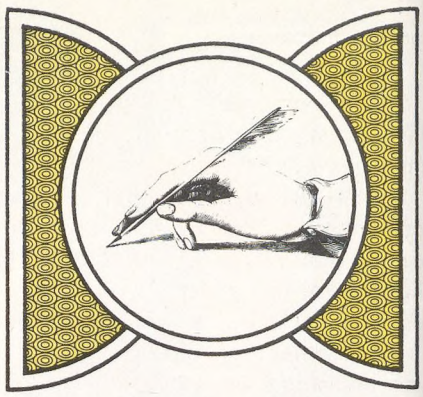
Letters to the Editor



The Journal welcomes Letters to the Editor; if found suitable, they will be published as space allows. Letters should be typed double-spaced, should not exceed 400 words, and are subject to abridgment and other editorial changes in accordance with journal style.

Treatment of Pit Viper Snakebite

To the Editor:

The article by Clement and Pietrusko, "Pit Viper Snakebite in the United States" *(J Fam Pract 6:269, 1978),* though a rather long and scholarly review of the literature, did not clear up much of the "confusion" about the treatment of snakebite nor did it describe what is really confusing about "snakebite."

There should be no confusion about how snakebite should be treated. The venom should be removed:

1. mechanically by suction, surgical excision, and/or thorough irrigation, or
2. by neutralization with specific or polyvalent antivenin, or
3. by a combination of both, and
4. as soon as possible after the bite, within the first six hours.

Other methods of treatment such as cryotherapy, destruction of venom by caustic chemicals ($KMNO_4$), and direct cauterization with heat have no place in the modern treatment of snakebite.

The "confusion of snakebite" is very simple. Within the first one to six hours after a poisonous (pit viper) bite, it is difficult for even the most experienced snakebite expert to determine the amount of venom injected, the depth of venom injection, and the organs into which the venom has been injected.

Simply looking at the skin at the site of the bite does not necessarily give the physician enough information to adequately treat the bite.

It is easy to grade a bite properly after 24 hours, but within the first two to three hours this is extremely difficult. An incorrect guess within the first six hours post-bite results in crippling, amputations, and, occasionally, death.

Contrary to what Dr. Clement says in his article, *I do not* recommend the substitution of cortisone for antivenin. In the first paper I published on the treatment of snakebite in *Texas Medicine,* 1969, I recommended early or *immediate* surgical inspection of the snakebite site, debridement, opening of the fascia, fasciotomy, and debridement of the muscles when indicated. When toxic symptoms (nausea, vomiting, pressure changes) developed, I recommended large intravenous doses of hydrocortisone sodium succinate (Solu-Cortef) to suppress them.

I use antivenin when the bite is potentially lethal, when the patient or the parent of the victim requests it, or when there may be a legal problem if it is not used, and in the occasional case in which defibrination of the plasma occurs.

Continued on next page

Continued from preceding page

In no event do I wait until the vascular supply to an extremity is embarrassed before doing a fasciotomy. I have seen the entire anterior muscle compartment of the leg necrotic with a palpable pulse in the anterior and posterior tibial arteries in the foot.

Dr. Clement mentions the use of vasopressors for shock. I now have in the hospital a 19-year-old patient sent to me after 36 hours of treatment with antivenin and vasopressors. This patient has lost all of the anterior compartment muscles of the right leg, has a ruptured esophagus due to extensive necrosis of the mucosa and submucosa, has acute renal failure and no urine output now for two weeks post-rattlesnake bite. The last two problems are most probably caused by the vasopressors metaraminol bitartrate (Aramine) and levarterenol bitartrate (Levophed).

Most physicians who have treated shock would agree with me that there is no place for vasopressors in the management of these cases.

In the past 24 years I have seen and cared for over 250 snakebites and I have, since 1966, operated over 160 pit viper bites, most of which were by the western diamondback rattlesnake. From this experience, my advice to a physician who is presented with a pit viper bite and who is not completely familiar with antivenin therapy, horse serum reaction, and surgery for these bites is that he/she should obtain consultation with or send the patient to someone who can be termed an expert in the field within the first two to three hours after the bite.

The most dangerous thing that can happen to the victim of a severe rattlesnake bite with massive intramuscular injection of the venom is to fall into the hands of a physician who has treated 10 to 15 minor to moderate bites successfully and who thinks he is an expert in the treatment of snakebite.

At the present time we are taking plasma from rattlesnake bite victims who have had significant envenomation but have received no antivenin. The immune globulins are being removed and given to patients with the defibrination problem. Contrary to what Dr. Clement says, the defibrination of the plasma can be a very serious problem. It occurs in about 15 percent of the rattlesnake bites that I see and is caused by bites inflicted by small snakes on the hand or foot where intramuscular envenomation has not occurred and where little fat necrosis is present. I seldom see defibrination of the plasma in bites which result in muscle necrosis. There is reason to believe that the myoglobins released into the plasma inactivate the fibrinogenolytic enzymes in the snake venom. Defibrination of the plasma is not a reliable indicator of the severity of a bite, but massive subcutaneous hematomas with severe anemia may occur from bites by small rattlesnakes and appear horrendous. Residual problems from this type of reaction are minimal.

It is a shame that so many articles regarding the management of poisonous snakebite are written by individuals or groups who have never had an opportunity to treat firsthand a three-year-old child bitten by a six-foot western or eastern diamondback rattlesnake in which maximum envenomation has occurred and obtain a live child with

Continued on next page

Continued from preceding page

no amputation or crippling as a result.

