

For Goodness Snakes!

Treating Venomous Bites

Snakes play important environmental roles in the fragile ecosystems of the nation's wildlife areas. People who frequent these wilderness spots, as well as those who camp, hike, picnic, or live in snake-inhabited areas, should be aware of potential dangers posed by venomous snakes. Every state but Maine, Alaska and Hawaii is home to at least one of 20 domestic poisonous snake species. A bite from one of these, in which the snake may inject varying degrees of toxic venom, should always be considered a medical emergency, says the American Red Cross. About 8,000 people a year receive venomous bites in the United States; nine to 15 victims die. Some experts say that because victims can't always positively identify a snake, they should seek prompt care for any bite, though they may think the snake is nonpoisonous. Even a bite from a so-called "harmless" snake can cause an infection or allergic reaction in some people.

Types of Poisonous Snakes

Two families of venomous snakes are native to the United States. The vast majority are pit vipers, of the family Crotalidae, which include rattlesnakes, copperheads and cottonmouths (water moccasins). Pit vipers get their common name from a small "pit" between the eye and nostril that allows the snake to sense prey at night. They deliver venom through two fangs the snake can retract at rest but can spring into biting position rapidly. About 99 percent of the venomous bites in this country are from pit vipers. Some--Mojave rattlesnakes or canebrake rattlesnakes, for example--carry a neurotoxic venom that can affect the brain or spinal cord. Copperheads, on the other hand, have a milder and less dangerous venom that sometimes may not require antivenin treatment.

The other family of domestic poisonous snakes is Elapidae, which includes two species of coral snakes found chiefly in the Southern states. Related to the much more dangerous Asian cobras and kraits, coral snakes have small mouths and short teeth, which give them a less efficient venom delivery than pit vipers. People bitten by coral snakes lack the characteristic fang marks of pit vipers, sometimes making the bite hard to detect.

Though coral snakebites are rare in the United States--only about 25 a year by some estimates--the snake's neurotoxic venom can be dangerous. A 1987 study in the *Journal of the American Medical Association* examined 39 victims of coral snakebites. There were no deaths, but several victims experienced respiratory paralysis, one of the hazards of neurotoxic venom.

Some nonpoisonous snakes, such as the scarlet king snake, mimic the bright red, yellow and black coloration of the coral snake. This potential for confusion underscores the importance of seeking care for any snakebite (unless positive identification of a nonpoisonous snake can be made).

The bites of both pit vipers and coral snakes can be effectively treated with antivenin. But other factors, such as time elapsed since being bitten and care taken before arriving at the hospital, also are critical (see accompanying article).

First Aid for Snakebites

Over the years, snakebite victims have been exposed to all kinds of slicing, freezing and squeezing as stopgap measures before receiving medical care. Some of these approaches, like cutting into a bite and attempting to suck out the venom, have largely fallen out of favor.

"In the past five or 10 years, there's been a backing off in first aid from really invasive things like making incisions," says Arizona physician David Hardy, M.D., who studies snakebite epidemiology. "This is because we now know these things can do harm and we don't know if they really change the outcome."

Many health-care professionals embrace just a few basic first-aid techniques. According to the American Red Cross, these steps should be taken:

- Wash the bite with soap and water.

- Immobilize the bitten area and keep it lower than the heart.
- Get medical help.

"The main thing is to get to a hospital and don't delay," says Hardy. "Most bites don't occur in real isolated situations, so it is feasible to get prompt [medical care]." He describes cases in Arizona where people have caught rattlesnakes for sport and gotten bitten. "They waited until they couldn't stand the pain anymore and finally went to the hospital after the venom had been in there a few hours. But by then, they'd lost an opportunity for [effective treatment]," which increased the odds of long-term complications. Some medical professionals, along with the American Red Cross, cautiously recommend two other measures:

- If a victim is unable to reach medical care within 30 minutes, a bandage, wrapped two to four inches above the bite, may help slow venom. The bandage should not cut off blood flow from a vein or artery. A good rule of thumb is to make the band loose enough that a finger can slip under it.
- A suction device may be placed over the bite to help draw venom out of the wound without making cuts. Suction instruments often are included in commercial snakebite kits.

Avoiding Snakebites

Some bites, such as those inflicted when snakes are accidentally stepped on or encountered in wilderness settings, are nearly impossible to prevent. But experts say a few precautions can lower the risk of being bitten:

- Leave snakes alone. Many people are bitten because they try to kill a snake or get a closer look at it.
- Stay out of tall grass unless you wear thick leather boots, and remain on hiking paths as much as possible.
- Keep hands and feet out of areas you can't see. Don't pick up rocks or firewood unless you are out of a snake's striking distance. (A snake can strike half its length, Hardy says.)
- Be cautious and alert when climbing rocks.

What do you do if you encounter a snake when hiking or picnicking? Says Hardy: "Just walk around the snake, giving it a little berth--six feet is plenty. But leave it alone and don't try to catch it."

Though poisonous snakes can be dangerous, snake venom may have a positive side. Clinical trials are presently under way to test the therapeutic value of a venom-derived product called ancrod in treating stroke. Earlier proposals, using snake venom to treat neuromuscular disorders such as multiple sclerosis, never reached the clinical trial stage.

How NOT to Treat a Snakebite

Though U.S. medical professionals may not agree on every aspect of what to do for snakebite first aid, they are nearly unanimous in their views of what not to do. Among their recommendations:

- No ice or any other type of cooling on the bite. Research has shown this to be potentially harmful.
- No tourniquets. This cuts blood flow completely and may result in loss of the affected limb.
- No electric shock. This method is under study and has yet to be proven effective. It could harm the victim.
- No incisions in the wound. Such measures have not been proven useful and may cause further injury.