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RATTLESNAKE ENVENOMATION IN TUCSON, ARIZONA: 1973-1980

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Medical records of 159 patients admitted with the diagnosis of rattlesnake envenomation to the eight general hospitals in Tucson from 1973 to 1980 were examined. There were 127 males and 32 females who ranged in age from 2 to 81 years. Most bites (91%) occurred in April through October and often in or near the victim's home. The interest in rattlesnakes shown by males resulted in a high incidence (55%) of "illegitimate" finger envenomation in this group. It was estimated that 90% of bites were by either the western diamondback rattlesnake, **Crotalus atrox**, or the Mojave rattlesnake, **C. s. scutulatus**. Wyeth antivenin was administered to 97 (61%) patients and three had fasciotomies. Although coagulation factors were frequently abnormal, significant systemic hemorrhage did not occur in any patient.

Patients were cared for by many different physicians with varying degrees of knowledge and experience in treating **Crotalus** envenomation. Based upon local and systemic signs, the final grade of the bite was considered by this investigator to be moderate or severe in 124 (78%) of patients. Nevertheless, the overall treatment results were satisfactory with the average hospital stay of 3.9 days and the incidence of residual effects, i.e., contracture, digital amputation, and loss of function was low (2.4%). There were no fatalities.

Medical management resulted in less morbidity than when combined with surgical procedures. Although antivenin use was associated with acute serum reactions in 17 patients (two severe), all responded to appropriate therapy.

KEY WORDS
Crotalus; envenomation; treatment

NEUROTOXICITY OF STAPHYLOCOCCAL ALPHA-TOXIN

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Staphylococcal alpha-toxin, an extracellular protein produced by most strains of Staphylococcus aureus, is characterized by its selective hemolysis of red blood cells (rbc) and its lethality for laboratory animals. Several lines of evidence suggest that the nervous system may be the target organ for its lethal activity. We have extended our earlier finding that alpha-toxin selectively disrupts myelin in vagus nerves and now report that central nervous system myelin is also particularly sensitive to alpha-toxin action. Moreover, immunization of rabbits with purified mouse brain myelin induces an antiserum that reacts, in an ELISA test, with both myelin and rabbit rbc ghosts, but not human rbc-ghosts. The former are the only two known tissues with high affinity receptors for alpha-toxin. Since incubation of alpha-toxin with myelin proteolipid, but not myelin basic protein, facilitates the formation of the hexamer form of alpha-toxin, we propose that alpha-toxin disrupts myelin by reacting with the proteolipid(s) which cross-link the external membrane surfaces of the laminar myelin structure. Our data further suggest that a serologically related putative alpha-toxin receptor exists on rabbit-rbc membranes but not on the alpha-toxin resistant human rbc-membranes.

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KEY WORDS
Staphylococcal alpha-toxin; myelin; proteolipid