EMMET (T. A.)

The Use of Traction and Morcellation in the Removal of Fibroids *versus* Hysterectomy.

BY

THOMAS ADDIS EMMET, M. D.,

NEW YORK.

REPRINTED FROM THE

AMERICAN GYNÆCOLOGICAL AND OBSTETRICAL JOURNAL

FOR JUNE, 1895.

[Reprinted from the AMERICAN GYNÆCOLOGICAL AND OBSTETRICAL JOURNAL for June, 1895.]

THE USE OF TRACTION AND MORCELLATION IN THE REMOVAL OF FIBROIDS *VERSUS* HYSTERECTOMY.*

BY THOMAS ADDIS EMMET, M. D., NEW YORK.

The method to be described for treating fibrous growths of the uterus by traction and morcellation is one yet but little known to the profession, notwithstanding it has been practiced in this country by myself for many years.

While the subject is limited as to a special mode of treatment, it is earnestly hoped that the discussion on it may be so directed as to determine within a reasonable limit the circumstances under which the uterus should be removed. I bring forward the method with the firm belief that, if properly practiced, it will be the means of greatly reducing the number where total extirpation would be resorted to if we could not have the benefit of such a procedure. We are yet in a transition state, when the tendency is always to run into one extreme or the other. But experience has long since taught me that the truth seldom lies in either extreme. Consequently I will no more accept the view that the uterus should be removed, from the fact that a fibroid exists, than I will condemn the operation with the dictum that it should never be performed.

Unfortunately the operation for removal of the uterus is not, under ordinary circumstances, a difficult one of execution ; were it otherwise it would not be so necessary, in attempting to check the abuse, that public opinion of the profession should not only be heard at this stage, but heeded. The abuse is due to the enterprising spirit of different members in the profession seeking for what is thought by them

* Read at the Twentieth Annual Meeting of the American Gynæcological Society, May 28, 1895.

to be progress, but, owing to the extreme views so frequently held, the result is malpractice. In the name of such progress the uterus is being removed for procidentia, for different forms of prolapse of the vaginal walls, and it is but a few weeks since I saw a young woman, then a hopeless invalid, whose condition was caused, during the past winter, by the removal of the uterus, tubes and ovaries, for the reason that she had not been relieved after an attempted operation for laceration of the cervix! Further comment is unnecessary.

Almost every operative procedure in surgery has within a limited space a legitimate place, and when needed it should be performed. If we grant this proposition to be true we must hold that when an operation is performed unnecessarily it is malpractice.

To remove the uterus in consequence of the existence of a fibrous growth, from which the woman may have suffered but little, is not, in my judgment, justifiable. To extirpate the uterus before thoroughly exploring the uterine canal is equally reprehensible. Frequently a secondary growth projecting into the canal is the immediate cause of the loss of blood, and until an effort had been fairly made to aid the advance of the growth for its removal, it is impossible to decide as to what the exigencies of the case might require. And lastly, the most important point of all to determine, after locating a uterine tumor, is in reference to the rapidity of its growth. I exclude the tendency to loss of blood as the least urgent symptom or need for the operation of removal of the uterus, since it is possible, with the proper surroundings, to hold this in check for an indefinite period. It is but reasonable that this delay should take place whenever the slightest prospect of a good result exists. We will not discuss the death-rate after removal of the uterus for a fibrous tumor, as this doubtless can be made more favorable, but we will consider the condition of those who survive as offering the chief objection to the operation under any circumstances but the most urgent. We have reached a stage in the history of this operation where the testimony must be heard of those who have to take charge of the cases after the surgeon has already received full credit for a supposed successful operation. Their testimony would be that too large a proportion of these women remain invalids after the uterus has been removed. This has certainly been my experience in having the patients of other operators under my care, and instances have occurred in my own practice where I had felt the operation was called for, but the result afterward has shaken my confidence. I have indeed seen remarkably good results, but with many I have been in doubt as to the gain in getting rid of one set of symp-

toms by the substitution of others entirely new in character, and which are attended often with even a greater degree of invalidism.

Sometimes as a cause of their suffering we may find among these women a certain proportion with more or less sagging of the roof of the pelvis, while others suffer from prolapse of the bladder, of the urethra, or of the whole vagina. So long as we are thus able to detect any abnormal condition we can at least be encouraged by the hope of being able to offer relief. But unfortunately there remains a number of women, after the uterus has been removed, who continue invalids from some unknown cause, as no special lesion can be detected. Under these circumstances, if the statement be true, and I think no one will charge me with having exaggerated the condition which does frequently exist, we must all ultimately reach the same conclusion. This will be that the operation for removing a uterus containing a fibrous growth should only be resorted to when absolutely necessary, and, I will add as the result of my own observation and personal experience, only to save life. My experience is not a recent one, as the length of time which has passed since my first operation for removing the uterus with a fibrous growth has been probably longer than that of any one within reach of my voice, and I can claim to have had some good results and some very unsatisfactory ones. For years past I have honestly striven to define, if possible, the limit of necessity for this operation, and have consequently been misrepresented as opposing it under all circumstances, which is an absurdity.

