THE
BOSTON MEDICAL AND SURGICAL JOURNAL.

VOL. XC.]

THURSDAY, JANUARY 29, 1874.

[No. 5.

Original Communications.

CASES OF UTERINE FIBROIDS TREATED BY ELECTROLYSIS.

By GILMAN KIMBALL, M.D., Lowell.

OF the very large number of abdominal tumors that have come under my observation during the past twenty years, it is safe to say that, at least, seventy-five or eighty per cent. of them have been clearly diagnosed as fibroid growths connected with the uterus.

In most instances, the subjects of these tumors have sought my advice under the impression that they were suffering from ovarian disease, and that relief was to be obtained only by some surgical operation. Instead, however, of advising any form of treatment that necessarily implied a greater or less risk of life, it has been my usual habit to advise rather that the disease should be allowed to take its own natural course, assuring the patient, at the same time, that her malady was not in itself dangerous; that sometimes, even, it disappeared of its own accord; moreover, that its presence was, in a large proportion of cases, quite consistent with a long and even a tolerably comfortable life.

As regards the treatment of such cases by intra-uterine section, after the manner recommended and practised some years since by Dr. Atlee, of Philadelphia, I am persuaded the procedure is one that cannot be safely adopted, except in a very limited number of cases; such, for example, as where the fibroids are comparatively small and well projected into the uterine cavity. In such instances, this enucleating process may oftentimes be practised with safety and good result. In a majority of instances, however, these fibroid growths are found to be interstitial or sub-peritoneal; under such circumstances, the operation referred to can scarcely prove otherwise than fatal.

The more severe and dangerous operation of extirpating the entire uterus is now almost universally regarded, except in extremely rare instances, as not merely inexpedient, but absolutely unjustifiable. Such operations have generally been the result of erroneous diagnosis; and nineteen twentieths of them, I have every reason to believe, have proved fatal.

Koeberle, of Strasbourg, and Péan, of Paris, have been comparatively successful in this line of surgery, and yet the favorable record.

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of even these eminently skilful surgeons will hardly commend the deliberate extirpation of a fibroid uterus as an ordinarily justifiable procedure.

Of the nine cases of uterine extirpation in my own practice, three only have been followed by recovery. Of these three, two were cases where the operation was performed with a clear recognition of the disease; the third operation was consequent upon an error of diagnosis. Of the six fatal cases, one was wrongly diagnosed; the remaining five occurred in connection with ovariectomy, where the diseased ovary and uterus were found inseparably connected.

Setting aside, then, as inexpedient, and even unjustifiable, the several plans of treatment above referred to, to wit, intra-uterine section and the still more formidable operation of removal of the entire uterus, a still further question remains to be answered. Is there any other form of treatment, local or constitutional, that may be relied on as possessing any remedial efficiency either for arresting the growth or promoting the disappearance of uterine fibroids?

Answering for myself, after a pretty ample experience of a score or more of years, I am bound to say that I can call to mind but a single instance where any plan of purely medical treatment, constitutional or local, has been followed by any obviously favorable result. In one instance, the long-continued use of the iodide of potassium injected into the uterine cavity was followed by a gradual diminution, and final disappearance of a very large fibroid tumor of the uterus. The same remedy, since tried repeatedly, in a similar manner, and under apparently similar circumstances, has, in every instance, entirely failed.

Not content that a disease of so frequent occurrence and of so grave a character should be regarded as absolutely and forever beyond the reach of remedial treatment, and thus be allowed to take its place among the opprobria of the profession, I resolved to make trial of another remedy which, though, at present, of comparatively limited application, is likely, I believe, to prove itself, sooner or later, a therapeutic agent of great value. I allude to electrolysis. For the practical carrying out of this mode of treatment, I am largely indebted to my friend, Dr. Ephraim Cutter, of Woburn.

Diagnosis.—Ordinarily, the characteristics of uterine fibroids are sufficiently marked to allow of little difficulty in determining their true nature. It cannot be denied, however, that cases are now and then met with where even the most skilful and adroit diagnostician may become greatly embarrassed, and even led seriously to doubt whether the disease he is dealing with belongs to the uterus or to some other organ. In this connection, I can, perhaps, do no better than to quote from Prof. Koeberle, of Strasbourg: "The diagnosis of fibrous tumors of the uterus, interstitial and sub-peritoneal especially, oftentimes presents great difficulties, and has given occasion to numerous mistakes. They are particularly liable to be confound-

ed with ovarian tumors. It is in connection with such an error, no doubt, that most of the operations of uterine extirpation have been undertaken.

