

Primary Medical Care of Snake-bites

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Don't wait for someone to be bitten by a deadly snake before you read this!

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YOUR SNAKE-BITE KIT.

Keep it ready!

KIT ITEMS

- Antivenom + 10 cc syringe. symptoms.
- Adrenaline 1:1,000 dilution + 1 cc syringe. antivenom, anaphylactic shock.
- Saline solution with tubing and needle. and in cases severe swelling.
- Analgesic - paracetamol preferred, NOT aspirin. do not use aspirin).
- Wide stretch bandage. bites.
- Airbag. weakness syndrome or when swelling is threatening airways.
- A clean, dry, new glass tube
- Also possibly needed - antibiotic, tetanus toxoid, anti-histamine. Only for severe allergic reaction to the antivenom.

USE OF ITEMS

- ONLY if patient is presenting life-threatening
- If the patient develops allergic reaction to
- To counter drop in blood pressure during shock
- For pain. (Aspirin can increase bleeding problems)
- To control lymph flow in cases of neurotoxic
- To ventilate patient in cases of progressive
- For blood sample to test clotting time.

IMPORTANT - Not all our dangerous snakes are covered by both available polyvalents (SAVP & Aventis). The text will specify where necessary.

WHEN THE PATIENT ARRIVES.

Remember that a serious snake-bite is an emergency and needs to be attended without delay!

ACT FAST BUT KEEP THE PATIENT CALM

Look at the patient. Symptoms may be OBVIOUS.

- **Cytotoxic bites** - dramatic swelling with watery blood leaking from the bite wound, shock, blistering, discolouration, patient will complain of severe pain at the bite site and affected limb.
- **Neurotoxic bites** - moderate swelling, cold clammy sweat, dilated pupils, drooping eyelids, aching joints, patient complains the skin is twitching, swollen lymph glands, vomiting, heavy salivation, breathing difficulties.
- **Haemotoxic bites** - bloody gums, nose, corner of eyes, bleeding from scratches and old wounds.

All the above are indications of life-threatening envenoming. Prepare to give antivenom right away.

While preparing the medication ask the patient if s/he has been given any 'home remedies' or alcohol before reaching you. Some remedies induce vomiting, or cause drowsiness which may mask symptoms of envenomation, or there may be incisions with applications of various concoctions which need to be dealt with in due course.

IMPORTANT - Does the patient have any known allergies, especially asthma? If so, the danger of reaction to the antivenom is greater and adrenaline should be drawn up ready for immediate use at the first sign of anaphylaxis.

IMPORTANT - Do NOT apply a tourniquet. They are the commonest form of first aid and frequently cause a great deal of damage. If the patient is showing cytotoxic symptoms, remove tourniquet and any other constricting items immediately. If s/he is showing neurotoxic symptoms do not remove tourniquet until antivenom is being administered and then remove it gently - a sudden surge from rapid removal can cause a collapse.

If symptoms are NOT OBVIOUS, check blood pressure and heartbeat (pulse), pupil responses and lymph glands. Ask the patient, or the person who was with her/him at the time of the bite the following:

- How long ago did the bite occur? With most of the deadly snakes symptoms develop quite rapidly so if the bite is older than, say, 2-3 hours without obvious symptoms envenomation is probably minor or not at all. There are exceptions so don't stop here! Day or night time will make a difference to which snake might be involved.
- Can you describe the snake? Even if identification is positive for one of the deadly snakes (for instance they may have brought in the actual snake) do not assume that fatal envenomation has occurred. Any snake may bite without injecting any venom (a dry bite). Do not rush to use antivenom until you are sure envenoming is there.
- Are you in pain? What are you feeling? It is most important to listen to the patient as well as observe. Pain, nausea, drowsiness, etc., might be caused by a tourniquet or home remedies (including alcohol), you must assess.

If you cannot decide whether or not envenoming has occurred, take a blood sample, put it in the new, dry, clean, glass test tube and time the clotting period. If, after 20 minutes, the blood is still fluid, you can assume haemotoxic envenomation.

TO ADMINISTER ANTIVENOM.

- Children should get the same dose as adults.
- Administration of antivenom should always, where possible, be undertaken by a medically qualified person in the nearest hospital, clinic or surgery.
- Remember to have adrenaline at the bedside in case of anaphylaxis. If the patient has known allergies (asthma etc.), draw up the adrenaline (0.3 - 0.5 ml for adults and 0.1 - 0.3 for children) and have antihistamine available in case allergic symptoms are overwhelming. Antihistamine is NOT recommended as routine treatment for snake-bite.
- Do not infiltrate the bite area with antivenom.

Severe neurotoxic symptoms - Mambas and most Cobras

- Give the first dose (10ml) of antivenom intravenously at the slow rate of 1-2 ml per minute. Subsequent doses may be injected into a bag of saline drip, no more than 20 ml per 1/2 ltr bag. The drip should run through fairly fast (should run through in 30 mins). Monitor breathing and other vital signs continuously.
- The advance symptoms (progressive weakness syndrome) should slow and stop quite rapidly if treatment has been started at an early stage. If paralysis is already beginning to affect breathing, intubate and ventilate while continuing antivenom treatment.

