Two fingers in contact held up before him, a little towards his right hand, were recognised; but when they were placed only three inches apart, one alone was visible. The four corners of a sheet of note-paper could not be seen at the same time. He could barely read a few letters of No. 18 (Jæger). After applying atropine, I used the ophthalmoscope. The cornea and the lens were perfectly clear, but the vitreous body was slightly cloudy, and I could not see the optic nerve. When the eye was adducted, an abruptly defined black shadow filled the outer portion of the pupillary area, evidently the effect of some large mass behind the lens intercepting the rays of light coming from the fundus. Concentrated direct light brought into view a considerable bulging of the retina at the outer side of the globe, forming a rounded mass, projecting into the vitreous humour to such an extent as to hide the optic nerve. What was the nature of this projection? The length of time—two years—during which sight had been failing, the total absence of pain, and of every trace of inflammation, pointed, I thought, to harmless deposit, or serous effusion beneath the retina, rather than to malignant disease. I begged the patient, however, to see me again in the event of either inflammation or pain setting in.

On the 1st of December he returned, with a striking change in the eye. The globe was hard; the superficial veins were large and distended; and there seemed to be a slight bulging of the sclerotic at its outer part. The cornea was still clear; the pupil dilated and fixed; the lens quite opaque. There was bare perception of strong light. I had now no doubt of the deposit being malignant, and urged immediate operation. The eye was removed on December 9th. From the upper and outer part of the choroid a rounded tumour projected into the vitreous humour, its base reaching to within a quarter of an inch of the optic nerve, while, in front, it extended into the ciliary body, and only just stopped short of the surface of the lens. The retina, much thinned, was continuous over the surface of the tumour. Its tissue was dark brown, and very vascular, and was made up of well-formed narrow spindle-cells, and of other cells, rounded or oval, of various sizes, intermixed with rounded and irregular pigment-masses which gave the brown colour to the tumour. The optic nerve, at its cut surface, seemed slightly pigmented; but this appearance was really due to numerous scattered blood-crystals and not to pigmented cells.

ELECTROLYSIS AND THE GALVANIC CAUTERY.

BY JULIUS ALTHAUS, M.D.

In the JOURNAL for February 10th, 1872, Mr. Callender has published notes of a clinical lecture on some surgical cases in which the continuous electric current was used; and as some confusion of terms occurs repeatedly in that paper, I beg to offer a few remarks on it, with a view to correction. In the first instance, Mr. Callender says that he has used two kinds of operation; viz., a mild current, applied either by means of ordinary charcoal electrodes, or by means of two or more needles—*serres fines*; and secondly, a more powerful current, so as to cause actual burning of the tissues. The first operation is, according to him, that of electrolysis; the second, that of the galvanic cautery. He concludes from his experience that electrolysis is not worth much, but that he will continue to give it a further trial, although he cannot feel sanguine as to the results; while, with regard to the cauterising effects of the continuous current, he admits that we have a powerful and valuable remedy, more especially for the removal of recurrent masses which spring up about the scar-tissue after removal of a cancer, and which, if allowed to increase, necessitate for their removal a considerable operation.

In the successful cases which he relates, Mr. Callender has not used the "galvanic cautery" at all, but only electrolysis. The fundamental difference between the galvanic cautery and electrolysis is, that the former effects our purpose simply by heat, and the latter chiefly, although not exclusively, by chemical action. In using the cautery, we render a platinum-wire incandescent by the calorific action of a few large pairs of Grove's or Bunsen's battery, charged generally with nitric acid, in order to diminish as much as possible the essential resistance of the battery. According to the more or less intense action of such a battery, we may, *ad libitum*, produce red or white heat in the platinum-wire, and the heat thus produced differs in no way from that of the ordinary actual cautery. The galvanic has, however, this advantage over the actual cautery, that the supply of heat from the former is more continuous than from the latter, so that it is preferable for prolonged operations. Moreover, it may be made to act upon deeply seated structures which are inaccessible to the knife or to the actual cautery, because the galvanic cautery may be introduced while cold, and may be put into action when it is in its proper place.

The action of electrolysis, on the other hand, is chiefly chemical, and the effects produced are, in accordance with physical laws, the more thorough and energetic, the larger the number of the plates of the battery which are utilised. This is the reason why Mr. Callender has been more or less unsuccessful with a "mild current" (which he calls "electrolysis"), and successful with a powerful current (which he calls the "galvanic cautery"). The chief result of his experience is, therefore, the same as that of the other observers; viz., that in many forms of tumours a powerful current must be used in order to insure their destruction, and that a mild current produces only slight effects. Dr. Ehrenstein of Dresden has completely removed a fibroid tumour, similar to the one described by Mr. Callender, by somewhat more powerful and prolonged applications.

The needles which are used in electrolytic operations are repeatedly called *serres fines* in Mr. Callender's paper, evidently from a clerical error. The needles are not *serres fines*, but their heads are connected by means of a *serres fines* conductor with the negative conducting wire of the battery. (*Vide my Treatise on Medical Electricity*, p. 541.)

To those who are interested in this subject, I beg to recommend the perusal of a little brochure on Electro-Surgery, by Dr. Hugh Campbell (Alexander, Old Cavendish Street), which has recently been published, and in which considerable evidence in favour of the electrolytic treatment is brought forward.

CLINICAL MEMORANDA.

TREATMENT OF ENURESIS.

CASES of enuresis are, as a rule, very troublesome to deal with; and, therefore, though I have nothing new to recommend, I think it may be worth while to record a very successful case.

Emily B., 6½ years, healthy, and of healthy parents, had from infancy up till November last, been used to wet the bed nightly. All sorts of treatment had been tried in vain. I ordered the lower part of the spine to be sponged nightly before she was put to bed. This has been continued ever since, and she has only once wet the bed. This speaks for itself. I shall continue the treatment for some months longer, and have no doubt a permanent cure will have been effected.

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THERAPEUTIC MEMORANDA.

TREATMENT OF TUMOURS BY THE CONTINUOUS ELECTRIC CURRENT.

In the BRITISH MEDICAL JOURNAL of February 10th, are some interesting clinical notes on this subject by Mr. Callender, which have suggested my recording the following case of recurrent fibroid tumour and the results of the electrolytic treatment.

The patient, a young woman, had two years before I saw her a large tumour occupying the infrascapular portion of the scapula, which was at that time removed in the Belfast General Hospital by Dr. Murney, and found to be recurrent fibroid. Its reappearance commenced above the scapular spine, gradually spreading until a large mass filled the supraclavicular space, pressing and involving all the important structures, and slowly advancing with fatal grasp on the trachea. In order to stay or divert this threatening extension of the tumour, I tried electrolysis. The battery used was Smee's, with six cells. Into the substance of the most accessible portion, and close to the trachea, I introduced two negative and two positive needles. The continuous current was thus applied for a quarter of an hour, sometimes longer, three or four times a week for a month, with the following result. The part of the tumour acted on had certainly paused in its progress, and even diminished in its size, but the surrounding portions had as decidedly assumed a more rapid growth. The treatment was of course discontinued, as it had really done more harm than good, and by acting as a stimulant seemed to hasten the inevitable strangulation, which took place with great suffering two months afterwards.

This was a case in which it was hopeless to expect much benefit to accrue from the action of the continuous electric current; and though it confirms the value of the treatment when only small tumours are to be dealt with, yet it shows that it cannot be used indiscriminately, as its partial application to some large tumours is by no means free from mischief.

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