Fibroids Complicating Pregnancy, Labor, and the Puerperium.

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No less than 10 per cent of the recent literature on fibroids of the uterus has to do with the relation of these tumors to pregnancy, labor and the puerperium.

The subject is still subjudice, and as with all debatable questions, there are weighty voices to be heard on either side of the question; yet if one will consider all that is written and carefully weigh the evidence it will be seen that there is a preponderance of evidence testifying to the gravity of the condition and to the proper methods of procedure in the management of these cases.

The gynecologist, who looks upon every case of fibroids from a surgical point of view, finds no place for expectant treatment; while the obstetrician, who learns from experience that nature often overcomes serious obstacles, councils conservatism in the interest of mother and child. The view point of the former is the tumor, that of the latter the mother and child.

We read from the pen of Bland Sutton, the abdominal surgeon: "A comprehensive study of the cases in which the fibroids complicate pregnancy indicates quite clearly that the life of the woman is in jeopardy, not only so long as the fetus remains in the uterus, but also when it is expelled, whether this occurs prematurely or at full term."

Hofmeir, an obstetrician of large experience, says: "I believe I may say most positively from my experience that the complications which myomata present during pregnancy, labor and the puerperal state, cause actual, earnest dangers only in a few cases, and may be quite essentially diminished by patience, a cautious treatment of the birth, especially by its strict antiseptic conduct, and by careful attention to the placental period."

It is impossible to harmonize the views of these eminent authorities. A review of the literature and of my records convinces me that the truth lies between these extreme views.

At this juncture we would do well to consider the advice of Howard Kelly, who says: "Mere prophylaxis, that is to say, operating when there are no urgent symptoms, on account of dangers which may arise, has no field here." In other words, the fact that a fibroid is found to exist in a pregnant uterus, does not in itself justify operative interference. It is only when symptoms are caused by the tumor growth, or when from the size and position of the fibroid it is evident that pregnancy and labor cannot progress without danger to mother and child, that operative measures must be resorted to. Yet, from a study of the recorded cases, we are persuaded that it is the part of wisdom to be prepared for any emergency.

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It is generally conceded that fibroids of the uterus conduce to sterility. Olshausen and Carpentier agree closely in their statistics, showing that about 30 per cent of married women with fibroids of the uterus are sterile, a percentage three times as great as is found in married women irrespective of uterine fibroids.

Furthermore the percentage of abortion is high in the presence of uterine fibroids; Pinard finds the percentage as high as 26.

As to the frequency with which fibroids complicate pregnancy we have no reliable record. Pinard found eighty-four cases in 14,000 pregnancies, of which number sixty-six went through the periods of pregnancy, labor and the puerperium undisturbed and eighteen aborted. Such a small proportion of fibroids complicating pregnancy would seem too small when we compare this percentage with that of fibroids in the non gravid uterus. It doubtless does not take into account many small interstitial and sub-peritoneal growths which were not recognized. The same criticism may be passed upon the statistics of the Klinik Baudeloque, where but eighty-five cases were recognized in 13,814 pregnancies, a percentage of 0.62.

Let us first briefly review the influence of pregnancy on fibroids and then consider the influence of fibroids upon pregnancy.

The Influence of Pregnancy on Fibroids: It is a matter of common knowledge that fibroids often increase in size during pregnancy. Strauch, Valenta and others state that the tumor grows most rapidly in the first half of pregnancy, but this has not been generally confirmed. The more intimately connected with the uterus, and the greater the blood supply of the tumor, the more rapid its growth. The enlargement of the tumor is usually the result of oedema, less commonly of true hypertrophy of the cell elements and of necrotic changes. The oedema which both enlarges and softens the tumor is not always to the detriment of the mother and child, for it sometimes happens that tumors which would otherwise obstruct the passage are capable of such compression as to permit of delivery through the natural passages.

Necrotic changes seldom occur in the tumor during pregnancy but are not rare in the puerperium. These necrotic changes, which are usually expressed in suppuration and gangrene, seriously menace the integrity of the uterus and the life of the mother. A happy outcome of the necrosis of submucous fibroids is their expulsion from the uterus. Necrosis of subserous fibroids is rare but has been known to occur and to slough through the bladder, vagina, rectum and abdominal wall.

Influence of Fibroids on Pregnancy: The course of pregnancy, labor and the puerperium may not be altered by the presence of fib-

roids in the uterus, but it is likewise true that serious alterations do occur and in a not inconsiderable proportion of cases.

