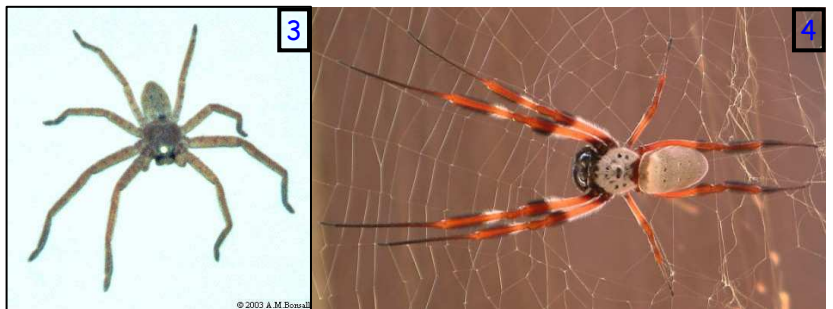


Introduction

- There are >41,000 species of spider world-wide (except Antarctica).
- Almost all are fanged and venomous, but medically insignificant as <0.5% are able to penetrate human skin and, of those, only a handful are considered dangerous.
- Most spiders are shy, most bites occur when provoked or trapped.

Spiders to avoid

- Widow spiders (*Latrodectus* spp.) - incl American black widow (*L. mactans*), Australian redback (*L. hasselti*) - red/orange dorsal abdominal stripe & ventral hourglass pattern [see photo 1].
- Funnel web spiders of Australia - the Sydney funnel-web (*Atrax robustus*) [photo 2], Mouse spiders and relatives - fairly large, black and aggressive.
- Necrotising arachnids - includes the American brown recluse (*Loxosceles reclusa*), South American brown spider (*Loxosceles laeta*) - violin pattern on their backs. Others have been accused incl the black widow or house spider (*Badumna* spp.)
- The large South American armed-banana /wandering spider (*Phoneutria* spp.)
- Other large spiders e.g Huntsman (*Heteropodidae* spp.) [photo 3] or golden orb weaver [photo 4] may look fearsome but are generally timid and harmless to humans.



General clinical features

- Local pain, swelling and pruritus.
- Nausea, vomiting, sweating and dizziness may sometimes occur.
- Severe allergic reactions are rare, but potentially life threatening.
- Tarantulas may flick fine barbed hairs with their legs which irritate eyes, skin & lungs.
- Systemic envenomation is rarer as many bites may be 'dry' or with insufficient venom.

Neurotoxic arachnidism (widow, funnel-web, Phoneutria spiders)

Widow spiders, some *Steatoda* ('false widow') species.

Widow neurotoxin, active in vertebrates, opens cation channels (incl Ca^{2+}) presynaptically → ↑release and so depletion of neurotransmitters affecting somatic and autonomic nerves.

Brown house or false widow spiders, *Steatoda grossa* (Aus) & *S. nobilis* (UK) have caused a mild neurotoxic arachnidism. The former has responded to Redback antivenom.

- Pain is characteristic. Initially bite may be unnoticed or be felt as a sharp pinprick. It can remain local or spread proximally to the torso, causing chest or abdominal pain.
- Non-specific systemic features (nausea, vomiting, headache, lethargy, and malaise)
- Local and regional diaphoresis, and less commonly other autonomic/neurologic effects.
- Facies latrodectismica = painful grimace caused by facial spasm & trismus associated with swollen eyelid/conjunctivae, flushing and sweating.
- Full latrodectism may also include ↑HR, ↑BP, irritability, psychosis, priapism, renal failure, respiratory compromise and cardiac failure.

Funnel-web and related spiders

Primates are particularly sensitive to funnel-web venom. It contains a distinctive peptide with hyaluronidase & causes rapid massive release of neurotransmitters at autonomic & NMJ.

- Bite is usually immediately painful from larger fangs and acidic venom.
- Rapid systemic signs: vomiting, agitation, headache
- Autonomic hyper-reactivity (tachycardia, hypertension, sweating, piloerection)
- Muscle twitching, tongue fasciculation, oral paraesthesiae
- Pulmonary oedema, hypotension and coma can ensue
- Mouse spider (*Missulena occatoria*) venom ?similar, but few cases of envenomation.

Phoneutria spiders

Venom is a complex mixture of amino acids, hyaluronidase, serotonin, & other unidentified kallikrein-activating factors that stimulate peripheral and CNS neurones.

- Very painful bite.
- Localised sweating & piloerection with pain radiating up the extremity to the trunk.
- Following this, ↑HR, ↑BP, profuse diaphoresis, ↓T, salivation, N & V, vertigo, visual disturbances, priapism (especially in young boys), & rarely death within 2-12hr.

Necrotic arachnidism

Probably should be called loxoscelism as only evidence in *Loxosceles* species. Others have gained notoriety for causing dermonecrosis (e.g. Hobo spiders (*Tegenaria agrestis*), white-tailed spider (*Lampona cylindrata*), wolf spider (*Lycosa* spp), the yellow sac spiders (*Cheiracanthium* spp, and black widow or house spider) but evidence lacking.

- Bite site burns, swells
- A characteristic macular erythematous halo lesion develops
- May resolve in a few days or form a dark eschar that sloughs off ± necrotic ulcer.
- Rarer a systemic loxoscelism can give rise to ↑T, morbilliform rash, jaundice, intravascular haemolysis associated with spherocytosis, haemoglobinuria/renal failure, seizures, and uncommonly DIC.

Treatment

First aid treatment

- With funnel-web & other rapidly acting venoms, pressure immobilisation bandaging.
- For the widow and brown recluse use an indirect ice-pack instead.
- Reassure the patient. If possible take the spider (dead or alive) to hospital for id.

Supportive treatment

- Analgesia (NSAIDS, opioids) as required, tetanus prophylaxis, and local wound care. Antihistamines, BB, BDZ, **atropine** occ useful. ABx are not routine.

Specific treatment

- Antivenom (**SE**: anaphylaxis, serum sickness): widow, funnel-web, *Loxosceles*, *Phoneutria*.
 - **Redback AV**: (horse IgG Fab2) 1 amp IV (RAVE trial suggests IM route not effective), can rpt in 1-2hr (RAVE II trial concluded not better than placebo)
 - **Funnel-web AV**: (rabbit sera Ig) 1-2 amp slow IV, rpt q15mins if not better
- Neurotoxic arachnidism seems more responsive to antivenom than the necrotic type.
- Many therapies for necrotic lesions advocated but little clear evidence for them.

Prognosis

- Antivenom has dramatically cut the mortality and almost no deaths if available.
- Most fatalities are in children & elderly - likely to be the faster acting potent venoms.
- Funnel-web fatalities (all before antivenom available in 1982) died 15min-6d post-bite.