

## 2. THE TREATMENT OF FIBROID TUMOURS OF THE UTERUS BY ELECTRICITY. ✓

By SKENE KEITH, M.B., F.R.C.S. Ed.

GENTLEMEN,—As it now seems to be within the range of possibility that operations for the removal of fibroid tumours of the uterus or for checking their growth and making them of little or no account, may have to be abandoned for a safer means of treatment, you may think that some apology is required for bringing a subject, therefore, belonging entirely to gynæcology before you, more especially as the subjects themselves expect to be safe from the knife of the surgeon, and have already tried what medicine can do for them, without any very gratifying results.

For a number of years we have had amongst us the authority on the treatment of vascular tumours by electricity; and, as far as I am aware, we have been content to take credit from what he has done, without making any effort ourselves to make new use of this great and unknown force. Even when experiments are being made in the treatment of different diseases in different parts of the world, we appear to be anxious to wait and see what others are doing before trying anything for ourselves. This conservatism would be perhaps highly commendable if, when proper precautions were taken, and these have been worked out by Dr Apostoli for all general surgical purposes, there was much danger to life. One certainly prefers that if a death be inevitable some one else should have to do with it than ourselves; but there does not appear to be much risk in the application of electricity to several purely surgical diseases. In this matter we are behind instead of in front of the times. In Glasgow, the treatment of stricture of the urethra by this means is an old story, and enlargements of the prostate have been attacked by the same agent. It has also been used successfully in the treatment of lupus, and moles can be removed from the face without leaving a cicatrix, though this belongs rather to decorative than to legitimate surgery.

I do not ask every one who has a patient suffering from stricture of the urethra to attempt its cure by means of electricity, because in that case there would be many disasters. What is wanted is a series of cases, and in patients whose record can be followed for several years. I do not believe that there is any more danger in applying electricity to a stricture than there is in passing a bougie—a bungler will do perhaps as much harm one way as the other. I would say, give the treatment a fair chance, and then tell us the result. It is astonishing to notice how, in the treatment of fibroid tumours of the uterus, Dr Apostoli's directions have been simply ignored by many in the great anxiety to make something to which to attach one's name. For example, we have improvements on Dr

Stevenson's electrodes by those who are treating cases after what they suppose to be Dr Apostoli's method. We were told in Dublin that it was necessary above all to have a good knowledge of pelvic diagnosis; yet flexible electrodes are advocated because they are more easy of introduction than rigid ones, and can be got into the cavity of the uterus when a rigid one cannot. What is this but an acknowledgment of the want of the first great essential—a knowledge of pelvic diagnosis and manipulation?

The apparatus suitable for the treatment of uterine fibroids is all that is requisite for the treatment of surgical diseases, except, of course, the special electrodes necessary for each disease. It will not probably be necessary to have so powerful a battery, as weaker currents appear to be sufficient for most conditions for which electricity has yet been tried. Taking the maximum body resistance, including that of the pad, screws, wires, etc., at 500 ohms, and the current which is required at 30 milliampères, we find that ten or twelve large Leclomaché cells would prove sufficient. This resistance I have found is far above the average, and in this I am corroborated by Dr Morrice of St Bartholomew's Hospital, who estimates it at from 150 to 300 ohms, and gives an example where it was considerably less than the smaller number.

One disease for which it is to be hoped this treatment will prove effectual is that of enlargement of the prostate, a disease coming on usually at an age when one expects that the hardest part of the life struggle has ended, to dash all hopes of a comfortable old age. It is not pleasant to look forward to the possibility of carrying a catheter in one pocket and a wide-mouthed bottle in the other.

I have wandered off my subject, and shall now briefly narrate the histories of a few of the cases of fibroid tumours of the uterus treated by Dr Keith and myself by electricity, selecting those where there has been a decided decrease in the bulk of the growth, as it is only those which bear on the diseased conditions already mentioned. I can only vouch for the primary results, but there is enough to encourage one to try this treatment in other conditions, and if it does no good it need certainly do no harm.

