CASE REPORT

Wolf Spider Envenomation

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Although wolf spider venom has been implicated in necrotic arachnidism without acceptably documented verification, limited, prospectively collected data demonstrate a lack of cutaneous necrosis. The infrequent nature of exposure and inherent difficulty in confirming wolf spider bites in humans makes it challenging to study such envenomations. We present the case of a 20-year-old man with confirmed exposure to the wolf spider who developed cutaneous erythema with ulceration following the bite. There was no evidence of skin necrosis. He was treated with aggressive wound care and systemic antibiotics for wound infection, with subsequent resolution of symptoms. This case adds to the limited knowledge regarding wolf spider envenomations and describes the clinical effects and management of wolf spider envenomation.

Key words: wolf spider, spider envenomation

Introduction

Wolf spider (family Lycosidae) bites have historically been presumed to be implicated in necrotic arachnidism.¹ Both retrospective² and prospective³ analyses of wolf spider envenomations in Brazil and Australia did not find association with necrosis, and reported local symptoms such as pain, swelling, erythema, and pruritis. We present a case of a 20-year-old man who had a painful hand bite inflicted by a wolf spider of Lycosidae family, genus *Hogna*. Although erythema and edema progressed, there was no subsequent skin necrosis.

Case Presentation

A 20-year-old healthy man, who resided in upstate New York, presented to the Emergency Department approximately 22 hours after sustaining a bite on the dorsum of the proximal ring finger of his right hand. He reported receiving a painful bite while working in the garden, and observed as well as photographed the spider responsible for the bite (Figure). Immediate pain was followed by development of erythema at the site of the bite over the next few hours. He then sought treatment in the local

community urgent care facility from which he was discharged after receiving local wound care and a tetanus toxoid booster immunization. The lesion continued to worsen, requiring a total of 3 visits to the urgent care facility, and during the final visit, the patient was found to have worsening erythema, edema, and the new appearance of skin ulceration. He received intravenous ampicillin/sulbactam and a prescription for amoxicillin/clavulanate, and was transferred directly to the Emergency Department of the regional healthcare referral center for further evaluation and management.

Upon arrival to the Emergency Department, the patient had normal vital signs and was examined by one of the authors (B.B.). Review of systems was remarkable only for local symptoms of pain, redness, and swelling in the affected hand. The patient denied any systemic symptoms and specifically denied fever, chills, nausea. Physical examination revealed an approximately 1 cm × 0.4 cm ulcerating erythematous lesion on the dorsum of the ring finger of the right hand, located proximal to the proximal interphalangeal joint. There was no evidence of abscess or skin necrosis. The Poison Control Center was consulted. Photos were transmitted electronically by the patient to the toxicologists at the Poison Control Center. Identification of the spider was later confirmed by an expert arachnologist (L.N.S.) to be that of the wolf spider species (genus *Hogna*, family Lycosidae). Given the

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Figure. This photograph of the wolf spider was taken by the patient.

rapidity of symptom progression and the location of the ulcerating lesion on the dominant hand, the patient was instructed to complete a course of antibiotics, maintain rigorous wound care, and follow up with a primary care physician within 24 hours. The lesion resolved in a few more days.

Discussion

The family Lycosidae contains approximately 118 genera with about 2,374 species, and of these, more than 200 species in North America. Wolf spiders may be both diurnal and nocturnal with characteristic features. Some adult lycosids are rather large in size, measuring up to 35 mm, but some can be very small (approximately 2 mm). They have a distinctive pattern of eyes, with 4 small eyes in the front row, then 2 large eyes in the middle row, then 2 medium-sized eyes in the last row. Wolf spiders can be collected from under rocks, logs, and in forests on leaf litter, and from fields, beaches, bogs, near ponds and streams, and grassy acreage. Many species hunt, but a few species contained in one genus are not free-living hunters like other wolf spiders and produce sheet webs upon which they reside and wait for prey. Although spiders often immobilize prey with venom, the sheer strength of large wolf spider chelicerae play a prominent role in hunting and self-defense. The wolf spider captured by the patient (Figure) is a female spider, characteristically carrying her large egg sac attached to her spinnerets at the rear of her abdomen, as is common among many lycosids.

Despite a historically presumed association of wolf spider envenomation with necrotic arachnidism, prospectively collected data fail to demonstrate skin necrosis in patients with confirmed wolf spider bites. Most wolf spider bites are not associated with clinical toxicity. It is plausible that early case reports of necrotic arachnidism

involved envenomation by *Loxosceles* species (family Sicariidae). One case report describes a 5-year-old girl who sustained a painful bite to her right great toe with evolving erythema, which necessitated oral antibiotics and local ice application. Her symptoms resolved within 24 hours.⁴ Another case describes a 5-year-old girl with a painful erythematous bite to her left arm, which was associated with nausea. She received oral antibiotics and local cold therapy and had subsequent resolution of her symptoms within 48 hours.⁴ In our case, the patient had an ulcerating skin lesion that developed with erythema and edema, without systemic symptoms or skin necrosis. The wound was likely mechanical in nature. It was treated with antibiotics owing to progressive erythema and edema and concern for superinfection.

There are several limitations to the case report. The identification of the spider was made from a photograph. Whereas the characteristic features of the wolf spider were well visualized, this mode of identification may be challenging with other spider species and may lead to an incorrect association of symptoms. Determining whether the spider in question inhabits the area of incidence can further aid in identification. Although the spider was identified to be a Lycosidae spider of the genus *Hogna*, the exact species could not be determined. Clinical effects may vary depending on genera and species of wolf spiders.

A single case report may not be representative of symptoms that develop after wolf spider envenomation. It simply highlights the clinical effects in one person. Although erythema has been reported after a wolf spider envenomation, it is possible that the presence of cellulitis and ulceration could have been due to the infection of the mechanical wound.

This case report adds to the limited body of knowledge regarding American wolf spider envenomations and reaffirms lack of skin necrosis. Although it is challenging to propose a treatment strategy, aggressive wound care and frequent reevaluation to ascertain progression of symptoms and development of infection should guide clinical management.

References

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