



First aid for snake bite in Cambodia

Lecture 3: Snake Bite Management Course

Introduction

- First aid for snake bite in South-East Asia often involves the use of traditional remedies, and is a preliminary step before traditional healing services are sought
- Rarely involves evidence-based, scientific principles
- Many techniques are unhygienic and increase infection risk
- Others are potentially dangerous to the patient and may worsen the prognosis

Traditional first aid methods



- Many of these methods may be harmful to the patient
- Use of tourniquets and ligatures
- Wound scarification
- Herbal remedies, poultices and compacts
- Traditional medicines
- Sucking the wound
- Urinating on the wound
- Applying ice
- Use of alcohol and other stimulants

Photos: Martin Biener

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Discourage wound scarification



- Fundamental principle of first aid is to do no harm!
- Incision, excision or other forms of scarification should never be used.
- Asian pit vipers cause severe bleeding so it is essential that cutting of the bitten arm or leg be discouraged
- Implements used are rarely sterile and this increases the risk of serious infection

Tourniquets are dangerous

- In extreme cases, tourniquets can lead to exsanguination of the limb which results in irreversible tissue damage, necessitating amputation.
- Tourniquet use should be actively discouraged, and tourniquets that are in place when a patient arrives at hospital, should be carefully and slowly released and removed.



Photos: Dr Bill Nimorakiotakis

Traditional healers



- Most Cambodians seek help first from traditional healers
- This may result in long delays before medical care is sought
- Traditional healers should be encouraged to learn correct snake bite first aid, and to recognise signs of serious envenoming
- This might encourage healers to work alongside the medical community rather than in isolation from it

Basic principles of snake bite first aid

- Snake bite first aid must be applied with **SPEED**:
 - **Safe:** The technique used must not cause further injury to the patient
 - **Practical:** It must be practical and appropriate to the situations in which it will be used
 - **Effective:** It should be effective in reducing the risk of further injury or pre-hospital death
 - **Easy:** It should be (a) easy to teach, (b) easy to apply by unskilled people, and (c) use easy to find materials
 - **Distinctive:** It should be easy to remember as the right technique for a particular type of snake bite

Basic principles of snake bite first aid

- There are five simple rules for selecting the right type of snake bite first aid:
 1. Do not use scarification, tourniquets, traditional herbal remedies or poultices under any circumstances
 2. For bites by identified pit vipers, which may cause very severe local tissue injury, immobilise the patient completely, especially the bitten limb (with splint or sling), and do not apply pressure or dressings to the limb
 3. For bites by identified kraits and all species of cobras use the pressure immobilisation bandaging technique to help delay the progression of neurotoxicity
 4. If there is doubt about the type of snake or the effects, immobilise the patient completely, and in particular the bitten limb as above. If cobra or krait bite cannot be excluded, consider PIB, or at a minimum a firm pressure pad over the actual bite site
 5. Seek medical assistance without delay

First aid for haemorrhagic snake bites



Photos: Dr Trinh Xuan Kiem

- Bites by pit vipers may cause severe local tissue destruction
- Pit viper bite should be assumed if there is any clinical bleeding present
- Compression should not be applied after bites by these snakes, unless neurotoxicity is present
- This is because attempts to limit venom movement by applying direct pressure may result in more serious local tissue injury
- This may potentially lead to greater risk of limb loss.

First aid for haemorrhagic snake bites



Malayan pit viper (*Calloselasma rhodostoma*)



Indo-Chinese Russell's viper (*Daboia siamensis*)



Any 'green pit vipers' including *Cryptelytrops albolabris*, *C. macrops* or *Viridovipera vogeli*

First aid for haemorrhagic snake bites

Photos: Dr Trinh Xuan Kiem



- People who have local swelling, oedema, necrosis, blisters, bullae or blebs should have the whole body completely immobilised and all movement discouraged.
- If necessary a splint can be loosely applied to keep the bitten arm or leg from being moved
- A bitten leg can be splinted and then fastened to the other leg to fully restrict lower limb movement
- Avoid applying cloth dressings to the bitten limb as they are likely to stick to blisters and blebs and may cause them to rupture

First aid for neurotoxic snake bites



- Pressure Immobilisation Bandaging (PIB) may be beneficial after bites by kraits and cobras where neurotoxicity is a major clinical effect
- There are 4 critical elements to the successful application of PIB :
 - Bandage from above the toes, or fingertips
 - Extend the bandage the whole length of the bitten limb
 - Splint the limb to immobilise it
 - Achieve a bandage pressure of 55-70 mmHg (leg) or 40-70 mmHg (arm)
- Failure to meet all four of the criteria is likely to result in ineffective, or at best partially effective first aid

First aid for neurotoxic snake bites



Malayan krait (*Bungarus candidus*)



Banded krait (*Bungarus fasciatus*)



Red-headed krait (*Bungarus flaviceps*)



Monocellate cobra (*Naja kaouthia*)



Indo-Chinese spitting cobra (*Naja siamensis*)