The position and size of the tumor are largely the determining factors in relation to the development of the pregnant uterus, to the delivery of the baby and placenta, and to the behavior of the puerperal uterus.

Fibroids located in the cervix and lower uterine segement have little influence upon the development of the pregnant uterus, but may render difficult or impossible the delivery of the child and placenta through the natural passages. Dilatation is interfered with in fibroids so located by substituting fibrous tissue in the place of elastic muscular tissue.

This embarrassment may be relieved by the protrusion of the fibroid through the cervix into the vagina or when subserous the growth may perchance become pedunculated and rise out of the pelvis or become so softened as to be flattened out in a manner that will permit of the passage of the child.

More varied and important are the influences of fibroids of the body of the uterus. These tumors interfere with the development and distention of the uterine musculature at the seat of the tumor, and there is compensatory thickening in the surrounding musculature. As a consequence the contractions of the uterus are embarrassed, leading to prolongation and weakening of the labor pains. After the expulsion of the child the uterus may fail to contract firmly and hemorrhage may be alarming, even fatal.

Large fibroids protruding into the cavity of the uterus may produce all sorts of malpositions of the fetus, and malformation may likewise result from the presence of large submucous fibroids and particularly when their is a scarcity of amniotic fluid.

Of grave significance are submucous fibroids which separate the placenta from the fetal sac. With the placenta lying above such an obstruction, the third stage of labor may be seriously embarrassed, and delay in the delivery of the placenta may prevent firm contraction of the uterus and incite post partum hemorrhage. Such has been the experience of Kelley, Lambert, Olshausen and Gusserow.

The placenta may assume an abnormal position because of the preoccupation of the usual placental sites by fibroid tumors. Hence we find placenta previa relatively frequent in submucous and interstitial fibroids. Wenkel estimates the frequency of placenta previa in submucous fibroids of the gravid uterus at 3.4 per cent.

The mucosa overlying submucous fibroids is seldom healthy, there are usually hypertrophic or atrophic changes present which make

an unfavorable resting place for the placenta. As a rule the placenta will not become attached to such a surface, and if it does it is often atrophied or adherent.

Interference with free drainage of the lochia may result from fibroids of the cervix and lower uterine segment.

Puerperal infections are to be feared because of the inability to empty the uterus without mechanical assistance.

Subserous fibroids do not disturb pregnancy and labor as do interstitial and submucous growths. They may prevent the development of the pregnant uterus by becoming adherent or incarcerated in the pelvis and they may necessitate the termination of pregnancy because of pain and vomiting. Much more depends upon the attachment of the tumor than upon its size. When in the broad ligament, or low in the pelvis, early removal may be necessary because of pressure, whereas large tumors may be attached to the fundus and give rise to no disturbance.

Hemmorrhage during pregnancy, as the result of fibroids, is not of common occurrence. Nauss recorded 241 cases of fibroids complicating pregnancy, in 19 of which hemorrhage was a factor; 11 of this number were submucous, 6 interstitial and 2 subserous. Lewere records 16 cases of hemorrhage during pregnancy in a total of 117 cases.

Occasional complications ascribed to the presence of fibroids are ileus, ischuria, uraemia, hydronephrosis and rupture of the uterus.

It is of interest to note the effect of submucous and interstitial fibroids upon the presentation and position of the child in utero. Susserott collected 68 cases from the records in which 40 were head presentations, 16 breech and 12 transverse. In 102 cases collected by Lefour, 52 were head presentations, 33 breech and 17 transverse. Combining these statistics and comparing them with the normal we have:

Head	54 per cent	vrs. 95	(normal)
Breech	24 per cent	vrs. 3	(normal)
Transverse	22 per cent	vrs. 0.06	(normal)

What of the alleged disappearance of fibroids after the completion of the puerperium? That they not infrequently diminish in size is unquestionably demonstrated, but it is equally true that they have seldom been observed to wholly disappear.

From this somewhat formidable array of complications and sequellae we are not to infer that fibroids complicating pregnancy should be classed with ectopic pregnancy and placenta previa as an obstetric emergency, for in fact 70 to 80 per cent (Winter) of the cases pass through the puerperium favorably.

Treatment. No rule can be laid down for the management of these cases for the reason that the three factors involved, i. e., uterus, fetus and tumor present themselves under such varying conditions.

Pregnancy Complicated by Fibroids: If, as stated by Winter, 70 to 80 percent of fibroids complicating pregnancy do not alter the course of pregnancy, labor or the puerperium, it is evident that a considerable number of cases will arise in which no interference will be anticipated; this is particularly true where the fibroids are small and subperitoneal. All large fibroids, wherever located, demand serious consideration and particularly when located submucous, interstitial, in the broad ligament, the lower uterine segment and cervix. Greater conservatism may be exercised in subserous fibroids of the fundus.