At the present time it is in accord with my judgment that the more rapid the growth of a uterine tumor, the more urgent the necessity for total extirpation, and I hold this view without reference to the tendency to hæmorrhage. The rapid growth is either indicative of sarcoma, or of a condition where the tumor seldom becomes pedunculated, as the uterine tissues and those of the tumor are so blended as a rule, that it is impossible to enucleate the mass without great danger of perforating the uterine wall.

Under these circumstances, where an operation has been attempted and could be only partially done, and the patient has been weakened by a great loss of blood, death frequently results from blood poisoning. The necessity may arise for removal of the uterus where the tumor has become so large, or is so situated, that the proper examination can not be made, or the loss of blood controlled. But the danger from an operation is greatly increased with the size, so that a reasonable delay is warranted to ascertain if the limit has not been

reached in its growth, when the loss of blood may become modified. The age of the patient should have some bearing in determining the necessity for removal of the uterus. The existence of a rapidly developing fibrous growth in the uterus of a woman of twenty is a far more serious circumstance than it would be in one at forty years of age, if we are able to exclude the existence of sarcoma.

I have seen it stated by some recent writer, who was an advocate for removing the uterus under almost all circumstances, that a woman suffering from a fibrous growth could have nothing to look forward to after reaching the menopause, and he made the additional assertion that no change ever took place at that time. This is simply a haphazard statement. It is my belief that no one in the profession, at home or abroad, has given more attention than I have to this subject, during the past thirty years. I am justified, on this experience, in making the statement that with a large proportion of cases, who have suffered from fibrous growths of the uterus great changes do occur at the time of the menopause or after that time—in what proportion it is impossible to ascertain, but the numbers are certainly sufficient to anticipate for many some amelioration at that time in their condition. I certainly have seen tumors of fair size disappear at this period of life, others have decreased in size, many have remained stationary for years after, while I can recall but a few instances where the tumor increased rapidly in size after a change of life had taken place. It must also be borne in mind that these growths sometimes disappear as the result of pregnancy, and not infrequently their growth becomes self-limited in consequence of the pressure exerted on their blood-vessels, and these have been known to frequently disappear, or their development to become arrested from the same cause. As these facts are in accord with my experience I can not in justice to my own judgment accept without question the teaching advocated by those who favor an indiscriminate removal of the uterus for fibrous growths. I have stated that this subject has occupied much of my attention during the past thirty years, and I may add it is my honest belief that no one has succeeded in removing a greater number of fibroids from the uterine canal than I have done in the same period. It is from an intimate knowledge as to how much good can be accomplished that I have been induced to present this subject for your consideration and have done so notwithstanding it necessitates frequent reference to my own work. Nothing is more distasteful, but in justice to myself I must do so, as I originated the method I am to treat of and have continuously practiced it for over thirty years. Yet

it is now coming back to us from abroad as an original method, with a foreign indorsement and title of "Treatment by Morcellement."

Velpeau and Amussat were the first to enucleate, or, by force tear these growths from their bed, and Dr. Sims at an early period of his professional life forcibly separated a fibroid with a stout steel instrument and afterward Dr. Thomas introduced the serrated scoop. But by all these means more or less damage was done to the surrounding uterine tissues, and a cavity was left with a roughened surface which sloughed more or less before the space could become obliterated. The procedure I originated is entirely different, and consists in firmly seizing a growth with a large tenaculum or double hook and by traction to excite sufficient uterine contraction to displace the mass, and at the same time by the contraction excited to close up the space which had been occupied. Elsewhere I have stated: "This action may be illustrated by the removal of a body from a mass of India rubber. If the rubber were stationary and sufficient traction was made with a tenaculum, on the body buried in the mass, the process would be similar to that by which a tumor becomes pedunculated. We have substituted force for the action of gravity, and the natural elasticity of the rubber may be likened to the muscular action of the uterus. Now, when the body is drawn out from the mass it brings with it a portion of the rubber in the shape of a pedicle, and no cavity will remain, since the elasticity of the rubber is sufficient to cause it to close in behind, *pari passu* with the advance. And so when traction is made on a tumor, with the effect of exciting sufficient muscular action, the space which was filled by the growth will immediately become obliterated, or at least, there never will remain more than a small and unimportant cavity. Great care is taken to do as little damage as possible to the tumor until it is evident that the uterus is contracting sufficiently to aid in displacing the mass and at the same time to obliterate the cavity."

Unfortunately the case books for the first six years of my service as surgeon in chief of the Woman's Hospital were lost, or rather stolen, some years ago. These six years included much of interest in connection with the development of gynæcological surgery, and this period covered the most active portion in original work during my professional life. In consequence of this loss I can not state positively when I began the method of making traction and of removing these growths piece by piece as the mass was displaced into the canal. But my recollection is very clear in reference to one fact, that it was in such an operation that I made the earliest use of the differ-

ent curved scissors I had devised. I hope I may be excused for the digression, but while I am substantiating my claims I may well place on record in this connection that the profession is indebted to me for the introduction and general use of scissors in surgery. With the use of different curved scissors many operations in plastic surgery were rendered comparatively simple of execution, which would have been almost impossible with the knife. But in no class of operations have these scissors been of more practical service than within the uterine canal for the removal of fibrous growths. My impression is that during the winter of 1861 and 1862 I first employed traction for the purpose of removing fibroids and shortly after used the scissors. However, I will quote from a paper termed "Treatment and Removal of Fibroids from the Uterus by Traction," which was read by me before the Medical Society of the State of New York in February, 1875, and was published in the volume of *Transactions* of the Society for that year.

