Original Articles.

VAGINAL MYOMECTOMY.¹

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Mrs. D., married, forty years old, born in Nova Scotia, and living in Braintree, Mass., entered St. Elizabeth's Hospital, August 15, 1896, with the following history: father and mother died of old age. Family history good. She was married at sixteen years. Has three children, youngest eight years old. One miscarriage. Menstruation began at thirteen years and was always regular, without pain, flowing three or four days, until last May. Personal health always good.

May 8th. Menstruation began, and lasted three days. It returned on May 15th, and she has flowed intermittently ever since, only stopping for a few days at a time. Blood thick, black, sometimes offensive. No pain. Has become pale and weak.

Examination showed an enlarged uterus, a hardness of posterior wall, but no irregular masses without. Diagnosis of myoma of uterus; but whether interstitial or submucous was to be determined at time of operation. It was suggested that the cervix be dilated on the day before operation for purpose of further diagnosis and, if possible, remove the tumor by vagina. If it were then found inexpedient to do it, a laparotomy could be done, and she was prepared for it.

About 4 P.M. the largest size tupelo tent (22 English) was inserted without ether after dilatation with Hanks' dilators up to the highest number. Iodoform gauze packed about to keep it in place. The tent gave the patient very little pain, and was not removed till the operation on the next morning. All cleanliness and aseptic precautions were observed. Vagina cleansed with permanganate and oxalic acid and corrosive. The finger entering the uterus easily made out a submucous fibroid on the posterior wall of it, and could determine its upper portion. It seemed a very suitable case for the vaginal operation, and that was done.

The cervix was divided posteriorly in its central axis for its whole length by the scissors, and each part was grasped by a pair of bullet forceps. Very little bleeding followed. This gave room enough to pass a knife, on the finger as a guide, nearly to the top of the tumor, and the incision was made down through the mucous membrane from top to bottom. With fingers and scissors the myoma was nearly enucleated, and then grasped in vulsellum forceps and twisted out. No hemorrhage followed, so the interior of the uterus and the remains of the tumor's sheath were carefully curetted. Some clots and hyperplastic tissue removed. The cervix was then reunited with silkworm-gut sutures and a strip of gauze placed in the cervical canal as a wick-drain for any bleeding. Patient put back to bed in good condition.

There was very little pain afterwards, no bleeding. The gauze was removed on the fourth day, no temperature. On the tenth day she was sitting up in bed, and she went home three days after. She need not have been kept in bed so long except that she was very weak and tired out from the loss of blood previous to entering the hospital.

Examination, six months afterwards, showed nothing

abnormal, no development of another myoma-bud in the same or different locality, a small uterus, menstruation regular but occurring every three and one-half weeks, no pain, flowing slightly for two days instead of four, cervix perfectly united, woman in good health (with cachexia gone) and doing her household work in good spirits.

This case illustrates the subject which I wish to bring before you. While so many hysterectomies are being done in these last three years, we are apt to lose sight of other and simpler operations. That every fibroid of the uterus should be removed by hysterectomy is too sweeping a statement, and yet there are men who uphold it.

That there are many indications when a hysterectomy ought to be done, I do not doubt and often would advise; but I wish to leave out that important operation in this discussion and come at once to the question, whether the lesser operation of vaginal myomectomy has not still its place in the treatment of this disease. Another point I wish to emphasize is that an earlier diagnosis by the general practitioner will be of great importance to the patient, and lessen the necessity of a major operation in many instances.

It is perfectly justifiable for the general practitioner to insist on a vaginal examination in a married woman, when any irregularities of menstruation occur, or where unaccountable pain is present. By so doing he may be able to diagnose the myoma before it has grown to so great a size that the proposed operation is impracticable, and save the woman much suffering, and perhaps the loss of her uterus.

We know that fibroids of the uterus are divided into three general classes: (1) The subserous, (2) the interstitial or intramural, (3) the submucous.

As a purely fibroid growth it is exceedingly rare, for with few exceptions, the tumor contains muscle-cells. These growths of the uterus should more properly be called myomata, myo-fibromata, or best of all, fibro-myomata. In the later studies by Rösger and Kleinwächter, the theory is confirmed that myomata are originally developed from the muscular coat of the uterine arteries. "The embryonic cells of the united Müller's duct are the common origin of the walls of the uterine vessels and of the muscle-cells of the uterine walls."