CASE I.—Miss H., age 47, remembered that she had had a tumour for more than twelve years. The mass was a great burden to her. She suffered from severe bleedings and from retention of urine almost every month. The tumour was large, extending far up beneath the ribs, and must have weighed nearly 30 lb. It filled the whole of the pelvis, and the cervix could not be reached, as there was no room to pass the finger between the pelvic portion and the pubes. The bladder was situated in the abdomen, and the urethra measured rather more than five inches. She had little faith in treatment by electricity, but was willing to have it tried.

On 11th July the tumour was punctured from the vagina by the needle attached to the negative pole, and a current of nearly 200 milliampères passed through it for five minutes. In the middle of August, after the fifth sitting, the patient thought that she could walk more easily, and the finger could be passed up to the cervix. There had been as much trouble as usual at the period. After another sitting the tumour was much more moveable, and was noticed to be distinctly nodular. Menstruation came on after the eighth application without pain or even discomfort, the first time for years. There was less discharge and no bladder trouble. It was not until after the thirteenth sitting that the tumour could be felt free of the ribs, and it was judged that it must have lost 10 or 12 lbs. in weight. The treatment is not yet finished, and has been much prolonged, as the patient has to attend to her shop, and is thus on her feet all day, and it has not been always easy for her to get some one to look after the business in her absence. She leaves her work, has the treatment, and goes back again, and has never been laid up even for an hour. Her waist is not yet an elegant one, but is not now situated about her armpits as it used to be.

CASE II.—Mrs C., age about 36, from Dr Wemyss, Broughty-Ferry, had about two years ago a vomiting of blood at the time when she should have been unwell, and apparently taking its place, and there was no flow from the vagina that month. From that time she has suffered from constant pelvic pains and pains in the left leg, from watery discharge, and from diminished menstrual flow. The uterus was large, lay forwards, and the cavity measured  $4\frac{1}{4}$  inches. Behind and filling almost the whole of the pelvis there was a hard mass, evidently a fibroid. Operation: removal of the ovaries had been agreed to, and would have been performed if electricity had not been tried. The treatment consisted in fourteen negative applications and two negative punctures, and extended over a period of five weeks. The result was that the uterine cavity became reduced to  $3\frac{1}{2}$  inches, the mass, which previously had about filled the pelvis, felt about the size of a somewhat enlarged ovary, and the lady went home free from pain and feeling perfectly well.

CASE III.—Mrs B., age 57, brought by Dr M'Gibbon, had seen Dr Keith thirteen years ago with a fibroid tumour which did not extend as high up as the umbilicus. Although menstruation ceased a number of years ago, the tumour continued to grow until it reached under the ribs on the right side, and was quite immovable. The old lady suffered great discomfort from the size, from great pain in the right side and thigh, and from very great bladder irritation. The tumour was very hard, filled the pelvis, and was protected from puncture, however, by the bladder. The sound

was therefore passed into the cavity and attached to the negative pole. After the fourth sitting, the patient said that she felt as if she had taken a new lease of life, for she had expected that her days would soon have been numbered. After nine sittings, she said that she would be quite content with the improvement which had been gained.

The twenty-third and last application was made on the 20th October, and at that time the tumour was not half the size it had been. Since then the patient got a chill when crossing the Burntisland ferry, and when heard of the tumour had become decidedly swollen, although the bladder trouble had not come back.

