

What's Eating You? Noble False Widow Spider (*Steatoda nobilis*)

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PRACTICE POINTS

- With evidence of a recent population boom of noble false widow spiders in Europe and spread to California, dermatologists should be aware of these spiders and their bites.
- Symptoms of *Steatoda* bites (steatodism) include immediate pain followed by intense pruritus, swelling, erythema, and possibly systemic symptoms such as fever. Secondary infections such as cellulitis and septicemia are risks.
- The envenomation site should be kept clean to prevent secondary infection, and medical care should be sought when there is evidence of ulceration or cellulitis.

Noble false widow spider (*Steatoda nobilis*) bites have been documented to cause symptoms ranging from pain and pruritus to systemic bacterial infection resulting in death. This species is found in a broad range of environments, often alongside human activity, and the spiders most often bite defensively when disturbed or when the body is compressed. Due to the rapid expansion of noble false widow spiders and their relatively recent emergence in the United States, it is important for dermatologists to be aware of how to manage their bites.

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Incidence and Characteristics

The noble false widow spider (*Steatoda nobilis*) is one of the world's most invasive spider species, having spread across the globe from Madeira and the Canary Islands into the North Atlantic.^{1,2} *Steatoda* comprise multiple species of false widow spiders, named for their resemblance to black widow spiders (*Latrodectus*). The noble false widow spider is the dominant species in buildings in southern Ireland and Great Britain, with a population surge in 2018 that caused multiple temporary school closures in London, England, for fumigation.³ The noble false widow spider was first documented in the United States in Ventura County, California, in 2011, with numerous specimens found in urban areas (eg, in parks, underneath garbage cans) closer to the coastline as well as farther inland. The species may have been introduced to this area by way of Port Hueneme, a city in California with a US naval base with routes to various other military bases in Western Europe.⁴ Given its already rapid expansion outside of the United States with a concurrent rise in bite reports, dermatologists should be familiar with these invasive and potentially dangerous arachnids.

The spread of noble false widow spiders is assisted by their wide range of temperature tolerance and ability to survive for months with little food and no water. They can live for several years, with one report of a noble false widow spider living up to 7 years.⁵ These spiders

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are found inside homes and buildings year-round, and they prefer to build their webs in an elevated position such as the top corner of a room. *Steatoda* weave tangle webs with crisscrossing threads that often have a denser middle section.⁵

Noble false widow spiders are sexually dimorphic, with males typically no larger than 1-cm long and females up to 1.4-cm long. They have a dark brown to black thorax and brown abdomen with red-brown legs. Males have brighter cream-colored abdominal markings than females, who lack markings altogether on their distinctive globular abdomen (Figure). The abdominal markings are known to resemble a skull or house.

Although noble false widow spiders are not exclusively synanthropic, they can be found in any crevice in homes or other structures where there are humans such as office buildings.⁵⁻⁷ Up until the last 20 years, reports of bites from noble false widow spiders worldwide were few and far between. In Great Britain, the spiders were first considered to be common in the 1980s, with recent evidence of an urban population boom in the last 5 to 10 years that has coincided with an increase in bite reports.^{5,8,9}

Clinical Significance

Most bites occur in a defensive manner, such as when humans perform activities that disturb the hiding space, cause vibrations in the web, or compress the body of the arachnid. Most envenomations in Great Britain occur while the individual is in bed, though they also may occur during other activities that disturb the spider, such as moving boxes or putting on a pair of pants.⁵ Occupational exposure to noble false widow spiders may soon be a concern for those involved in construction, carpentry, cleaning, and decorating given their recent invasive spread into the United States.

The venom from these spiders is neurotoxic and cytotoxic, causing moderate to intense pain that may resemble a wasp sting. The incidence of steatodism—which can include symptoms of pain in addition to fever, hypotension, headache, lethargy, nausea, localized diaphoresis, abdominal pain, paresthesias, and malaise—is unknown but reportedly rare.^{5,10} There are considerable similarities between *Steatoda* and true black widow spider venom, which explains the symptom overlap with latrodectism. There are reports of severe debilitation lasting weeks due to pain and decreased affected limb movement after bites from noble false widow spiders.¹⁰⁻¹²

Nearly all noble false widow spider bite reports describe immediate pain upon bite/envenomation, which is unlike the delayed pain from a black widow spider bite (after 10 minutes or more).^{6,13,14} Erythema and swelling occur around a pale raised site of envenomation lasting up to 72 hours. The bite site may be highly tender and blister or ulcerate, with reports of cellulitis and local skin necrosis.^{7,15} Pruritus during this period can be intense, and excoriation increases the risk for complications such



Steatoda nobilis (male). Image courtesy of Steven Trewick, PhD, Massey University, Palmerston North, New Zealand.

as infection. Reports of anaphylaxis following a noble false widow spider bite are rare.^{5,16} The incidence of bites may be underreported due to the lack of proper identification of the responsible arachnid for those who do not seek care or require hospitalization, though this is not unique to *Steatoda*.

There are reports of secondary infection after bites and even cases of limb amputation, septicemia, and death.^{14,17} However, it is unknown if noble false widow spiders are vectors for bacteria transmitted during envenomation, and infection likely is secondary to scratching or inadequate wound care.^{18,19} Potentially pathogenic bacteria have been isolated from the body surfaces of the noble false widow spider, including *Pseudomonas putida*, *Staphylococcus capitis*, and *Staphylococcus epidermidis*.²⁰ Fortunately, most captured cases (ie, events in which the biting arachnid was properly identified) report symptoms ranging from mild to moderate in severity without the need for hospitalization. A series of 24 reports revealed that all individuals experienced sharp pain upon the initial bite followed by erythema, and 18 of them experienced considerable swelling of the area soon thereafter. One individual experienced temporary paralysis of the affected limb, and 3 individuals experienced hypotension or hypertension in addition to fever, skin necrosis, or cellulitis.¹⁴

Treatment

The envenomation site should be washed with antibacterial soap and warm water and should be kept clean to prevent infection. There is no evidence that tight pressure bandaging of these bite sites will restrict venom flow; because it may worsen pain in the area, pressure bandaging is not recommended. When possible, the arachnid should be collected for identification. Supportive care is warranted for symptoms of pain, erythema, and swelling, with the use of cool compresses, oral pain relievers (eg, nonsteroidal anti-inflammatory drugs, acetaminophen), topical anesthetic (eg, lidocaine), or antihistamines as needed.

Urgent care is warranted for patients who experience severe symptoms of steatodism such as hypertension, lymphadenopathy, paresthesia, or limb paralysis. Limited reports show onset of this distress typically within an hour of envenomation. Treatments analogous to those for latrodectism including muscle relaxers and pain medications have demonstrated rapid attenuation of symptoms upon intramuscular administration of antivenom made from *Latrodectus* species.²¹⁻²³

Signs of infection warrant bacterial culture with antibiotic susceptibilities to ensure adequate treatment.²⁰ Infections from spider bites can present a few days to a week following envenomation. Symptoms may include spreading redness or an enlarging wound site, pus formation, worsening or unrelenting pain after 24 hours, fevers, flulike symptoms, and muscle cramps.

Final Thoughts

Symptoms from noble false widow spider bites range widely from localized pain, swelling, and erythema to ulceration, necrosis, and rarely death related to secondary infection. Because of their invasive spread in Europe and increasing presence in the United States, it is important to be aware of the possibility of noble false widow spider bites to manage reactions that may quickly lead to morbidity.

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