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FIBROIDS AND PREGNANCY.*

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Fibroids which will give rise to serious complications during pregnancy or the puerperium will always remain rare instances, and this for several reasons. The first and most important reason is to be found in fibroid degeneration of the uterine tissue itself, because when such degeneration is present it in most cases precludes the possibility of pregnancy. On the other hand, when a fibroid develops in the uterine parenchyma, sterility will usually result on account of the obstruction produced in the uterine canal, and the changes which take place in the cavity of the uterus, which render the contact of the seminal fluid and the ovum practically impossible from purely mechanical hindrances. Then again, the changes produced in the uterine mucosa prevent pregnancy from taking place, on account of excessive menstrual flow as well as the large amount of watery secretions which exude from the uterine cavity resulting from a fungous endometritis. Atrophy of the uterine mucous membrane may also be present in some cases of fibroid which naturally prevent the development of the ovum after impregnation.

Another thing which renders pregnancy complicated by fibromata an infrequent occurrence in practice, is the question of the time of marriage. It is fair to assume that the majority of marriages, as regards the female at least, are contracted in the twenties, and the greatest fertility is certainly during the twenties, while broadly speaking, fibromata appear in the forties, less frequently in the thirties, and rarely in the twenties, so that it is evident that a complication during pregnancy from these neoplasms is not frequently met with. There are of course exceptions to all rules, and there are many cases where in spite of mechanical impediments conception does take place, and the fœtus will develop and the patient will go to term.

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When a fibroid tumor is present in a pregnant female, severe hemorrhage is likely to arise at any moment on account of the pathologic changes which have taken place in the endometrium, usually resulting in a miscarriage at an early date. Or on the other hand, the uterus may be unable to increase in size beyond a certain limit, and the product of conception will be expelled. This may not always be due to the size of the fibroid or its anatomical position, but may result from the fact that on account of the presence of the growth a retroversion of the uterus has taken place, and miscarriage results from the latter condition rather than directly from the fibroid.

I would now like to consider those cases where pregnancy is complicated by retroversion of the uterus and a fibroid tumor. In these instances there is imminent danger for both mother and offspring on account of the presence of the neoplasm at the time of birth especially, although there is danger from the growth at an earlier period. It must also be remembered that with the general hyperæmia of the uterus during gestation, this increase of blood supply will naturally cause an increase in the size of the neoplasm, which in some cases is most rapid and considerable. If the patient is unfortunate enough to have a fibroma situated at such a point that its displacement out of the small pelvis becomes an impossibility or if the growth has developed in the corpus uteri and has become pedunculated so that it may extend down into the entrance of the pelvic brim, it most frequently results that dystocia ensues, usually in the form of transverse positions. Or again, the growth may produce a mechanical hindrance to the expulsion of the child which cannot be overcome by nature, and only with difficulty by the surgeon.

We should also bear in mind of the possibilities of fibroma of the fundus producing very serious conditions in those instances where the growth occupies a large portion of the abdominal cavity and by the development of the uterus is pushed up against the diaphragm, compressing the stomach, ureters, or other pelvic viscera. Now if under these circumstances delivery should take place without much difficulty, the danger then lies in severe hemorrhages occurring post partum, or suppuration arising in the neoplasm.

On account of all these dangers, especially to the mother, it is easy to conceive that surgeons have considered this question very closely and have endeavored to formulate proper prophylactic treatment during pregnancy. The treatment may be conveniently divided into three groups, as follows: (1) The induction of premature labor; (2) the enucleation of the growth through the vagina or the abdomen during

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pregnancy; (3) Porro's operation and total extirpation of the gravid uterus.

I desire first to briefly consider artificial abortion, or artificial premature labor. Not long ago this line of treatment was frequently resorted to, but the results were generally speaking so unfavorable that it has been practically abandoned as an irrational procedure, and I think that I may safely say that artificial premature labor in these cases should never be resorted to. It should only be considered in those instances where the neoplasm threatens to become a general mechanical impediment to normal delivery; but the chances of an artificial premature delivery are, in my way of thinking, far inferior to those in cases of contracted pelvis. We should always remember that although a fibroid may not be reduced during pregnancy, it may become so during confinement, and in some cases it has even been known to recede spontaneously.