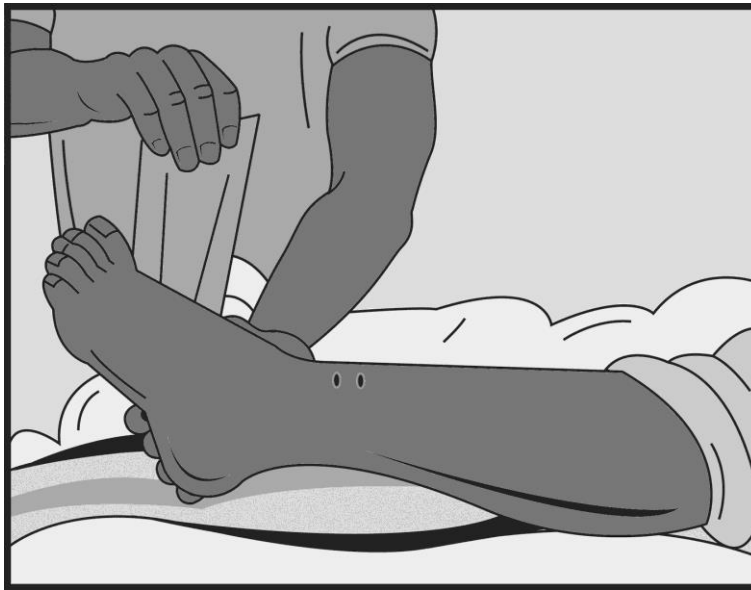


King cobra (*Ophiophagus hannah*)

Bites by cobras (*Naja* and *Ophiophagus*) may cause local tissue injury and necrosis, however the risk of PIB increasing the severity of this injury is outweighed by the far greater risk of death due to airway obstruction or respiratory muscle paralysis.

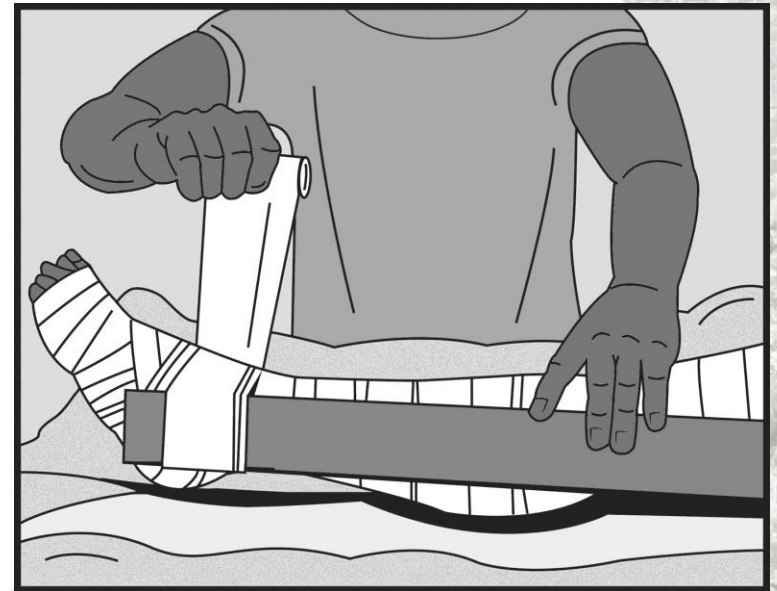
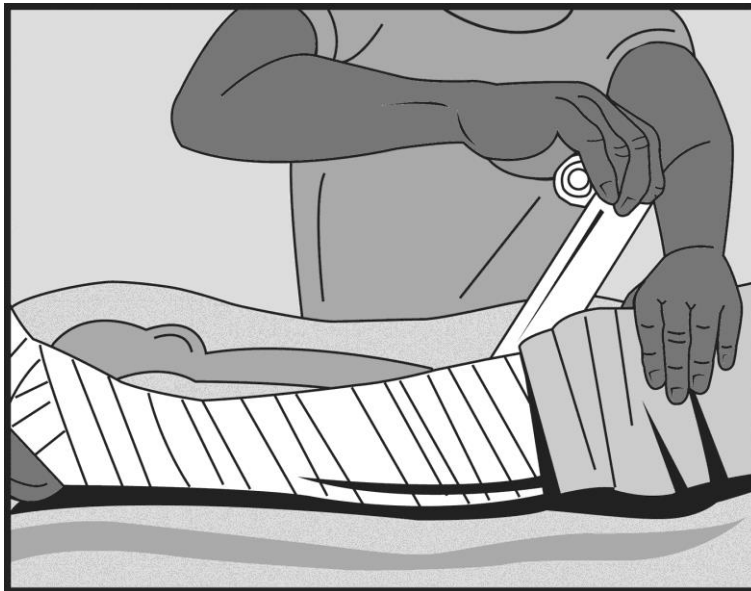
First aid for neurotoxic snake bites

- Commence bandage application just above the toes (or fingertips) and continue to wrap very firmly upwards.
- It is extremely important to maintain firm tension as the bandage is continued up the limb. A loose bandage is of no value.