Senn says that in the majority of cases, the tumor springs from a matrix of myoblasts in the uterine tissue, and in exceptional cases, it may start from a similar matrix in the wall of the blood-vessels.

Virchow also confirms this idea by attributing the new growth to a hyperplasia of existing muscular fibres.

The growth is in the direction of least resistance, and it pushes before it the mucous membrane or peritoneum, which with the blood-vessels that supply the tumor form the pedicle, when there is any. The more fibrous the tumor the less abundant is the blood-supply, and as the muscular elements predominate in the uterus, we are more apt to get a vascular tumor within. When the tumor is born (so to speak) from the uterus, other sources of nourishment may occur which increase its vascularity, or, when cut off by twisting or pressure, diminish it.

These tumors degenerate frequently because of interstitial pressure or thrombosis producing edema. They are liable to become cystic, hyaline, more often fatty or calcified, or transformed into sarcomata if situated in the body of the uterus. The transforma-

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tion of intra-uterine myomata into carcinoma has never been demonstrated.

The exciting cause is some disturbance of menstruation which gives rise to tissue-proliferation.

Frequency. I have been amazed at statistics in looking up this subject to find its relative frequency.

Pozzi says that one-fifth of all women who arrive at the age of thirty-five, are so afflicted. (He considers that there is seldom a single fibroid, but usually more than one.) Klob states that 40 per cent. of the uteri of females who die after the fiftieth year, contain fibroid tumors.

In 528 cases, tabulated from different operators, 18 per cent. were in women between twenty and thirty years of age; and one-third of the whole number occurred in women before the age of thirty-five, and one-fourth of the whole number had symptoms before the age of thirty. The majority of cases occurred between the ages of thirty-five and forty.

Senn says that marriage increases the frequency, and that in 33 per cent. of the married women the tumors caused sterility.

Hofmeier studied 213 cases and their influence upon conception, and concluded that they had no effect upon fertility or sterility. Another set of statistics shows that these tumors occur in the unmarried 25 per cent., married 75 per cent., and that 30 per cent. of the married were sterile, but that the tumor had no influence on the sterility.

Location.—Subserous 25 per cent., intramural 65 per cent., submucous 10 per cent. They may start from any portion of the uterine wall, and near the cervix is given as the most frequent location, and the next favorite position is the posterior wall below the fundus. Mundé in 130 cases of fibroids at Mt. Sinai Hospital found only three in the tissue of the cervix. Twenty-one had developed into polypi. The great majority were in the body of the uterus.

I would call your attention also to the results of study regarding the conditions of the tubes given by Fabricius, of Vienna. In 42 cases, he found them normal in 17; unilateral catarrh in two; and all forms of bilateral tubal disease in 23; which shows (in these cases certainly) either that the tubes are more frequently affected than not, or else that they were long-standing cases and that an early diagnosis might have prevented this complication. He adds, however, that along with the smallest tumors, were the greatest alterations in the tubes.

The **Symptoms** are too often overlooked because of the insidious and generally slow growth, and the pains and aches are attributed to displacements. We should therefore be more careful in making our diagnoses; for, as I hope to show, the earlier we can make them, the better it is for our patients (although not for our pocket-books), and the tumors admit of easier removal.

The tumor of itself may not give rise to any symptoms for a long time—one small nodule or several small nodules on the surface of the uterus under the peritoneum do not disturb or cause any trouble. It is only when they grow rapidly.

On the other hand, intramural tumors of small size pressing towards the mucosa may give rise to decidedly nervous symptoms from pressure. "The degree of suffering is not dependent upon its size." The first symptom generally noted is some change in menstruation, and, at its beginning, the usual symptoms are aggravated. Profuse menstruation is a most impor-

tant factor. The duration of the period is prolonged. Then follow irregularities and hemorrhages between times. Uterus is painful on pressure. The menorrhagia varies in intensity from time to time. The cervix becomes soft and dilatable and there are copious catarrhal discharges. There is apt to be irritability of the bladder and rectum and pain in the pelvis when the tumor is large enough to press on the crural vessels and nerves.

