

A close watch should be kept for the onset of collapse in infants at this time, since it may appear with remarkable rapidity. It is suggested that disappearance of the skin lesions to a greater degree than that to be reasonably expected from routine therapy may be a valuable warning sign, and that a rise in the respiratory rate to 60 a minute or over, without evidence of chest or other disease, is a signal for urgent therapy.

Cortisone appears to be a rational therapeutic approach in eczema collapse.

We are grateful to Dr. J. Curry for permission to report on this patient.

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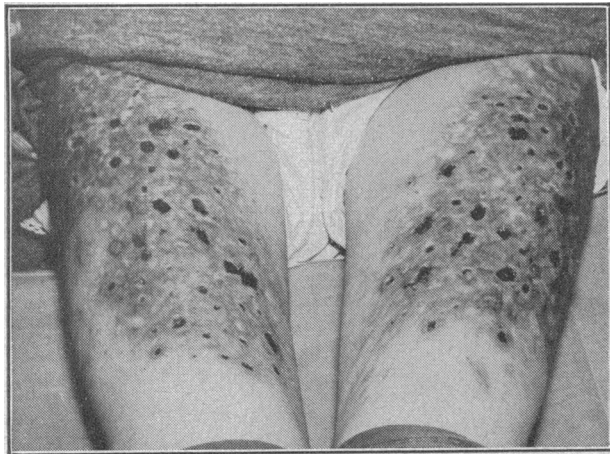
Cutaneous Gangrene following Massive Self-administration of Adrenaline

When it is remembered how frequently treatment with adrenaline is employed it is surprising that so few cases of adrenaline necrosis are reported in the literature. In 1953 Leslie and McPhee described a case occurring in a man of 35 as a result of prolonged and probably excessive self-administration of the drug, and Urbach reported a similar case in a woman of 30 in 1936.

The following case is considered worthy of record because of the very large doses of adrenaline involved.

CASE REPORT

The patient is a spinster of 57 with a history of "mucromembranous colitis" which began in 1921 and for which she has had prolonged periods of rest in bed, although her



motions have never contained blood. There is no family history of asthma or atopic disease, or of any mental trouble. In 1934 she developed a cough, and this has persisted together with periodical attacks of dyspnoea. In 1943 she was treated for nasal polypi. She came under the care of one of us (W. M. M. D.) in 1947, when the clinical picture was one of chronic bronchitis with emphysema. Up to that time bronchospasm had not been a feature of her attacks, but since 1948 she has been increasingly, and at times totally, incapacitated by asthma.

She started the self-administration of adrenaline in 1949 and has continued this since, steadily increasing the frequency and volume of the injections until, in 1951, she was given intramuscular injections of adrenaline in oil on alternate days. These served to control the self-administration to some extent, but she slowly returned to her old habits until now she estimates that she gives herself five injections

in 24 hours. For each attack she may inject anything from 1½ to 11 1-ml. syringe-fuls. She states that the rate of injection is about two minutes per syringe-ful—that is, about 0.5 ml. per minute—though no doubt the amount drawn up in the syringe varies considerably. Attempts to withhold the drug from her have caused such physical and mental upset as to be unjustifiable in our view, notwithstanding the skin complications and the risk attending the absorption of such large quantities of adrenaline. Furthermore, no alternative bronchodilator gives her adequate relief.

Cutaneous ulceration began to develop in 1951. Clinical examination now shows deep, indolent ecthymatous ulcers grouped together on the sites of injection on the left upper arm, anterior abdominal wall, and anterior and lateral aspects of the thighs (see Figure). The ulcers have steep edges and their bases are clean and granulating. On the same areas are scattered black sloughs backed by dusky-blue epidermis and accompanied by marked dermal sclerosis. The patient complains that these lesions are painful, but she is able to walk round her house. Examination of the chest shows signs of chronic bronchitis with bronchospasm. Her blood pressure is 175/85 mm. Hg and her urine contains a trace of albumin.

She has been seen by Dr. S. R. Tattersall, consultant psychiatrist, who considers that the dyspnoea of which she complains or which she anticipates may be either straightforward hysteria or the hysterical prolongation of a genuine illness. He was unable to persuade her to enter hospital for further psychiatric investigation.

Recently we have been able to reduce the amount of adrenaline absorbed by encouraging her to use small quantities of a solution containing 0.4 ml. of adrenaline with 1 mg. of "hyalase" (hyaluronidase) dissolved in 1 ml. of water. Incidentally, it is interesting to note that the same dose of hyalase alone has given relief on one occasion. Adrenaline solution diluted to approximately 1 in 3,000 and labelled "double strength" has been found to give her relief, the doses being, if anything, rather smaller than those of the standard 1 in 1,000 solution.

COMMENT

Delaunay, Delaunay, and Lebrun (1948) have stressed that adrenaline necrosis is produced by the vascular effects of the drug, which they consider may have an allergic basis. Leslie and McPhee concluded that there was probably an allergy to adrenaline in their case. In our own case we consider that the skin changes are produced, not as the result of an allergic response to adrenaline, but by vasospasm evoked by the enormous doses of the drug. Small doses of up to 0.4 ml. of adrenaline have been injected subcutaneously without giving rise to local change. Again, the patient is injecting adrenaline into masses of scar tissue from previous injection damage; thus the disordered state of the injection site may also play a part in producing the ulceration. It is remarkable that such a large amount of adrenaline can be injected without fatal results, unless it is that this fibrous tissue prevents the rapid intravenous absorption of large amounts of the drug.

There is no evidence that the underlying dermis in this case shows the keloidal change described by Robertson (1951).

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