"Reciprocally, ovarian tumors have sometimes been taken for uterine fibroids, and these latter, again, for normal or extra-uterine pregnancy, dermoid or hydatid cysts, retro-uterine hæmatocele, cancerous tumors, &c. Differential diagnosis, in sharply defined cases, is simple and easy; but, in cases less marked, it is oftentimes extremely difficult, on account of symptoms common to this as well as to other forms of disease."

Without pretending to establish minutely the differential diagnosis of the various forms of disease that are liable to be confounded with uterine fibroids, Prof. Koeberle further remarks that "mistakes may generally be avoided by making a careful estimate of all the elements of diagnosis—the age of the patient, the progress of the disease, the circumstances connected with its first appearance—the form of the tumor, its consistence, the form of the neck of the womb, and the condition of menstruation; also the signs furnished by symptoms, local and subjective, particularly the touch, auscultation, percussion, shock, ballottement, exploration by trocar, uterine sound, &c. It is well not to lose sight of the fact that the different affections above mentioned are liable to complicate each other; that there may exist, simultaneously, both ovarian cyst and uterine fibroids; that the condition of pregnancy is quite possible in either condition; indeed, that it is sometimes absolutely impossible to establish with positive certainty the diagnostic difference between a compact or multilocular tumor of the ovary and a fibroid disease of the uterus.

"The softness and sense of fluctuation, which certain fibrous tumors present, tend, especially, to lead one into a mistake. When their growth has been slow, they are usually of firm consistency, sometimes quite hard. At other times, they are very unequal in this respect, and present several points where fluctuation is more or less evident. This condition is observed particularly where the tumor is soft and flaccid, a state of things which occurs, ordinarily, when the disease has taken on a rapid increase, and attains a large volume. Secondly, when it is very vascular. Thirdly, when it contains liquid collections, formed by mucous cysts, by serous infiltrations, or by deposits of blood or pus."

In the application of electrolysis to the treatment of fibroids of the uterus, I have never thought it essential to know with certainty what particular portion of the organ the disease occupied. My chief concern has been, rather, to be well assured as to the actual *nature* of the disease; also that the fibrous growth was so situated that it could be readily and safely penetrated by the electrodes.

Generally, I have found it most convenient to attack the disease through the abdominal walls. In some instances, however, where

the fibroid growth had projected itself downward so as to involve a portion, or, as it sometimes does, the whole of the neck of the uterus, I have made the attack through the vagina, thrusting one electrode into the tumor in that direction, and the other into the upper part through the abdominal parietes.

As yet, I have seen no ill effects, local or constitutional, following this operation. For some hours after, the patient suffers considerable pain through the pelvic region, also some feverish excitement, as denoted by a quickened pulse, thirst, and increased sensibility in the direction of the tumor. These symptoms, however, are not lasting, and in a day or two the patient declares herself entirely free from suffering of every kind.

The apparatus I have thus far employed was furnished by Dr. Cutter. Its construction is, in some respects, peculiar; but in its use I have found it admirably adapted to the purpose for which it was intended. The trial of it in several of my first cases was chiefly under Dr. Cutter's direction. It consisted of a battery of zinc and carbon plates of about thirteen and a half square feet of surface—simple, yet very effective. The plates were strung on rods of hard rubber, and separated from each other by washers of the same material, the whole tightened by nuts; a handle of hard rubber sprung from the top. The cell was made of sheet lead, covered by a rattan basket. The exciting fluid consisted of a saturated solution of bichromate of potassa, acidulated with sulphuric acid. The conductors were of copper. The electrodes will be described further on.

It seems proper to remark in this connection that a battery of such power as the one just described should be operated with great care, and only by one fully comprehending its proper working.

