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A Case of Rattlesnake Poisoning in Iowa With a Description of Early Symptoms

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Abstract. The circumstances surrounding a bite by a swamp rattlesnake on the finger of the author are recorded. The symptoms and the treatment are described, and the possibility that other field workers might be bitten is discussed.

The senior author was bitten by a swamp rattlesnake (massasauga) on April 22, 1960. It seems desirable to record the circumstances, the symptoms, and the treatment, and to consider the possibility that other field workers in the state of Iowa might also be bitten.

The incident occurred while the author was collecting in a prairie marsh three miles east of Nichols, Iowa, in Muscatine County. He sat down to rest on a log, beside which the rattlesnake was coiled. When the writer rested his hand at his side, it apparently touched the snake which struck the forefinger of the right hand above the nail. Only one fang pierced the skin. The snake was identified by sight as an Eastern Massasauga (*Sistrurus catenatus catenatus* Latreill) by its small size (approximately 18 inches), tapering rattles, and spotted appearance. The writer attempted to treat the finger and walked two miles to a farmhouse from where he was taken to a doctor and then to the University Hospitals in Iowa City. After two days of treatment for the effects of the bite and possible infection, he was released.

EARLY SYMPTOMS

The fang of the snake, piercing the relatively tough skin of the forefinger, caused sharp pain. Immediate but very limited bleeding and swelling occurred within 30 seconds. Rapid swelling of the entire finger and two proximal knuckles of the hand was noticeable after about two minutes. Within five minutes, an area of blue discoloration could be seen around the wound.

Because other field workers may experience a bite of this sort without seeing the snake, the symptoms are now described. The effects of the bite differed from the effects of the sting of a bee or hornet as follows: (a) the local effect of the snake bite on the finger was very

¹The author is a recognized herpetologist who has published descriptions of two new species for the checklist of Iowa reptiles.

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rapid; (b) the size of the wound was large enough to cause limited bleeding; (c) a distinct musty odor from the venom was evident. Faintness, nausea, cold sweat, and tremor may accompany the symptoms mentioned above (La Pointe 1953). In this case the author did not experience these symptoms, partly because the amount of venom was limited since only one fang pierced the skin. Also he remained calm, in part because as a herpetologist he knew that there have been no fatalities from this species (Klauber, 1956).

STEPS TAKEN IN THE FIELD

Very soon after being bitten, the author enlarged the small fang wound with his teeth. This was followed by extensive oral suction and the application of a moderately tight tourniquet around the upper arm. The tightness of the tourniquet was tested by finger insertion to insure that venous return had not been entirely blocked. Before starting the two mile walk, a five minute rest was taken. In the course of the two mile walk he took two additional five minute rests.

STEPS TAKEN IN THE HOSPITAL

In the hospital the tissue in the immediate area of the bite was excised. Approximately 15 ml. of fluid containing antivenin were injected in three places: into the open wound, in the region of the knuckle of the hand, and later, in a circle in the upper part of the arm where the first tourniquet had been applied. Tetanus antitoxin also was injected. Immobilization of the arm followed this treatment, coupled with antibiotic injections for a period of two days. Additional antibiotic treatment was administered for a week following the writer's release from the hospital.

MORE DESIRABLE FIRST AID STEPS TO BE TAKEN FOLLOWING AN EXTREMITY RATTLESNAKE BITE

Most rattlesnake bites are received in an extremity, most commonly in the region of the ankle, knee, hand, or arm. The most desirable treatment to be taken in the field in cases where a snake-bite kit is not available is described by Shannon (1957). The first step should be the application of a tourniquet as close to the wound as possible. Care should be taken not to effect complete circulatory occlusion, but rather to impair the flow of subcutaneous lymph from the region of the wound. Incisions into the site of an extremity bite should be rigorously avoided, as should the immersion of the effected limb in extremely cold water. These procedures may increase the possibility of gangrene. Excision of envenomized tissue should be made only by a qualified physician in the case of extremity bites.

All victims of rattlesnake bite should be hospitalized as quickly as possible following infliction.





SPECIES	HABITAT	DISTRIBUTION
TIMBER RATTLESNAKE <i>Crotalus horridus</i> <i>horridus</i>	Wooded rocky bluffs	
MASSASAUGA <i>Sistrurus catenatus</i> <i>catenatus</i>	Prairie marshes Swamps also, dry woodlands	
PRAIRIE RATTLESNAKE <i>Crotalus viridis</i> <i>viridis</i>	Open fields Rocky bluffs	
COPPERHEAD (Northern) <i>Agkistrodon contortrix</i> <i>mokeson</i>	Open fields Rocky wooded hillsides	

Figure 1. The habitat and distribution of poisonous snakes in Iowa (modified from Conant, 1958).

THE POSSIBILITY OF RATTLESNAKE BITE IN IOWA

As far as the authors can determine there has been no other case of poisonous snake bite recorded for Iowa. This is surprising since four poisonous species occur in the state (Figure 1). In one southern area all but one of the species are found. The number of bounties given are an index to abundance: in 1956 the state issued bounties for 224 rattlesnakes (Iowa Conservationist, 1957). Perhaps the absence of bites is because the populations of Iowa poisonous snakes are localized and well-known and are thus avoided by people seeking recreation.

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