I shall make an extract at some length from this article and cite several of the cases which are equally as well fitted now for illustrating the subject, as they were when selected for the purpose over twenty years ago.

"It is my belief, as the result of observation, that fibrous tumors become pedunculated only when situated at a point where the force of gravity can be exerted. This force acts as a source of irritation to excite the muscular fibers of the uterus to contraction. I have also noted that the muscular fibers throughout the whole organ do not contract equally.

"But there are many cases where the tumor is not so favorably situated, where the action of gravity can not be exerted, and where uterine contraction, if excited, is lost and inert in displacing the tumor from its bed.

"For the relief of a large number of these cases it has been my practice to excite uterine contraction by making traction on the growth. This action I have continued until the tumor becomes pedunculated from being crowded out of its bed by muscular contraction closing in around and behind the mass. As an illustration of this action we may imagine the removal of a body by traction from a mass of India rubber, where the contractility of the substance would be sufficient to close in behind, as the advance was made, and obliterate the cavity on the withdrawal.

"My attention has been directed to this subject for a number of years, but the development of my views to the present standpoint

has been very gradual. But I can not demonstrate this progress better than to present somewhat in detail several prominent cases, which have stood by the way as so many signposts.

"In 1863 a patient was admitted to the Woman's Hospital with a fibrous tumor, distending the uterus to the size of full term, a portion of which filled the vagina and had already begun to slough. I could form no idea by a digital examination as to its attachments. I applied a pair of forceps, with the view of delivering the mass until I could reach the base, around which I intended to have applied the chain of the écraseur. My efforts, however, were fruitless, as the tumor was too large above to enter the pelvis. Fearing to leave the patient in this condition, I passed, with the aid of Gouch's cannula, a stout twine around the mass, as high up as I could, within the uterine cavity. To the end of the cord I made a slipknot and strangulated the mass to control the hæmorrhage which I anticipated. Steady traction was made on the cord by an assistant, for fear that hæmorrhage would occur should the noose become relaxed. I proceeded to remove the mass, piece by piece, with the aid of a large tenaculum and a pair of properly curved scissors. After I had taken away a large portion, I was surprised that the vagina continued to be occupied by about the same-sized mass as at the beginning. But I was so much occupied with the work immediately before me, that I did not notice the gradual decrease in the size of the uterus until near the close of the operation. As I advanced the cord was cut by accident. There was no bleeding, so I introduced my hand within the vagina and proceeded with the operation by pulling down, with the tenaculum, portion after portion, until the pedicle was reached. I thus removed the whole tumor with scarcely the loss of an ounce of blood after the traction had been commenced. I noted the blanched appearance of the mass remained the same after cutting the cord as the strangulated portion did after the blood which it contained had escaped. It was a matter of the greatest surprise to me, for which I could offer no explanation, that the pedicle for such a mass should not have been larger in diameter than the index finger. Previous to the operation I had supposed the greater portion of the tumor was buried within the uterine tissue. At the termination of the operation the uterine canal was barely five inches in depth. The mass contained a number of cysts of various sizes, and the quantity of fluid which escaped could not be estimated, but the pieces of the tumor weighed together nearly seven pounds. The patient recovered without a bad symptom.

"From this time I have seldom used the écraseur, but have removed with scissors any growth within the uterine canal which I could reach. I have had no fear of hæmorrhage, for this case taught me that it could be controlled in the manner I have described.

"In February, 1867, a patient was admitted to the Woman's Hospital with a large fibrous tumor imbedded in the greater portion of the anterior wall of the uterus. The tumor encroached on the uterine cavity, but only so far as to give a marked curve to the canal, as nearly the whole was interstitial. The case was under the care of Dr. John G. Perry, then one of the assistant surgeons, who, by my advice, continued the use of sponge-tents for some two months or more. After an absence of several weeks she returned to the hospital in consequence of continued pain from uterine contraction. The os was found dilated to some four inches in diameter, with the tumor presenting as a child's head. A broad attachment could now be felt just above the vaginal junction, somewhat less in width than the portion of tumor occupying the canal, while previous to leaving the hospital merely a uniform projection existed. June 3d, I operated by passing well up into the canal a large tenaculum, and by steady traction drew down or rolled out into the vagina a large portion of the mass. I took out with a pair of scissors a large wedge-shaped portion, and as the traction had already excited uterine action, I removed piece after piece, as the tumor could be drawn down, until the uterus had been emptied. When the pedicle was divided it was less than half an inch in diameter, and was formed by the capsule covering that portion of the base of the tumor which was nearest to the uterine outlet at the beginning of the operation. The location of the pedicle at this point, I have noticed, has been without an exception. I have referred to the recorded history of the case, and find that the depth of the uterus was not noted, but my impression is that it was eight inches previous to the operation. The lower portion of the base was felt just within the cervix, and the attachment of the tumor extended from that point to the fundus. The base therefore could not have been less than seven inches in length, with a width of from three to four inches. I purposely commenced the traction as high up as possible, and away from the lower portion of the base. I excited muscular action at the fundus, where it seems always to be greater than in any other part of the organ. As I rolled out the tumor from above, its separation advanced from this point downward as the uterus contracted on the diminishing size of its contents. The portions of this tumor weighed together four pounds and a half.