In regard to the *modus operandi* of electrolysis in bringing about the diminution in size, or the absolute disappearance, of a fibroid growth, I have, as yet, no satisfactory answer to give. It is well understood that these growths are composed of a very loose and feebly organized tissue, and possess but a low degree of vitality; consequently, they tolerate local interference badly. This truth I have seen illustrated in two well-marked cases, where the surgeon, after having begun an operation for the removal of an ovarian cyst, very soon found himself attempting to dislodge a large, fibroid uterus. The operations were not completed in either case, and the patients recovered. Immediately following the recovery, however, the fibroid growths began sensibly to diminish in size, and ultimately they disappeared altogether. So, as regards the disease in question, may not the shock from a powerful galvanic battery, communicated directly to the loose and imperfectly organized tissue of a fibroid, so far interrupt, or interfere with, its nutrition as not only to arrest further development, but eventually to effect its removal altogether?

CASE I.—Having procured, from Dr. D. F. Lincoln, a set of elec-

trolysis needles, prepared under his direction, I selected two of the longest, six inches in length, and about one sixteenth of an inch in diameter, cylindrical, tipped with platinum, and tapered to a point like a common sewing needle. The battery was furnished by Dr. Cutter, and with special reference to the purpose in view. Thus provided with what seemed to be, in all respects, a complete apparatus, I proceeded to make my first trial of it in the case of Mrs. T., of Springfield, Mass. It is proper, first, to state that I had been previously sent for to see this case, in the expectation that I should find an ovarian tumor. I found, instead, however, a large, fibroid tumor of the uterus, of several years' growth, very hard, irregular, filling the pelvic cavity, and rising up into the abdomen to an extent indicating a seven months' pregnancy. Every symptom, local and general, declared, beyond all doubt, the true nature of the disease. There had been frequent hæmorrhages, and, consequently, marked anæmia, and great prostration. The tumor had been rapidly increasing, and the suffering from distention had now become almost unbearable.

Being informed of the true nature of her disease, and that it was not of a character that, in my judgment, properly admitted of any such operation as she had anticipated, the patient was quite ready, and even anxious, to submit to any other form of treatment I might suggest. The plan of electrolysis was then fully explained, and in pursuance of arrangements then made, she soon after came to Lowell, and submitted to the first trial of the battery, the 26th of December, 1871.

No anæsthetic was used. The electrodes were plunged into the most prominent part of the tumor, passing through the abdominal walls on either side of the median line, about six inches apart, and in a downward and inward direction. They entered the tumor with great difficulty, and became so twisted and bent in the effort that the fibrous structure was penetrated not more than three-fourths of an inch.

In this respect, the operation was not at all satisfactory, inasmuch as it was intended that the electrodes should penetrate the tumor to the depth of at least three or four inches. Connections were made between the battery and electrodes, and the unbroken galvanic current maintained continuously for seven minutes. During this time, the pulse changed materially, as regards frequency. At first, it was not disturbed; very soon, it rose to 120, and was not so full as natural. The face became pale and somewhat pinched; a cold sweat covered the forehead; hands and feet, forearms and legs were pale and cold. The patient, all the while, uttered expressions of much suffering. Finding the impression so very profound, we desisted from further continuance of it, lest serious harm might ensue. The connections were broken, and the electrodes withdrawn. The operation was followed by considerable pros-

tration, and a pretty sharp pain through the abdomen. The prostration was met by stimulants, and the pain by subcutaneous injections of morphia, and hot fomentations to the abdomen. The patient gradually rallied from the prostration, and the pain subsided in the course of twenty-four hours. A sense of soreness, through the region of the tumor, continued for several days.

Jan. 1st, 1872, the operation was repeated in the same manner, and with very similar results, as to prostration and local suffering. For the six weeks following this second and last operation, the patient remained under my daily observation. During this period, I noticed no special change as regards the tumor; certainly, no increase in size appeared, a fact of great significance, considering that, for weeks previous to submitting to the first application of galvanism, the growth was rapidly advancing and causing great suffering from distention.

Defective and unsatisfactory as were the experiments in this case, owing to the imperfect construction of the electrodes, the effect upon the general condition of the patient proved, on the whole, very gratifying. Within three weeks from the first trial of the battery, there began to be a manifest improvement in health. Besides the return of appetite and strength, there was a consciousness of an arrest of the growth of the tumor. The moral effect of this last named fact was to remove a depressed state of mind that had hitherto been one of the most important features of the case.