The **Diagnosis** can be made from these foregoing symptoms, in connection with the necessary physical examination, which should show an increased localized resistance of the uterus over the tumor if the tumor itself cannot be felt. The uterine sound reveals much, and should be used if pregnancy can be safely excluded. Retroflexions, pelvic peritonites, ovarian tumors, and malignant tumors can be generally differentiated. Pregnancy is the most difficult thing to exclude, and many mistakes have been made. Many an operator has closed the abdomen over a pregnant uterus, which had previously been diagnosed as a fibroid. The breasts and cervix simulate the changes of early pregnancy, but in pregnancy the lower segment of the uterus presents a characteristic bluish-red color, and both uterine arteries are enlarged, which are not so to the same degree in myoma. I believe that it is wise to give ether for thorough examination in doubtful cases.

The **Prognosis** is now considered more grave than was formerly supposed, ten years ago. It is estimated that 10 per cent. of all cases die, and that hemorrhage and uremia are the most frequent causes. (A myoma, stationary as regards growth for a considerable length of time, grows very rapidly during pregnancy, but it may as rapidly diminish during involution. Unless the myoma is very large, pregnancy is apt to be completed without abortion. In 119 cases, 21 aborted, and 98 were delivered at full term.)

I have thus passed rapidly in review these main points collected from all reliable sources in order to refresh your memory, and because they have an important bearing on the method of treatment which I especially wish to bring to your notice. Ten years ago, aseptic surgery was but just beginning and all statistics of operations before that time are of but little value now. Asepsis has brought about a revolution of methods. Old methods of doubtful utility are now rendered safe procedures. Opening the peritoneal cavity either through the abdomen or vagina under aseptic precautions is without danger. No wonder, then, that in the last three years hysterectomy for fibroids has attained great proportions and a low mortality. It has its place, and a very important one; but while that truth remains, it is also true that many hysterectomies are done needlessly for small tumors of this kind.

A very decided opinion is given by Emmet who says, "No one should remove the uterus until the uterine canal had been dilated, and digital exploration had enabled him to form an intelligent opinion of the true position and condition of the tumor." I suggest that vaginal myomectomy has a place in surgery still, and should more often be performed.

Martin, Polk, Price, Gordon and Homans prefer hysterectomy, Obalinsky, Von Erlach, Péan, Mundé, Kelly of Baltimore, T. A. Emmet and Thomas are against it.

Most operators have limited this operation to tu-

mors "not larger than a fetal head." That seems, and is, a severe limit, for in great efforts to remove such large masses, by cutting or otherwise, there is much fraying and bruising, and sloughing is the result. All such processes are to be avoided as far as possible.

I would limit the operation to interstitial or submucous fibroids of moderate size where the base of the tumor can be reached, or where there is a fair possibility of enucleation without great tearing of the tissues.

I will not speak of medical treatment, which is palliative only; nor of electrolysis, which has given no favorable results in the hands of most men.

Under aseptic surgery, the vaginal operation is the ideal one, because there is less mutilation of the patient (depriving of uterus or adnexa); no abdominal wound; slight, if any, mortality; and it is not very difficult to do. Ten years ago, such operations were done, and some deaths occurred. Skene had 100 cases and one death. Mundé had 130 cases and three deaths.

Mundé says that he would not operate simply because it was a fibroid, but only when it produced serious symptoms, such as hemorrhage, pain, rapid growth causing injurious pressure; when it is associated with inflammatory diseases or pus-tubes; or when the woman is scared enough to be invalidated by the thought. I believe that rapid growth or hemorrhage demands this operation and should consider the advisability as soon as a diagnosis was made, before such occurrences. The danger of hemorrhage and of the operation increases with the size of the tumor.

The age of the individual is an important factor, for we know that many of these tumors atrophy or remain at a standstill after the menopause, although many others take on a new lease of life and growth. Those cases should always be kept under observation if possible.

(1) Subperitoneal myomata. In these days when we venture to open the anterior or posterior vaginal sacs with impunity, and the tumors are small nodules on the uterine surface, their capsules can be opened and the tumor shelled out. When, however, they are deeply imbedded in the uterus, the operation is more difficult and the nest left after enucleating the tumor is very apt to bleed and several deaths from hemorrhage or sepsis following have been reported. A few small nodules on the uterus may give rise to no symptoms and no harm come to the carrier by their presence. The vaginal operation in subperitoneal cases should be limited to the small, easily accessible and very superficial nodules. The vaginal vault should be closed afterwards.

