

Society Of Health

1 / 1 0 / 0 8

Shocks for SnakeBites



New medical evidence suggests that the best cure for a snake bite could be as close as your car or boat. By Robert Herzberg, (Outdoor Life, June 1987)

Most of us have been there, from quail hunting in the grass fields of Georgia to bass fishing in the swamps of Louisiana: in snake country, up to our knees in grass or sticking our hands into muck, and not always being able to see where we step or feel.

If bitten, you may be hours away from medical care. You could be

in for a rough time.

Under a revolutionary treatment being studied, help could be as close as the nearest car, tractor or boat. In fact, as close as any engine with spark plugs. It's electric-shock therapy.

The treatment defies scientific explanation, but it is now undergoing extensive laboratory testing in the United States and England; it has become a standard folk remedy in some jungles of South America; a modified version is being used in clinics and hospitals in three countries; and successful treatments have been written about in one of the world's leading medical journals.

The idea originated from a local newspaper report in Illinois about farmer who was hyperallergic to bee stings and found that applying a high-voltage, low-amperage DC shock to the sites of his stings prevented his usual severe reaction.

The scientific disclosure of the therapy for snakebites started with a casual conversation two years ago in a London laboratory between an American missionary-physician and two tropical-disease experts, one English and one American.

The subject turned to venoms, and Dr. Ronald H. Guderian, a missionary-physician based in Ecuador, described his experiments with electric-shock therapy for snakebites, using the bee-sting treatment of the farmer in Illinois.

He explained how he had, with no antivenins available and out of desperation, used a modified electric "stun gun" in clinical treatments, first on poisonous insect bites and then on snakebites. Four or five high-voltage, low-current electric shocks were administered to the bite area, and it seemed to work. He further told how the practice of snakebite victims attaching a wire (which normally carries electricity from the coil of an engine to a spark plug) to the area of the bite has become a standard folk remedy in the jungle.

The type of current used is DC (direct current), produced by alternators and generators that are commonly installed on gas-using engines to produce electricity. Not used is AC (alternating current), commonly used in houses and offices.

The coil of the engine, which produces the electricity for the spark plugs, further modifies DC.

Common AC the kind sold by utility companies for use in the home, can kill you. Using high-voltage, low-amperage DC shocks on bee stings prevent reaction as one thing, but snakebites? This was something else.

Dr. Jeffrey F. Williams, an expert in tropical disease at Michigan State University in East Lansing, Michigan, and Dr. Charles D. MacKenzie of the London School of Hygiene and Tropical Medicine listened in near-disbelief to Dr. Guderian's accounts of what promised to become a revolutionary treatment.

Dr. Guderian was urged to pull together his patient records and to collect evidence for possible publication so that others could learn of the therapy. Upon returning to Ecuador, Dr. Guderian did just that.

So impressed were the two tropical-disease experts that they visited Ecuador; they went to Vozandes Hospital in Quito province and a clinic in Zapallo Grande in the northwestern province. Documented were a number of successful treatments. In 34 cases where there was evidence of venomous bites penetrating the skin of limbs, the current had been applied within about a half-hour of the bite.

None of the usual serious medical complications developed, and none of the patients died. What's more, the pain from the poisonous bites disappeared within 15 minutes.

The patients did not receive the usual antivenin therapy for snakebites.

After an hour, the patient was usually able to go home. At follow-up, there was no necrosis or tissue damage around the bite from either the bite or the treatment.

Two additional patients were treated with electric shock some two hours after being bitten.

They arrived with swollen limbs and in intense pain. Seven electrical treatments were given.

Pain relief was provided within 30 minutes, and 12 hours later the swelling had not progressed and there were no signs of bleeding. After three days, the swelling had almost disappeared, and only one person had a small necrotic area around the bite site.

Seven bite victims who refused the electric-shock therapy suffered complications such as swelling, bleeding, shock and kidney failure. Two needed lifesaving amputations.

Although the biting snake could not be identified in all of the cases, most bites were thought to be from small pit vipers similar to the water moccasin and copperhead in North America.

Bites by such snakes tend to cause destruction of tissue in the area surrounding the bite, leading to the loss of a finger or part of a limb if left untreated.

In each case, the therapy consisted of the bitten area (usually a

limb) being electrically grounded as close to the bite as possible and current applied for one or two seconds, in four or five treatments spaced about five to 10 seconds apart.

The three doctors collaborated on a formal report, which was accepted and printed in the July 26, 1986, issue of the medical journal *The Lancet*, published in London.

Support for the electrical treatment has also come from Dr. Lawrence K. Altman, writing in *The New York Times* column 'The Doctor's World,' on August 5, 1986. After interviewing Dr. Williams, he wrote, 'Most astounding was that the jolts of electricity were successful even after serious symptoms had developed.'