Still less is it possible to calculate the degree of softening and compressibility that the tumor may undergo during labor, and we should never forget that artificial premature labor is far more prone to give rise to sepsis than in almost any other form of gynæcological operation, even when a rigorously combined aseptic and antiseptic technique has been followed. If a premature labor is produced in cases where large subserous fibroids are producing the above mentioned symptoms of displacement and compression of the uterus, the good effect will probably be lost because pregnancy having gone too far has already set up changes which will render the condition of affairs serious.

Regarding enucleation of the neoplasm through the abdomen or vagina, when there are no symptoms of interference with pregnancy on the part of the growth, I would say that in all probability this method of treatment will generally be resorted to in cases of polypus of the cervix or uterine canal, when the pedicle is easily accessible, and where removal can be affected without causing too much disturbance of the uterus. This operation should be resorted to in order to avoid any injury to the uterus during confinement as well as to prevent the imminent danger of sepsis during the puerperium to which these neoplasms are most prone to give rise. In order to prevent any impediment for the further development of the child, the operation should, I believe, never be performed by the vaginal route in those cases where the neoplasm is of large size, or where its exact anatomical structure cannot be clearly made out. Not only the position and the size of the growth or the presence of pregnancy are liable to make the vaginal operation most unsuitable, but also the greater operative obstacles in

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these circumstances, on account of the increased size of the uterus, should discourage the surgeon to attempt the removal of the growth in this manner. The danger of hemorrhage is also far more considerable in operating through the vagina, and the very great possibility of not being able to bring the operation to a successful end would be sufficient cause to condemn the method.

Myomectomy by abdominal incision is resorted to during pregnancy for large subserous or interstitial fibroids of the corpus uteri, or when the growth has developed into the broad ligament, whether they be in either case pedunculated or not. As far as I am able to see, no definite rules can be formulated at the present time as to the indications for abdominal section in these cases, for the very simple reason that every instance is a law unto itself and therefore each one requires the weighty consideration of the surgeon.

It is most obvious that fibroids may require removal and must be removed by enucleation during pregnancy because of the serious symptoms which may present themselves, the latter being usually due to a rapid development of the neoplasm, or from the appearance of symptoms of peritonitis which are usually produced by a torsion of the pedicle resulting in necrosis of the tumor, or to those symptoms produced by a nephritis from compression, or a hypertrophy of the heart, or certain conditions produced in the lungs which necessitate rapid and active interference.

On the other hand, the question as to whether the neoplasm is liable to be an impediment to delivery is one that is by no means absolutely certain in the large majority of cases. A growth which in the beginning will withstand all attempts on the part of the physician to replace it may later on in pregnancy be replaced by the surgeon, or may even become so spontaneously. An irriducible growth may become softened and the apparent invincible impediment is finally overcome, frequently by the force of nature alone. From what I have said I would conclude that it is therefore better to abstain from operating as long as possible, but carefully watching the development of both the uterus and neoplasm because the success of an ultimate operation does not by any means decrease as the time of confinement draws near. I believe that this delay in removing fibroids during pregnancy is still more justified from the fact that during the latter months of gestation surgical interference is rendered easier, and that the life of the child can usually be saved, for there appears to be no doubt that enucleation, especially if it be undertaken during the first five months of pregnancy, frequently results in miscarriage.

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The removal of pedunculated fibroids through the abdomen is not attended with any great risk, and if attempted at the end of pregnancy will in the large majority of cases never endanger the life of the child if skillfully performed. In those cases, however, where the growth has developed in the midst of the uterine parenchyma, it is evident that in order to enucleate it the uterine tissues are largely interfered with, and from this fact it is evident that the life of the fœtus will be endangered

There is one fact, however, which has made enucleation during pregnancy very dangerous, and that is severe hemorrhage arising from the uterine parenchyma, but if the incision over the growth is made small, and if the neoplasm be seized by strong tooth forceps and removed by morcelation, this danger is certainly considerably lessened, especially so if little by little as the tumor is removed deep sutures are passed into the parenchyma and tied. During the operation any severe traction on the growth must be carefully avoided, and all that is necessary is to put the capsule on the stretch. When dealing with a subperitoneal growth for which an elliptical incision is made, or when pushing the capsule back in those cases where a layer of uterine muscle covers the growth I think it is good practice to immediately pass a long sharp needle beneath the bed of the tumor, and as soon as the latter is removed the ligature may be tied. As enucleation progresses similar sutures are passed so that when complete removal has been effected, the compression produced by the sutures will have stopped all bleeding from the operative wound.