"A case similar to the first one given was admitted to the hospital in 1869, in the service of Dr. George T. Harrison. The vagina was filled by a portion of the tumor, which had begun to slough, and the patient already presented the symptoms of blood-poisoning. I used a cord for the purpose of making traction in the beginning, but afterward drew down the tumor as I have described, and removed it piecemeal. The pedicle was not larger than the index finger, yet previous to the operation I am certain that fully one third of the tumor was interstitial. This seemed to be the case, at least so far as the opinion could be based on the passage of the sound as an indication of the depth of the uterine canal. This tumor was also filled with cysts and their contents lost, but the portions removed weighed a little over five pounds.

"December 8, 1874, as I was about to commence my clinic at the Woman's Hospital, Dr. Whitwell, the house surgeon, informed me that he had been obliged to substitute a patient just admitted, for operation, whom I had not examined. While she was being etherized I learned that during her last labor, three years previous to admission, her physician had been obliged to remove a large growth from the uterine cavity, which had obstructed the delivery. Menstruation had been free, lasting a week; and for a profuse leucorrhœa, with a constant bearing down and a backache, she had sought relief. The doctor had examined the case and reported the existence of a large mucous polypus projecting from the os uteri. The speculum exposed a soft vascular growth as large as an English walnut, with an attachment to the posterior lip almost as great. There had been double lateral laceration of the cervix, and although this growth was outside of the uterine cavity, it really sprang from a surface which formed a part of the cervical canal before the accident. The appearance of the tumor was unusual and led to further examination. I found the uterus very wide from before backward for its apparent depth, and from the rectum detected a deep depression near the fundus, as if from inversion. But the passage of the sound forward five inches indicated the presence of a fibrous tumor in the posterior wall, extending nearly to the fundus without encroaching on the uterine canal. The growth was very soft, and bled profusely in consequence of the tenaculum tearing out on making the slightest traction. I therefore resorted to my favorite means for the purpose—a cord with a slipknot. The tissue of the pedicle, which had been drawn out, was dense, and I soon discovered that it was inclosed within a sheath having an origin beyond the submucous surface. I divided with the scissors the sheath

around the supposed pedicle, close to the uterine surface, and proceeded to make traction as I separated the tissues with my index finger. I was soon satisfied that it was a portion of the fibrous tumor occupying the posterior wall of the uterus, and having advanced so far I had no alternative but to enucleate the whole tumor. In the course of half an hour I succeeded in drawing out from its capsule a mass some four inches in length, round, and of nearly uniform thickness throughout of an inch and a half in diameter. In the beginning, while making steady traction, I confined myself to separating the tumor from its capsule as it presented itself at the opening. The hæmorrhage was profuse and increased so rapidly when I had withdrawn about half of the tumor that I hastened the operation by introducing my finger and breaking up its attachment in advance. After the mass had been removed I found the cavity was two inches and a half in depth, with the remaining posterior wall of the uterus so thin that I was surprised it had not been ruptured. An equally thin septum existed in front, between the cavity and the uterine canal, which had not been entered. The traction had excited the muscular uterine tissue to action, and the size of the organ had materially lessened; but the posterior wall being so thin, the contractile force seemed lost in that direction. Notwithstanding the depth of the cavity had been shortened an inch and a half, it was my impression its capacity had been but little diminished, since its width was greater than that of the tumor after its removal. A portion of the capsule presented at the opening, which I seized with a tenaculum, and drawing down all which was loose, removed it with the scissors. The patient was now placed on the back, over a bedpan, and the cavity washed out with a quantity of very hot water, by means of a Davidson's syringe. She was afterward replaced on the left side, and Sims' speculum introduced, as at the time of the operation. The cavity was dried by a large sponge probang, and as soon as it was withdrawn two drachms of Churchill's tincture of iodine were injected. By use of the hot water the size of the cavity was greatly reduced and the bleeding diminished, but the iodine contracted it still more, and entirely arrested the hæmorrhage. Some pledgets of cotton saturated with glycerin were introduced into the cavity, now about an inch and a half in depth, and the vagina was moderately tamponed with cotton dampened with a solution of alum. On the second day after the operation all dressings were removed and the cavity carefully syringed out with warm water, to which had been added some carbolic acid. This treatment was continued from day to day without a bad symp-