Thomas G. Glass, Jr, MD, FACS
San Antonio, Texas

The preceding letter was referred to Drs. Clement and Pietrusko who respond as follows:

We would like to offer a reply to several issues raised by Dr. Glass in his recent letter. The article "Pit Viper Snakebite in the United States" is a comprehensive review of the literature primarily intended to apprise the family physician of current medical knowledge on the subject. This is particularly important because the family physician occasionally may be confronted with the initial care of a snakebite victim. Under some circumstances, he may be required to initiate definitive therapy prior to consultation and transfer, as delay might lead to serious consequences. There is not complete agreement among authors on the proper management for snakebite. Consequently, where controversy exists, divergent medical views have been presented to allow for further study by the reader.

Dr. Glass stated that he does not recommend the substitution of cortisone for antivenin. This is perplexing. Previously, he wrote "Eighty-four victims of pit viper envenomation were treated early by debridement, and fasciotomy if indicated, as well as large dosages of intravenously administered hydrocortisone sodium succinate. This method of treatment is safe and beneficial. It can be used as the definitive treatment of a snakebite or as an alternative to other methods."[1] In his series of 140 cases of significant envenomation which were treated with surgery and hydrocortisone, only eight were treated with antivenin.[2] In that article he states, "After 1962, I used the corticosteroids in place of the antivenin," and also, "Antivenin is a life-saving 'drug' that should be reserved for the most serious bites."

The statement, "hypotension or shock can usually be managed with intravenous electrolyte solution, plasma, or plasma expanders, although whole blood and vasopressors may occasionally be indicated" accurately reflects authoritative medical opinion on the subject.[3-7]

As discussed at length, defibrination following snakebite is potentially serious due to the multiple actions of pit viper venom. However, as outlined in discussion of mechanism of action, when defibrination is present as an isolated entity, it is a relatively benign condition in which hemorrhage develops infrequently.[8-11]

John F. Clement, MD
Robert G. Pietrusko, PharmD
Director, Susquehanna Pharmaceutical Profile Center
Williamsport Hospital
Williamsport, Pennsylvania

References

1. Glass TG Jr: Early debridement in pit viper bite. Surg Gynecol Obstet 136:774, 1973
2. Glass TG Jr: Early debridement in pit viper bites. JAMA 235:2513, 1976
3. Minton SA Jr: Snakebite: An unpredictable emergency. J Trauma 11:1053, 1971
4. Russell FE, Carlson RW, Wainschel J, et al: Snake venom poisoning in the United States: Experience with 550 cases. JAMA 233:341, 1975
5. Snyder CC, Pickins JE, Knowles RP, et al: A definitive study of snakebite. J Fla Med Assoc 55:307, 1968
6. Parrish HM, Hayes RH: Hospital management of pit viper venenations. Clin Toxicol 3:501, 1970

Continued on page 26

Continued from page 24

7. Van Mierop LHS: Poisonous snakebite: A review: Symptomatology and treatment. J Fla Med Assoc 63:201, 1976

8. Reid HA, Chan KE, Thean PC: Prolonged coagulation defect (defibrination syndrome) in Malayan viper bite. Lancet 1:621, 1963

9. Reid HA: Defibrination by Agkistrodon rhodostome venom. In Russell FE, Saunders PR (eds): Animal Toxins. New York, Pergamon Press, 1966, pp 323-335

10. Damus PS, Markland FS Jr, Davidson TM, et al: A purified procoagulant enzyme from the venom of the eastern diamondback rattlesnake (Crotalus adamanreus): In vivo and vitro studies. J Lab Clin Med 79:906, 1972

11. Bonilla CA, MacCarter DI: Defibrinating enzyme (defibrizyme) from timber rattlesnake venom: A potential agent for therapeutic defibrination, abstracted. Circulation 48(suppl 4):77, 1973

ly available, agranulocytosis has not been reported. The authors are correct in noting that agranulocytosis has been reported frequently with clozapine. However, clozapine is not a dibenzoxazepine, rather it is a dibenzodiazepine.

May we suggest an erratum message in a future issue in order to correct the record and to report the lack of agranulocytosis with the only commercially available dibenzoxazepine, loxapine.

Frederick P. Funk
Clinical Research Associate
Professional Services
Lederle Laboratories
American Cyanamid Company
Pearl River, New York

Agranulocytosis and Antipsychotic Drugs

To the Editor:

We read with interest the article in a recent issue of *The Journal of Family Practice (6:993, 1978)* by Charalampous and Keepers entitled "Major Side Effects of Antipsychotic Drugs." In studying their review, one could be misled regarding side effects of loxapine.

The sentence on page 1000, midway down the left column, is misleading due to unfortunate structure. It describes the incidence of agranulocytosis and it reads, "It appears more frequently with aliphatic phenothiazine derivatives and perhaps more with clozapine than with other drugs, but has been reported with all phenothiazines, thioxanthenes, butyrophenones, and dibenzoxazepines." I believe that the "all" in this sentence refers only to phenothiazines, but it could be interpreted to refer to all members of all the drug classes named. In the case of the dibenzoxazepines, of which loxapine is the only member current-

The preceding letter was referred to Dr. Charalampous who responds as follows:

Upon closer scrutiny of the sentence to which Mr. Funk refers, I am inclined to agree that the inclusion of "all" is misleading since up to this point no cases of agranulocytosis have been reported with loxapine.

In view of the fact that this drug has been recently introduced to wider use, one may not be in a position to predict if agranulocytosis may have any connection with loxapine administration. Nevertheless, one needs to be precise and I would accept the modification of the sentence to read something like "though not with the dibenzoxazepine, loxapine."

Many thanks.

K. D. Charalampous, MD
Professor and Chairman
Department of Psychiatry
Texas Tech University
School of Medicine
Lubbock, Texas