

Bites and Stings

Spiders

Stephen Adams, MBChB, DipAnaes (UK), FAMPA

Goodfellow Unit, University of Auckland School of Medicine, Auckland

About the author:

Dr *Stephen Adams*, MBChB, DipAnaes (UK), FAMPA, is Senior Lecturer in Community Emergency Medicine at the Goodfellow Unit, University of Auckland School of Medicine, Auckland. He is also a member of the Editorial Board of the Journal of the Accident and Medical Practitioners Association (JAMPA).

Correspondence: Dr *Stephen Adams*, MBChB, DipAnaes (UK), FAMPA, Goodfellow Unit, University of Auckland School of Medicine, Private Bag 92019, Auckland.

E-mail: sl.adams@auckland.ac.nz

Issues this article will address

- Venomous spiders found in New Zealand
- Clinical features of *Latrodectus* (Katipo) bites
- Management measures, including the role of antivenom

Salient Points

- One spider genus, *Latrodectus* (Katipo; Redback; Black Widow), is proven to cause morbidity in New Zealand.
- An antivenom for *Latrodectus* bites is available from public hospitals.
- Bites from other spiders including *Lampona* (White-tailed spider) should be treated empirically and symptomatically.

Key words: Spider bites • *Latrodectus* • Katipo • Redback • *Lampona* • White-tailed spider • *Steatoda* • Antivenom

Introduction

New Zealand is blessed with a relative lack of venomous creatures that cause significant morbidity other than by allergic reactions. However, the primary care physician should be aware that there are several for which specific therapies are available. In addition, it needs to be appreciated that there is likely to be an increase in imports of venomous creatures from overseas in the future.

Venomous Spiders

Latrodectus

The original representatives of this group, which includes Black Widows, are the Katipo (Maori = night stinger) *Latrodectus katipo* and the Black Katipo *Latrodectus artitus*. There is some dispute as to whether these spiders are natives or 19th century imports from North America or Australia. They are mostly found in sandy areas, particularly dunes and beach areas above the high tide mark. The Black Katipo is mostly found in the North of the North Island, and the Katipo elsewhere as far south as Greymouth and Dunedin.^[1] However, it is becoming less common and there is concern for its survival.^[2]

The second arrival here was the Eastern Australian Redback (*Lactodectus hasselti*) which is now widely established in populated areas. The Black Widows (*Latrodectus mactans* or *Latrodectus hesperus*) are periodically found in agricultural imports, particularly grapes from North America,^[3] and may yet become established in New Zealand.

These species are small black (but sometimes brownish) spiders that have red stripes on the dorsal aspect and hourglass-shaped red markings on the ventral aspect of the abdomen (Fig. 1). The markings may be quite indistinct on some spiders. The female is much larger and more venomous than the male, but even her mouthparts are still quite small and the bite may go unnoticed. There is also a similar looking spider, *Steatoda capensis*, which is increasingly found in the same habitats as the Katipo (see further below).

All species are relatively nonaggressive and are unlikely to bite unless provoked. The usual bite sites are the extremities, but they may also get into clothes and, in the days of outside toilets, the buttocks were said to be a frequent site of redback bites. As the jaws of *Latrodectus* are very small, bite marks may not be visible and a pale area with piloerection

and very localised sweating surrounding the bite area may be all that is seen. Alternatively, and particularly in small children, the symptoms may be just malaise and irritability.



Fig. 1. *Latrodectus katipo*, female (scale: millimetres). Courtesy of Landcare New Zealand.