tom presenting, and the cavity rapidly decreased in size. December 19th, eleven days after the operation, the temperature suddenly rose to 103°, and symptoms of blood-poisoning were detected. A speculum examination was made, and a sloughing mass exposed, which at first glance appeared to be the posterior lip. I found that it was a portion of the capsule protruding, behind which a cyst had formed, containing about two ounces of a thick gelatinous fluid. After puncturing the cyst I removed the remains of the capsule by means of scissors and by tearing it away with a strong forceps. There was some bleeding, but the quantity was not excessive. Curiosity prompted me to pass my finger to the bottom of the cavity, when I detected another fibroid, a little smaller than a pigeon's egg, just projecting sufficiently to map out its size. This I seized with a strong tenaculum, and as traction was made by Dr. Whitwell I cut it out from its bed with a pair of curved scissors. The uterus contracted promptly on its removal, and it was beyond question due to the presence and position of this little fibroid that the cavity had not been more reduced in size at the time of the first operation. I again injected the iodine, and as it excited the uterus to further contraction the bleeding was entirely arrested. January 7th I found the cavity from which this tumor had been removed now obliterated, and the uterus three inches deep. On the 12th instant she was discharged cured from the hospital."

The histories of other successful cases are to be found in my work on the *Theory and Practice of Gynæcology*, and examples also are given showing the cause of failure and of death in other instances.

I have frequently seen where the removal of a single fibroid from its bed by traction has accomplished a radical cure. But occasionally the removal of such a tumor seems but to make room for others which develop rapidly, and have then to be removed one after the other.

The history of the following patient is of interest in showing how it is possible to hold these growths in check, and that a woman afflicted with them may be carried through a series of years, even to an improvement in her condition, with a very fair prospect of final restoration to health if she be able to resist, as I fear this patient will not, the urgency of some of her friends for extirpation :

Mrs. C. came under my observation for the first time early in 1882, when I saw her in consultation. She was then suffering from an enlargement of the uterus with some pelvic inflammation. I did not see her again until December 30, 1887, when she applied for admission to my private hospital, and the following history was then obtained :

Her age was thirty-two. She had menstruated for the first time at fifteen, was regular from the first, and continued in good health until she had reached nineteen years of age, when menstruation began to be painful. But, according to her statement, she took no care of herself, and committed every excess within her power by overexercise in dancing and horseback riding. After she had reached the age of twenty-one menstruation became very irregular, as well as painful, and she was frequently six months at a time without its appearance. She married at twenty-five and was sterile. For some time previous to marriage she had become again regular, with a flow lasting five days, and her general health was apparently fully established. But the first menstrual flow after marriage was too free, and with it she had constant pain behind the left hip which continued for eight days, accompanied by irritability of the bladder. She became an invalid from the time of this menstrual period. I found her local condition somewhat changed from what it had been five years before. The uterus was still enlarged but rather irregular in shape, and on the anterior wall, close to the junction with the bladder, a subperitoneal fibroid, as large as an almond, projected toward the bladder in the shape of a spur. The uterus had but little mobility in consequence of an extensive pelvic inflammation which existed on both sides and behind the uterus, a condition which had been caused, or had been greatly aggravated, by an ill-fitting pessary which she had worn for over a year without having had it looked to.

Mrs. C. remained an inmate of my private hospital for a year before her condition admitted of dilating the uterine canal with safety, and in that time the uterus had nearly doubled itself in size, notwithstanding the surrounding inflammatory condition had been removed by treatment.

December 12, 1888.—The uterus was dilated with a large sponge tent; this was removed on the following day, and the vagina and uterine canal was washed out with a strong solution of the bichloride of mercury. Then by the use of graduated and large dilators the canal was sufficiently opened to form a diagnosis and for the removal by traction and scissors of two fibrous growths. One of these was as large as a hen's egg, and was almost entirely buried in the posterior wall; the other was situated in the fundus, and was as large as a pigeon's egg. I suspected from the shape of the uterus that another growth was developing in the fundus, but was unable to detect its situation. In this operation I was assisted by my son, Dr. J. Duncan Emmet, and by Dr. Buckmaster.

