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ENUCLEATION OF UTERINE MYOMAS; WHY AND WHEN PERFORMED *

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The treatment of fibroids has ever been a mooted question. I can well remember the period when the extrusion of such growths through the long-continued administration of ergot was considered the proper plan of treatment, and the operative measures were principally confined to the reduction of the resistance to the action of the ergot. Not infrequently were seen cases in which the extrusion under this plan was so rapid that the circulation in the growth became affected and necrosis followed. Such a condition was fraught with danger whether a submucous or a subperitoneal growth.

It was not surprising that the futility of medical measures—indeed, their often disastrous effects—should have led to surgery as the means of escape from the discomforts incident to myomatous growths.

The earlier plans of treatment were necessarily confined to growths which were causing symptoms; and it is a well-known fact that the interstitial and subperitoneal rarely produce symptoms of a distressing character until sufficiently large to produce pressure or become visible through distention of the abdomen. The growths of the submucous variety, on the other hand, are very early the cause of discomfort and alarming symptoms from the profuse bleeding and the painful efforts of the uterus to expel the menacing growth.

The natural history of the extrusion of the latter growths was the origin of the ergot treatment, which was followed until the expulsion brought the growth within reach of the surgeon. Unfortunately it was but a very limited number of cases which were found amenable to such treatment, while medical measures were ineffectual or productive of additional danger to the majority.

Our present knowledge assures us that these patients suffered from weight and pressure of the tumors, from the absorption of toxins generated within them, and were endangered by necrotic and degenerative processes incident to their changing nutrition.

It is not surprising, then, that with increasing experience in operative measures within the abdomen measures should be instituted for the removal of the uterus containing these offending growths. The radical procedure was naturally chosen in view of the fact that the cases selected for operation were those in which the

symptoms were so pronounced that the condition was no longer endurable. With a reduction of operative mortality, surgery has been resorted to much earlier in the history of the disease, and some have accepted the dictum that the pickled fibroid is the only fibroid to leave unmolested. The advocates of early operation are confronted with the recognition of the fact that early operation must necessarily result in the arrest of all hope of conception in a large number of comparatively young women, for fibroid growths are recognized as occurring in women between 25 and 40 years of age.

It is true that the presence of fibroids increases the tendency to sterility, but the large number of cases of the coexistence of pregnancy and fibromas demonstrates that they do not make sterility absolute.

The study of the specimens removed, showing the enveloping capsule and the ease with which the tumors could be peeled out, make the consideration of the removal of the growths and the preservation of a functioning uterus seem justifiable. The aim of any capital operative procedure is to save life, but the preservation of the function should be considered as next in importance, especially when the function preserved has to do with the propagation of the species.

Not infrequently a woman will place but little value on her ability to bear children—may, indeed, endeavor to avoid the responsibilities of the marital relation—but when she realizes that some operative procedure is followed by premature menopause she awakens to a realization of the fact that the function lost was one she prized beyond every other, and is so disturbed by her loss that the mental faculties become unbalanced.

The premature menopause frequently produces marked nervous and vasomotor disturbances, which destroy all comfort and pleasure in life. The combination of these symptoms with the mental phenomena induced by the knowledge of inability to conceive leads to mental derangement. As it is beyond our possibility to determine in advance the influence such measures will exert in any individual case, it seems the better procedure, whenever possible, to preserve the uterus and remove the growths.

An advantage of this procedure which is not always apparent to the patient in whom there is a recurrence is that, should the worst come and the growths recur, we can then if necessary do a second operation which will not, in the majority of cases, be required until years after the first. On the contrary, should the removal of the pelvic structures as a primary procedure be productive of deleterious effect, there is no plan by which we can replace the organs, and in many instances there is but little reason to hope for improvement.

I will not attempt to occupy the attention of the Section with the details of enucleation further than by remarking that the operation may be either vaginal or

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abdominal. The former should be employed only when the growths are limited to those which encroach on the uterine cavity or are confined to the lower portion of the uterus, making them readily accessible through a roomy vagina.

