DIABETIC COMA SUCCESSFULLY TREATED BY SALINE TRANSFUSION; NO RELAPSE FOUR WEEKS AFTERWARDS.

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It is the general experience of those who have had to treat diabetic coma by saline transfusion that while consciousness may be restored this is of short duration, for the individual after a few hours lapses back into coma, from which a second saline injection fails to arouse him. In putting the matter thus I believe that I am only stating what has been the experience of most physicians. There have of course been exceptions and I venture to record the following case because the notes relate rather an unusual experience—viz., that at the time of writing the patient has remained perfectly intelligent during the twenty-eight days which have elapsed since the transfusion.

A man, aged thirty years, was on June 25th, 1898, admitted into the Newcastle-upon-Tyne Infirmary under my care suffering from diabetes of fully eight months' duration. Nine months ago he became very thirsty and began to drink large quantities of water. He would frequently drink three large bottlefuls of herb beer at a sitting and his night's rest was broken by his being obliged to get up to assuage his thirst. Eight months ago, as he found himself getting weaker, he gave up work. For the previous eleven weeks he had been very constipated, a condition hardly relieved by aperient medicine. Since his thirst became established he had passed large quantities of urine and he had lost weight to the extent of 4 st. There was nothing of importance in the patient's family history. Beyond having had pleurisy five years ago and two mild attacks of influenza since, he had been a very healthy man, and although he had lost flesh he was still well covered. His skin was dry and lemon-coloured, his tongue was dry and covered with a white fur, and the saliva, which was acid, did not contain any sulphocyanic acid. Upon his thighs there were several brown patches, the remains of pustules which came out a few months before. The knee-jerks were absent, the heart and lungs were healthy, and the skin of the abdomen was at places chocolate-coloured. The liver dulness was normal and the splenic dulness was slightly more pronounced than usual. The patient was placed upon diabetic diet and codeia, and on the whole appeared to make fair progress. On the afternoon of July 12th he left the infirmary in order to go home by rail, a distance of thirteen or fourteen miles, but he was brought back to the infirmary the same evening in a state of coma. He had, it appears, reached the station all right, but there he must have become confused, for a few hours afterwards he was found in a railway carriage at Tynemouth in a state of unconsciousness and on a different line of railway from that by which he should have travelled. Dr. Rowell, the house physician, recognising the patient who had left the infirmary only a few hours previously and finding him comatose, at once transfused him with two and a half pints of saline solution, passing it slowly into the right median basilic vein, and also freely purged him. The saline solution was composed of one drachm of chloride of sodium to one pint of boiled distilled water, the temperature of which was reduced to 112° F. During the operation the patient became sufficiently revived to complain that he felt pain. Before the transfusion his pulse was beating at the rate of 45. By degrees consciousness was regained and has since been retained. For the first three days after the transfusion a very small quantity of urine was passed daily—only 21 oz. instead of from 140 to 200 ounces when he was first in the infirmary. As the patient was known to be suffering from diabetes it was unfortunate that his urine was not examined on his readmission during and immediately after the coma, but the day afterwards it was found to be free from albumin and acetone, although containing sugar. Since then the amount of urine passed has gone up by leaps and bounds until he passed daily 190 oz. On July 15th the skin on the back of his hands was rather more bronzed than usual, the pulse was 52, markedly dicrotic and compressible, the tongue was dry, and the saliva was acid. The pupils were slightly dilated. The

urine on July 15th was acid and its specific gravity was 1025; it contained sugar, but neither albumin nor acetone. On July 18th the patient complained of slight numbness in the right hand, but while there was slight anæsthesia there was no analgesia, although there was quite distinct paresis of the extensor muscles of the wrist compared to those of the left hand. There was very slight wrist-drop.

The case is interesting mainly on account of the length of time consciousness has been retained since the transfusion, which is a cogent reason why in diabetic coma such a line of treatment should be adopted. Not only was the patient rescued from a condition which in all probability would have proved fatal, but he has been so restored that had he been a wealthy man with a will to make or business matters to arrange he would have been able, with his present state of health and clearness of intellect, to accomplish it. I regret that there is no mention on his clinical chart of the quantity and the character of the urine passed in the twenty-four hours for the two days prior to his leaving the infirmary. In most cases I have noticed that before diabetic coma supervenes the patient passes a very small quantity of urine compared to what he had passed previously and that usually this urine contains albumin. Sometimes, indeed, there is almost complete suppression of the secretion of urine. During diabetic coma if a catheter is passed into the bladder perhaps only a few drachms of urine are drawn off, which contains both sugar and albumin. Then for the first time we learn from the nurse that no urine has been passed for the previous twenty-four hours or more. While therefore I do not deny that diabetic coma may be due to acetonæmia caused by the presence of diacetic acid in the blood, I am disposed to regard it rather as the result of a mixed toxæmia in which uræmia plays not an unimportant part. Professor Bedson found albumin, sugar, and acetone in the urine of one of my own patients, but no trace of acetone or its congeners in the blood, which, considering the supposed relationship between acetonæmia and diabetic coma, is rather an interesting fact. I should like, in conclusion, to draw attention to a fact of therapeutical interest, and that is the influence which cocaine often has in overcoming the obstinate constipation of diabetes. Where aperients fail, cocaine in small doses ($\frac{1}{4}$ gr. twice or thrice daily) will not only brace up the muscular system generally and remove the sense of fatigue so frequently present in these patients, but act so decidedly upon the musculature of the intestine that its peristalsis is increased and constipation is overcome.

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THE OCCURRENCE OF ERYTHROMELALGIA IN DISEASE OF THE SPINAL CORD; AN ACCOUNT OF TEN CASES.

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THE association of erythromelalgia with symptoms indicative of lesions of the central nervous system has been so frequently observed that the opinion of recent observers supports the opinion originally put forward by Weir Mitchell¹ in 1878 when he first clearly described the clinical picture of the condition. He said: "I believe the group of cases now described represent an unrecognised type of spinal or cerebro-spinal disease and that they may be found in the future associated with distinct lesions in definite regions." Lewin and Benda,² discussing a series of cases collected from various writers, consider that erythromelalgia was not a disease *sui generis* but generally a symptom of definite disease of the central nervous system or of functional disease. Auerbach and Edinger³ last year published a case of tabes in which erythromelalgia confined to the right foot was a conspicuous symptom. After death degeneration of the posterior roots of the lower lumbar and sacral nerves

¹ S. Weir Mitchell: American Journal of the Medical Sciences, July, 1878.

² Lewin and Benda: Berliner Klinische Wochenschrift, 1894 Band xxxi., pp. 53, 87, 117, and 144.

³ Auerbach and Edinger: Nervenheilkunde, Sept., 1897.