The radical operation for fibroids complicating pregnancy, has been performad by either Porro's operation or total extirpation of the uterus, the child having of course been previously delivered, when it was viable by cæsarean section. Each of these methods have certain advantages, and their indication principally depends on the predilection of the surgeon for one or the other. I believe, however, that most modern operators employ the typical operation of Porro because the vaginal portion of the cervix belongs in reality to the vagina, and forms the natural vault of the canal, and this it is important to retain if possible because it forms the bottom of the peritoneal cavity which it is well to keep closed. To excise the vaginal portion of the cervix and then sew up the peritoneal cavity, is in my way of thinking an unnecessary trouble for the operator.

There are other advantages which are decidedly in favor of Porro's operation. If the vaginal portion of the cervix uteri is left the vagina will retain its natural elasticity and solidity, so that coitus may be accomplished without either pain or difficulty. Now on the

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other hand, the cicatrix which is left after total hysterectomy is oftentimes very sensitive for months or even years after the operation so that sexual intercourse cannot take place on account of the distress to which it gives rise. Again when total hysterectomy has been performed, the patients often suffer from severe dragging pains during evacuation of the bowels which are in all probability due to adhesions between the descending colon and the vaginal vault.

There is only one case in which I should be inclined to resort to total hysterectomy, and that is when fibroids have developed in the cervix and which extend so deeply that they involve the external orifice. In these cases there is no normal cervix, and supravaginal amputation cannot be performed. Total hysterectomy is the only method that can be applied here because if the Porro operation were done masses of myomatous tissue would be left in the vaginal vault.

When performing total hysterectomy great care must be taken to avoid cutting the ureters or including them in the ligatures. I believe that the bladder is in not so great danger, but we should have ever present in our minds the changes in position which this organ undergoes from the presence of fibroid growths, a point which I have discussed at length in a paper on "Wounds of the Bladder During Abdominal and Vaginal Hysterectomy," which was recently published in the *Boston Medical and Surgical Journal.*

To sum up I would say that if the cervix is free from any fibroid change, supravaginal amputation should be performed, but where this portion of the uterus is involved in the pathologic process, total hysterectomy is indicated.

There is still one other indication for total hysterectomy, and that is when infection has already taken place and where there are undoubted signs of a septic process going on in the uterus, and here it is absolutely necessary to remove the corpus uteri and cervix because I believe that in most cases puerperal infection has for starting point the latter portion of the uterus. It appears to me that when we are dealing with a case of puerperal infection produced by fibroids, that vaginal hysterectomy is absolutely contraindicated.

To conclude I would say that direct operative treatment during pregnancy for the removal of fibroids is rarely indicated, and in most cases it appears to me more advisable to wait until labor before operating, and in some few cases it is probably better to interfere during the puerperium when the child has been expelled without operative interference. Premature labor artificially produced should be rejected. According to the time of pregnancy as well as to the physical qualities

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of the neoplasm, the surgeon will choose between conservative myomectomy or radical operation. The removal of pedunculated fibroids or those which are easily enucleated on account of their accessibility is at all times admissible and to be advised. Since enucleation easily determines a miscarriage, it should be delayed as long as possible. Immediately before or during confinement, this operation is decidedly indicated when the patient is a young woman with a uterus capable of other pregnancies if the organ can be saved. This unfortunately is seldom possible when the growth is large or multiple or when the cervix is involved in the process.

Thus while conservative myomectomy or the radical operation offer us the means of removing danger during pregnancy, they also prevent danger during labor, and in many cases both lives may be saved.

I have little to say regarding the obstetrical part of these cases, as my experience here is limited, but I would say that at no time should the forceps be applied in order to overcome any impediment to birth produced by the presence of a fibroid, as is the case in contracted pelvis, because if their use is persisted in there is great danger of rupture of the organ. Judging from the results coming from various clinics, I should be inclined to believe that version under these circumstances to be a most deplorable method. If, however, the infant is dead, perforation may be recommended, although its accomplishment is oftentimes rendered very difficult on account of the high position of the head. If labor has taken place without instrumental interference the manual removal of the placenta will have to be resorted to.

