

Spider Bites & Scorpion Stings, an Emergency Medical Services Perspective

presented 26th March 2025

Jonathan is Southern Africa's leading authority on spider bites and scorpion stings. He is a best selling author, international speaker and award-winning conservationist. Jonathan consults for poison information helplines, medical organisations and academic institutions, and speaks and is a panel member at medical conferences. His work has inspired a generation, and has shaped our understanding of spider bites and scorpion stings across southern Africa.



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Overview

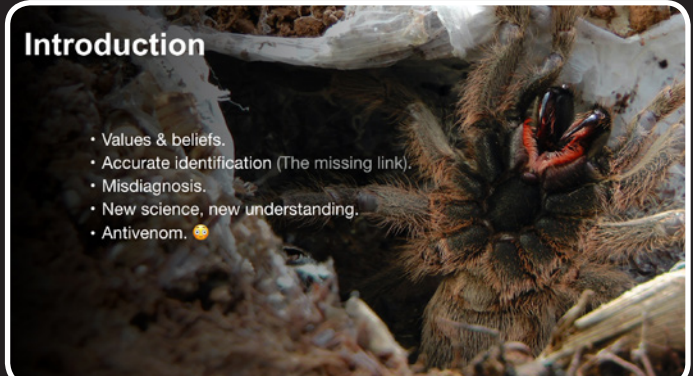
- Introduction.
- Spiders.
- Scorpions.
- Wrapping Up (Additional resources).

Any questions please contact me afterwards.



Introduction

- Values & beliefs.
- Accurate identification (The missing link).
- Misdiagnosis.
- New science, new understanding.
- Antivenom. 🤔



Spiders

- Over 2500 named species in South Africa.
- Occur everywhere.
- Occupy distinct ecological niche.
- All Family except 1 have venom glands (Uloboridae).



Spiders

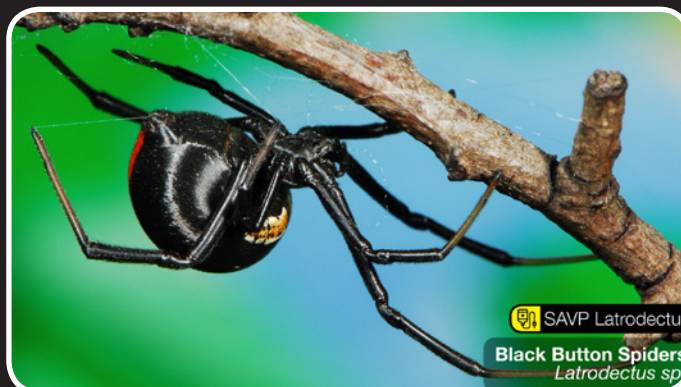
4 Medically important spiders

- Button Spiders.
- Sac Spider.
- Violin Spider.
- Six-Eyed Sand Spider.

Note that these common names refer to groups of species.



Spiders





Spider Bite Misdiagnosis

Bacterial

Staphylococcus infection.
Streptococcus infection.
Gonococcal arthritis
dermatitis.
Cutaneous anthrax.

Reaction to drugs

Warfarin poisoning.

Viral

Infected herpes simplex.
Chronic herpes simplex.
Varicella zoster (shingles).

Arthropods

Tick bites.
Insect bites (flea, mite,
biting fly)

Fungal

Sporotrichosis.
Keratin cell mediated
response to fungus.

Topical

Chemical burns.

Underlying diseases

Diabetic ulcers.

Vascular disorders

Focal vasculitis.
Purpura fulminans.
Thromboembolic
phenomena.
Polyarteritis nodosa.

Causative agents

Pyoderma gangrenosum.
Pressure ulcers.
Stevens-Johnson
syndrome.
Erythema multiforme.
Erythema nodosum.
Toxic epidermal necrolysis.

Management Cytotoxic Bites

- Wound care.



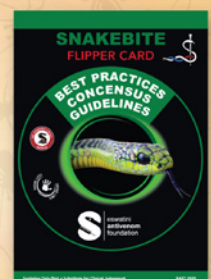
Management Button Spider Bites

- Reassure the patient (mortality <1-6%).
- Apply ice packs to the bite site.
- Monitor vitals, give IV fluids and symptomatic treatment (paracetamol for pain).
- Administer tetanus toxoid (0.5 ml IM).
- Calcium gluconate 10% (10 ml IV slowly) provides temporary cramp relief (lasts 20-30 min).



Management Button Spider Bites

- Avoid opioids & benzodiazepines (may worsen respiratory depression).
- Latrodectus antivenom (5-10 ml IV → 1-2 ampoules) if systemic symptoms present; be prepared for anaphylaxis.
- Do not give IM adrenaline prophylactically (worsens autonomic effects).
- Observe asymptomatic patients for 6 hours post-bite.