(2) The Submucous variety, which have burst into the uterine cavity and become pedunculated—the fibrous polyp, so-called. I think all operators remove this growth through the vagina, the self-evident way.

In these cases, while making strong traction with vulsellum forceps well embedded, it seems to be a good plan to divide the mucous membrane covering the pedicle by a circular incision far enough away from the attached portion of the pedicle so as to allow a cuff of mucous membrane which will cover the wound afterwards. By using blunt-pointed scissors, very little hemorrhage occurs. Reflect back this cuff, and the pedicle containing the principal blood-vessels of the tumor is reduced in size, and its capsule can be pretty well exposed at the base. Then enucleate if

the pedicle is broad, twist if narrow. The tampon of iodoform gauze (long strip) is then generally used and allowed to remain for three or four days. Afterwards the mucous membrane covers the granulating surface, and the entire wound heals very rapidly within a week. If traction partially inverts the uterus, the operation is easier, but one must be careful to push back the fundus into its normal position again and look out for bleeding.

(3) Interstitial, or interstitial becoming submucous. This class of cases call for enucleation or morcellation. Péan did wonders on large growths by this latter method, attacking them from the centre after cutting into them and removing them piecemeal until all their tissues had been removed. He detaches the cervix first, as in performing a vaginal hysterectomy, but avoids opening the peritoneal cavity if possible. Thomas does enucleation whenever practicable, using his "spoon-shaped" saw by which he makes a blunt dissection close to the capsule after a long incision through the mucous membrane covering it, parallel with the long axis of the uterus.

T. A. Emmet read an interesting paper in 1895, in which he advocates traction as very important in helping to obliterate the cavity left, after removing the tumor. He says that the muscular tissue contracts very quickly and promptly even in subperitoneal tumors in this way. He uses blunt, curved scissors for enucleation after a longitudinal cut down to the capsule, and makes continuous traction, first applied at the upper portion of the tumor; for the pedicle is situated at the lowest part of the growth, near the mouth of the uterus. Sometimes he uses a cord with a slip-knot if there is much of a pedicle. The traction is not made directly downwards, but he twists the growth laterally from side to side while pushing away the shell from the tumor, so to speak, instead of digging it out. Downward traction may be made later on. His strong point is traction so as to pull up into the cavity or nest of the tumor the underlying muscular fibres which readily contract and partially obliterate it—illustrated by removing a ball from a soft mass of tar. He finally adds that if the mass becomes frayed out or in shreds in the effort of removal, "it is better to desist, wash out, and pack with gauze; and if in twelve hours there is any appearance of sloughing, remove the uterus without delay, or you may get blood-poisoning."

Now, if we can take the experiences of all these operators, and combine the important points, we may reach the best method to follow. That operation would be as follows: Not a gradual dilatation of the cervix with gauze for several days, but a rapid one the day before operation. A creolin vaginal douche one to two per cent. twice daily for two days before the operation. A rapid dilatation with Hanks' dilators up to the highest number, and the insertion of the largest tupelo tent possible, for further dilatation, under careful asepsis, on the afternoon of the day before operation. Generally the cervix is soft and dilatable, and ether will not be required. Packing about the cervix with iodoform gauze to hold the tent in position and partly fill the vagina for further protection. The tupelo must not remain in the cervix if there should be a chill, or chilly sensations accompanied by nausea and vomiting and a temperature rising above 100° F. Generally the discomfort is not great, and a little codeia or morphine can be given, if neces-

sary, for the pain. The tupelo is allowed to remain until after the vagina is thoroughly washed with soap and water, followed by permanganate and oxalic acids, and sterile salt-solution at the time of operation the next morning, when the patient is under ether. I prefer the tupelo-dilatation, as one gets a more even stretching of the canal than if rapid dilatation were practised with the uterine dilator at the time of operating.