In either the vaginal or abdominal procedure, the aim should be to do as little injury to the organ as possible; consequently the number of incisions into the uterus should be limited. The vascular supply to the growths occurs through the vessels of the capsule; consequently the hemorrhage is at times quite considerable and requires the employment of measures for its control. Some operators advocate the application of a rubber ligature about the cervix during the process of enucleation, but I have never found this necessary, as the bleeding can be controlled by pressure forceps direct to the bleeding vessels. Large vessels or sinuses should be ligated by passing a needle armed with a catgut ligature beneath the vessel. The wound or wounds in the uterus should be closed with interrupted catgut sutures and then with a second or superimposed row of sutures to bring the peritoneum in contact over the line of the wound. I formerly closed such wounds with several rows of continued catgut suture, but not infrequently the loose capsular connective tissue is of such low vitality that occasionally all the tissue inclosed in the line of suture will become so devitalized that it will slough out.

In reviewing my own work done to retain the uterus, I find about thirty-seven cases in which fibroids have been enucleated through an abdominal incision, and five cases in which the operation has been accomplished *per vaginam*. A large number of cases of myomectomy either through the vagina or by abdominal incision are not included, but only those in which the growths have been enucleated. In five of the abdominal cases, the operation was performed during gestation, and in all the patient continued to carry the offspring until the completion of pregnancy. In none of the cases has there been any trouble during labor. In several of the patients the convalescence has been stormy or prolonged, and in two death resulted. In one patient, a single woman, aged 33, thirteen growths were enucleated. The wounds were closed with several layers of continuous chromicized catgut suture, and finally the sutured surface secured to the lower angle of the abdominal wound. Her convalescence was disturbed. The abdominal wound became infected, and finally there was discharged through it a slough which contained the entire suture material employed in the fundus of the uterus. After a prolonged period the woman recovered, subsequently was married and gave birth in successive labors to two children. Her first labor was unattended by anything abnormal. Following the completion of the second, she went into collapse and died with what was supposed to be a rupture of the uterus and internal hemorrhage.

The growths have varied from one to twenty in number, and from the size of a pea to that of a child's head. The smaller, of course, were multiple. In eight cases the disease of the uterus was complicated by disease of the ovaries or tubes, requiring operation on one or both tubes. In one a hemorrhage occurred which required a vaginal incision some ten days later to evacuate the accumulation. In three cases it has been necessary to re-operate, and in one of them a second time. The latter operation was not for fibroids, however, but for appendicitis, and the opportunity was taken to overcome a ventral hernia. In one of these patients reoperated on, from whom two fibroids were enucleated at the first operation and no vestige of others recognized, at the

second operation, five years later, twenty were enucleated and both ovaries removed for diseased conditions. One patient, from whom twenty growths, large and small, were removed eight years ago, now has a large collection, but as the menopause has occurred and they are not producing symptoms I have advised delay.

My analysis of my own cases and the study of the literature has caused me to regard the removal of fibroid growths by enucleation as indicated in the following conditions:

1. When the growths are few in number and the structure of the uterus is but little involved. Of course, the fibroids may be numerous but situated so near the surface as to permit their removal with but little injury to the general structure, but the large number indicates a tendency to fibroid degeneration which presages early redevelopment. Where a number of growths of considerable size are present, the structure of the uterus is so spread out and will be so injured as to render an attempt to save the organ attended with danger during the subsequent convalescence and an element of danger in the event of pregnancy and labor.

2. When the growths are readily accessible through the vagina or cervical canal. A growth within the uterus, either a sessile submucous or an interstitial, is readily attacked. Not infrequently, the canal may be partially dilated and the dilatation can be completed by the introduction of tents, or the cervix may be split bilaterally until the tumor is exposed or rendered accessible. The enucleation completed, the cavity may be packed with gauze and the split cervix closed much as is done in an ordinary trachelorrhaphy. The vaginal operations are attended with less constitutional disturbances than in the removal by an abdominal incision.