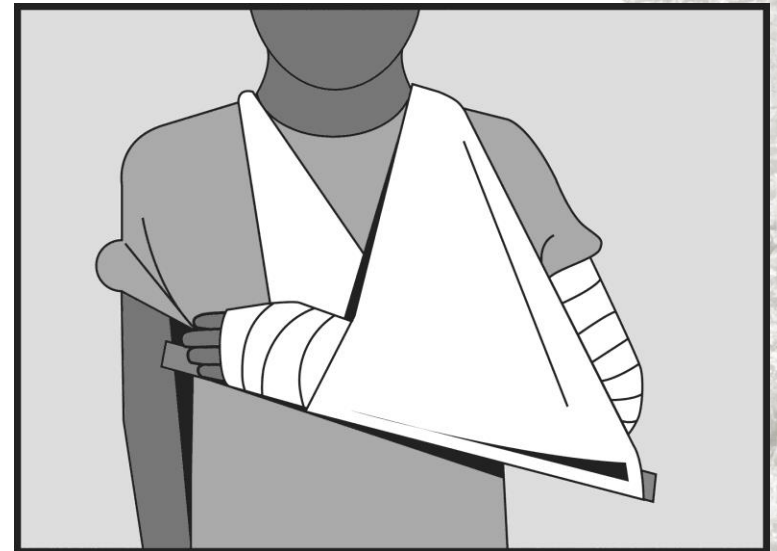
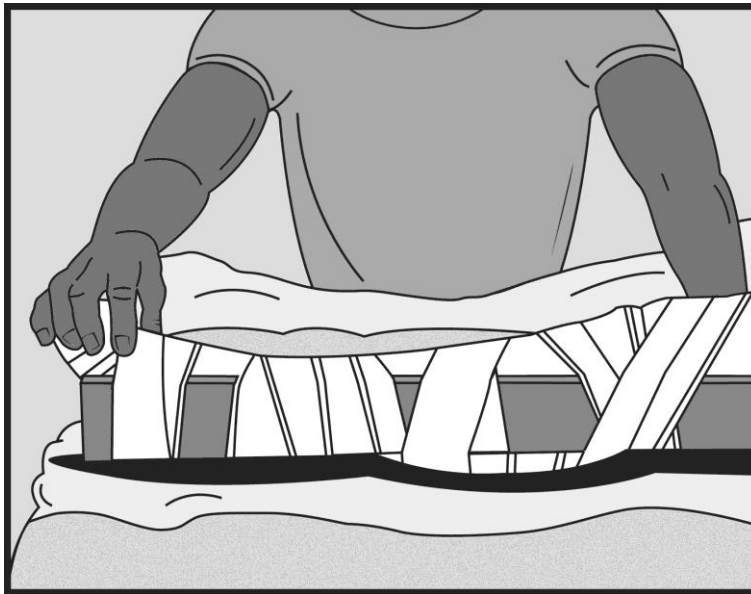
First aid for neurotoxic snake bites

- If clothing cannot be cut free, it should be bandaged over the top of, and the bandages continued to the groin or armpit.
- Once the bandage has been applied, the limb needs to be immobilised with splints to prevent any movement.



First aid for neurotoxic snake bites

- Both legs can be tied together after the bitten limb has been bandaged and splinted. This further reduces movement.
- While slings are typically used to support a bandaged & splinted arm, it is better to splint the arm straight and strap to body.



First aid for cobra spit ophthalmia

- If venom is spat into the face, and especially the eyes, rapid irrigation with water is recommended in order to flush the venom from the skin and eyes
- Do not rub the eyes
- Seek medical attention early
- 0.5% adrenaline eye drops can help to relieve pain and inflammation if these are available at the health centre
- If damage to the eyes is suspected, the patient should be referred for follow-up care

Other considerations

- If there is doubt about the type of snake or the effects, immobilise the patient completely, and in particular the bitten limb as above.
- If necrosis without extensive blistering is present, and a bite by a cobra cannot be excluded, consider applying pressure immobilisation bandages (PIB) or a firm pressure pad as a minimum
- A firm pressure pad, applied directly over the site of the bite can be considered as a alternative, if the bite is to the face, head, neck or body

Summary

- Do not use scarification, tourniquets, traditional herbal remedies or poultices under any circumstances
- For bites by identified pit vipers, which may cause very severe local tissue injury, immobilise the patient completely, especially the bitten limb (with splint or sling), and do not apply pressure or dressings to the limb
- For bites by identified kraits and all species of cobras use the pressure immobilisation bandaging (PIB) technique to help delay the progression of neurotoxicity

Summary

- If there is doubt about the type of snake or the effects, immobilise the patient completely, and in particular the bitten limb as above.
- If cobra or krait bite cannot be excluded, consider PIB, or at a minimum a firm pressure pad over the actual bite site
- For spitting cobra ophthalmia, irrigate the eyes well with water
- Seek medical assistance without delay