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20. METRONIDAZOLE IN SNAKE VENOM POISONING

FINDLAY E. RUSSELL

University of Southern California, School of Medicine, County General Hospital, Los Angeles, California, U.S.A.

The use of metronidazole [1(β-hydroxymethyl)-2-methyl-5-nitroimidazole] in the treatment of 43 patients having 67 indolent, vascular lesions of diverse origins has been noted by Taylor (1). In her series of cases, improvement of the lesions as demonstrated by decreased vasculitis and perivascular infiltration was noted in 42 patients (63 lesions). One of these patients was bitten by an adult prairie rattlesnake, *Crotalus horridus*, and treated initially by the present author. Following hospitalization for the acute stages of the poisoning, the patient was referred to Dr. Taylor for metronidazole therapy. Four additional patients were subsequently treated with this drug following the acute stages of their envenomations. The present report treats of the observations on three of these patients.

Case 1 — A 12-year-old boy was bitten on the right middle finger by a 134 cm Southern Pacific rattlesnake *Crotalus viridis helleri*. The finger was immediately placed in ice and the patient taken to a hospital. He was given one vial of Antivenin (Polyvalent) CROTALIDAE and an intramuscular corticosteroid. The finger was kept in ice for five days. On the sixth day, the ice was discontinued and the patient transferred to a second hospital for possible amputation of the injured finger (Fig. 1). The author was called on consultation.

Under anesthesia, the necrotic areas were surgically debrided. A program of physical therapy was initiated on day seven, and the patient placed on metronidazole, 100 mg four times daily for eight days. Healing appeared to be more rapid than generally expected in such cases and the patient was discharged from the hospital 16 days following the accident. A slight contracture of the finger was subsequently corrected. Figure 2 shows the finger two months following the bite.

Case 2 — A 9-year-old boy was bitten on the left foot in the region of the medial malleolus by a large red diamond rattlesnake *Crotalus ruber ruber*. Longitudinal cuts were made through the fang marks approximately 45 minutes after the bite. Suction was not applied. Because of the child's known sensitivity to horse serum, he was referred to the author for further medical care.

The patient was first seen by the author eight hours following the accident (Fig. 3). In spite of the lapse of time, 2.1 gm of *C. ruber ruber* antivenin, prepared in goats after the method of Criley (2), was injected intravenously over a 30-minute period. Further therapeutic measures, as previously described (3), were carried out. At day three the skin lesions extended to the knee (Fig. 4).