Around 10 to 40 minutes after the mild sting of an initial bite (which may not be noticed), the bite becomes increasingly painful. Systemic symptoms develop over the subsequent 1 to 24 hours and may be nonspecific with generalised muscle pains (sometimes presenting as chest pain or back pain), tachycardia, hypertension, malaise, nausea and/or a nonspecific erythematous rash.^[5]

The principal active component of the venom of all species is a protein, alpha-latrotoxin. This causes local and systemic sympathetic activation at the synaptic level which is manifested by localised pallor, sweating, and pain around the bite, and more generally by symptoms such as nausea, tachycardia, headache, and muscular pain in the chest and neck.^[4]

Features that should raise suspicion of this syndrome (“latrodectism”) include severe pain spreading proximally from an extremity, local or generalised sweating, and regional adenopathy – features that are more likely to be diagnosed as spreading infection.^[5]

Symptoms can last for days or even weeks, and the diagnosis may remain unclear if a tiny bite was not noted initially.^[5]

Occasional deaths have been reported, mostly in the 19th century, but the numbers in New Zealand have always been very small. In Australia, deaths have become extremely rare since the advent of Redback antivenom.

Management

First-aid should not use the pressure-immobilisation method used for Australian snakes as this will be ineffective and may be very painful. However, ice may reduce pain. Wound cleaning and debridement may occasionally be necessary where infection occurs, but the major therapeutic consideration centres around use of antivenom. Reportedly, less than 20% of bites result in symptoms sufficient to consider antivenom.^[5]

As there is no diagnostic test, history and a bite are the best guide initially. The only way to confirm latrodectism as the cause is to administer antivenom, even days after onset, to demonstrate a dramatic improvement in symptoms. This is not a simple decision because antivenom is not easy to access and has risks associated with its administration.

Traditionally, only systemic illness is treated with antivenom and only when signs and symptoms are present, never prophylactically. On the basis of a prospective cohort study, Isbister and Gray^[4] suggested that antivenom should only be used for patients who present with severe pain, although the study appeared to show no significant differences in pain between treated and untreated groups.

Antivenom to Redback spiders produced in Australia appears to work equally well for Katipo and Black Widow bites. This antivenom is generally held at public hospitals in New Zealand, but supplies may be patchy and a call to the National Poisons Centre (0800 764-766) may be useful as they have an up-to-date database of stocks.

The recommended dose of the antivenom is one ampoule (500 units) administered intramuscularly, although multiple doses may be needed. The dose should not be reduced for children and may be given intravenously in severe cases.^[6] Adverse effects are not common but as the antivenom is made from equine serum, the patient should be advised of the possibility of serum sickness reactions.^[5] It may be effective perhaps as much as several weeks after the bite. There is, however, controversy as to whether the antivenom is less effective (or effective at all) when given intramuscularly as opposed to intravenously.^[4,6]

Lampona

The White-tailed spider is found in both islands of New Zealand. *Lampona murina* is predominantly found in the North Island and *Lampona cylindrata* in the South Island. These spiders originated from Australia and specialise in eating other spiders. They are 12 to 17 mm long (including their legs) and have an elongated appearance with a white area at the

most posterior part of the abdomen (Fig. 2). Their bites may be persistently painful and surrounded by redness. White-tailed spiders have been implicated in necrotic/ulcerative lesions over the past 10 years but the most definitive study, that of Isbister and Gray^[7] in Australia, who matched the clinical picture to the spider caught at the time of the bite, failed to show any increased risk of such lesions with 130 *Lampona* bites as compared with other spider bites. The most common sequelae were pain, a red mark lasting less than 24 hours, or a red lump lasting up to 10 days.



Fig. 2. *Lampona* (White-tailed spider).

The New Zealand Toxins Centre maintains a section on these spiders and cites ulceration and bacterial infection as possible sequelae.^[8]

Steatoda

As mentioned above, this spider (Fig. 3) has become more common since its introduction from South Africa, and it is commonly misidentified as a *Latrodectus*. There is a case report of a latrodectism-like syndrome in a child following a confirmed *Steatoda capensis* bite in Victoria, Australia. This was apparently successfully treated with Redback antivenom.^[9] It has been suggested that some cases of “Redback bite” may have been due to this spider, which is related and variously known in Southeast Australia as the “False Black Widow” and the “Brown House Spider”.



Fig. 3. *Steatoda capensis* (scale: millimetres). Courtesy of Landcare New Zealand.

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