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New Approaches to a Very Old Problem

by Dr. Tom Welch



Timber rattlesnake in the Catskills. Cheryl Miller

One way to guess a person's age is to ask what they were taught in their earliest first aid class about the treatment of snakebite. I hesitatingly show my own age by admitting that I learned to use my Scout knife to make two X-shaped cuts, about one-half-inch deep, in the skin over the bite wound. Then, to use my mouth to directly suck the wounds." Thankfully, I never had to use this technique. Indeed, I actually doubt that anyone did it as described. The muscles, tendons, and ligaments of the extremities (where most bites occur) are extremely tough. Making such incisions would be extremely difficult, not to mention almost unbearably painful. That is even before getting to the "suck the wound" part!

In no particular sequence, first aiders had also been taught to apply tourniquets, use a commercial suction device, apply cold compresses, splint, and wrap the areas tightly with an elastic wrap. Most of these approaches have also been abandoned or modified as we have learned more about these troublesome wounds.

In the U.S., snakebites are a rather minor problem, as wilderness injuries

go. There are only about five reported fatalities in our country yearly; there have been none in New York in decades. Globally, however, snakebites are a very serious matter. Firm data are virtually impossible, since the regions most affected are also impacted by severe poverty and lack of access to medical resources. There are likely over a hundred thousand

deaths worldwide from snakebite, a large number of them children.

This column will focus exclusively on venomous snakebites in the U.S. With one exception (coral snakes in western states), virtually all of these are caused by snakes of the pit viper subfamily (rattlesnakes, regularly found in the eastern Adirondacks and Catskills, cottonmouths, and copperheads). The first aid for other species of snakes is more complicated and beyond our scope.

The first step in snakebite first aid is avoiding another bite. Snakes rarely stick around after biting a human, but take a very careful look about the area to be sure that the animal, or its kin, are no longer a threat. It is often recommended to snap a photo of the animal for definitive identification; this is reasonable if it can be done safely. Also, it is crucial to recognize that there is absolutely nothing one can do in the field that will improve the final outcome of a venomous snakebite. Prompt evacuation for definitive care is paramount.

Unlike venom from the more dangerous species of Asia and Africa, pit viper venom is principally active lo-

cally, in the region of the bite. More generalized symptoms may occur, but these are uncommon and relatively easy to treat in an experienced center. The venom contains dozens of chemicals, which cause severe damage to tissues. Over a short period of time, wounds tend to swell, redden, and become very painful.

The bite wound itself should be treated as any puncture wound, with gentle soap and water cleansing followed by a sterile dressing. Any constricting items (rings, watches, etc.) should be removed. There is some evidence that splinting the involved extremity may help minimize absorption of the venom, but it is very important that this splint not be tight; compression of the bite may worsen tissue damage. Using a pen, mark the limits of any redness in order to assess progression of injury. Once these measures are undertaken, evacuation by the quickest safe means is essential.

Definitive care of snakebites, including determining which ones require antivenom, is a matter for specialized centers and experts. Fortunately, there are resources, including a national poison control center (800-222-1222), available for twenty-four-hour consultation.

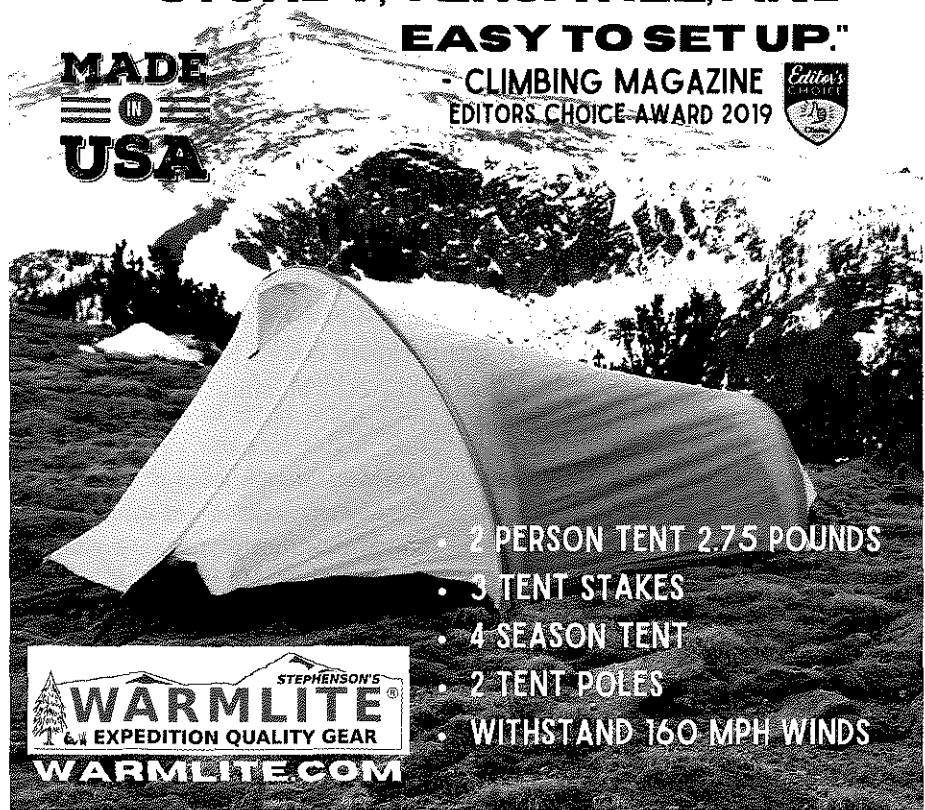
For further information, the Wilderness Medical Society has published guidelines for pit viper envenomation; these are available at [wemjournal.org/article/S1080-6032\(15\)00220-3/pdf](http://wemjournal.org/article/S1080-6032(15)00220-3/pdf). For world travelers, who may come into contact with far more dangerous snakes, the World Health Organization also has guidelines, available at who.int/publications/i/item/9789290225300.

Tom Welch, MD, is a physician at Upstate Medical University in Syracuse and an active member of the Wilderness Medical Society. He is a licensed professional guide, a certifying instructor for the Wilderness Education Association, and has guided groups in the Adirondacks, Montana, and Alaska. More information is available at his website and blog, adirondoc.com. ▲

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