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effect. Bed rest is extremely important, as is salt restriction, mercurial diuretics and digitalis. It is important to note that these latter measures alone are usually of little avail, as was demonstrated in this case. After initial improvement of cardiovascular symptoms the digitalis, salt restriction and mercurials may be discontinued. Of equal importance is the correction of the coexisting vitamin deficiencies, anemia or superimposed infection.

"The response to therapy is dependent upon the severity and duration of the disease. The longer the deficiency state the less reversible are the changes. Relapses are not uncommon, so prolonged after-care and restriction of activity must be stressed. In the acute cases rapid response is characteristic. There may be a decrease in edema in 24 to 48 hours. The decrease in heart size is slower and reaches its maximum in two to three weeks. The electrocardiogram may return to normal in two to four weeks. Relief of the neuritis usually lags behind that of the cardiac status."

**A Technic for Using Suction in Cases of Snake Bite** — GRAYSON, RICHARD R.—*Missouri Medicine*, 50: 763 (October) 1953.

"The commonly accepted emergency therapy for a recent bite by a poisonous snake includes the application of a tourniquet designed to impede venous return from the affected part, incision through the fang marks, application of suction to the wound and administration of polyvalent snake antivenom into the site of injury and by intramuscular injection.

"All of these measures are of importance, but the one which has received the least amount of attention in the literature is the method of applying suction to the wound. A mechanical suction device is present in commercially available snake bite emergency kits, and these are acceptable for use in an urgent situation even though the degree of suction produced may be none too strong. A disadvantage to these inexpensive suction devices is that occasionally the nozzle or adapter does not fit over the wound."

It is the purpose of this article to describe a method of producing mechanical

suction to the wound of a snake bite which has been found to be effective in 4 cases, 3 of which were caused by poisonous snakes.

"After a cruciate incision is made through the puncture wounds, the glass portion of an irrigating syringe is inverted and applied over the wound. The small end of the syringe is attached by means of a rubber tube to a suction pump such as is found in an ear, nose and throat unit. The forceful suction produced by the pump pulls blood and tissue fluid into the barrel of the syringe at a rapid rate. In a few moments, part of the syringe is filled with blood. The syringe then can be removed and the blood released into cotton waste. . . . Practice has been to continue the suction in this manner for 10 minutes and then to repeat it every 15 minutes for 1 hour.

"A note in regard to the incision: apparently the area of the snake bite is usually insensible to pain. Therefore, after brief cleansing of the area, the incision is boldly performed without the use of any analgesic agent."

"Case 1.—A 6 year old boy was rushed to the dispensary . . . after having been bitten on the thigh by a snake. Investigation later indicated that this was probably a rattlesnake. The boy's mother had applied a tourniquet above the wound immediately after the child had been bitten. Examination revealed a child in no acute distress. There was, however, marked edema and redness of a large area surrounding the fang marks on the thigh, even though the injury had occurred just 20 minutes previously. A cruciate incision was quickly performed without pain, suction applied by the method described and polyvalent snake antivenom administered. The child made an uneventful recovery from the effects of snake bite but developed severe serum sickness on the tenth day. This complication responded well to the administration of ACTH.

"Case 2.—A 65 year old farmer was seen in the emergency room of the hospital 45 minutes after having been bitten on the distal phalanx of the little finger of the left hand by a copperhead snake. At that time the entire hand was

edematous and the lateral two fingers were fixed in flexion. The patient was experiencing much pain. The same measures were applied as in the previous case but this time, because of the small area of the finger involved, it was necessary to modify the suction technic. Since the large irrigating syringe would not fit the wound, an inverted 5 cc. syringe attached to the suction pump was used. This worked satisfactorily. Polyvalent snake antivenom was administered and the patient made an uneventful recovery.

"Case 3.—A 13 year old boy was seen in the emergency room of the hospital two hours after having been bitten on the right upper lumbar area of his back by a copperhead snake. An area of swelling about 12 cm. in diameter surrounded the wound and the patient was, in general, in good condition. The usual procedure, except for use of a tourniquet, was followed in treatment. It was observed that the inverted irrigating syringe allowed efficient suction on this area of the body. The patient made a normal recovery.

"Case 4.—A 12 year old girl was seen in the emergency room about one hour after having been bitten on the outer aspect of the ankle by a 'black snake' (a nonpoisonous snake). Fang marks were evident, but no edema, redness or ecchymosis were present. It was noted that the fang marks were much farther apart than in the previously mentioned cases (the fang marks of the copperhead bites were about 1 cm. apart, whereas in this case the puncture wounds were almost 2½ cm. apart). Tourniquet, incisions and suction were utilized, but no antivenom was given. Again, it was found that the method of producing suction as described was an efficient, neat, and practical procedure."

"Auxiliary methods of treatment which were used in these cases, but not related directly to the therapy for the effects of venom of the snake, were tetanus anti-

toxin and penicillin. Secondary suturing of the incision of the finger in case 2 had to be performed a week later. All of these patients were treated as hospital patients for 24 hours after initial treatment."

**New Ideas on the Resistance of Bacteria to Antibiotics**—MAYOUX, R., BERTOYE, A., CARRAZ, M. AND REBATTU, J.-P. — *La presse médicale*, 61: 1398 (October 31) 1953.

The resistance of bacteria to antibiotics is usually studied clinically by using organisms obtained from pus or blood. However, in blood and pus the bacteria are greatly modified and they usually die rapidly. It is more important to know the resistance of organisms contained in the tissues than the resistance of altered bacteria.

Otology offers particularly favorable conditions for observation. The bacteria can be cultured not only from the pus and blood but also from the infected tissues such as fungosities or mastoid osteitis. In the present investigation the organisms were isolated from the pus and tissues.

The examinations were carried out on 20 patients. Pus from the auditory canal and from the mastoid was examined and the results of antibiotics on each sample were noted.

The resistance to penicillin was found to be very stable. In most cases the effect was the same on bacteria obtained from both sources. The resistance to streptomycin was also stable but the organisms from the otitis were generally less sensitive to the antibiotics. In 3 cases there was a difference of sensitivity.

The variations of the resistance to chloramphenicol, aureomycin and terramycin were much more frequent.

This paper is only a preliminary study and calls attention to the fact that there is a variation of the resistance of bacteria according to their source (pus, blood or tissues).