

Beard (Geo. M.)

A

NEW METHOD

OF

TREATING MALIGNANT TUMORS

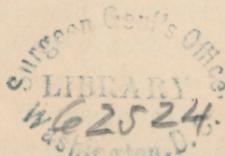
BY

ELECTROLYZING THE BASE.

BY

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A new method of Treating Malignant Tumors by Electrolyzing the Base. By
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During the past three years, I have treated malignant tumors of various kinds by a method of electrolysis, which I have termed *working up the base*, or *electrolysis of the base*.

Ordinary Method of Electrolysis.—In the ordinary method of electrolysis of tumors, the needles, insulated or non-insulated, are plunged directly into the body of the tumor. This method, which was introduced to the profession by Dr. Althaus, of London, is very satisfactory in the treatment of certain benign growths, as erectile and cystic tumors, and goitres, and in many cases its advantages over the knife are very great.

In some of these cases, the results of the ordinary method of electrolysis are not only satisfactory, but really brilliant, and there is no question that the method will become a permanent part of the surgery of the future.

But for *malignant* tumors, this method of electrolysis does not suffice. It will relieve the pain, but relief of pain can be obtained by simple external galvanization without any needles. It will cause a certain reduction in size, but this reduction is almost always limited, rarely exceeding ten or twenty-five per cent. In some cases, not the slightest perceptible reduction is caused, even by the most persevering use of mild electrolysis. The time thus spent on the body of the tumor is wasted time.

Method of Operating.—The patient must first be fully etherized. The method of operating on a *small* tumor is to first insert the needle connected with the positive needle underneath the tumor and near the border. A similar needle connected with the negative pole is inserted also underneath the tumor, and, if possible, at some distance below the base of the growth, so that the point emerges on the opposite side. The current is now gradually let on, and the strength increased until the electrolysis becomes active, as will be indicated by the yellowish form that appears at the negative pole, which becomes gradually loosened. As the action increases, the negative pole may be slowly worked from side to side, with a slight cutting motion, so as to undermine the tumor.

After the tumor falls off, through the thorough undermining of its base, the base itself can be worked up in all directions with the needles, or with a harrow electrode and a roller electrode that I have devised for this purpose.

If the tumor is a large one, as an extensive epithelioma, or scirrhous, it is better to have it first removed by the knife. The base can then be worked up in the manner just described.

The cavity, after the operation, has a charred appearance.

The time required in an operation of this kind ranges between ten minutes and a half or three quarters of an hour.

Little or no pain follows the operation, although the charred appearance of the cavity that has been thoroughly electrolyzed suggests terrible agonies.

Instruments required.—For this method of working up the base, I have devised needles, or electrodes, that are quite different from those employed in the ordinary method of electrolysis. The needles are long, spear-shaped, double-edged, and tolerably sharp, so that a slight cutting action may be combined with the purely electrolytic action.

Theoretical Argument for the Method.—The most recent pathological investigations seem to point pretty clearly to the view that cancer is a local disease, and affects the adjacent parts and the general system by actual transfer of the cancer-cells.*

If we accept these views, we must also accept the view that cancer, whatever constitutional treatment we adopt, should be treated locally, and by some method of local treatment that acts not only on the body of the tumor, but also and especially on the surrounding tissue, and that the earlier such treatment is used, the better the prognosis.

When we remove the tumor and close up the wound, we leave the areola mostly untouched, and shut up the cancer-cells in a soil best of all adapted to nourish them. Hence we need not wonder that the disease recurs either immediately in or near the place of removal, or that the cells wander to some distant part where another tumor appears after months or years.

The morbid or semi-morbid tissues that surround malignant tumors have been treated in various ways by caustics in substance,

* See "A Lecture on the Structure of Cancerous Tumors, and the Mode in which Adjacent Parts are Invaded," by Dr. Woodward, Assistant-Surgeon, U. S. A. The Toner Lectures of the Smithsonian Institute, Washington, November, 1873. See, also, the recent and admirable discussion of the subject by Drs. De Morgan, Hutchison, Paget and others, in the *Lancet* for March and April, 1874.

by caustic needles, and by the actual and galvano-cautery. So far as I can learn from the experience of surgeons who have faithfully tried any one or all of these methods, the results are more satisfactory than the results of ordinary treatment by the knife or ligature.