Fig. 1

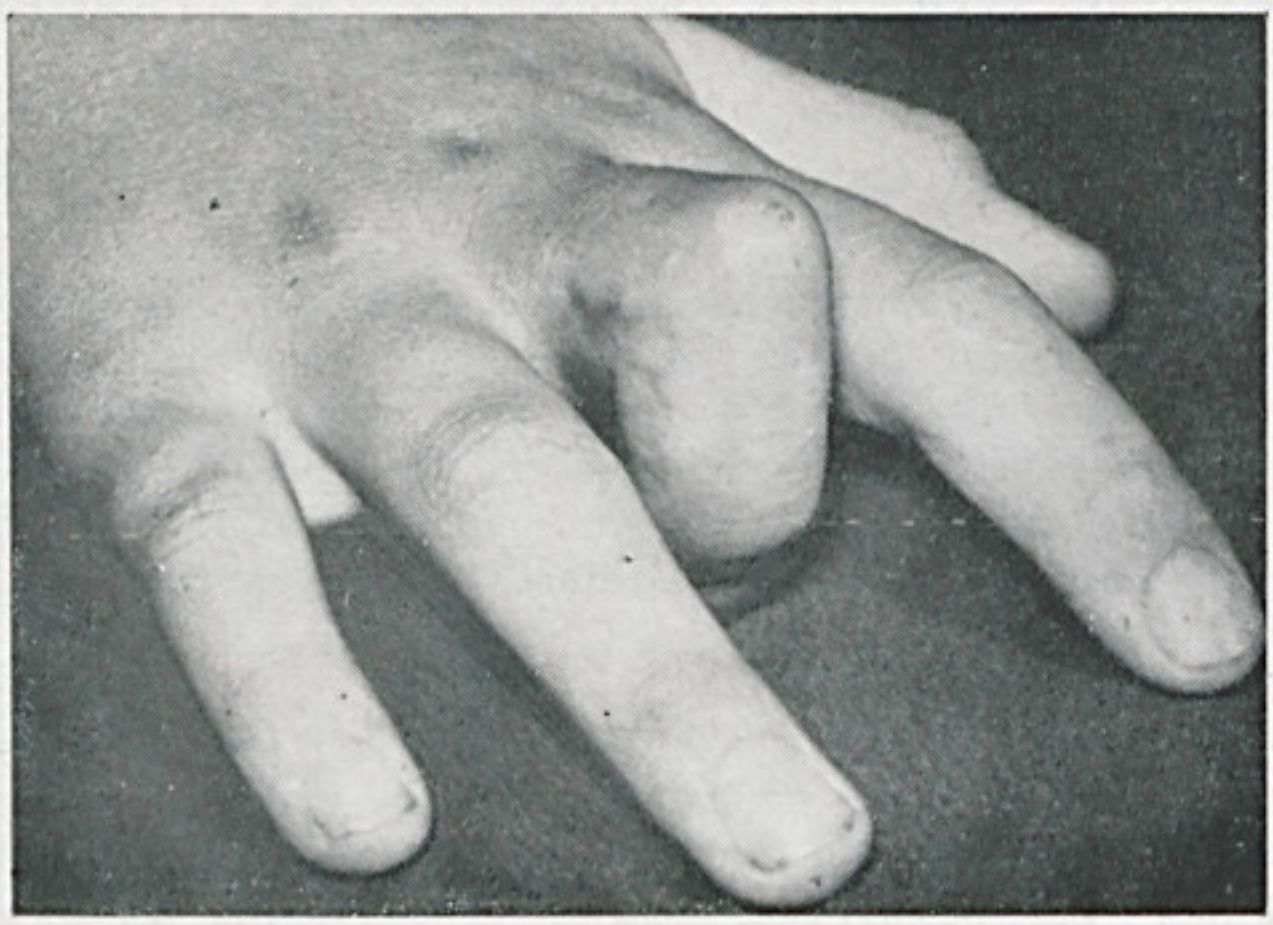

Fig. 2

On day four the hemorrhagic vesicles and necrosis were debrided by surgical excision under anesthesia. On day five physical therapy was initiated, and the patient placed on metronidazole, 125 mg four times daily; this was continued

