The Diaphoretic Hand

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Case

In Australia, a 35-year-old man presented to the emergency department 5 days after the following incident: He was working in his shed during autumn when he felt an intense pain under his gloved dominant hand. He immediately crushed and visualized what he suspected to be a black-colored spider underneath his glove. Despite the intense pain, he stayed at home but presented to the emergency department 5 days later troubled by his affected hand's incessant sweating (see Fig. 1). Due to the sweating, he was constantly wiping his hand with a bath towel.

Discussion

The patient was most likely envenomated by a red back spider, indigenous to this area.

The *Latrodectus* genus has numerous species throughout the world with very similar envenomation syndromes. It is frequently found in dark areas such as work sheds, under logs, and in wooded areas. The *Latrodectus hasselti* species is very similar to that of the black widow spider found in North America. Its venom is comprised of several components which potentiate presynaptic and postsynaptic release and signaling of neurotransmitters including dopamine, norepinephrine, acetylcholine, glutamate, and gamma-aminobutyric acid. Toxicity can remain localized or spread systemically. In this case, the patient's sweat glands were activated by a toxin potentiating the release and signaling of acetylcholine.

Fig. 1 Image demonstrating cholinergic stimulation to the local sweat glands

Despite the symptomatology, the regional poison information center recommended against the use of antivenom therapy due to the delayed presentation and lack of ascending symptoms; symptomatic pain relief was recommended instead. Due to the patient's symptoms, the season, the ubiquitous nature of these spiders in this area, and with the use of the decision tree algorithm [1], we deduced that this is a *L. hasselti* envenomation. This tool, developed for Australia, has a sensitivity of 96 % and a specificity of 74 % in detecting clinically significant spider envenomations (i.e., funnel-web spiders) compared to those of all other spiders in this region (including red back spider). This digital image demonstrates the dramatic cholinergic stimulation to the local sweat glands.

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Reference

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