Scorpions



Venomosity Rule Of Thumb

Weakly Venomous



Thin tail, thick pincers

Moderately Venomous



Medium tail, medium pincers

Highly Venomous



Thick tail, thin pincers

Weakly Venomous

Highly Venomous

Weakly Venomous Scorpions

Thin tail, thick pincers.

- Small to very large (up to 21 cm in length).
- No specific color.
- Reluctant to sting.
- Not often seen outside of their shelter.



Moderately Venomous Scorpions

Mildly venomous scorpions come in many sizes and colors.

- Medium sized pincers, medium sized tail.
- Small to large in size.
- May act in an defensive manner.
- Often reluctant to sting.



Highly Venomous Scorpions

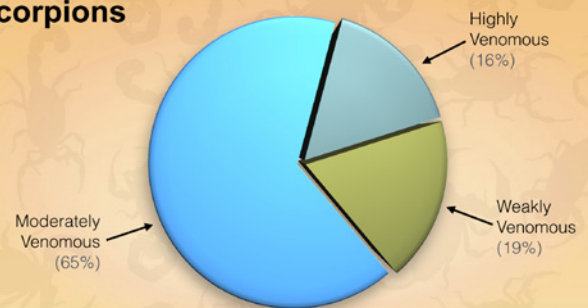
Thin pincers, thick tail.

- Small to very large in size.
- Generally occur throughout drier regions.
- Shelter in a wide variety of places.
- Quick to sting.
- No specific colour.





Scorpions



Scorpions

Areas inhabited by highly venomous species larger than 40mm in length.

A sting from these scorpions are more likely to result in medically important symptoms



Medical Management Scorpion Stings

- Supportive care: IV access, oxygen, monitoring.
- Airway management: BVM ventilation & intubation if needed.
- Antivenom: 5–10ml IV over 15 mins (same dose for adults & children).
 - Peak effect in 2–6 hours; second dose if needed after 6 hours.
- Avoid adrenaline before antivenom – worsens autonomic instability.
- Contraindicated: Opiates, benzodiazepines (risk of respiratory depression).



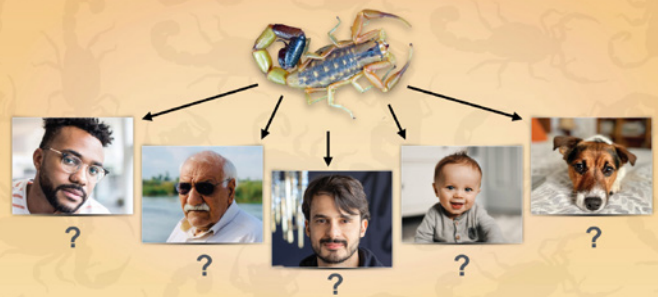
Medical Management Scorpion Stings

- Avoid atropine for secretions – worsens tachycardia.
- Tetanus prophylaxis (if >5 years since last dose).
- Pain relief: Paracetamol; IV calcium gluconate (muscle cramps).
- No alcohol post-envenomation.
- Monitor: Cardiac dysrhythmias & pancreatitis development.

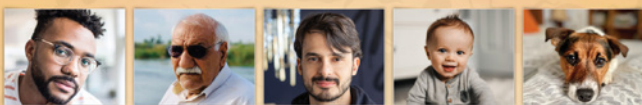
Patients should be hospitalized, and special care should be taken with children, with admissions for at least 12 hours post sting in asymptomatic children.



Factors Influencing Symptom Severity



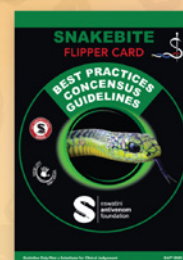
Factors Influencing Symptom Severity



The outcome of a spider bite or scorpion sting is a result of the following factors:



SPIDER BITES & SCORPION STINGS 2025



Additional Resources

Medical PDF's, Consensus Guidelines and more...

www.scorpions.co.za/eswatini

WWW.SCORPIONS.CO.ZA




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Thank You!

A big thank you for attending my online presentation on the 26th March 2025. I hope it developed a deeper understanding and sparked an interest for venomous animal bites and stings. I mentioned some links to further resources during my presentation. Please see below for these links.

- Spider bite & scorpion sting resources - <https://scorpions.co.za/eswatini/>
- Spider bite & scorpion sting best practices - <https://scorpions.co.za/snakebite-resources/>
- FREE online Essential Scorpion Sting First Response Short course - <https://scorpions.co.za/scorpion-sting-first-response-short-course/>
- Essential Scorpion Sting First Response Book overview and resources - <https://scorpions.co.za/scorpion-sting-first-response-book/>

I would love to hear your comments. Please send them to Info@JonathanLeeming.com