On January 28, 1889, with Dr. Frederick Whiting to administer the ether, and with the assistance of Drs. J. D. Emmet and Buckmaster, I proceeded to remove the subperitoneal fibroid from the anterior wall of the uterus, which had by this time grown as large as an English walnut. With a pair of scissors I carefully separated the bladder from the uterus, while steady traction toward the vaginal outlet was exerted on the vesico-vaginal flap until the bladder had been sufficiently separated and the tumor reached. Then, with a strong tenaculum, the growth was seized and drawn well down into the wound, fully in view, and so held until I had succeeded in separating the peritonæum, which was attached over the upper portion. Having done this without rupture the tumor was then twisted on itself by means of the tenaculum, which was deeply buried into the mass. The twisting was made with traction in one direction and then in the opposite one, while at the same time the mass was being separated from the uterine tissue with the finger nail as the parts presented at the surface. In a few moments the separation was accomplished, and notwithstanding the mass was apparently about one half buried in the uterine tissue, when it was drawn out the muscular tissue had contracted so promptly as to leave no cavity, and only a slightly depressed surface about an inch in diameter. The circular artery, which was very large on the right side, was pushed out of the way, but I felt it pulsating against my finger while working. I only regret that it did not occur to me to ligate it, which could have been done without the slightest difficulty. With a partially curved needle armed with the silk loop and silver wire I introduced seven silver sutures to unite again the bladder to the uterine wall. The first suture included more tissue than the others, and brought up the bladder in contact with the uterus, so as to close the wound from the peritonæum. As the angle of the wound was drawn by a tenaculum toward the vaginal outlet and the sides put on the stretch, each suture was passed from the vaginal surface through the connective tissue into the uterine wall so as to catch up a portion of the denuded surface, through the connective tissue on the other side and out into the vagina. Each suture included less tissue than the preceding one, until at length the bladder and anterior wall of the uterus were drawn together and restored to their original relation. She made a more rapid convalescence than she had done before, and her health became greatly improved afterward.

Early in 1893 the uterus began again to increase in size and the flow became more profuse. March 10th I concluded that the uterus

was being overnourished by an increased supply of blood which reached it through the old peritoneal adhesions, and I decided to open the abdomen, separate these adhesions, and, if possible, to remove the ovaries. I succeeded in breaking up a large number of these adhesions attached to the uterus, and which doubtless furnished it with a large blood supply, but was not able to find the ovaries or do more, as she suffered from shock. Her convalescence was very tedious, and for several days her condition was not promising; but she wonderfully improved after the operation and ceased to have any loss of blood, but at the menstrual period—in fact, when she could be induced to take care of herself the period would last but a week, and the quantity would not be excessive.

When I saw her last, toward the close of April, the uterus had become reduced at least one third in size, but in the shrinkage three subperitoneal fibroids had become more prominent. She is now over forty-two years of age, in good general health, and had passed six weeks without a period. Yet I found her nervous system upset through the influence of some friend who had been urging that she should have the uterus removed "to make a well woman of her." The object of her visit was to ask that I would operate, as her confidence was as great in me, but I declined doing so for the several reasons just mentioned.

The use of ergot is, in my opinion, of doubtful efficacy unless it be employed under very favorable circumstances. It is certainly of no value for the purpose of expulsion if the tumor be so situated that gravity can not act, and unless the uterine canal be kept fully dilated at the time it is being administered. The injudicious use of ergot has done a great deal of harm by cutting off the proper supply of blood, with the consequent death of the tumor and blood poisoning afterward. The action of ergot is, I believe, exerted not directly on the muscular tissue of the uterus itself, but upon the muscular structure of the blood-vessels, and especially on those distributed to erectile tissue. Its action, therefore, is only an indirect one on the uterus, by causing the vessels to contract. By thus diminishing the supply of blood to the organ, its muscular tissue will contract upon itself to fill the space which would be otherwise occupied were the usual circulation maintained. I have known of a number of deaths from blood poisoning which resulted directly from the empirical use of ergot, and I can recall two instances of pyæmia with the difficulty increased by abscess in the parotids and of one in the liver.

The following case had been treated by large doses of ergot for

months before she came under my observation, and the treatment had been continued apparently without the slightest idea as to the pelvic condition, beyond supposing, from the loss of blood, that she had a fibrous tumor :

December 25, 1893, I was requested by Dr. Robert Milbank, of New York, to see Mrs. H. in consultation at one of the hotels. As a result of the consultation, and by his advice, she was admitted to my private hospital on the next day. I then obtained the following history :

Mrs. H., of North Dakota, aged forty-three, had menstruated for the first time at sixteen, with no trouble. Married at seventeen and had had one child fifteen years before by a natural labor. From the first menstrual period after this labor the flow had been too free, and for several years it came on every three weeks, flowing always very freely but with uncertain duration. She stated that she had been taking a preparation of ergot daily for some months, and as well as she could recollect there had been a tendency for weeks to fever every afternoon, with sometimes sweating after, and she had been steadily getting weaker during this period, but had suffered no pain. Her appearance was indicative of having suffered from loss of blood and very suggestive of malignant disease. At the same time her mental faculties seemed greatly blunted, in so much that it was difficult to elicit from her a very clear statement as to her previous history, and the greater portion had to be obtained from her husband.

The uterus was found enlarged, lying forward and not very movable, as there had been at a comparatively recent period an extensive pelvic peritonitis.