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Fig. 3

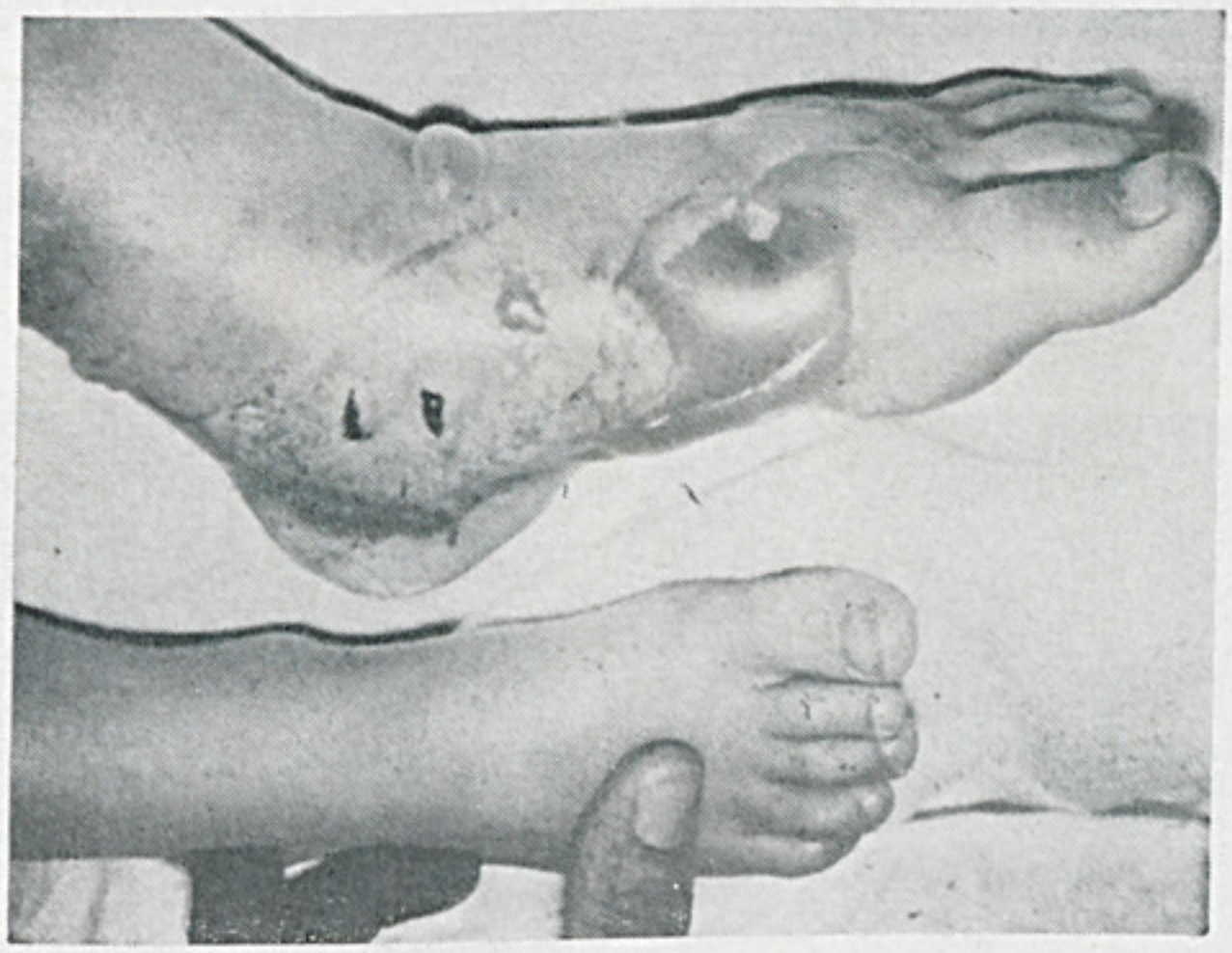

Fig. 4

for one week. The patient was discharged from the hospital 10 days following the accident. There was no residual. Figure 5 shows the foot one month following the bite.

Case 3 — A 44-year-old reptile handler was bitten on the dorsum of the left thumb by an extremely large (170 cm) timber rattlesnake *Crotalus horridus horridus*. It was suspected that one fang pierced a blood vessel as there was excessive bleeding from one of the puncture wounds. The patient was rushed to the hospital, arriving in a cyanotic and comatose state (B.P. 50/0). Emergency measures consisted of fresh whole blood, intravenous antivenin (including poly-