Being satisfied that electrolysis had not been fairly tested in the foregoing case, I determined that, before making further trial of it, I would provide myself with better and differently constructed electrodes. With this view, I applied again to my friend, Dr. Cutter, whose tact and ingenuity I was sure was quite equal to furnishing all that could be desired.

The first electrode he produced was made after the fashion of a common corkscrew. This looked promising enough, but proved, upon trial, to be perfectly worthless. The doctor then produced another instrument, made almost precisely in the form of a surgeon's grooved director, with sharp point and edges, and an ebony handle at the proximal end. Provided with this newly devised instrument, I expected to be able to penetrate the fibroid tissue to any depth I desired, however dense and unyielding it might be. Moreover, from its possessing so much larger surface, I should be likely to get a greatly increased electrolytic action. In both these respects, I have not been disappointed. I can justly recommend the instrument as decidedly superior to any other I have yet seen.

CASE II.—Early last March, Mrs. T., of Hubbardston, a widow lady, 40 years of age, married nine years since, but without children, called upon me to get my opinion and advice in regard to a large tumor in the abdomen. On examination, I found the disease to be a uterine fibroid, very dense, somewhat irregular, almost completely

filling the pelvis and extending upward into the abdomen as far as the umbilicus. The neck of the uterus was also involved, and the disease in this direction had projected itself several inches into the vagina. The general health of the patient had become much impaired, and she was suffering greatly in many ways, but especially from constant dyspnœa, and inability to get any rest, except in a semi-recumbent position, or by sitting upright in a chair. There was more or less peritoneal effusion; also anasarca of the lower limbs. Although the case was unpromising, after explaining its difficulties, and the slight prospect of getting any relief from any form of medical or surgical treatment, I suggested that, *possibly*, some benefit might be gained from galvanism. The proposition was cheerfully accepted, and no time was lost in carrying it into effect.

The first experiment with the battery was made the 26th of March, ult., under the direction of Dr. Cutter. His newly constructed electrodes were then used for the first time. The plan of procedure was precisely the same as that described in the first case, except that, in the present instance, the electrodes were made to penetrate the tumor to the depth of four inches instead of less than a single inch, as before. The current was continued about five minutes. During this time, the local suffering was quite severe, and lasted several hours after the electrodes had been withdrawn. The pulse, meantime, fell from 100 to 60 per minute; the skin became cool, but there was no severe prostration, as in the former case. Considerable reaction followed, but it subsided entirely in the course of twenty-four hours.

The immediate effects of this operation were quite remarkable. During the first twelve hours, the urinary secretion was more than quadrupled in quantity; at first turbid, it soon became clear and light colored. In connection with this change, the dropsical condition began immediately to subside, and in less than a week it had disappeared altogether.

But the most striking effect of the operation was the almost instantaneous and perfect relief from dyspnœa. For the first time in many months, she was now permitted to lie down in bed, and enjoy rest and sleep equal to that of the healthiest period of her life.

As soon as the pain and soreness had fully subsided, the patient was subjected to a second trial of the battery. This time, the tumor was attacked in a different manner. One electrode was thrust into the disease through the abdominal walls, about four inches, and about two inches from where it entered at the previous operation; the other electrode was made to penetrate the tumor per vaginam. In this direction, it entered about three inches. The connections were then made, and the current continued about four minutes.

No specially marked effects followed this operation, save some pain in the direction of the tumor, somewhat severe at first but subsiding in the course of a few hours.

The third and last operation was done about two weeks after the second, but with no special difference as to results.

This patient was under my charge six weeks. During all this time, her general condition was greatly improved. The more special evidence of this fact was seen in the complete and continued relief from a most distressing dyspnoea, and at the same time in the ability to lie down and sleep comfortably in her bed. Her appetite and strength returned in a great degree; the peritoneal effusion and anasarca passed away; and the suffering from abdominal distention became scarcely noticeable. The tumor itself became sensibly diminished in size, at least two and a half inches, as determined by careful measurement with a tape passed round the body over the most prominent portion of the tumor.

Upon my departure for Europe, the 1st of May, the galvanic treatment was discontinued, and the patient returned to her home. Soon after, as I have since been informed, her improved condition, so recently giving promise of a permanent relief (possibly an ultimate cure), began gradually to give way to a return of all her previous bad symptoms. In defiance of medical treatment, her condition soon grew rapidly worse, till, finally, she was relieved by death, about the middle of July, some six weeks from the time I last saw her.