Although other physicians say that they consider the treatment experimental until confirming reports are published, doctors in three other countries have used it successfully, according to

the Lancer article.

The technique's greatest potential is in snake-infested areas with limited health care facilities—the kind of places fishermen and big-game hunters like to visit for trophies and among patients allergic to antivenin injections.

In the eastern Amazon jungles of Ecuador, for example, 4 percent of deaths are caused by snakebites; 45 percent of the Waoroni tribe located there have been bitten by a snake, and half of the men have suffered more than one snakebite.

Because the shock treatment can be applied with electricity generated by such simple devices as outboard boat motors and power lawn mowers, reports of the therapy have already brought inquiries from American military officials and oil company executives, who see the potential of including modified stun guns in first aid kits for troops and workers in snake-infested jungles and tropical rain forests.

More research is needed to determine whether the jolts of electricity will work against venoms that damage the central nervous system. Bites from cobras and sea snakes, for example, are nearly always fatal. There is no proven treatment available for venoms that attack the central nervous system.

The electric-shock treatment, once medically confirmed, will have one tremendous advantage over all others: It seems to work on a variety of bites where ordinarily each kind of bite requires a different antivenin.

Beyond the natural role of electricity in governing the rhythm of the heart and nervous activity, doctors have been harnessing electricity to play an increasing role in the practice of medicine. They have long used electrocardiograms and brain-wave tests, called electroencephalograms, to diagnose ailments.

In treatments, doctors have little difficulty accepting that jolts of electricity can be effective in resuscitation efforts and in converting abnormal heart rhythms to normal ones.

Recently, doctors have used lithotriptic machines to provide jolts of electricity to breakup kidney stones, thus avoiding major surgery. Orthopedic surgeons apply electrical currents to help heal some broken bones.

Though enormous potential exists for doctors working in a clinic to make valuable contributions to medicine, most have great difficulty in doing so because they have neither the time nor the training to write up their cases in a scientific manner.

In the case of the snakebite therapy, all three doctors knew that injections of antivenins would prevent death or serious injury in snakebite cases, when (the biting snakes could be identified and when the antivenins were available. 'The problem is that people living in a jungle often get bitten when they are a four-hour canoe ride from where there might be an antivenin.'" explained Dr. Williams.

When Williams saw (he treatment firsthand. he said that he realized "it was a first aid measure that worked better than anything else.'

The biggest mystery is how electric-shock therapy works against snakebites. Does it work on the poison, or does it aid the patient in fighting the poison?

At first, the three doctors thought that the jolts produced severe muscular spasms that restricted blood flow, thus preventing the spread of the venom in the body. But favorable results

among people who had already suffered severe systemic symptoms, including shock, strongly argue against that theory. The amperage given during the treatment also is too low to give a cauterizing effect.

Dr. Williams said that he has reviewed the scientific literature on the chemical makeup of venoms and found that they are very complex, some consisting of up to 10 toxic substances. "It is not a simple toxic effect, and it is hard to understand how something like electricity can have an effect on such a wide range of processes.' he said.

Dr. Williams has collected venom from snakes in Ecuador and carried it back to Michigan. He and other researchers at Michigan State plan to continue research in the laboratory.

They hope to determine the correct dose of electricity, to learn why the jolts work and to find out what currents do when they pass through the body.

The technique, which may now become known as the Guderian method, has been used equally successfully by investigators in the jungles of Ecuador for other types of bites, such as those from ants and black scorpions.

Colleagues in Irian Jaya, Indonesia and Peru have also used this technique with similar results, according to the London medical journal.

Used is a modified 5 x 13-centimeter unit, popularly known as a "stun gun." with a nine-volt battery to deliver a DC pulse of around 25 kilovolts at less than one milliamper. One probe acts as the ground terminal as the other applies the current to the bite.

The current snakebite treatment recommended by the American Red Cross is undergoing review- The personnel at the Red Cross' Washington headquarters are aware of the electric-shock treatment and are following the Michigan State experiments.

The mainstay of treatment of a person bitten by a venomous insect or reptile is to give antivenin as soon as possible.

The Red Cross still recommends the following steps:

- Get the victim medical help as soon as possible.
- Keep the victim's temperature as near normal as possible to prevent shock.
- Identify the poison source, and bring the "dead" snake or other creature, if possible, along with the victim to a medical facility.
- Take care with the poison source because, like the proverbial "unloaded gun," it is still dangerous.
- If possible, phone ahead so that the proper antivenin can be ready.
- Keep the bite area, if possible, below the level of the patient's heart.
- Do not apply ice, as was once recommended.
- Do not try to cut the bitten area and suck out the poison, as was also once recommended.

Moccasin Arizona at 8:07 AM

No comments:

[Post a Comment](#)



Home



[View web version](#)

Powered by [Blogger](#).