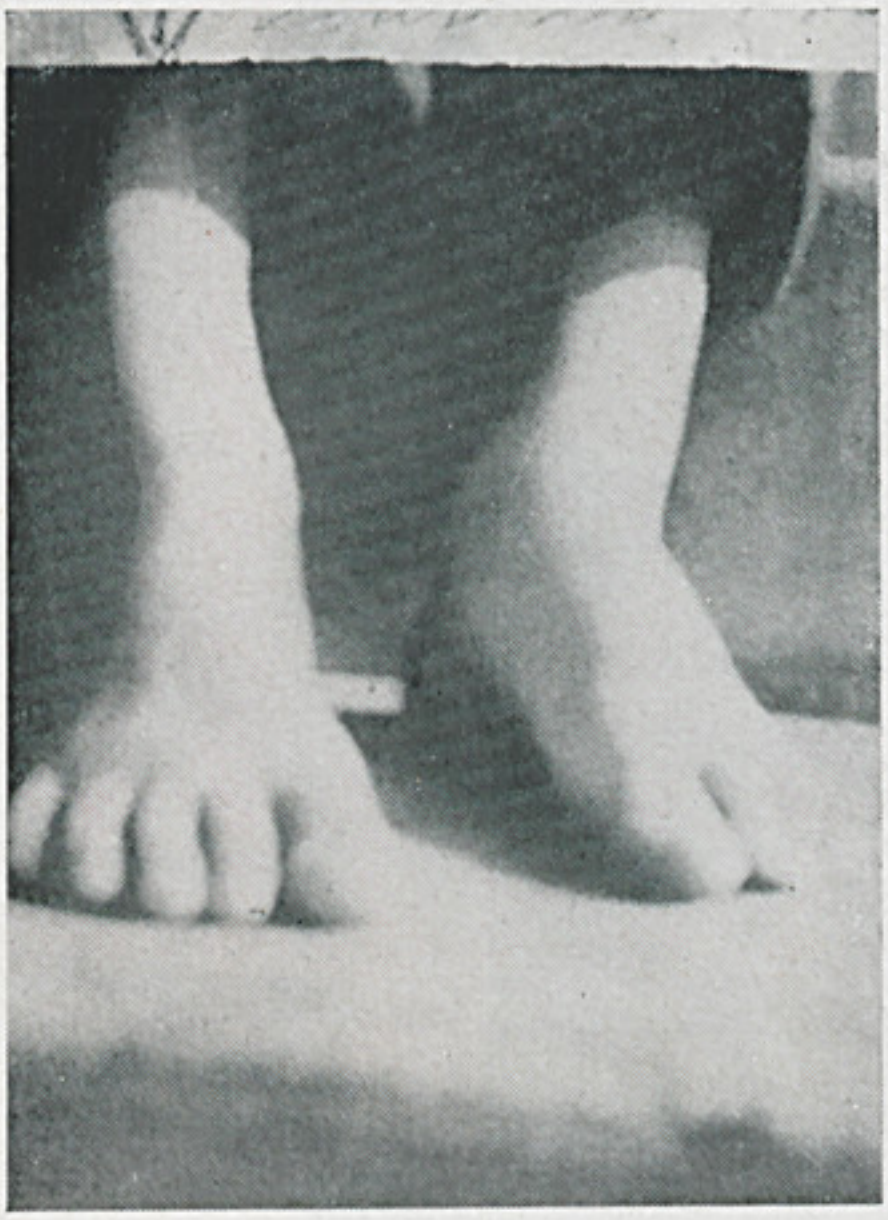

Fig. 5

Fig. 6

Fig. 7

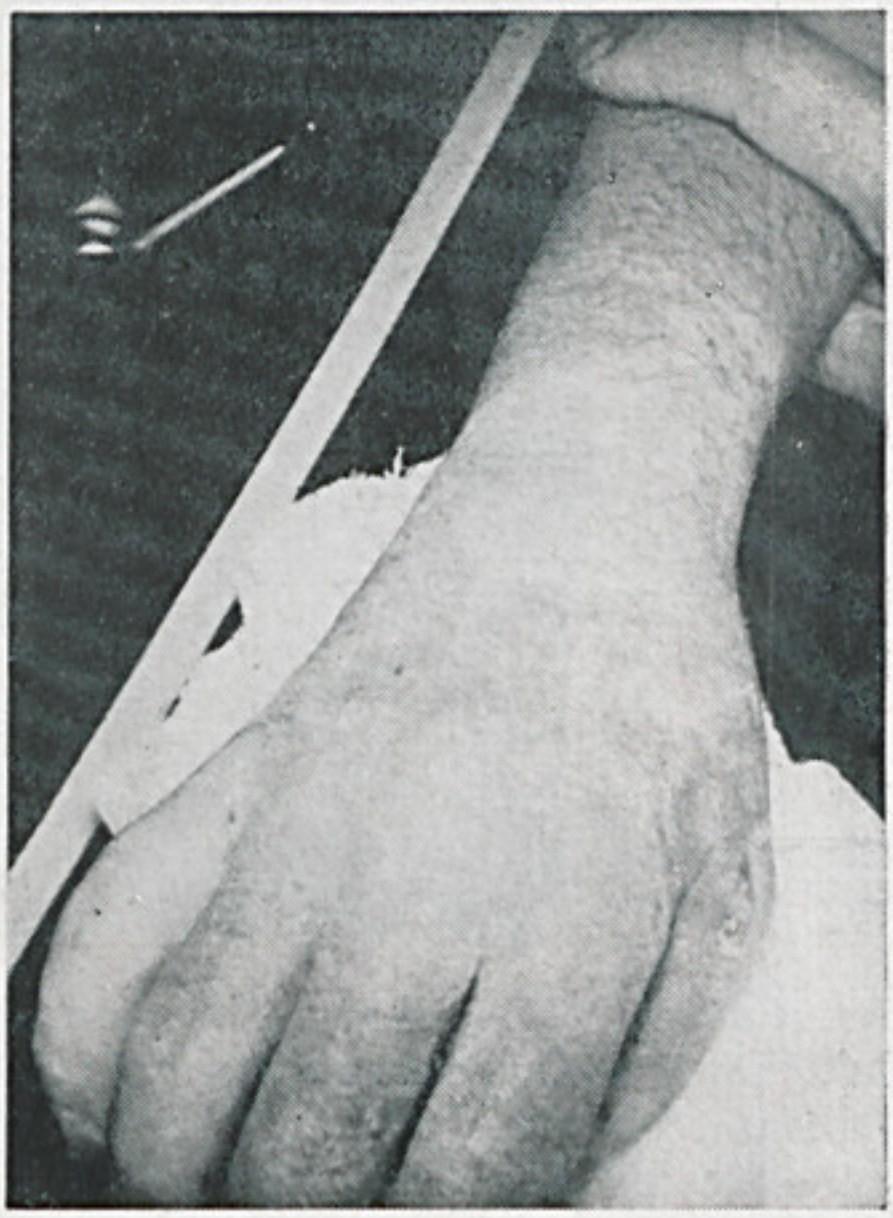

Fig. 8

valent *Crotalus* antivenin prepared in goats), oxygen vasopressor agents, localized infiltration of the wounds with calcium disodium edetate (EDTA) and measures previously described (3). The patient's condition remained critical for four days, during which time he received 10 pints of blood.

Figure 6 shows the left hand and forearm four days following the envenomation. At day seven the vesicles and necrotic areas were surgically debrided under anesthesia (Fig. 7), and physical therapy was instituted. Subsequently, the patient was placed on metronidazole, 250 mg four times daily for two weeks. Healing appeared to be rapid (Fig. 8).

An infection over the base of the first metacarpal phalangeal joint necessitated surgical drainage. The incision exposed the extensor tendons and bone, and a subsequent chronic osteomyelitis of the joint developed. The complication lead to some loss of bone and soft tissues. Orthopedic surgery corrected most of the defect so that the patient now has some use of the thumb.

The lesions produced by the venoms of most of the North American rattlesnakes are troublesome in that they are usually multiple and often times large, and thus particularly susceptible to infection. They are also painful and very slow to heal. The present limited series of cases indicates that the use of metronidazole following the acute stages of the poisoning should be given further clinical trial. The drug appeared to increase healing and perhaps reduce pain over that expected in similar cases of envenomation by rattlesnakes.

There would not seem to be any contraindication for the use of the drug, although administration should be limited to the period following the acute stages of the poisoning, which generally persists for 4 to 6 days following the bite. It should not be used in the presence of serious systemic poisoning.

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