Backers would curette every pregnant uterus with fibroids wherever located and whatever the size, and advises the currettment to be done prior to the end of the sixth week, at a time when all fetal structures can be readily removed. This advice is unquestionably good where there can be no question as to the impossibility of pregnancy proceeding to a favorable termination, but where a reasonable doubt exists the pregnancy should be allowed to proceed to a favorable termination, or to the time when interference is demanded in the interest of the mother and possibly the child. This is a time of masterly inactivity, for on the one hand we have the possibility of the fibroid rising out of the pelvis or softening so as to allow pregnancy to proceed uninterrupted, and on the other of unendurable pressure pains, hemorrhage, placenta previa, adherent or retained placenta, delayed labor, post partum hemorrhage, necrosis of the tumors, puerperal infection and rupture of the uterus.

The induction of abortion is to be by no means lightly considered. Kirchheimer, in 1895, collected 100 cases with 40 deaths, a mortality of 40 per cent. The difficulty of removing the placenta accounts for the high mortality. When we consider that after the abortion is successfully accomplished the fibroids still exist, we have added reason for condemning the induction of abortion. Were we to regard the statistics of Kirshheimer as a reliable guide, how much better to remove the uterus together with the fetus. We have the authority of Wertheim for cendemning the induction of abortion after the fourth month for fear of hemorrhage.

Subperitoneal fibroids lying in the small pelvis and causing pressure symptoms may sometimes be elevated out of the pelvis by bimanual manipulations. If this can be done, pregnancy and labor may proceed to a favorable termination. When found impossible an abdominal section is imperative.

Before considering the operative procedures let us look to the statistics on the mortality of the various operations. Olshausen, 1885-1895, did 49 conservative operations with a mortality of 11.7 per cent. Thumin, 1885-1900 collected the records of 102 conservative operations, finding a mortality of 7.8 per cent.

After conservative operations abortion followed in 20 per cent of the cases (Winter, Strauch, Thumin). Supra vaginal amputation of the pregnant uterus together with the tumors, collected from the literature and private records of the same authors, gives a mortality as follows:

Olshausen, 45 cases....Mortality 17.7 per cent.
Thumin, 89 cases.....Mortality 11.2 per cent.

The mortality of total exterpation in 56 cases collected by Thumin was 8.9 per cent, while in the hands of Winter the mortality in both supravaginal amputation and total exterpation was 9.9 per cent.

Myomectomy ranks with the so-called conservative operations, but as a matter of fact cases are exceptional where this operation can be done without great risk from hemorrhage and infection as well as of inciting abortion. The favorable cases are those which are subserous and are attached to the uterus by a pedicle or are submucous and protrude from the cervix. Even in such cases the percentage of abortions is high.

Under no circumstances should a fibroid be shelled out of the wall of the uterus for fear of hemorrhage, infection and subsequent rupture of the uterus.

Cesarian section followed by castration, in the hope that the tumors will atrophy, is no longer practiced, because of the frequent failures to bring about atrophy of the fibroids, because of the loss of function of the ovaries which are now known to be important even in the absence of the uterus, and finally because the mortality of such an operation is little if any lower than that of hysterectomy.

It has been proposed to perform myomectomy where possible and to then proceed to deliver the fetus per vias naturales. Reference to the following table will suffice to convince one of the dangers of such a procedure.

Susserott—20 forceps, maternal mortality 8, fetal mortality 13.
Nauss—19 forceps, maternal mortality 9.
Lefort—35 versions, maternal mortality 21, fetal mortality 27.
Susserott—20 versions, maternal mortality 12, fetal mortality 17.
Nauss—26 versions, maternal mortality 20.
Nauss—11 perforations, maternal mortality 6.

The causes of death in the above cases were principally rupture of the uterus and infection on the maternal side, and injuries due to difficult extractions on the fetal side.

If it is determined to perform Cesarian section there is but one precaution to be taken that differs from the usual tecnic, and that is that the incision into the uterus must be so made as to avoid cutting through a fibroid. It may therefore be necessary to vary from the classical incision. It will seldom be thought advisable to perform Cesarian section without removing part or all of the uterus. Cesarian section has not given so good results as supra vaginal amputation or complete hysterectomy for the reasons that hemorrhage. necrosis of the tumor and infection so frequently ensued. In 1881-1893 Kerchheimer's mortality in Cesarian section was 60 per cent, in 20 cases; in 1894-1898 Thumin's mortality in 6 cases was 50 per cent, and in 1890 to 1900 Turner's mortality in 14 cases was 21 per cent.