CASE IV.—Miss G., age 50, from Dr M'Kercher, Dalbeattie, had been tormented by her tumour for twenty years. She scarcely remembers having a good night's rest, is constantly in pain, and for the last five or six years has spent at least six months out of every twelve in bed. The patient could scarcely walk, and had to be assisted into the room by her servant. Examination of the abdomen had to be made with the greatest care on account of excessive tenderness. The tumour was markedly irregular, extended on the right side up to the level of the umbilicus; on the left it was higher, and there was a mass filling the whole of the left loin. There were 23 applications, of five minutes each, made of from 100 to 200 milliampères. After three sittings, the tumour could be handled freely; after seven, it was decidedly smaller, and she said that she thought she would have been dead if her doctor had not sent her up to town. Five weeks after the commencement of the treatment, she walked fully three miles, and two weeks later went home. From a delicate, miserable creature she had been transformed into a fine, handsome woman. The tumour did not extend more than two inches above the pubes on the right. The mass which had been in the loin did not reach outwards as far as the anterior iliac spine, and was not higher than the umbilicus, and, moreover, the cervix was almost out of reach.

CASE V.—Miss G., age 40, had first had her attention drawn to the presence of her tumour sixteen months ago. At that time she lost a great deal of blood every month, but a long rest in the country had greatly improved her general condition, and she looks fat and well. The tumour was not a large one, extending only up to the umbilicus. The treatment has consisted, as in the previous cases, of negative applications to the interior of the uterus. After five of these she felt that her jacket was loose, and that she could go upstairs without resting and panting. Now, after seventeen sittings, the tumour scarcely reaches to within two inches of the umbilicus, and the patient feels very well.

CASE VI.—Miss W., age 44, from Glasgow, had been told by

Dr Keith four years ago that she had a fibroid tumour. In the interval the growth has increased considerably. She has suffered from profuse menstruation for eight or ten years. The tumour extended to one inch above the umbilicus on both sides, and the cavity measured  $6\frac{1}{2}$  inches. Seven positive applications were made to the interior of the womb, but as menstruation came on more profusely than usual, thirteen negatives have been since made, so as to reduce the size as quickly as possible. The second period has been scarcely so bad as the first. Now there is a marked difference in the size and shape of the tumour. On the right side it has become lobulated, and is as high as the level of the umbilicus; on the left it has almost disappeared, and it is interesting to note that this part of the tumour had grown quite lately.

What has become of those tumours, or how they have partly disappeared, I do not know. At first one somewhat naturally supposed that the softer the tumour was the more quickly it would become reduced in size; but we have found that this is not so, and that it is the hard ones whose bulk is most easily reduced. It remains a fact that they do disappear to a certain extent, and this result is obtained without much risk, without much pain, and without confining any one of them to bed or even to the house.

---

*Dr John Duncan* said the subject which Mr Keith had so practically considered was one which was of considerable interest to him, as for more than twenty-five years he had been working electrically for the cure of various forms of growth. Long ago, when electrolysis was introduced as a treatment for aneurism, he ventured to extend it to a number of other forms of tumour, and, after experimenting, came to the conclusion that it was admirably suited for certain forms of nævus, by far the best form of treatment for cirroid aneurism, and might be extended to other diseases, such as vascular goitres. The further extension of the treatment to which Mr Keith had drawn attention did not, of course, fall under his observation, and on the particular subject of uterine fibroids he could say nothing. Still, as analogous to what he had seen in other instances, it was a matter to him of much interest. The chief point of interest was as to the method whereby the currents of electricity produced those remarkable results to which Mr Keith had drawn their attention. So far as he could make out from Mr Keith's paper and from Apostoli's writings, it appeared not to be essential that the tumour should be punctured. That was a matter of great importance. He had tried the effect of tolerably strong currents passed through various forms of tumour, enlargement of glands, goitres, etc., without breach of surface. He tried with smaller cells certainly, but was disappointed with the effect for discutient purposes. Electric

