



Snake Bite

Presented

By

Dr. Said Said Elshama

Professor of Forensic Medicine and Clinical Toxicology

Medical Education (DHPE)

College of Medicine - Taif & Suez Canal University



Snake Species

-Snakebites are more common in tropical regions and in areas that are primarily agricultural.

-Two major families of snakes account for most venomous snakes dangerous to humans :-

1-The Elapid family includes the cobras of Asia and Africa; the coral snakes of the Americas

2-The Viper family includes (*Crotalus*)

- Most species of the most widely distributed (the Colubrids, lack venom, that is not dangerous to humans).
- Some species are harmless to humans.

Elapid (cobra)



Viper



Mechanism of Bite

- Snakes that inject venom use modified salivary glands.
- Venom is a modified form of saliva and probably evolved to aid in chemical digestion.
- Varying degrees of toxicity also make it useful in killing prey.
- During envenomation (the bite that injects venom or poison), the venom passes from the venom gland through a duct into the snake's fangs, and finally into its prey.

Snake Venom

- It is a combination of numerous substances with varying effects.
- These proteins can be divided into 4 categories: -
 - 1-Cyto-toxins cause local tissue damage.
 - 2-Hemo-toxins cause internal bleeding.
 - 3-Neuro-toxins affect the nervous system.
 - 4-Cardio-toxins act directly on the heart

Clinical Picture

Bites by venomous snakes result in a wide range of effects :-

- No initial significant symptoms
- Simple puncture wounds
- Breathing difficulty and shock.
- Life-threatening illness and death.

Factors affecting the severity of poisoning :-

- Factors are related to snake :-

- Spice of snake → elapidae or viperidae
- Size of snake → large size → more toxic

- Factors are related to patient :-

- Age of patient → old patient and child
- Size of patient → thin → more toxic
- Health condition of patient
- Sensitivity of patient to venom

- Factors are related to venom :-

- Amount of injected venom
- Type of venom → neurotoxin or hemorrhagic

- Factors are related to bite :-

Site of snake bite →

- Head and trunk sites are more dangerous than extremities .
- upper extremities sites are more dangerous than lower extremities .

Signs and Symptoms

It can be broken into a few major categories:-

1-Local effects: pain and tender, swelling , bleeding and blister.

2-Bleeding: bleeding of internal organs such as the brain or bowels. bleed from the bite site or bleed spontaneously from the mouth or old wounds. bleeding can cause shock or even death.

3-Nervous system effects: Venom from elapids and sea snakes can affect the nervous system directly. (Cobra) venom can act particularly quickly by stopping the breathing muscles, resulting in death without treatment.

victims may have vision problems, speaking and breathing trouble, and numbness.

4-Muscle death:

Venom cause muscle death in multiple areas of the body. The debris from dead muscle cells can clog the kidneys, which try to filter out the proteins. This can lead to kidney failure.

5-Eyes:

Spitting cobras can actually eject their venom quite accurately into the eyes of their victims, resulting in direct eye pain and damage

Local Effects : Pain and Tender, Swelling



Local Effects : Tender, Swelling , Bleeding



Local effects: Tender and Bleeding



First Aid

- Identify the snake

1- Non-venomous snake Bite

- The victim needs a tetanus antitoxin.
- requires wound care.
- Wash the wound with large amounts of soap and water.
- Inspect the wound for broken teeth or dirt.
- Some wounds may require antibiotics to prevent infection

2- Venomous snake Bite

- Patient rests in **supine position** .
- Bitten part is **immobilized** and in dependent position
- Tourniquet applies **above level of bitten part**
(tourniquet prevents spreading of venom)

Precautions

- Pulse is palpable distal to tourniquet .
- It is above the bite by few inches.
- Loose it every 15 to 30 / m .
- Reapply it above level of progressive edema.

- Incision and suction

within(15 → 30)m (controversial)

- **Anti-tetanic serum** after skin test

- **Anti-venom**

- **Reassurance**

Warnings

Do NOT cut and suck. Cutting into the bite site can damage underlying organs, increase the risk of [infection](#), and does not result in venom removal.

Do NOT use ice. Ice does not deactivate the venom and can cause [frostbite](#).

Do NOT use electric shocks. The shocks are not effective and could cause burns or electrical problems to the heart.

Do NOT use alcohol. Alcohol may deaden the pain, but it also makes the local blood vessels bigger, which can increase venom absorption.

Do NOT use tourniquets or constriction bands.

Medical treatment

- 1- life-threatening measures ABC
- 2- Antivenom
 - allergic reactions, anaphylactic shock, requiring treatment with epinephrine .
 - serum sickness within 5-10 days of therapy. Serum sickness causes fevers, joint aches, itching, swollen lymph nodes, and fatigue, but it is not life threatening.
 - victims without significant symptoms need to be monitored for several hours.

Scorpion Bite

- There are several species of scorpions .
- Scorpion has long segmented body and tail.
- Scorpion has a venomous apparatus on its segmented tail which is called telson .
- Venom of scorpion is neurotoxin .
- Local inflammatory manifestations of scorpion bite are absent , because venom has not any enzymatic activities .

Clinical Stages of Scorpion Poisoning

- 1- Local pain and paresthesia .
- 2- Pain and paresthesia are remote from site of bite
- 3- Cranial or somatic skeletal dysfunction .
- 4- Both cranial and somatic skeletal dysfunction .

Treatment

1- Life saving measures :-

2-General measures :-

Indication : Stage 1, 2

Pain → analgesic + ice fomentation

3-Antivenin (goat antiserum) :-

Indications:-

A- Stage 3,4

B-Complicated cases

C-Rapid progression of symptoms



**Thank
you**