Such records, as compared with those of supra vaginal amputation and complete hysterectomy, would effectually dispose of such a procedure.

In the former procedures not only are the risks less but the tumors are disposed of.

The Poro operation has been performed with fairly successful results. Thumin operated 49 cases with a mortality of 12 per cent, and Turner 21 cases with a mortality of 8.5 per cent.

There is but one positive indication for the Poro operation, and that is in cases in which the uterus is known to be infected.

I would also add that where it is possible to save the uterus by doing a myomectomy rather than to deliver the child through the natural passages a Cesarian section would offer the best results.

We have condemned the induction of abortion between the fourth and seventh months, and prefer either a supra vaginal amputation or total hysterectomy. From the seventh month to term if the child is living we advise a Poro operation, unless by myomectomy followed by Cesarian section the uterus can be saved.

The location of the tumor will largely determine the choice between supra vaginal amputation and total hysterectomy. With the uterus already infected it must be removed "in toto."

Four cases calling for surgical intervention are briefly recorded:

Case 1. Negress, 40 years of age was brought to the hospital on the sixth day of the puerperium. No satisfactory history was obtained because there were no friends and the patient was delirious.

The temperature was 104 to 105, pulse 140 to 150 on admission and remained almost constantly so up to the time of her death three days later.

The uterus was relaxed and tender to pressure, and the abdomen distended and tender. There was a very offensive uterine discharge, and on two occasions there was expelled a gangrenous fibroid the size of an English walnut.

Because of the profound depression nothing further was attempted than the irrigation of the uterine cavity.

The post mortem findings were acute metritis, two sloughing cavities in the uterine wall which marked the original localities of the fibroids and general suppurative peritonitis.

Case 2. Mrs. X, pregnant in the 12th to 16th week suffered severe pressure pains in the right side of the pelvis. The cause of this pain was found to be a tumor the size of a large orange, firm and not sensitive to pressure. It was attached to the lateral wall of the uterus and could not be elevated by firm pressure. An abdominal incision was made and a pedunculated fibroid removed from the pregnant uterus. Pregnancy was not interrupted, and there were no complications in labor and the puerperium.

Case 3. Mrs. ——, age 40, married 21 years, three pregnancies, two full term pregnancies 19 and 18 years ago. Both pregnancies followed by puerperal fever. First delivery instrumental, second spontaneous. Fifteen years ago aborted at third month of gestation; this was followed by a severe hemorrhage but no sepsis.

Menses always regular until one year ago. There was a period of amenorrhoea from July 15 to Sept. 1st, and this was followed by 30 days of constant flowing; patient did not think she was pregnant. Was regular until Feb 12, 1906 when, without a delay in her menses she flowed freely for one week and suffered cramping pains in the pelvis; did not then believe she was pregnant.

One year later she again lost a large quantity of blood. This hemorrhage was not preceded by any of the subjective or objective signs of pregnancy.

A supravaginal hysterectomy was performed. The accompanying specimen shows a pregnant uterus of about the fourth month. On the fundus is a sessile subserous fibroid the size of a lemon. Examining the interior of the uterus there are found two submucous fibroids the size of pigeon eggs.

Case 4. Mrs. ——, age 42, married two years. Spontaneous abortion one year ago at third month of pregnancy; this was not followed by sepsis or hemorrhage.

Patient suffered no pelvic disorder until pregnant the second time. I saw her when she was about four months pregnant. She was then suffering from pressure pains in the pelvis and almost persistent vomit-

ing. Ten days later I removed the accompanying specimen, doing a supra vaginal hysterectomy. In this specimen there is found the body of a four months pregnant uterus with the contained fetus. There are several small interstitial fibroids in the body and posteriorly is a subperitoneal fibroid about four inches in diameter that was adherent to the broad ligament and bowel and firmly wedged in the hollow of the sacrum.

The operation brought relief from the pain and vomiting.

Here the indication for radical surgical intervention was the constant pain and vomiting which were rapidly lowering the patients resistance.

Conclusions.

1. The presence of fibroids in a pregnant uterus do not *per se* call for operative interference. Only when they give rise to symptoms, or are of such size and so located as to be beyond question an obstruction to the development of the pregnant uterus and to the birth of the child should they call for surgical intervention.

2. Uterine fibroids conduce to sterility in about 30 per cent of cases.

3. The percentage of abortions and the fatality attending them is high in those cases not operated and where myomectomy is performed.