The plug is now removed, and the aseptized finger of the operator explores the uterine cavity and determines the condition and true position of the tumor. If the finger can sweep around the growth, if it does not include the whole wall of the uterus, if, as in the majority of cases, the attachment is low down in the body of the uterus, or if the tumor is felt under the mucous membrane, interstitial, but bulging into the cavity rather than outwardly, it can be deemed advisable to proceed. If there exists a doubt that the uterus may be ruptured or a hole made into the peritoneal cavity, or by reason of a very large pedicle that much hemorrhage may be apprehended, preparations may be made for tying the uterine arteries, or a complete vaginal or abdominal hysterectomy, as the operator prefers. The cervix is then slit in the middle line posteriorly (to allow more room) up to the body, with straight scissors. The posterior division is much safer than the lateral, as the wounding of the large vessels is thus prevented. Often no bleeding follows. When it does, and any way, both lips of the divided cervix are seized by a pair of bullet forceps which holds and steadies but does not crush the tissues as clamps would. With the finger as a guide, a long-bladed knife is passed to the highest point of the tumor, and an incision is made down onto the tumor, parallel with the long axis of the uterus. The mucous membrane is pushed away from the incision on either side, the myoma seized and firmly held by vulsellum forceps, and traction made, as described by Emmet, while the dissection is made close to the capsule. Laceration of the uterine tissue must be avoided as far as possible, because it is apt to give rise to troublesome hemorrhage.

Fingers can be used most safely in this shelling-out process. The saw-spoon is also useful in many cases. It is sometimes easier to begin from above and sometimes from below. In the case reported, the shelling process was easily accomplished from below upwards. If the myoma is too large to remove entire, then it is to be done by *morcellement* (as previously described).

Finally, the myoma may be twisted out from its bed when it has been pretty well separated from its adhesions and where only a small pedicle or connection remains. If any hemorrhage follows or if the cavity remaining be large, it is advisable to pack it with iodoform gauze, the end of which protrudes from the cervix; and that is allowed to remain for three days. In other cases, a small wick-drain of gauze through the cervix is all that is required. Where it is possible, a careful curetting of the uterine cavity and the removal of shreds about the wound with the curette is allowable.

The last step is to sew up the cervix, which has been incised at the beginning of the operation, using either silkworm or chromicized catgut, and arranging the iodoform-gauze in the canal for drainage or for checking hemorrhage. Unless there has been a very great deal of morcellation, or vigorous, long-continued

traction, there is very little shock, and the after-treatment is simple. A vaginal douche of plain hot-water or corrosive (1-5,000), morning and night, after the first day, for four days; sitting up in bed on the sixth; out of bed on the eighth; home on the tenth or twelfth, for average cases.

I perform this operation with the patient on her back, for the relative position of the tumor to the uterus and surrounding parts seems to be better marked out; but other operators often use Simm's position.

From the fact of the great frequency of these growths at a comparatively early age (thirty-five years); that one-fourth of the women have some symptoms before they are thirty; that the frequency of the growths increases with the married state (75 per cent.); that they may be a cause of sterility; that an examination is perfectly allowable when there are irregularities of menstruation in married women; that about 65 per cent. are intramural, with tubes affected sooner or later (estimated in one-half the cases), and that in many cases the growth towards the place where the functional activity is greatest (that is, the uterine cavity) is apt to be single, while the multiple fibroids are crowded out towards the peritoneum; that degeneration is so common; that 10 per cent. of all cases die from hemorrhage or uremia, and that the danger of hemorrhage increases with the size of the tumor, — from all these facts, my conclusion is that I am justified in recommending an early operation in this class of cases, irrespective of severe symptoms, and this special operation because —

- (1) It causes very little mutilation.
- (2) There is slight danger from sepsis.
- (3) There is very little shock.
- (4) It is not excessively difficult to perform.
- (5) It has scarcely any mortality.
- (6) There is a rapid convalescence.

A REPORT OF A CASE OF SUPPURATING OVARIAN CYSTS. OPERATION AND TREATMENT.¹

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As it is rather an unusual condition to find cysts of any considerable size of both ovaries, at the present time, when the large ovarian cyst of former years is almost a matter of history, owing no doubt to the watchful eye of the gynecologist, a report of such a case may be of some interest to the members of the Society. Due to the same alertness, it is a fact that suppurating diseases in the pelvis come to operation at a much earlier period than the present case did, thereby giving to the patient added chances of recovery on account of better and more favorable conditions.

A brief history of this case is as follows: First saw Mrs. M., October 27, 1896, through the kindness of Dr. W. H. Devine, who had seen her for the first time the day before. She was twenty-eight years of age, married two and a half years, and had always enjoyed good health. Regular and painless menstrual periods and negative family history. About a year and a half ago she first noticed a swelling in the right side; this tumor gradually increased so that it was especially noticeable when patient was lying on the right side. Pain in this side and hip increased in severity as the

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