
FIRST RECORD OF SPIDER POISONING IN THE MALTESE ISLANDS

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ABSTRACT

The first case of spider poisoning in the Maltese Islands, by *Loxosceles rufescens* (Family Sicariidae) is reported. A juvenile of the species caused a serious lesion, as well as systemic symptoms, in a male subject following a bite inflicted while the victim was asleep. The worldwide involvement of the genus *Loxosceles* in cases of envenomation, the status of *L. rufescens* in Europe and in the Maltese Islands and the victim's medical history following the bite are reviewed.

INTRODUCTION

The largely synanthropic genus *Loxosceles* now forms part of the Family Sicariidae, having previously been included in the Scytodidae and in the Loxoscelidae. The latter is now considered a junior synonym of the Sicariidae. The Sicariidae comprises just two genera: *Loxosceles* with 100 species and *Sicarius* with 21 species (Platnick, 2002).

Loxosceles has the notorious reputation of being the culprit in numerous cases of spider bite poisoning, especially in North and South America. In the United States, reports of severe envenomations by *Loxosceles* spp., known colloqually as brown spiders, date back to the late 1800s, and today brown spiders continue to be of significant clinical concern in some regions. Of the 13 *Loxosceles* species found in the United States, at least five have been associated with necrotic arachnidism. *Loxosceles reclusa* Gertsch & Mulaik 1940, the brown recluse spider, is the species most commonly responsible for this condition (Arnold, 2002).

Throughout South America, cases of poisonous bites inflicted by *Loxosceles* spp. are also very common and widespread. In Brazil, *Loxosceles* spp. are the most poisonous spiders present and children who develop the more severe systemic effects after envenomation nearly always die. At least three different *Loxosceles* species of medical importance are known: *L. intermedia* Mello-Leitão 1934, *L. laeta* (Nicolet 1849) and *L. gaucho* Gertsch 1967. More than 1500 cases of envenomation by *L. intermedia* alone are reported each year (Goncalves de Andrade et al., 2000).

L. rufescens is considered to be a cosmopolitan species, although it has not been recorded yet from either Central or Northern Europe. It is widely distributed in the

Mediterranean region, and its range also includes Oceania, Japan, Malaysia, the USA, Mexico and Bermuda. (Kritscher, 1996). Brignoli (1969) records it from mainland Italy, Sicily, Sardinia, and the Aeolian, Egadi and other circum-Italian islands. In the same work he states that, in spite of the relative frequency of the spider, no cases of *Loxosceles* poisoning were known from Italian territory. He is of the opinion that this is more likely due to the habits of these spiders rather than to the fact that their bite is non-poisonous. Verneau (2002) indicates that no cases of *Loxosceles rufescens* poisoning have been recorded from Corsica. Sauer & Wunderlich (1997), in their work on European spiders, state that no such cases are known, presumably from Europe.

As a result of the work of Cantarella (1982), Baldacchino et al. (1993), Bosmans & Dandria (1993) and Kritscher (1996), 140 araneid species distributed in 29 families have been recorded from the Maltese Islands. None of these authors cite any species considered to have a bite dangerous to humans, with the exception of Baldacchino et al. (1993) who refer to the reputation of the bite of the theridiid species *Steatoda paykulliana* (Walckenaer, 1806) as being poisonous to humans (as reported by Jones, 1983), but point out that they were not aware of any cases of such bites having occurred in the Maltese Islands.

Loxosceles rufescens (Dufour, 1820) is the only species of the genus recorded by Baldacchino et al. (1993) and by Kritscher (1996). The latter author collected both males and females from eleven localities in Malta and five in Gozo. He indicates dry shady places as the preferred habitat and states that there is wide variation within the species. Practically all his specimens were found under stones in rural areas; on one occasion two males and two females were collected in "Mosta, town zone, in houses or on ground nearby". One of the present authors (DD) has

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collected specimens of *L. rufescens* from abandoned buildings in the countryside. It is safe to say, therefore, that the occurrence of *L. rufescens* inside houses is, to say the least, very infrequent.

CASE HISTORY

On 13th July 2002 a thirty five-year-old Maltese male with no particular previous history of strong atopic reactions presented himself at the clinic of one of the authors (PM). He gave a history of being awoken the previous night by a sudden sharp stinging pain in his right abdominal flank. He managed to notice what might have been a spider scuttling away, and hence assumed it to be responsible for his injury. He also managed to hit the spider (which was later retrieved and eventually identified as a juvenile *Loxosceles rufescens*).

He initially had absolutely no symptoms and just went back to sleep. The following morning he was equally asymptomatic except for a very localised tender spot over the assumed bite area. However, within 3-4 hours of waking he had developed the following symptoms:

Systemically: chills, malaise, diffuse muscle pain, low grade fever, nausea.

Topically: increasing pain, local tenderness and induration (hardening of the tissues) and a groin lump on the same side as the bite.