In calculating the merits of electrolysis as a remedial or curative agent, I am not disposed to make more of this case than it really deserves. I can only regret that the treatment which, during the period of six weeks, had produced such marked and satisfactory results, could not have been longer continued. There were complications in the case, and it is not quite certain whether they were incidental to, or independent of, the uterine disease. However this may be, it was, certainly, an important and interesting fact that they were completely relieved for a time, through the influence of galvanic action. As regards what might have been the result of a longer continued application of this same agency, it is, of course, a matter of mere conjecture. But, allowing the case to have been absolutely beyond the reach of cure by any known remedy, the power of galvanism in affording such relief from suffering as shown in this particular instance furnishes sufficient reason for regarding it as something better than a therapeutic agent of a merely fancied value.

CASE III.—About the middle of last April, I was called to see Miss F., of Haverhill, a maiden lady, 34 years of age. I found her suffering from a large uterine fibroid of some two or three years' growth. It was hard, globular, movable. She was very feeble and anæmic from frequent and profuse hæmorrhages. The recent increase in the size of the tumor, together with various symptoms of local and constitutional suffering, suggested the necessity of some speedy and effectual relief.

Seeing no occasion for surgical treatment, I proposed the trial of

electrolysis. The proposition was accepted at once. A few days after, the 22d of April, galvanism was applied, Drs. Cutter and Chase assisting. Chloroform was given, and the electrodes were passed through the parietes of the abdomen on either side, penetrating the tumor about three inches, with ease. The current was continued three minutes, with an effect seemingly less profound than in the previous cases, where no anæsthetic was used. There was no expression of suffering of any kind on coming out from the effect of the chloroform. For the week following, this case presented no new or specially marked symptoms. Evidently, no harm had been done.

On account of my absence, and Dr. Cutter being in a distant part of the country, this patient was not approached again for treatment till the latter part of June. During this time, however, she seems to have made favorable progress; her health, generally, was improved, and the tumor had manifestly diminished somewhat in size.

Assisted by Drs. Cogswell, of Bradford, and Nichols, of Haverhill, Dr. Cutter made the second application of galvanism, the 22d of June. Electrodes were introduced as on the previous occasion, and the current was continued five minutes. The pulse was somewhat quickened; the hands, arms and legs rather cool; but slight prostration followed. Next day, the patient was very comfortable, and made no complaint of suffering of any kind.

August 22d.—Galvanism was again repeated by Dr. Cutter, assisted by Drs. Chase and Nichols. The process was in all respects the same as before. General improvement had gone steadily on up to this time. The tumor also had gradually diminished.

Such was the state of things on my arrival home from Europe, the 1st of September. About the first of October, the patient called on me at Lowell, in order that I might the better judge of her actual condition by personal inquiry and examination. The result of the interview was most gratifying. It appeared that, from the day of the first experiment with the battery up to the present time, there had been a regular improvement in every particular, but more especially in regard to the local malady. The tumor which, only six months before, I had seen occupying a large portion of the pelvic cavity, and extending quite up to the umbilicus, and not less than eight or nine inches in diameter, had now so far disappeared that what remained of it could scarcely be felt. Its final disappearance altogether can now hardly be questioned, and with this event, it is reasonable to calculate, recovery will ultimately be complete in all respects. In this instance, electrolysis has certainly achieved a complete triumph. The means used and the results that followed are too closely related to admit of the question of mere coincidence.

Whatever may come of a further trial of galvanism, whether as applied to uterine fibroids or to any other form of disease, enough has been accomplished in this single instance to show that, as a thera-

peutic agent, it deserves, and must eventually receive, from the profession a far greater consideration and confidence than has yet been bestowed upon it.

CASE IV.—M. C., of Newburyport, a domestic, 24 years of age, never married, a naturally stout, healthy person, first noticed that she was growing unusually large about four years since. She came to consult me, about the middle of October last. Her case was readily diagnosticated as a fibroid uterine tumor, occupying a great portion of the pelvic cavity and extending into the abdomen about three inches above the umbilicus. Her general health was not much disturbed; she was able to go through her daily duties as a domestic without much difficulty. Her chief trouble was a constant pressure against the bladder, causing frequent and painful micturition.

