

A Case of Snake Bite

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Introduction

Each year, approximately 8,000 venomous snakebites occur in the United States.^{1,2} Most snakebites occur between April and October, when outdoor activities are popular.³

The major types of poisonous snakebites in the USA includes Crotalinae which include pit vipers (rattlesnakes, copperhead, water moccasins) and Elapidae (coral snakes). Venom is cytotoxic and hematotoxic. The Crotalinae bite are by far the most common accounting for around 95% of bites. Copperhead envenomation is generally less severe than rattlesnake envenomation. More than 95% of copperhead envenomation's develop significant pain and swelling of the envenomed limb, but systemic venom effects are uncommon as compared to rattlesnakes bites which are more life threatening. An illustration below (Picture-1) helps differentiate poisonous snake from non-poisonous snakes.

Case Report

A 10 year old African-American male with no past medical history, now with suspected copperhead bite came to the pediatric ER. He is accompanied by his father who stated around 1230 pm, they were unloading mulch from lowes and suddenly, his son felt something bit him on his right hand.

Later he saw a snake come out of the bag. His father took a picture of the snake for identification. (Figure 1) with the help of poison control. The snake is identified as copperhead with green still on the end of the tail.

Patient had immediate pain after snake bite and subsequently developed swelling of right hand's middle finger. he has had swelling progress past the fingers, the entire hand, past the wrist and halfway up the forearm (Figure-2). He denied any chest pain or shortness of breath. He did complain of mild paresthesias and pain but no other symptoms

Initial labs were drawn which showed aPTT (Abnormal Partial thromoplastin time) – 24.7 (Low), Albumin -3.1 (Low), RBC count -5.22(High), Platelet count- 60 (Low), Lymphocytes – 18.6 (Low)

Physical Exam

On physical exam patient was found to be in acute distress, tachypnea, and tachycardia noted, other vitals are within normal limits. Swelling of the right middle finger with bite marks noted over dorsum aspect of it. Mild paraesthesia and tenderness over the bite site noted. Rest of the physical exam was benign. Wound was cleaned, normal saline IV was started and pain meds were ordered. Tetanus vaccine was updated. Over next few hours swelling increased to right hand, wrist and forearm accompanied by loss of sensation and increased pain. Poison control and medical toxicology were consulted and recommended CroFab. 6 vials of CroFab were given with close monitoring of vitals for anaphylaxis.

Patient responded well and discharged home in stable condition

Discussion

In recent years, first aid measures for snakebites have been radically revised to exclude methods that were found to worsen a patient's condition, such as tight (arterial) tourniquets, aggressive wound incisions, and ice. Initial treatment measures should include avoiding excessive activity, immobilizing the bitten

extremity, and quickly transporting the victim to the nearest hospital.⁴ Signs and symptoms of snake bite include local tissue damage, ecchymosis and progressive tissue swelling. Non-specific systemic effects – Nausea, vomiting, diarrhea, weakness, light-headedness, diaphoresis, chills, coagulopathy, rhabdomyolysis with nephrotoxicity, increased vascular permeability, tachycardia, tachypnea, hypotension, neurotoxicity (oral paresthesia, unusual taste, fasciculations, altered mental status, seizures) were not present. If none of these signs are present, the patient should be observed for 12 hours before being discharged home, as there is sometimes a delayed presentation. Dose of anti-venin should be same for all age groups, as venom quantity is same per bite in all the patients. A timely administration of anti-venin and ventilator assistance can prevent the mortality and morbidity of the victims.

Conclusion:

Early assessment and intervention are keys in improving outcome and reducing mortality. A patient must have serial evaluations as an envenomation appear to be mild in the beginning but may have significant consequences later on. New and improved Anti-venin is paramount for early treatment and improving outcome.



Figure 1: Showing snake in the background



Figure 2: Showing progression of swelling in the arm.

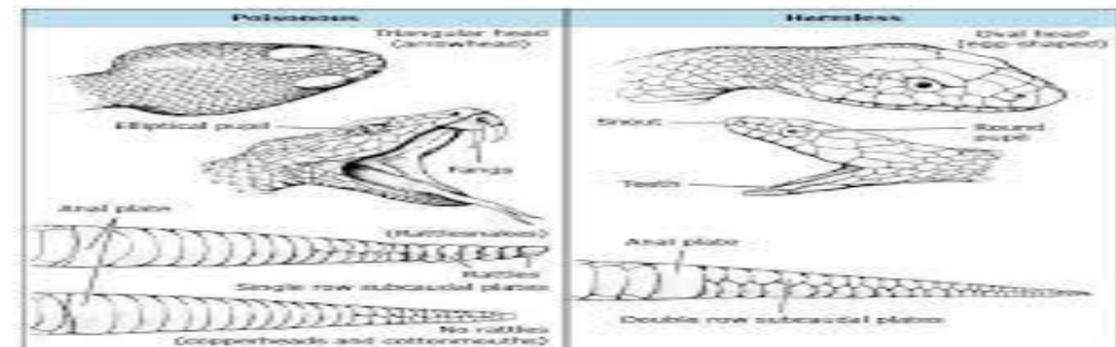


Figure 3: Tips to identify snake

Take home points:

- Remove the patient from snake's territory, and keep him or her warm and calm.
- Immobilize the injured body part in a functional position at the level of the heart initially
- Remove any rings, watches, or constrictive clothing from the affected extremity.
- Do not apply pressure immobilization, tourniquets, or constrictive dressings.
- Cleanse the wound generously with clean water.
- A digital photo taken at a safe distance may be useful.
- Seek early medical help to reduce morbidity and mortality.

References:

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- Juckett G. Snakebite. In: Rakel RE, ed. *Saunders Manual of medical practice.* 2d ed. New York: Saunders, 2000:1525–8.
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Patient: A 10 year-old African-American male
Significant Symptoms: Hand pain, paraesthesia and tissue swelling.