in the Antarctica (Levi, 1967, Faúndez et al., 2021). This species is well known for having a wide range diet, including a variety of arthropods and some vertebrates (Vitkauskaite et al., 2021), which in

some cases largely surpass the spider size (Faúndez et al., 2021; Faúndez & Albornoz, 2017).

Steatodism, the clinical condition caused by bites of spiders in the genus *Steatoda*, is classically defined as causative of radiating pain (median duration 6 h) and systemic effects (nausea, headache, malaise and lethargy) (Isbister & White, 2004). However, during the

past couple of years, new case studies have described an increase number of additional symptoms associated with it, including headaches, nausea, debilitating pain, tremors, reduced or elevated blood pressure and fever, range of duration from 1 to 72 hours (Dunbar et al., 2018, 2020a; Faúndez & Tellez, 2016; Faúndez et al., 2020, 2021). More recently, steatodism has been extended to severe symptoms that include necrosis and bacterial infections, updating its status from a mild to a moderate medically important condition (Dunbar et al., 2020b, 2021).

Most of the reported bites by “false widows” in the literature correspond to *S. nobilis* and *S. grossa* (Isbister & White, 2004; Dunbar et al., 2020b). In *S. triangulosa*, only one case of steatodism has been described from France (Pommier et al., 2006) with the assumption that it was *S. triangulosa*. The purpose of this work is to provide a second case of biting of this species from San Vicente, Buenos Aires, Argentina.

The bite reported here was exerted by a mature female specimen of *S. triangulosa*, and occurred in San Vicente, Buenos Aires, Argentina, on September 27th, of 2022 (Spring in Argentina), around 2:00 AM. When falling asleep, the victim felt something walking in the right forearm. The victim, unconsciously, tried to take off the arthropod and consequently the spider bit once. A few seconds later, it bit again and left away, upwards towards its web, near the ceiling and the upper side of a window where it was followed by the victim for its capture and later identification (Fig. 1A). The victim was a 31 years old woman, in healthy status. The spider perpetrated two bites in the right forearm (Fig. 1 B-D).

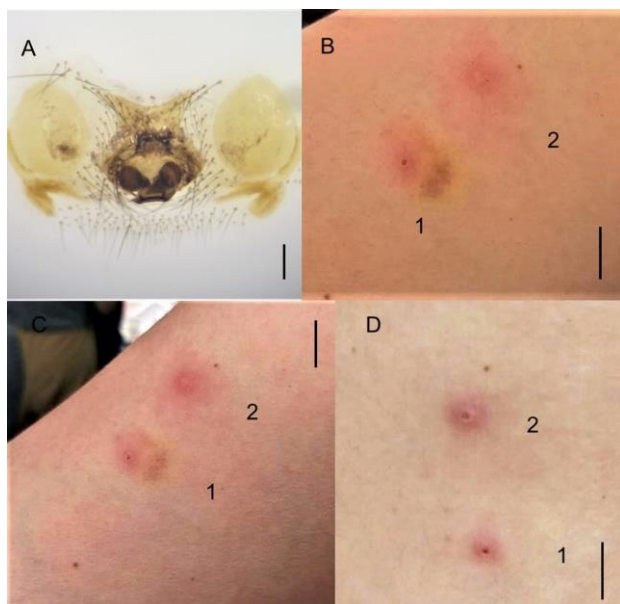


Fig. 1. *Steatoda triangulosa* diagnostic characteristics and injury caused by the bites. A. Epigynum of the dissected female, showing vulva (Scale = 0,5 mm). B. Bites after 3 days with haematoma (Scale = 10 mm). C. Bite after 4 days, haematoma fading (Scale = 10 mm). D. Bite after 7 days, nearly disappearing (Scale = 10 mm). 1 = first bite, 2 = second bite. (Photos, G. Pedemonte).

The development of the bites was followed and photographed on a daily basis until it receded. Photos were taken with a digital camera. The pain was rated in a 1 to 10 scale where 10 is the most painful. The immediate symptoms included irritation and local pain (pinprick like), and tingling, during the first half hour (pain 6/10). After that the victim fell asleep and woke up five hours later. About 30 minutes later, the local initial symptoms disappeared completely. At this time there was local pain and itching, plus general malaise (including headache, lethargy, general myalgia) (8/10) which persisted for an additional 24 hours approximately. Two irregular erythematous patches appeared in the area of each bite, of 20 mm and 15 mm, respectively, with a small wound at the center of each one, presumably in the exact location of the bite. On the second day a small haematoma appeared in the border of the first bite (Fig. 1B), which lasted for about 5 days (Figs. 1B-C). The erythema remained swollen and sensitive the first two days, and started to fade away after 3 days since the bite (Fig. 1D) and took 10 days to fully disappear. The victim did not receive any medical treatment and did not have any allergies to arthropod bite-history.

The female genitalia of the spider was prepared following the procedure in Carvajal et al. (2022). In systematics we followed the World Spider Catalog (2022). For spider identification we followed Levi (1962, 1967) and Faúndez et al. (2021). For terminology of the case we followed Isbister & White (2004) and in descriptive format to Faúndez & Tellez (2016). The specimen was identified as *S. triangulosa*.

A recurrent hardship when reporting spider bites is not being able to recover or find the specimen that caused it and therefore making it impossible to identify. In the previously known case by Pommier et al. (2006), the authors attribute the bite to *S. triangulosa* because of the clinical signs and the result of a survey in the house of the victim, in which *S. triangulosa* was found to be prevalent. However, the specimen that induced the bite is unknown. Additionally, this was an area within the distribution of *Latrodectus tredecimguttatus* (Rossi), and symptoms of strong steatodism and mild latrodectism can overlap. The case presented in this work differs in the sense that the victim reacted when detecting the spider walking in her arm, followed and captured the specimen, thus allowing its taxonomical identification. Therefore, the case presented here is the first confirmed case of a bite by *S. triangulosa*. Taking this into consideration, the development of steatodism in the presented case is similar to the one described by Pommier et al. (2006) including symptoms like myalgia, erythema and a local burning sensation. However, it differs in that the victim in the previous work had a history of high blood pressure, which worsened during the onset of the symptoms but recovered without the aid of additional medications.

A peculiarity of the present case was the duration and timing of the onset of the symptoms. Usually, initial

symptoms of steatodism last up to a couple hours and cutaneous lesions recover fully within the week. In this case we observed that an erythema and swelling appeared about 48 hours after the bite. This could be attributed to a variety of reasons like allergy or infection from opportunistic commensals, microbes in the surface of the spider chelicerae or in the venom. This last being a new discovery by Esmailishirazifard et al. (2022) in which the assumption that venom is sterile is challenged. Another reason for the extended onset of the symptoms could be the spider itself, since the specimen that bit was a female and female spider venom is known to be stronger due to the nutrition requirements related to producing offspring (Lüddecke et al., 2022).

Recent studies are suggesting/reporting the occurrence of recurrent arachnidism, a condition in which bite symptoms reappear after months or years after the bite (Pincus et al., 1999; Carvajal & Faúndez, 2018). The possibility to keep contact with the victims, allows us to gather enough data to draw more accurate conclusions in regards to spider bites. The long onset of certain symptoms in this case, encourages a follow up and could aid to study this hypothesis. Finally, most reported cases of steatodism have been of bites caused by *S. nobilis*. However, we are starting to see them in other species as well, revealing the necessity of studying the medical impact of the whole genus.

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