On examination, he was found to be feverish, had no systemic rash but locally showed a 2-4 mm haematomatous lesion on his right lower flank surrounded by a 5-7 cm indurated area of subcutaneous inflammation, with a very clear inflammation of the lymphatic vessels leading down to swollen lymph node in the groin. Here there was one very tender inflamed 2 cm node & 2 other shotty ones. There were no signs of petechiae, the reddish or purple spots containing blood which are associated with infectious diseases, locally or otherwise. There were no signs of systemic haematological disorder and no other similar lesions, or any other glandular abnormality for that matter. No other household member had any record of any similar bites.

The treatment administered involved a systemic steroid shot, plus an oral antibiotic and antihistamine. Following this regime the patient improved immediately, but developed recurrent localised severe pain and lymphatic inflammation on the 17th and 18th July. He was referred to a dermatologist on the 18th, but put off going.

On 21st July he was seen at the Emergency & Accident Department of a general hospital, where the lesion was excised, and a sample taken for histological investigations, the results of which indicated epithelial necrosis and spongiosis (localised swelling) of the epidermis, associated with some petechial bleeding and ulceration. He was started on another broad-spectrum antibiotic and discharged. The next day the patient was again examined

by P.M. as he was still very much in pain. His dressing was changed and he was advised to start some more potent analgesia. At this point the causative organism which had been referred to one of the present authors (D.D.) was identified as *Loxosceles rufescens* and in view of the reputation of species of *Loxosceles*, concern increased about the potential necrotic effects of the toxin involved and hence, poor healing of the excision. The victim was therefore referred to a plastic surgeon.

Clinical examination by the latter revealed an ulcer measuring 1 cm in diameter on the right hip with a surrounding 3 - 4 cm area of induration with little redness. Slough (necrotic tissue) was present in the base of the wound. Surgical removal of devitalised tissue in the area was performed under local anaesthetic on 26th July. The skin ulcer was excised together with an extensive area of the surrounding subcutaneous fat that appeared to have undergone necrosis (this corresponded to the area of induration present on examination). The resulting wound was closed directly by means of polydioxanone sutures (an absorbable material that allowed the stitches to be buried, giving a better cosmetic result). Follow up on 5th August showed that the surgical wound had healed well with no evidence of infection. (Joseph E.. Briffa, pers. comm.).

DISCUSSION

The following account of the characteristics and effects of the North American species *L. reclusa* is based on Arnold (2002). The venom comprises at least 8 components, including enzymes such as hyaluronidase, deoxyribonuclease, ribonuclease, alkaline phosphatase, and lipase. Sphingomyelinase D is thought to be the protein component responsible for most of the tissue destruction and haemolysis caused by brown recluse spider envenomation. These and other factors contribute to the local and systemic reactions of necrotic arachnidism. The venom of juvenile and adult spiders is equally potent.

Bites elicit minimal initial sensation and are frequently disregarded until several hours later when the pain intensifies. An initial stinging sensation is replaced over 6-8 hours by severe pain and itching, as local blood-vessel contraction causes the tissue to become anaemic.

Symptoms of systemic loxoscelism, which is uncommon and occurs more frequently in children than in adults, are not related to the extent of local tissue reaction and include the following: measles-like rash, fever, chills, nausea, vomiting, joint pains, haemolysis, disseminated intravascular coagulation (DIC), renal failure, seizures and coma.

Cutaneous symptoms include: swelling around the bite giving the appearance of a reddish halo round the lesion; this continues to enlarge as the venom spreads into the surrounding tissue. After 24 - 72 hours the reddish halo around the site continues to enlarge. Typically, at 24-72 hours, a single clear or bleeding vesicle develops at the site, which

later forms a dark eschar or scab. Necrosis is more significant in the fatty areas of the buttocks, thighs, and abdominal wall. In the case under present review, the systemic symptoms which appeared soon after the patient was bitten were relatively mild. The cutaneous reaction was however quite severe and compares well with that described by Arnold (2002) for *L. reclusa* bites in North America. This indicates that the local species, *L. rufescens*, also possesses a potent venom with similar necrotic and haemolytic characteristics as that of *L. reclusa*.

The greater incidence of loxoscelism in the Americas is in all probability due to the strongly synanthropic habits of the New World species. *L. reclusa*, for example, although naturally non-aggressive toward humans, lives in undisturbed attics, woodpiles, and storage sheds, almost always in close proximity to man. Most bites take place when the sleeping victim unwittingly makes contact with a spider which is crawling over the bedclothes. This is what

probably happened in the case under review. The European species, however, is very rarely observed in human habitations, and this would account for the fact that hitherto no cases of loxoscelism have apparently been reported in Europe. The occurrence of this case, therefore, should be treated as accidental, and should not give rise to any fears of a greater incidence of such bites in future.

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