

(*c*) the splendid result obtained by electrolysis until the present ; (*d*) the more durable result of electrolysis in comparison with the galvano-cautery ; (*e*) the apparent power of electrolysis to act not only upon the parts surrounding the needles, but even at a distance, as has been shown in this case, where the enlarged glands of the neck disappeared as the ulcers were cured by electrolysis. This feature of electrolysis had been mentioned many years previously by Groh¹, who observed the disappearance of enlarged glands after destroying an epithelioma of the lower lip.

A CASE OF MYXŒDEMA IN THE ADULT, FOLLOWING BRONCHOCELE IN THE CHILD.

Successfully treated by Hypodermic Injections of Thyroid Juice, and by feeding with Thyroid Glands of the Calf ; with Notes on the Treatment of Obesity and Chlorosis.

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AS so much interest is now attaching to myxœdema, I think it worth while recording the following case, which has lately come under my notice :—

Mrs. B., aged thirty-two ; married at twenty. Two children aged respectively eleven and nine, and an eight months' child born between these two died shortly after birth. No miscarriages.

Past History : As a child the patient suffered from unilateral bronchocele, and was treated for it by tincture of iodine. She first remembers it at the age of five. I have ascertained that it was undoubtedly goitre from which she suffered, and not strumous glands as I thought probable. Moreover, the patient presents no signs of past struma, nor do the children. In 1887 she had a very serious attack of erysipelas, and was ill in bed for one month, and ailing for three months after leaving her bed, but before this experienced very good health.

The patient has been in bad health for the last four years, and during this time has been treated for hysteria by the Weir-Mitchell method, though not satisfactorily carried out. She afterwards went to Biarritz for three weeks, and was on the Continent for three months altogether, and derived therefrom a certain amount of benefit ; but in spite of all treatment her health has gradually become worse, and when she came under my care, early in October, she was suffering from the following signs and symptoms:—

Facial expression typically myxœdematous. Skin very dry, particularly the palms of the hands, where the lines showed an opaque pearly whiteness. Hair falling out. Loss of perspiration. Feet and hands swollen ; this varying at times. Complained of being unable to get warm, and of great languor and want of energy. Speech not affected. Disposition unaltered. Appetite very bad. Constipation very trouble-

¹ Groh, "Die Electrolyse in der Chirurgie." Wien, 1871.

some. Weight, 9 stone $2\frac{1}{2}$ lbs. Examination of blood under microscope showed no alteration as regards the leucocytes, but the red blood corpuscles were pale and ran together in rouleaux. Disturbed sleep. Urine showed no trace of albumen. Loss of memory, not considerable. The catamenia regular throughout, though rather excessive.

Family History.—Her mother had a similar swelling in her throat, but did not suffer from myxœdema. There is no other hereditary tendency, except consumption on her father's side, she having lost three cousins and an aunt from this cause. No history of neuroses.

Treatment.—This was carried out by hypodermic injections between the shoulder blades of twenty minims of thyroid juice, which was prepared for me by Messrs. Brady and Martin, after the formula of Dr. Murray of Newcastle-on-Tyne. It was commenced on October 8th, and the first three injections were given with intervals of three days between each, the next two with only two days intervening, and subsequently every other day for six injections. On November 4th a calf's thyroid, fried and served as a sweetbread, was given for dinner, and repeated every other day for three occasions, with injections on the intervening days. Altogether fifteen injections were given, and three thyroids were eaten in thirty-six days, and during this time the patient was taking a mixture of arsenic and iron three times a day, after meals.

Result.—All the symptoms rapidly improved, and during the treatment the patient lost a little more than a stone in weight (on November 14th, 8 stone $1\frac{3}{4}$ lbs.). Her friends have particularly remarked the alteration in her facial aspect, and say she wears her normal appearance of four years ago. During the last week she has eaten two calves' thyroids and is taking cod liver oil and malt extract, her weight showing an increase of 1 lb. The general improvement is well maintained. My patient had been vaccinated on June 12th last, and as a result of the injection the marks became hyperæmic, very irritable, and finally desquamated.

The temperature never rose above 99.5 F., the morning register before the treatment commenced being 97.8 F.; so that, allowing for the subnormal temperature usually found in myxœdema, the injection undoubtedly produced slight pyrexia.

No alteration in the size of the gland seems to have taken place, but owing to diminution in the amount of subcutaneous fat it is rather more apparent than before.

Remarks.—It is interesting to note the length of time which has intervened approximately twenty-five years) since the first appearance of the bronchocele and the commencement of the symptoms above described, during which time sufficient alteration in the structure of the gland must have taken place, so as ultimately to culminate in myxœdema.

It has been noticed in cases of exophthalmic goitre, that with the appearance of the myxœdematous symptoms the exophthalmos has diminished, as has also the size of the gland, but in the present case there is no alteration in size, so we must assume an alteration in structure.

In what does this alteration consist?

Of course, this I cannot answer, but it is probably due, as has already

been shown in many instances, to the conversion of the gland substance into fibrous tissue.

Undoubtedly this juice acts by promoting tissue change—that is, by increasing metabolism, as is well shown from the good results I have experienced in treating cases of obesity by the thyroid injection.

This shows that the functional duty of the thyroid is not concerned alone with the metabolism of mucin and mucin-forming elements, but also with that of adipose tissue, for it has been demonstrated *post-mortem* that the increase in bulk is accounted for by overgrowth of the subcutaneous fat.

On the theory that the function of the gland is at any rate in part hæmopoietic, I am treating cases of chlorosis, associated with a considerable increase in the subcutaneous fat, by the same method, but at present with no apparently good results so far as the blood condition is concerned, but only as regards the diminution in weight, and this is of questionable benefit; thus showing this function is not exerted directly on the red blood corpuscles.

My experience concerning the treatment is that it is impossible to lay down any law as to the amount to be used at each injection, or as to the frequency of the injections, but, providing they are well tolerated, the best index to be guided by is the diminution in weight, as showing the increased amount of tissue change. In future I shall not be quite so energetic, and should advise a longer and more gradual treatment. I think it most important to spend at least fifteen minutes over each injection, also to conduct them in a thoroughly antiseptic manner; and, to having adopted these precautions, as also to the careful preparation of the juice, I chiefly attribute the fact that no bad symptoms were produced.

My patient only experienced a sensation of faintness, and numbness in the arms, after the first two injections, and at the end of the first week she went about her daily routine of life as usual, and, moreover, since the treatment has not suffered from constipation.

As every gland from which the extract is prepared cannot possibly be equally rich in the ferments, and hence a very important source of danger may creep in, it is most necessary to arrange a test by which every sample of the extract supplied to the profession can be standardized.

A word of warning concerning the supply of the glands from the butcher. It is most necessary to personally ascertain that the thyroid is being eaten, as I discovered my patient was, on changing her butcher, supplied with parotid glands instead.
