Treat the Syndrome, Not the Snake: Envenoming in Rural Nepal — A Case Report

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Introduction

- Snake envenoming is common and time-critical in South Asia. [1,2]
- Main syndromes: haemotoxic (vipers), neurotoxic (cobras, kraits), local only. [1,2]

Spectacled cobra | Common krait | Russell's viper | Saw-scaled viper

Figure 1. The 'Big Four' snakes covered by Indian polyvalent antivenom (ASV)

- Species often unclear at presentation. [1,2]
- Indian polyvalent antivenom (ASV) targets the 'Big Four' species but does not neutralise pit viper venom. [1,2]
- **1 in 3 ASV administrations cause anaphylaxis** → only use when coverage is plausible. [5,6]
- World Health Organisation endorsed **syndromic approach** aids safe antivenom use in Nepal. [1,2]

Figure 2. Pit viper

The Syndromic Approach

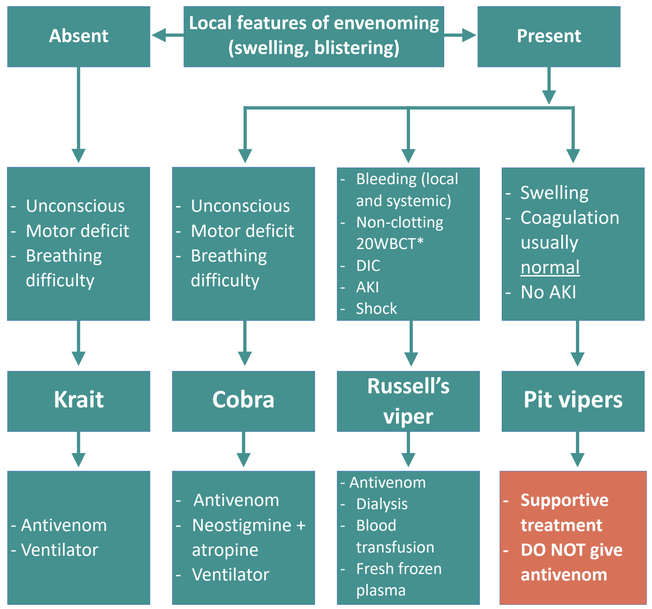

Figure 3. A flow chart outlining the syndromic approach in Nepal. [1,2]

20WBCT = 20-minute whole blood clotting test | DIC = Disseminated Intravascular Coagulation | AKI = Acute kidney injury

Case

- 59-year-old woman bitten on right ring finger while cutting grass in foothill farmland, eastern Nepal.
- Patient reports green snake.
- Rapid hand/wrist oedema, no bleeding, no neurotoxicity.
- 20-minute whole blood clotting test (20WBCT) **normal**.
- Urinalysis NAD, platelets normal, PT 12.4 s , INR 1.0 (**normal**).

Figure 4. Right hand/wrist oedema following a suspected pit viper bite

PT = Prothrombin time | INR = International normalised ratio | NAD = No abnormality detected

Management

- 10 vials standard Indian polyvalent antivenom (ASV) given at peripheral treatment centre.
- No ASV reaction/anaphylaxis.
- IV fluids, analgesia, limb elevation, tetanus prophylaxis.
- Same-day transfer to tertiary hospital.
- Monitored for 3 days on acute medical unit.
- Serial coagulation remained normal.

Discussion of Case

- As per syndromic approach (figure 3): Swelling present, no neurotoxic signs, normal clotting → **Likely pit viper**.
- **ASV given despite unlikely coverage.**
- Colour reports support only. Seek photo or specimen if safe.
- Bottom line: *treat the syndrome, not the species.*
- Transfer to tertiary hospital if worsening coagulation, bleeding, neurological deficit, shock, or limited monitoring availability. [1,2,4]

Recommendations

- **Procurement**: antivenom stocked to local species.
- **Protocols**: one-page syndromic algorithm at triage/resus. [1,2]
- **Diagnostics**: clean-glass 20WBCT. Same-day PT/INR or point-of-care. [1,2,3]
- **Anaphylaxis avoidance**: prophylactic adrenaline unless contraindicated. [5,6]
- **Transfer early**: pre-defined transfer triggers, named receiving centres, single-call referral, rapid transport. [1,2,7]
- **Regular audit**: of adrenaline use, reactions, coagulation times, delays. [1]
- **Community education**: encouragement of early care-seeking; snake photo/ specimen if safe. [1,2,7]

Conclusion

- **Treat syndromes, not species.**
- Use antivenom only when coverage is plausible.
- Serial coagulation guides escalation and early transfer.
- Systems improvement: education, transport, antivenom stock, audit.

References

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Snake images from Animalia.bio. CC4.0 License.
Figure 3 adapted from: Nepal MoH. National Guidelines for Snakebite Management. 2019.

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