currents had a most distinct effect on nerves and on muscles, and doubtless also on all mobile elements in the body, but in so far as these effects might be used for the discussion of tumours he was disappointed with them, gave them up, and restricted himself to purely electrolytic effects, which consisted simply in the decomposition of so much tissue, the negative pole corresponding to the action of alkalis, the positive to that of caustic acids. This electrolytic action he also tried on various morbidities, and he had not the slightest doubt that they could cause an innocent tumour to disappear by electrolysis; but it would take a very long time to do so, a number of operations, and would produce as much pain and discomfort as the knife, and that therefore it was better to cut them out. In the case of vascular tumours, on the other hand, by electrolysing extensively and chiefly with the negative pole they could advantageously bring about a discussion of the tumour. That such an operation might be applied to uterine fibroids with advantage he believed to be extremely probable. That it was useful in other forms of tumour there could be no possible doubt, and he believed that if it were easy to pass it into the prostate gland it might be of the use Mr Keith had indicated. It might be used in enlarged tonsils, but cutting was equally effectual, and quicker. As to stricture, the action was purely electrolytic produced by the negative pole, by applying the pole to the upper end of the stricture and forcing it through, causing a destruction of tissue. This was in some respects similar to the alkaline caustic treatment, and *à priori* one would suppose such destruction of tissue to be contrary to sound views of treatment, and that the gradual dilatation by bougies was safer. A more immediate effect was certainly obtained, but the risk and the probability of reproduction he thought was considerable. There was a third method in which the current of electricity might act on these fibroid tumours. This was the application of the electrolytic action as a counter-irritant on the inner surface of the uterus. This he believed to be very unlikely. He could hardly conceive that any electrolytic action on the inner surface of the uterus could have such an effect on the tumour. Therefore in Apostoli's treatment it must be either the neurotic influence causing trophic changes, or the electrolytic and destructive. Mr Keith said the application to the uterine wall was as effective as the introduction of the pole into the tumour. The electrolytic action was, therefore, not the method employed. It must, therefore, be the neurotic, and this was a very remarkable conclusion to come to. It was medical and not surgical electricity, a very strong current acting medically and causing discussion. There was no advantage, then, in producing the little electrolytic action that could be produced by five minutes within the uterus. The object of the operator ought to be to apply the currents without producing any electrolytic action locally. This might be done by broadening the internal electrode.

He had, therefore, a very considerable belief that the distinction Apostoli had been making between the positive and negative pole was not real in the case of these tumours.

*Dr Foulis* asked if faradic or interrupted currents which caused a contraction of muscular fibres, and were useful in cases of post-partum hæmorrhage, had been tried in the treatment of these tumours. Mr Keith said he used the negative insertion in one case to rapidly reduce the size of the tumour. Was the action in that case electrolytic?

*Dr Keith*, in reply, said he was much interested in all that Dr Duncan had said, and agreed with a great deal of it. Naturally, at present he was inclined to accept Apostoli's statements. In one case, where they had used the positive pole on every occasion, the tumour had decreased as satisfactorily as any of the others. Apostoli, he observed, was getting fonder of punctures.

*Dr Duncan*.—Yes, and so adding the electrolytic effect to the purely neurotic.

*Dr Keith* thought the advantage of the treatment as regards urethral stricture was that the results were permanent, and did away with the necessity of passing bougies afterwards.

*Dr Duncan* remarked that Syme, Holt, and others said the same of their special modes of treatment.

*Dr Keith* further said he had treated one case of enlarged thyroid in this way, putting two bits of clay on each side of the neck. They thought the gland was diminished one-half, but it remained to be seen whether the diminution was permanent. Dr Foulis's reference to post-partum hæmorrhage did not hold in the cases of tumours. The results of the faradic current had not been permanent. One case Dr Keith had seen in Paris well illustrated the value of Apostoli's treatment. It was the case of a woman aged 43, who three years before had been treated for a large fibroid with menorrhagia. She had not been touched since she was first under treatment, and was, and had remained, practically well.

### Meeting III.—January 18, 1888.

Dr JOHN SMITH, *President, in the Chair.*

#### I. ELECTION OF NEW MEMBERS.

The following gentlemen were elected Ordinary Members of the Society:—James Lockhart Wilson, M.B., C.M.; William Booth, F.R.C.S.E.