The question as to whether to wait or to operate is the all important one. To a certain extent softening and compression of the neoplasm may be expected, but in those cases where the pelvis is completely blocked up by the growth, and where the impossibility of a natural labor is evident, Cæsarean section should be resorted to before the birth canal has become too greatly distended and before unfavorable conditions arise which render the ultimate result doubtful. Cæsarean section is also indicated where no signs of sepsis have shown themselves, and where all other conditions are favorable, especially so because delivery through a narrow pelvis simply means great danger for the patient.

As regards the puerperium complicated by fibroids, we should consider the following facts. Firstly, the growth may decrease in size and some have even been known to completely disappear, but secondly on account of their presence there is always great danger of hemorrhage and a decided tendency to necrosis and suppuration with all

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the dangers of intense septicæmia to which they give rise. This latter complication is rare, but it has fallen to my lot to have had three examples of this condition under my care. The histories of these cases I will briefly relate and beg in closing these remarks to say a few words more particularly regarding this serious complication of the puerperium.

Case 1.—The patient aged 26, married two years, was delivered at full term by the family physician of a handsome girl baby. Labor was perfectly normal and spontaneous, lasting twelve hours. The placenta was expelled twenty minutes after the delivery of the child. No hemorrhage. The next morning when seen by her physician the temperature was found to be 39° C., the pulse 120, respiration 24. There had been no chill. In the evening the pulse was 130, the temperature the same as in the morning and respiration 25. The lochia other than being very abundant presented no abnormal condition, but not understanding the cause of the rise in temperature and pulse, her physician carefully curetted the uterus but without removing any placental tissue or other débris. He however found by abdominal palpation that the uterus extended four fingers' breadths above the umbilicus, and that it was unusually large so that it filled up the pelvis completely and extended well over to the flanks.

The next morning at nine, that is to say, about 36 hours after delivery, the temperature was found to be 40° C., and the pulse small, weak at about 145 to the minute. The patient presented all the appearances of one afflicted with profound sepsis, and I was asked to see the case. Upon my arrival I found the condition of affairs just mentioned, and by palpation I made out the uterus which felt about the size of a ninth month pregnancy, more or less hard to the feel.

To make a long story short, I would simply say that the patient was admitted into the hospital and the abdomen opened, and an enormous uterus was tilted out and total abdominal hysterectomy was accomplished, but by the time the abdomen was closed the patient was dead.

Here was a case of intense septicæmia arising in an enormous uterus which had undergone what I term a fibroid transformation.

On section the walls of the organ measured about 10 centimetres in thickness and hardly a trace of normal uterine tissue could be discovered. The whole organ was infiltrated with pus which oozed out as sections were made. The tubes and ovaries were normal.

Case 2.—We saw in consultation a young woman 25 years old, who had been delivered of her first child four weeks previously. The labor,

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otherwise than being rather tedious and long, had been perfectly normal. Twenty-five days after the confinement the patient had a chill, and the temperature went up to 39° C. At our visit we found the abdomen distended, the pulse 120, presenting the peritoneal type. The urine contained a considerate amount of albumin, and indican was present. Upon examination the uterus was found to reach nearly to the umbilicus; the cervix was soft, and the uterine cavity, which was greatly dilated, was found filled with a dirty, fetid pus. In the right iliac fossa a large purulent pocket was found communicating with the cavity of the uterus. This was opened by posterior colpotomy and explored, which resulted in removal of the débris of a fibroid tumor about the size of an orange, which had been compressed during labor and had undergone gangrene. The bits of neoplastic tissue were removed, the cavity was irrigated and thoroughly drained, and the patient made an uneventful recovery.

Case 3.—A woman 32 years of age, who had been married five years, during which time she had had four miscarriages, all occurring about the second month. When seen for the first time a pregnancy of about four months, complicated with a fibroid tumor, was diagnosticated. About two weeks after seeing the patient she developed all the symptoms of a pelvic peritonitis, and in a few days gave birth to a child about five months old. About ten days after the miscarriage the patient had a chill, the temperature reaching 40° C., and the pulse was rapid and intermittent. This condition did not change, and as the symptoms of septicæmia were rapidly increasing, we decided to open the abdomen. Laparotomy was performed, and we found a large subperitoneal fibroid, which had contracted firm adhesions with the parietal peritoneum, the omentum, and intestine. Palpation of this large tumor showed that in certain spots it was fluctuating, and an incision was made over the most prominent point of fluctuation, which gave issue to about a liter of yellowish, creamy pus. On account of the extensive adhesions binding the growth, which would necessitate a very long and tedious operation for its removal, and could not be withstood by the patient on account of her very poor general condition, we drained the pocket and closed the abdomen. The patient, however, died in twelve hours after the operation. Unfortunately no autopsy could be obtained.