Severe cytotoxic symptoms - Puff adders, Gaboon vipers and Spitting cobras

- Inject the antivenom into a bag of saline drip (not more than 20 ml per bag). Remember not to have the drip running direct into the wounded limb which is already in danger from the pressure of swelling and should be kept elevated and well protected.
- If swelling and tissue damage was already advanced before treatment and especially if the bite was in the hand or foot, be aware that later surges of active venom can occur, perhaps requiring more antivenom. The patient with badly damaged tissue is going to need sophisticated long term treatment - arrange for transferal onwards once patient is stable.

Severe haemotoxic symptoms - Saw-scaled Viper, Boomslang and Twig Snake

- **Saw-scaled Viper:** Use the Aventis polyvalent not SAVP
If bleeding symptoms are already showing, give first dose by push method intravenously at the slow rate of 1-2ml per minute and the next dose in a saline drip (1/2 ltr in 30 mins). If clinical symptoms are not yet presenting, do a blood clotting test to establish envenomation. If the blood fails to coagulate in 20 minutes administer antivenom in a saline drip and repeat test later.
- **Boomslang:** NOT INCLUDED in any polyvalent antivenom.
Bites from these snakes are rare, be certain of identification (see illustration). Test blood clotting time. If blood fails to coagulate, transfer patient as quickly as possible to your referral hospital and advise hospital to contact immediately BIO-KEN SNAKE FARM, at 042-32303 or 0733 290324 for information on correct antivenom.
- **Twig Snake:** ANTIVENOM NOT MADE AT ALL.
Bites from this snake are extremely rare. When you are certain of identification (see illustration) do a blood clotting test. If blood fails to coagulate in 20 minutes, transfer patient as quickly as possible to your referral hospital. Do not use any antivenom.

- Bleeding Syndrome Plus PPS - Puff Adder (thrombocytopenia), Gaboon Viper (DICoagulation), Saw-scaled Viper (DIC), only north Kenya.

- Bleeding Syndrome only - Boomslang, Twig Snake (associated bite site non-painful swelling).

GENERAL NOTES

- If severe snakebite symptoms are immediately obvious but the antivenom is kept at a central depot SEND FOR IT IMMEDIATELY.
- While you are waiting for the antivenom to arrive KEEP THE PATIENT CALM and:
- Your own attitude will greatly affect the patient - you must be positive, confident and reassuring. Patients are often accompanied by a crowd of onlookers, remove all but a sensible and calm relative or friend.
- The patient should lie down for examination with the injured limb elevated and comfortable. The limb should be kept as immobile as possible and the wound covered with the sterile dressing. DO NOT rub, incise or otherwise treat the wounded area. The bite site does NOT need to be cleaned or disinfected.
- Be aware that there might be vomiting so be ready to move the patient to the recovery position.
- By talking to the patient and getting answers to your questions you will be calming him/her and will be learning more about their condition. People going into shock tend to be slow to respond. Someone who is excitable and talkative but has normal response, is more likely to be merely frightened and not envenomed.
- Some bites are extremely painful, especially cytotoxic ones with severe swelling. The pain needs to be controlled with analgesics as soon as possible as pain will be adding to the patient's stress.
- Remove all constrictions on the bitten limb, including tourniquets, jewellery, watches or tight clothing, with as little disturbance to the limb as possible.

Once the patient is stable:

- If you think the patient is going to need referral after initial treatment, make arrangements NOW. Some of the patient's friends can be used to organise this. DO not send the patient off in a crowded bus where they might be further damaged!
- Antivenom works fast! Patients with neurotoxic bites and bites from Boomslang may feel quite recovered in a few hours, although they will be tired and a bit weak. Do not send them away too soon. They should rest and be monitored for 24 hours in case of relapse or late onset on anaphylaxis. Patients with swelling and tissue damage should be able to tell that symptoms are not advancing but will still suffer from tissue damage already sustained. This damage must be treated very carefully. All patients should be advised to drink plenty of liquids and should ensure regular urination. They must return to you if any undue symptoms develop and they should not return to heavy work before all signs of low blood pressure have stopped.

WHAT TO DO WHEN ANITVENOM IS NOT AVAILABLE

- Remember that only a small percentage of snakebites are truly lethal and antivenom would only be used for a minority of cases. But, even without antivenom, much can be done to assist a patient with severe envenomation.
- Assess the patient as usual. Apart from possible envenomation you may need to treat damaging 'first aid' already given to the patient, also fear and shock.

In case of severe envenomation:

Neurotoxic - most cobras, mambas

- Give saline in a drip.
- Ensure patient does not damage him/herself when restlessness develops. Keep airway clear if vomiting occurs and when salivation becomes heavy. Be ready to intubate and start ventilating when breathing is endangered. Arrange a team using relatives and friends if necessary to maintain ventilation.
- Paralysis may become total but the patient may be conscious throughout so be careful to keep up a confident and comforting appearance, especially those within hearing of the patient. Reassurance is critical, even if the patient is unconscious.
- If possible arrange transport to nearest referral hospital. Otherwise keep going with ventilation and the patient should make a full recovery eventually.