January 1, 1894, I operated, Dr. Milbank being present, Dr. Buckmaster administering the ether, and Dr. J. D. Emmet assisting me. The uterine canal had been packed two days before with iodoform gauze and this was first removed. With great difficulty the index finger was gradually advanced toward the fundus. The presence of a fibroid was easily detected at the fundus, in front and to the left side, and but partially projecting into the canal. With the finger in the canal and one hand over the abdomen it was estimated that the tumor was as large as the closed fist. By means of a stout tenaculum the mass was gradually dragged down, and out of its bed, through the slit which had been made with a pair of scissors into the uterine tissues covering it. The tumor was slowly separated from the uterine tissue by stripping it back in the opposite direction with the finger and scissors as the mass passed into the canal. When the tumor by this means

had been about half delivered from its bed, a portion of the mass was cut out in a cone shape from around the tenaculum with a pair of sharp-pointed scissors. It was then made evident that the center of the tumor had begun to break down, and the pus, although not more than a drachm or two, was very offensive. As the central portion was too soft to make traction upon it, the efforts for removal were limited to that part of the tumor nearest to the fundus, and the separation was made from above downward. In an hour I succeeded in removing, piece by piece, fully two thirds of the mass, and with apparently all of the central portion which had begun to break down. But her general condition had been most unpromising from the beginning, with every indication of a collapse at an early stage. At length I was obliged to desist after hastily washing out the canal with a weak solution of the bichloride of mercury and repacking it with strips of gauze, she remained in a critical state for fully twenty-four hours after the operation, and it was moreover exceedingly difficult to rouse her ; the pulse became rapid and weak, with some rise of temperature, occasional sweating, and with every indication that she was still suffering from blood poisoning. On the following day I removed the gauze, washed out the uterine canal, and with great difficulty replaced the uterine tampon. After an interval of twenty-four hours longer it became most evident that to save her life it was necessary to remove without further delay from the uterus the cause of the blood poisoning.

Ether was carefully administered and at length I succeeded in getting away the remaining portion of the tumor, which it was found had also begun to slough. It was noted that the uterus had decreased in size fully one half from what its bulk was before the operation. A strong application was made to the fundus and over the site of the tumor with carbolic acid and glycerin, and the canal was repacked with gauze The pieces of this fibroid after removal weighed together three quarters of a pound.

After twenty-four hours the gauze was taken away and the uterine canal for several days was thoroughly washed out from time to time. Fully a week passed after the last operation before the dullness of her mind cleared up. The convalescence was tedious, but in four weeks she was well enough to return home, at which time the uterus had regained its normal size and she had one natural period.

Just one year after the operation this woman walked into my office in perfect health to thank me and so changed was she that I did not know her. She was most grateful and stated that she had never been in such perfect health. While she was an inmate of my hospital I

had learned how careless she had always been in taking care of herself, and on this occasion I scolded her for being so lightly clad for the season and her answer was that she never took cold. Within a few hours after she was on her way to Washington and was exposed during a sudden change in the weather. Eighteen hours after, pneumonia developed and in three days from her visit to me she was dead.

I feel that it is not necessary to offer the histories of any additional cases to illustrate the subject. Great dexterity for removing these fibroids by traction and in section can only be acquired by practice. Not only does this experience afford the greater facility for working in so confined a space, but greater judgment is acquired in avoiding perforation of the uterine wall and in doing the least amount of injury to the tissues not immediately involved with the fibrous growth. But there are several points which should be fully appreciated and borne in mind beforehand, rather than that the knowledge of the necessity should have to be acquired by experience.

As the portion, or pedicle, which is divided in making the final separation must always be situated at the lowest part of the growth, namely, that nearest to the mouth of the uterus, it is necessary always to begin the traction as far off as possible at the upper portion.

The strong hook buried in the tumor should be twisted on itself so as to keep the point as much as possible toward the canal and away from the direction of the uterine wall. And for the same reason the points of the scissors also when in use should always be made to cut toward the center and upon the finger, which must be kept in the uterine canal, and thus the operator will be able to judge of the progress made.

As soon as the upper portion of the tumor is displaced, and the uterus responds by contracting, it is better as far as possible to continue the separation above, and by working from above downward, stripping the uterine tissue with the finger nail back from the tumor as it projects into the canal. It is better never to attempt to dig, as it were, the tumor out of its bed, unless there should be some special reason for doing so. Nor should any portion of the tumor be cut off until it begins to block the way, and only when the uterus is contracting. When a part is cut away a sufficient portion should always be left, projecting into the canal, with which to make traction for the purpose of displacing the remaining part of the tumor.

The traction exerted on the tumor is not to be made by dragging the uterus in the axis of the vagina down toward the outlet. But it is to be exercised by a twisting movement laterally in one direction

and another, and when made downward the uterus must be steadied by means of a counter pressure made by the finger in the uterine canal against some part of the tumor, or in its neighborhood, as the mass is being separated with the finger nail or scissors.

Whenever there is a marked difference in the density of the tissues it will be possible to separate the tumor rapidly from its bed and with this condition the uterus generally contracts promptly. Under these circumstances the operation is almost a bloodless one, but when the tumor has grown rapidly, and its structure and density is about the same as that of the uterine tissue, the bleeding is often excessive. It becomes then often an impossibility to separate such a growth with "clean delivery." In the effort to remove it a large portion of the mass will become frayed out or in shreds, a condition likely to end in blood poisoning, as these shreds not being properly nourished soon begin to slough. It is better to desist at an early stage and as soon as the condition can be recognized, then wash out the canal and pack with gauze. If in twelve hours, on removing the packing, it be evident that the uterus has made no progress in expelling the growth by contraction and if there should be any evidence that sloughing had begun, then, with our present experience, the proper practice is to remove the uterus without delay or the patient will ultimately die from blood poisoning. Yet I have known of several instances where the patient in time made a good recovery and under apparently the most unfavorable circumstances of exposure to blood poisoning, as the mass slowly sloughed away.

