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The Australian funnel-web spider is a 35 species spider which can be spotted between New South Wales and Queensland in moist areas such as rainforests and along rivers and creeks. In the coastal eastern area of Australia, the Australian funnel-web spider seems to remain in areas where the maximum temperature is not high in the summer.

Atrax robustus, one of the species which is also known as the Sydney funnel-web spider, holds the title of the world’s deadliest spider (Verhagen 2017). They’re mostly black in colour with a shiny blue-black body and long legs. The female is noticeably larger than the male, has thicker legs and a longer life expectancy. With this being said, the male funnel-web spider is far more powerful than the female with it’s venom being up to six times more toxic (Sydney Funnel Web Spider Facts 2018). Their name comes from the shape of their web being funnel-like in Europe and America, however the Australian funnel-web spider’s web isn’t exactly funnel-shaped (Queensland Government 2018). They’re nocturnal, spending the day in small chambers at the bottom of a burrow in the ground that is lined with a silk tube. They come up to the entrance of the burrow at night waiting for prey to stumble across (King, Tedford & Maggio 2002).

The most dangerous funnel web spiders are found in the eastern part of New South Wales and southeast Queensland, and the one located in Sydney being the only known killer of humans (Australian Reptile Park 2018). Recorded fatalities before the introduction of antivenom in 1981 was 13 (Isbister et al. 2015). The antivenom has completely eliminated fatalities through making what was once a deadly syndrome with two or three weeks of hospital care, a one to three day illness (Tibballs, Duncan & Sutherland 1983).
The venom of the Australian funnel web spider contains many different toxins which is collectively known as atracotoxins (Fletcher et al. 1997). This includes the toxin \( \omega \)-ACTX-HV1 which affects insects rather than humans or mammals by inhibiting their voltage gated calcium channel currents (Wang et al. 1999). The two toxins \( \alpha \) and \( \mu \) agatoxins have been found to cause different types of paralysis to humans. The \( \alpha \) agatoxin causes a rapid yet reversible paralysis, while the cysteine-rich polypeptide \( \mu \) agatoxins caused irreversible paralysis along with action potentials that were repetitive from presynaptic axons or nerve terminals (Adams, Herold & Venema 1989). The paralysis is explained to be correlated with the neuromuscular transmission of postsynaptic inhibition and presynaptic excitation (Adams, Herold & Venema 1989).

A funnel-web spider anti-venom is used to neutralise the effects of the funnel-web spider venoms. Funnel-web spider venom affects the patient by producing muscle contracture. This effect is seen to be reversed with the application of the anti-venom or can be prevented by pre-treatment utilising the anti-venom (Graudins et al. 2002). The anti-venom should be effective in most envenomation from Australian species of the funnel-web spider and is easily accessible through hospitals across the country.

It is very important to be able to identify a bite from the Australian funnel-web spider as immediate attention must be sought. Refer to the column for more details.

What to do if you are ever bitten by the Australian funnel-web spider?

1. DO NOT PAINIC! Keep yourself and the patient calm with as minimal movement as possible for the patient.
2. A pressure immobilization bandage must be applied firmly ASAP if possible to compress tiny blood vessels and lymph channels. This will minimize the spread of the venom into blood stream and vital organs.
3. Call an ambulance on 000 to seek immediate medical attention.
4. An ice-pack wrapped in cloth on the site of the bite will help reduce both swelling and pain.

An anti-venom is readily available at the hospital!

How to identify an Australian funnel-web spider bite:
- Great pain at site of bite
- Nausea and abdominal pain
- Breathing difficulties along with weakness or numbness at the muscle
- Body secretion heavily in several areas
- Obvious sweating and excess production of saliva
- Heavy coughing

(Australian Spider Identification and Spider Bite Treatment - Australia Wide First Aid 2018)
References:


**Figures:**

Figure 1

Figure 2

Figure 3

Figure 4