Cytotoxic - Puff Adders, other Vipers and Spitting Cobras

- Shock is rapid and severe and swelling can become massive, even to threatening airways. Pain is very severe and neglected tissue damage may lead to gangrene. Each of these symptoms must be dealt with.
- Patient must NOT move around. Keep damaged limb elevated and protected from external damage. Make sure there are no constrictions on the limb.
- Cover wound with sterile dressing. DO NOT rub or scrub it, it does NOT need to be cleaned or disinfected.
- Start saline drip (not into the injured limb). Administer analgesics for pain. Use paracetamol, codeine, morphine but NOT aspirin or any aspirin based drugs such as Brufen.
- Give tetanus toxoid, antibiotics. Secondary infections in the damaged tissue are a real danger. Treatment of damaged area will be necessary for some time after danger of immediate death is passed. Surgical removal of dead tissue may be needed to avoid gangrene. Physiotherapy may be needed to maintain joint mobility.
- Take the first chance you get to refer the patient on to hospital as long as the patient can travel without further damage.
- Renal function is very important in these cases and should be checked regularly while healing progresses.

Haemotoxic - Saw-scaled Viper, Boomslang, Twig Snake.

- Bites from a Saw-scaled Viper will show local swelling and tissue damage which can easily lead to gangrene so treat that as for cytotoxic bites as described above. Also the patient may develop bleeding syndrome. If no blood is showing clinically, give clotting test.
- DO NOT make any incisions, even if swelling is threatening gangrene, the patient may bleed. If the blood fails to clot in the test tube, make all efforts to get the patient to your referral hospital.
- If all else fails, keep the patient on a drip, give analgesics as required and make sure patient is as comfortable as possible. Try to have this patient separate from any other patients, the symptoms can be very distressing for observers as well as embarrassing for the patient.
- Never give up - the patient might recover. Keep up a confident and comforting appearance, especially those within hearing of the patient. Reassurance is critical, even if the patient is unconscious.
- If s/he survives, the kidneys will be overworked so keep a check on that and the patient will be very anaemic. Lots of aftercare. Bites from
- Boomslang would not have the tissue damage seen in the S.s. Viper bite (described above) but the bleeding will need the same care as above.
- Symptoms could take days to develop and would often show up clinically as bruising in patches before bleeding elsewhere. If the bite is fresh and the patient seems quite well but the clotting test shows envenomation there should be enough time for the patient to travel to hospital. You should contact the hospital by phone at once so that they can obtain the monovalent antivenom.
- Bites from Twig Snakes also develop slowly so if the blood clotting test shows envenomation there should be time to get the patient to hospital where s/he may be treated with blood transfusions, or frozen plasma or dialysis. (Warn hospital in advance. There is NO ANTIVENOM for these bites). If transport is impossible, or severe bleed already occurring, treat as above.

TO TREAT VENOM IN THE EYES - Spitting Cobra

- Immediate, thorough, washing out of the eyes with plenty of water or any other bland liquid is the best treatment - it should have been done even before the patient is brought to you.
- Ensure that the eyes have been washed and also any area of skin that was sprayed by venom which might be sweated, or accidentally rubbed, into the eyes later.
- Even after washing the eyes will be painful, light sensitive and watery. A few drops of 1% adrenaline will help the pain in the eyes and paracetamol will relieve the headache and shock most patients will get. Antibiotic eye ointment should be applied.
- They MUST **NOT RUB** their eyes! Cover with a soft pad or have the patient wear a very shady hat or dark glasses. The patient should return in a day or two for an eye check.
- If the patient arrives late, with eyes already suppurating, lids damaged, etc., give antibiotics, analgesics, cover eyes with sterile pad and refer to ophthalmologist immediately.

IMPORTANT REMINDERS

Antivenom is an expensive and dangerous drug - it should only be used in life-threatening cases.

Life-threatening cases fall in three main categories:

1. Painful, progressive swelling - cytotoxic
2. Progressive weakness - neurotoxic
3. Bleeding and clotting disorder - haemotoxic

There may be a combination.

A number of other venoms can cause severe pain, limited swelling and possibly some tissue damage. These venoms are NOT covered by any antivenom and it should never be used in such cases. Treat symptoms. Even the victim of a non-venomous snake-bite will need reassurance and possibly treatment for wild 'first-aid'.

PLEASE BE GENEROUS in handing out copies of 'Simple Steps for Snakebite' (Maelezo Mafupi Kuhusu Nyoka). If the public is taught the correct procedure after snakebite, many lives can be saved, and damage to limbs minimised.

Emphasise to everyone - NO TOURNIQUETS and RAPID TRANSPORT to the nearest clinic or hospital.
PLEASE circulate Simple Steps as widely as possible - the instructions in it are clear and easy to follow.

SNAKE IDENTIFICATION & SYMPTOMS

Please [Click Here](#) to go to our Snake Identification page to help i.d. dangerous snakes

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