3. When the woman, whether unmarried or married, is under forty years of age, and particularly when she is childless or has but one or two children. The removal of the growths at an earlier period can not be considered as rendering certain the escape of the patient from recurrence, for one of my patients who had two fibroids enucleated when she was 33 years old five years later had twenty removed. The age of forty, however, is one at which the individual suffering from such growths begins to undergo retrogressive degenerations and when the patient has not previously been fertile pregnancy is much less likely to occur.

4. When the tubes and ovaries are free from complicating conditions. The existence of tubal or ovarian disease of sufficient gravity (as hydrosalpinx, or pyosalpinx, or ovarian hematoma), to render the probability of conception remote or to necessitate the removal of tubes and ovaries to insure restoration of health, should also be an indication for the removal of the fibromyomatous uterus. While it is true that in the majority of cases the tumors decrease and become quiescent after the menopause, yet they sufficiently often undergo necrosis and other degenerative changes to justify the removal of the uterus.

I have endeavored to indicate the conditions under which the enucleation of myomatous growths may be considered advisable, but it would seem even more important to enumerate some of the conditions in which experience has demonstrated that such a procedure would be inadvisable or even dangerous. On general principles, I would condemn the operation (1) when the woman affected has reached the age of forty, as with the changing conditions incident to the climacteric, the tendency to degenerative processes is increased. The woman who reaches this period unmarried or childless

is unlikely to be fertile and the tendency to sterility will be augmented by the disease and the operative procedure required for its relief. I consider it inadvisable (2) when the uterus is spread out by the growth or growths to such a degree that the reconstruction of a functioning uterus will not be feasible, and (3) when the tumors are so distributed in the structure of the uterus that the circulation will be greatly affected in the necessary suturing to replace the disordered structures.

The danger to the patient is so great in both of the classes indicated in 2 and 3 as to render attempts to preserve the organ not only inadvisable but unjustifiable. The patient is endangered during the convalescence from necrosis and infection of the structures of low vitality, from accumulation of blood in the torn tissues, and in some cases from extensive sloughing of the devitalized structures. Should she survive the operative danger and subsequently become pregnant, she is still in danger from uterine inertia or from rupture, as evidently occurred in one of my cases.

Enucleation of growths may occasionally be of service in promoting the procedure of removal of the uterus. Its employment reduces the bulk of the mass, permitting more ready access to the tissues of the pelvis. I have made use of it, as have others in many instances, to lessen the bulk and afford more ready access to the deeper structures of the pelvis. But two cases recur to me in which it was of especial advantage. The first was that of a woman who had been subjected to an abdominal incision and the wound closed because the conditions seemed too formidable to justify further procedure. When I opened the abdomen the pelvis was so packed with the growths that the vessels were inaccessible in any direction; but the enucleation of a large number of growths rendered the shell containing the blood-vessels readily accessible and the operation easily completed.

Recently I operated on a woman past the climacteric who had carried a large tumor over eighteen years. Of late she had been suffering from abdominal pain and elevated temperature. When the tumor was exposed it was found firmly fixed, filling the large pelvis, and with the intestines so adherent to its posterior surface as apparently to defy dissection. As progress seemed unfavorable in front, behind or on either side I determined to bisect the mass. Incision disclosed that the uterine wall, nearly an inch in thickness, covered a large necrotic fibroid. This was turned out, the inner surface of the uterus curetted, the bleeding vessels ligated and the organ closed without disturbing the adherent intestines. The convalescence was unusually rapid and satisfactory.