4. The influence of pregnancy on fibroids is to soften and enlarge them through oedema and rarely, in the puerperium, through necrosis.

5. The influence of fibroids on pregnancy, labor and the puerperium is nil in 70 to 80 per cent of cases.

6. Fibroids interfere with the development of the pregnant uterus through their size, position and fixity.

Fibroids of the cervix are injurious largely through their interference with the delivery of the child; fibroids of the lower uterine segment in preventing the engagement of the presenting part of the fetus, in causing pressure symptoms and in interfering with dilatation; fibroids of the body of the uterus in the development of the pregnant uterus, interfering with its expelling powers, with the delivery of the child and placenta, with the contraction and retraction of the uterus after its emptying, with the attitude and the development of the child in utero, and in causing pain and functional disturbances ot neighboring viscera from pressure.

7. Grave consequences may result in the puerperium. The uterus failing to contract and retract firmly occasions post partum hemorrhages; the difficulties in delivering the child and placenta may occasion rupture of the uterus and infection.

8. Placenta previa is relatively frequent as a result of fibroids located in the body of the uterus. (3.4 per cent, Wenkel) and makes the course of pregnancy one calling for watchful expectancy.

9. Fibroids commonly enlarge during the course of pregnancy, very frequently they decrease in size after the completion of pregnancy but they have seldom been known to wholly disappear.

10. Small fibroids, and particularly when sub-peritoneal, do not, as a rule, demand serious consideration. All large fibroids, wherever located, must be seriously considered particularly when located submucous, interstitial, in the broad ligament, the lower uterine segment or cervix. Greater conservatism may be exercised in subserous fibroids of the fundus.

11. When fibroids complicate pregnancy, and it is evident that pregnancy cannot progress to a successful issue, it is best to curette the uterus before the end of the third month. Where a reasonable doubt exists the pregnancy should be allowed to proceed to a favorable termination, or to the time when interference is demanded in the interest of the mother and child.

12. No attempt should be made to induce abortion after the fourth month.

13. Replacement of incarcerated fibroids without interrupting pregnancy is sometimes possible and must be attempted with caution. When found impossible an abdominal section is imperative.

14. Myomectomy is only advised in fibroids protruding from the cervix or attached to the uterus by a pedicle. Removal of the interstitial fibroids with delivery of the child per vias naturales is attended by grave dangers from rupture of the uterus and infection and should not be attempted.

15. Cesarian section followed by castration in the hope that the fibroids will atrophy is no longer practiced.

16. Cesarian section without removal of part or all of the uterus together with the fibroids is seldom advisable because of the high mortality and the failure to remove the offending tumors.

17. Poro's operation is indicated in all cases where the fetus in utero or the uterus is infected.

18. The location of the tumor will largely determine the choice

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Discussed by Dr. B. B. Davis, Omaha:

I promised Dr. Findley that I would open the discussion but when I did that I supposed there would be more that I might say in addition to what the paper covered. It seems to me the paper has gone over most of the ground. I agree with the conclusions of the writer of the paper.

It is quite frequently that this question of what to do when we have a pregnant uterus also envolved with fibroids. It is very difficult sometimes to tell just what to do. In a case of this kind the feelings of the patient should be consulted, giving the different things that might be done, and give a certain amount of choice as to what should be done. If the woman is willing to take her chances with Caesarian Section and if we feel that her condition is such that she will survive the operation she should be given that choice. In most cases this will not be the case. Then the question comes up "Is it better to empty the uterus and allow the tumors to remain or to perform hysterectomy?"

I believe that if during the first three months a diagnosis of fibroids of the uterus has been made and it is impossible to deliver the child, we should take the advise of Dr. Findley and curette the uterus, leaving the tumor, we are not interfering with a recurrence of pregnancy. Perhaps in a few months or a year she will be face to face with the same question. It does not seem to me logical to empty the uterus and allow the patient to be in this condition again and again. In most cases I would advise a hysterectomy. It assures them against a recurrence of this condition. It is the only point I would criticise and I would like to have the doctor in his closing remarks tell us his reason for this conclusion.

Discussed by Dr. D. W. Beattie, Neligh:

I would like to ask a question. I would like to ask during the discussion, if it would not be possible by shelling out the tumors to try and save the child in that way. It looks like a very simple operation and I would like to know whether it could not be done.

Dr. Findley closing the discussion:

In this case the woman was forty years old and the opportunities for pregnancy were not many. In the majority of cases I believe we should do as Dr. Davis suggested.