The means at our command for fully dilating the uterine canal are still defective and unsatisfactory. Nothing which has yet been employed for the purpose has proved so effective as the sponge tent, and our future advance will rest greatly upon some improved method for preparing these so that they may be used with safety. I have yielded to the feeling of prejudice generally held by the profession against the use of sponge tents, and have not had the courage to employ them for some years past. But at the same time I believe that if they were properly prepared and the patient was properly cared for at the time of their use, little danger would be incurred. This does not seem to be an unreasonable expectation, for if a sponge can be made innocuous to the peritonæum, certainly its use might be rendered safe in the uterine cavity. Our individual experience must necessarily carry a certain amount of weight in forming an opinion and the views I have expressed have been so influenced. During a number of years I used sponge tents fearlessly and they

were prepared specially by a nurse who had no idea of the necessity for any aseptic precaution beyond perfect cleanliness and the free use of turpentine-soap and water. I can scarcely recall an instance of any trouble after the use of tents prepared by this woman, certainly I never had any serious difficulty. It was then my practice to employ sponge tents several times a week, and often for months consecutively, in special cases when dilating the uterus for the descent of fibrous growths. Frequently I used then at that time with cases of subinvolution, before I had learned the close relation of this lesion to a laceration of the cervix. I then employed the tents, as I wished to excite by their use both pressure and drainage, leaving them infrequently for two days before removal, and would then irrigate the canal with a stream of hot water until it had contracted.

This nurse at length married and left my service ; I then purchased the tents I needed from Mary Smith, the old nurse who had served in the Woman's Hospital. It was supposed that she had learned the art from Margaret Brennen, the head nurse, who had been as careful and trustworthy in preparing these tents as the nurse in my private hospital. For a time Mary Smith did a good business, as her tents were beautifully made, but I, in common with every one who used them, soon began to have not only inflammatory trouble set up, but had every now and then an unaccountable death. It was at length found that this woman carried off all the sponges used in the laparotomies done at the Woman's Hospital, which had been intrusted to her to burn after each operation. As she supplied the instrument makers, as well as most of the gynæcologists in New York at that time, the consequences of her devilish work were soon widespread throughout the country.

After getting the sponges surgically clean, I believe the remaining difficulty would consist in being able to sterilize the saturated solution of gum arabic which is needed to stiffen the sponge and render it the easier of introduction. Possibly this can never be accomplished without destroying its peculiar properties and compressed sponge may have to be employed at times as a substitute for the gauze. While it is quite possible with the use of gauze to dilate sufficiently the uterine canal previous to an operation for removing some growth, it is not so effective as the sponge tent for dilating week after week for the gradual projection of the fibrous growth into the canal. Moreover, the sponge tent is of easy introduction comparatively, while placing the gauze is often painful and necessitates the frequent use of ether.

It is more necessary than for any other operation in gynæcology

to observe, with the minutest detail, every known aseptic precaution in preparing both the patient and the materials needed for an examination or operation within the uterine canal. As my remarks are addressed to experts it is not necessary for me to enter into detail as to how these measures are to be carried out. I would urge that in all cases of fibrous growths of the uterus the operation for removal of the uterus should be delayed for a reasonable time, unless there should be some urgent and special reason for doing otherwise. This delay is urged that dilatation might be honestly tried since my experience has clearly shown that it is not possible beforehand to form the slightest opinion as to what can be accomplished in any individual case from continued dilatation.

Where a large fibroid develops, with several smaller ones in the neighborhood, it frequently happens that the larger growth is crowded outward and becomes subperitoneal as a result of uterine contraction, the force of which is always lost, or broken up, in the direction of the uterine canal from the presence of the smaller growths. In several instances I have recognized this condition and after having removed by traction the smaller tumors, the larger one has eventually become pedunculated, as soon as the uterine contraction, with the aid of gravity, could act together in forcing it out in the direction of the least resistance.

Finally, as to the origin of these growths I am led to believe, as the result of my observation, that nearly all fibrous growths have their beginning, not only in muscular tissue but near to the uterine canal, where the functional activity is the greatest and where they would be better nourished. I, moreover, believe the natural tendency for such a growth is to advance toward and finally to project into the uterine canal.

I believe the time may come when it will be found that the origin of these growths, from the tissues surrounding the uterine canal, is always due to perverted nutrition. And they seem to have some close connection in their genesis with the changes following menstruation in anticipation of pregnancy. Hence their origin, as a result of perverted nutrition, would occur with those women in which the true function of the uterus had been sacrificed through want of the needed stimulus of pregnancy. This view would seem to be substantiated by the well-known fact that child-bearing women rarely suffer from these growths, and when they do exist with pregnancy they so frequently disappear before involution occurs, that their removal can not be attributed to an accidental cause.