In view of what I had so recently seen accomplished by electrolysis, I proposed a trial of it in this case. In the course of a few days, she came to Lowell for treatment, and, with the assistance of Dr. Cutter, galvanism was applied for the first time, Sept. 22d, Drs. Graves and Fuller being also present.

The electrodes were thrust into the tumor, at two points six inches apart, to the depth of four inches, on either side, as in previous cases, and the galvanic current maintained five minutes. At the commencement of the operation, the pulse was 86; at the close, it had fallen to 54, the patient meantime being under the influence of chloroform. Returning to consciousness, she complained of severe pain through the abdomen. It continued, more or less severe, for several hours, but left her almost entirely in the course of the following day. For nearly a week, pressure upon the tumor gave pain.

The operation was repeated, in the same manner, three times in the course of as many weeks. She then returned to Newburyport, remarking, as she was adjusting her dress, that she "was sure her tumor was smaller, because her clothes seemed so much looser about her."

Upon a return of her menstrual period—which was within a week after leaving my charge—she noticed the discharge was unusually abundant. It continued so long and so profuse that her physician, Dr. Howe, was called in. Under his treatment, the hæmorrhage gradually abated, and, in the course of three weeks, ceased altogether. A few days later, she returned to Lowell, for further trial of electrolysis.

During her absence, there was but slight change in the size of the tumor, especially the upper, or abdominal, portion of it; that it had diminished somewhat in the pelvic direction, seemed evident from the fact that, ever since the completion of the first series of operations, she had been perfectly relieved as to the pressure on the bladder and the almost constant desire for micturition, which had previously been so annoying.

The fifth application of galvanism was made the 20th of Novem-

ber; a day or two afterward, she menstruated naturally, and, on the 27th, a week from the previous operation, galvanism was again repeated. After one more operation, I shall advise a suspension of treatment for several weeks, to be resumed or not, according as circumstances may suggest.

Several cases, in addition to the above, are now under treatment, but, as yet, it is too early to form any just conclusion as to results. In proper time, however, after more extended experience, I hope to be able to furnish such a record as may fully and satisfactorily decide the question whether, in dealing with uterine fibroids, we really have in electrolysis a therapeutic agent of positive and unquestionable value or not.

ANEURISM OF THE EXTERNAL PLANTAR ARTERY.

By J. H. JOHNSON, M.D., Providence, R. I.

W. A. S., aged seven years, residing in this city, came under my treatment October 23d, 1873, for aneurism of the external plantar artery. The foot had been cut, several weeks previously, by stepping upon broken glass, but the wound had healed, leaving an aneurism of the size of an English walnut, and rapidly increasing.

Knowing that ligature of either tibial artery has been of uncertain success, and dreading the shock of an operation upon the very delicate constitution of the child, I proposed to treat the case by compression. I applied a tourniquet, with a pad adapted for compressing the posterior tibial artery, thus checking the flow of blood through the sac. This was applied one hour daily for two weeks. A thin cork pad, covered with charpie saturated in Monsel's styptic, was kept bound upon the sac by strips of adhesive plaster. As the current was not fully controlled, though the size and pulsations of the sac were greatly lessened, a second pad was strapped over the anterior tibial artery, on the dorsum of the foot.

At the beginning of the treatment, small doses of veratrum viride were given to reduce the circulation, the bowels being kept regular by compound cathartic pills. After two weeks, the tourniquet was applied at longer intervals, and the case was discharged, cured, on Dec. 4th, the sac having become perfectly flat and entirely pulseless.

During the whole time, no chloroform was administered, and, excepting the use of a crutch for some days, the treatment interfered but little with the usual activity of the patient.

SIMILARITY IN TWINS.—Dr. J. F. Bird writes that he has invariably found that when twins are contained in the same sac, and are sustained by the same placenta, they have always had a remarkable resemblance to each other; whilst those contained in different sacs, and sustained by different placentæ, are as unlike as children born of the same parents at different periods. His hypothesis is sustained, not only by repeated personal observation, but also by inquiries made of other observers.—*New York Medical Record*, Jan 15, 1874.