Here are a few other cases which I have found reported. The first is that recorded by Hegar, of a patient three months pregnant, who presented a large uterine fibroid which had become softened and in-

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flamed. Peritonitis developed, and laparotomy was done, but the patient died three days afterward.

Treub reports the case of a woman 27 years old, who for several years had presented an abdominal tumor which extended up to the umbilicus, but had never given rise to any pain. Menstruation had always been regular, and when seen she had been married for a year and was about three months pregnant. She then developed a peritonitis and a miscarriage occurred five days later. There was a severe hemorrhage following this, which was controlled by ergot. A fetid vaginal discharge set in, accompanied by fever and a poor general condition. The tumor was found to extend above the umbilicus. Curettage under narcosis was decided upon, and at the same time to make a complete examination. The tumor was found to be solid, and no fluctuation could be made out. The uterus could not be mapped out from the tumor, so that in all probability it was a fibroid very intimately connected with the body of the organ. Curettage brought away a yellowish débris, and a diagnosis of gangrenous fibroid was made. The next day the abdomen was opened, but the adhesions attaching the growth to the abdominal wall and intestine were so thick and firm that it was considered dangerous to break them down. A median incision was made, extending along the entire anterior wall of the uterus, in order to enucleate the neoplasm, which was found free in the uterine cavity. The tumor was removed, the uterus and abdomen were sutured, and the cavity of the uterus tightly packed with gauze. The patient recovered in spite of two utero-intestinal fistulæ. This was a case of fibroid tumor which had attained an advanced stage of necrobiosis.

Frommel's case was a woman in the fifth month of gestation. The fibroid, which was about the size of a fetal head, was inflamed and softened; peritonitis developed, and myomectomy was done. She recovered and was delivered at term.

Croffard reports the case of a woman in the sixth month of a pregnancy complicated with a uterine fibroid. The neoplasm surrounded the cervix like a cuff. Symptoms of infection arose, and as the fetal foot protruded it was seized and the child delivered. Infection, however, continued, and seventeen days later the abdomen was opened. The neoplasm, which was gangrenous, was so adherent that removal was impossible. As much as possible was removed by the thermocautery, and the tubes were also removed. The patient recovered.

Bonipiani has recorded a case of a 35-year-old primipara who had a fibrous tumor in the posterior wall of the uterus. Artificial abortion

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was performed during the sixth month, after which the patient developed a pelvioperitonitis, but recovered.

There are a few rare instances of so-called spontaneous purulent disintegration taking place in fibroids during pregnancy which are in all probability due to septic infection. I have only been able to find two cases—one reported by Krukenberg, the other by Cappil. In the first case the patient was suddenly taken with chills and presented symptoms of severe peritonitis. Miscarriage took place, and six hours after this the patient died. Necropsy revealed pus in the broad ligament, in the peritoneal cavity, and in the uterine cavity. In the second case there was an ovarian cyst, and on the right upper angle of the uterus was a fibroid with torsion of the pedicle, which had resulted in gangrene of the neoplasm. From this condition there had resulted a local inflammatory change in the neighboring intestinal coils, with the result that the intestinal bacteria had invaded the growth and suppuration had resulted.

In some cases we get an edematous softening of the fibroid which is followed by a necrobiotic disintegration. The edematous condition is usually due to hemorrhage into the neoplastic tissues, resulting in cystic formation. There results an engorgement of lymph, and if any chance for infection is offered after delivery, the neoplasm becomes rapidly purulent.

Other complications due to fibroids may occur during the post-partum period, such as phlebitis, inversion, or prolapse of the uterus, all of which appear to be infrequent; and this also may be said of eclampsia and rupture of the bladder, both of which are due to prolonged pressure by the growth. One case I find recorded long ago by Depaul, in which intestinal compression occurred, the patient dying with all the symptoms of strangulation of the intestine.

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