The theoretical arguments that electrolysis of the base would produce more radical results than the use of caustics, are based necessarily on our ideas of the nature of the electric force and of the process of electrolysis. When electrodes connected with the two poles of a galvanic battery are inserted into the animal tissue, the vibrations of the electric force not only pass between the electrodes, but extend at a considerable distance in all directions from them, and much further than the direct effects of caustic would reach.

Advantages of the Method of Electrolyzing the Base.—1. Less liability to recurrence.

I have kept close watch of a majority of the cases that have been treated in this way during the past three years. In the list of cases are found several epithelioma of the lips and face, and one case of malignant cystic of the neck. But one of the cases of epithelioma of the lips and face has yet recurred; although the time that has elapsed since the treatment varies all the way between three years and four months. The case of malignant cystic has not yet recurred. It is yet too early to arrange any statistics on this subject, for, as every surgeon knows, some cases of epithelioma are permanently cured by the knife, and their prognosis under ordinary surgical treatment is better than that of scirrhus of the breast, or indeed scirrhus anywhere; for, if the experience of the future shall confirm the experience of the past, if a larger induction shall show as satisfactory results in proportion to the cases I have thus far treated, then the question will, in time, be settled beyond dispute.

Some hopeless cases—notably a case of scirrhus of the rectum, and epithelioma of the vagina—I have treated by this method in order to palliate the symptoms and prolong life, and with most interesting and remarkable results. Indeed, I have been as much encouraged by the palliative effects obtained in these hopeless forms of malignant disease as by the apparently radical cures of milder cases.

It follows, from the theoretical considerations above given, and experience confirms this view, that the results of this method of working up the base will depend entirely on the *thoroughness with which the operation is performed*. If the base be but half electro-

lyzed, if patches of morbid tissue be allowed to remain, then there will be a recurrence, in all probability, just as after other modes of operating.

2. Less hæmorrhage than other methods of operating. The reason for this has already been explained—electrolysis coagulates the blood, constricts the tissues, and slightly cauterizes them. Ordinary parenchymatous hæmorrhage is thus controlled in the most satisfactory manner, so that if a strong current is used, neither sponges nor styptics are required.

3. Less liability to shock. I form this judgment from protracted operations made on patients in various stages of debility, and in the extremes of life, infancy and old age. I have not yet seen any effect at all suggestive of shock, after very long sittings under strong currents, even where sensitive localities were operated on. The electric current would indeed appear to be one of the very best *antidotes* to shock, and for a long time it has been known and used as a means of resuscitation.

4. It is followed by a more satisfactory healing than other operations. This fact has been observed markedly in several severe and hopeless cases, and has attracted the attention of all the surgeons who have seen the cases. (In illustration, see the case reported by Dr. Crosby, in the May number of the Archives of Electrology and Neurology, pp. 98–103.)

5. There is reason for the belief that the future will show that septicæmia and pyæmia are less likely to follow electrolysis than other surgical operations. It is more than probable that electrolyzation, like cauterization, constringes the absorbents so that they can not as easily take up pus with the circulation.

6. To all these facts must be added the consideration that many patients dread the knife—without reason it may be, and without common-sense; but patients are not expected to exercise reason or common-sense—and such persons are willing to submit to electricity, however employed.

The advantage of working up the base by electrolysis, as compared with working up the base by caustic, the actual cautery, or the galvano-cautery, are worthy of study. The galvano-cautery may be combined with electrolysis of the base.

The Disadvantages of the Method are these.—1. It requires apparatus more or less bulky, and that require more or less experience in their management.

2. Electrolytic operations frequently require more time than

operations with the knife or ligature, and, in some cases, the operation must be repeated.

If electrolysis produced shock, this element of time might, perhaps, be a serious one ; but, inasmuch as it appears to act as an antidote to shock, and as the stimulus of the current allows us to prolong anæsthesia with safety, and, as in many of the cases where electrolysis is used, treatment by knife or ligature is contra-indicated, this objection need not deter us from resorting to it.

3. The irritative fever that follows powerful and prolonged electrolytic operations is sometimes severe. The parts around the tumor operated on become more or less swollen, but are not usually painful, and this swelling also soon subsides.

At the next meeting of the Society, I will detail cases illustrating the method of electrolyzing the base in various forms of malignant tumors.