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ABSTRACT OF DISCUSSION

DR. H. J. BOLDT, New York City: I desire to endorse Dr. Montgomery's position as to the limited indication for myomectomy; in other words, myomectomy should not be done when the uterine structure has been greatly encroached on by a large number of myomatous nodules within the organ. An inflammatory condition of the ovaries and tubes does not mean that the ovaries should be removed. With malignant change taking place in the neoplasm, particularly in patients over 40 years of age, I believe entire extirpation of the uterus is indicated rather than a supravaginal extirpation of the uterus. In patients below or about that period it is more desirable to retain the cervix and the adnexa for obvious reasons, unless there is a question of malignancy. In appendicular inflammation, the inflammation is not necessarily present only

in those cases in which it is seen macroscopically; in the majority of cases in which the appendix has been removed it has been demonstrated microscopically that there was present an inflammatory condition of the appendix.

DR. HOWARD A. KELLY, Baltimore: I agree with Dr. Montgomery that myomectomy is the operation *par excellence*. When a patient comes to us our first thought is: Can I take out these tumors? Not: Can I take out the uterus? And leaving out the age limit in young women, in the absence of complications I always try to do a myomectomy. But a myomectomy is undoubtedly more dangerous than hysterectomy. I have had over 200 cases of myomectomy and the percentage of mortality is large. The operation is dangerous on account of the possibility of serious secondary hemorrhage and of infection, particularly of the former.

I have only perhaps in the last fifty or sixty cases operated by methods in which I feel secure against this accident. They consist in limiting myself to the cases in which there are not so many tumors. I expose the uterus, tie with a little gauze strip, and bisect the tumor. It is of great advantage to use a serrated instrument. A large vessel supplying the tumor should be clamped as an ordinary bleeding vessel. If after having taken off the pressure and having clamped these vessels, there is still free hemorrhage, they should be tied very carefully as described by Dr. Montgomery. The method of suture is important. The vessels should be caught and sewn together with a strong continuous catgut suture. I sometimes make the figure-of-eight suture which binds the sutures between where they tie and loop. It is the best suture I know of in loose flaccid tissue to stop hemorrhage. Most important of all and that which has helped me with my myomectomies and the only thing by which I can feel safe is to close up the wound with a little bit of a drain. It is not enough to interfere with the prompt healing and when I pull it out after two or three days I always know whether there has been hemorrhage. There is always a surprising amount of leakage; if there is too much the wound is opened up. The little tell-tale drain has been invaluable in enabling me to feel comfortable about the patient. It can be removed on about the third day.

DR. E. E. MONTGOMERY, Philadelphia: It is not in the simple case, the case in which the fibroid is small and the operation slight, that death is likely to take place. I would not for a moment wish to be understood as advocating operation in every case in which fibroid tumor is recognized; but I do say that such cases should be kept carefully under observation; that the growth of the tumor should indicate early operation, principally for the purpose of trying to save the patient's functions and her power of propagation. When the tumor has gone beyond this early stage and shows extensive development in the uterus we should resort to operation and safeguard the life of the patient.

Objections to External Splints in Fractures.—H. E. Pearse, in *Kansas City Medical Index-Lancet*, gives the following objections to external splints: 1. It is impossible to see the ends of bone, hence impossible to secure accurate apposition of ends. 2. Breaks are never so transverse as not to slip sidewise on occasion. 3. Portions of fascia and muscle will become misplaced and engage between the ends of bone. 4. The hemorrhage from broken bones does not stop until the parts are packed with a blood clot that must be absorbed and whose presence increases the stiffness and uselessness of the mended member. 5. External splints applied over the parts, separated from the actual broken bone by the muscle, fat and skin, cannot hold the parts in more than indifferent position and then only by exerting undue pressure on the soft parts. 6. Too often one fragment is too short to afford proper bearing for the splint and thus maintain the axis of the bone in proper position. 7. Every factor of the external splint process used to maintain apposition—splints, bandages, pressure, extension and rest—all these tell against nutrition. 8. Early motion, which is the panacea for stiffness and loss of function, must be sacrificed to the need for bony apposition.