SURGICAL OPERATIONS DURING THE PREGNANT STATE.

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WHEN a huntsman expects to do some shooting, he not only examines the magazine of his gun to see that it is in good working order, but he also inspects the rest of his fowling piece to ascertain if it is in any way defective. This is a principle that would admirably apply to a woman who expects to become pregnant.

The organism of a woman expecting pregnancy should be in good working order, and any defects, that may exist, should be corrected before she permits herself to become impregnated.

This chapter of a woman's life is not dwelt upon with sufficient emphasis, as is evidenced by the ignoring of even the minor ailments that are so frequently present. I have reference to a diseased state of the teeth and gums, and to hemorrhoidal conditions. Much discomfort and suffering can be spared a pregnant woman by having such conditions properly attended to either before or during the early period of gestation. It cannot be denied that a woman, when pregnant, is in her happiest sphere when she can be left alone; the state of her sympathetic nervous system demands it.

A surgical operation upon a pregnant woman is fraught with uncertainty and anxious apprehension. Not that the operation may prove unsuccessful; but from fear of interrupting pregnancy. It is only logical to reason that the organism has quite enough to do; and that an additional strain, such as a surgical operation must tax the patient to the utmost. Furthermore, we have no definite guide to help us in our judgment as to the disposition of a uterus to abort in any stage of gestation.

There is a certain satisfaction to be derived from the wealth of material bearing on this subject. It is believed that an imperative major operation, of whatsoever nature, performed during the pregnant state, does not influence the progress of pregnancy other than to favor its continuance, provided no septic process with its continued high temperature results in the death of the fetus and causes abortion.

Surgical intervention for appendicitis during pregnancy is not a matter of election, and should be performed regardless of any accepted ruling as to the most propitious time for operation. It is axiomatic that operations of choice on a pregnant woman should not be performed at a time when a woman would be menstruating were she not pregnant; *i.e.*, the best time to operate would be when there is the least amount of uterine excitability. It is well to bear in mind that sedatives, and even narcotics, freely administered before and after the operation, will prove very beneficial in controling much of any excitability of reflex nature.

Of five cases of appendicitis during the pregnant state, between the fourth and the seventh months, where pus was encountered, three aborted—all within five days. The other two went to full term, having a normal labor.

Of twenty-eight cases of appendicitis during pregnancy between the second and the fifth months, where no pus was encountered, there were no abortions.

Two cases of appendicitis, one occurring during the sixth month and the other during the seventh month of pregnancy, suffered no untoward results from the operation.

The cause of abortion in the pus cases must not be attributed wholly to the operative measure. I am disposed to believe that the continued high temperatures and the drainage material used, are equally important factors. A few days of high temperature will, usually, suffice to kill the fetus; whereas gauze not properly enveloped with rubber tissue, may through its irritating influence, cause a reflex excitability sufficiently severe to provoke an abortion.

Tumors.—In my experience with tumors complicating pregnancy, I have had some interesting surprises. One of my greatest was in a case where the complicating myoma grew with such rapidity that I felt justified in recommending an operation for its removal. My request was promptly refused. The woman went to full term, and was successfully delivered. All she suffered was a moderately severe postpartum hemorrhage. Within six months after birth of the child, the tumor, which had attained the size of a man's head during pregnancy, had dwindled to the size of an orange.

Another patient, primipara, pregnant five months, noticed three tumors, each the size of a goose egg, on the right side of her abdomen. The tumors were sessile and intimately connected with the uterus. Although the patient was greatly excited over the discovery, her anxiety was assuaged, and she went to full term. In due time she was sent to the hospital. Every preparation for possible accidents

during labor was made. She went into labor at 11 A. M., and delivered herself within two hour without assistance or accident. I arrived in time to deliver the placenta.

These two cases furnished splendid food for thought and disarmed me of any surgical aggressiveness in cases of this kind with which I came in contact. Happily, the cases above related occurred in the early years of my practice and left a profound impression. Probably the safest precept to follow in pregnancy complicated by fibroids, is to let the condition alone until complications arise which demand operative interference. The character and extent of the operation will depend upon the nature and locality of the tumor.

With all the consoling evidence to encourage us, and the dictum to entertain the most conservative views of the management of hese tumors to guide us, we, nevertheless, feel that the life of a woman, in whom fibroids complicate pregnancy, is not without danger, either during the period of gestation, labor, or during the puerperium. A subperitoneal fibroid of the fundus is harmless if it has no long pedicle; if it has, the pedicle may be twisted, or be displaced downward. These tumors, when small, by their intra-pelvic position, give trouble chiefly through their pressure effects. By their increased growth, they incarcerate the uterus and create a marked tendency to abortion during the first three months of gestation. Some of these tumors may be removed without interrupting pregnancy; particularly is this true when the removal is accomplished before the placenta becomes a separate organ. A pedunculated fibroid should offer no difficulties in its removal. A sessile tumor, however, may present very serious difficulties, and it would be well to closely inspect the tumor before its removal is undertaken. In a tumor giving evidence of degenerative changes, a myomectomy should not be considered, the liability to sepsis being too great. It would be far more to the interest of the patient to count the possibility of allowing the fetus to become viable, and then deliver by Cesarean section with ablation of the uterus.

A sessile tumor, with deep-seated base, should not be attacked. There is great danger of hemorrhage, or of rupture of the sutured uterine wound in these cases. A myomectomy always calls for properly selected cases. Multiple tumors, complicating a pregnancy, contraindicate myomectomy. Myomectomy during pregnancy is a serious procedure. The ablest men speak of it as an unjustifiable procedure. When I look back upon the four successful myomectomies I have done, and remember that every one of the women went to term, I appreciate my good fortune.

Interstitial and submucous fibroids, are prone to cause distocia, give rise to postpartum hemorrhage and adherent placenta. The latter complication is one that often invites sepsis on account of injury that may occur to the tumor during the manual ablation of the placenta. Intraligamentous tumors constitute, as a rule, a serious impediment to labor.

Abortion occurring in submucous fibroids and in those tumors producing incarceration, has a maternal mortality of 12 per cent. In pregnancies complicated by submucous fibroids, and advanced to full term, the maternal mortality is 77 per cent. (La Four). Many are the unusual conditions that present themselves when such cases come to labor. The presentations are often abnormal. Prolapse of the cord, and of the extremities is frequent; placenta previa is common, inefficient uterine contraction is the rule; profuse hemorrhage is a constant source of dread and apprehension, the possibility of rupture of the uterus must not be lost sight of; and complete occlusion of the birth canal is one of the possibilities. During the third stage of labor, hemorrhage may be a most serious complication. After labor, involution is always slow in these cases; a septic endometritis with softening of the tumor, general sepsis and an early death, marks many of them; sometimes there is sloughing of the tumor, chronic sepsis, exhaustion, and death.

With such a discouraging picture before us, the greatest care and judgment should be exercised that surgical measures are instituted at a time when they will do the most good and before the patient has reached a stage when any of the procedures must prove unavailing. It is, indeed, a most weighty problem for the obstetric surgeon to decide. Two lives are to be saved; that of the mother, however, takes precedence.

The behavior of submucous, interstitial, and intraligamentous fibroids, may be such as not to menace gestation; when that is the case, the pregnancy should be permitted to advance until the period of viability, and a Cesarean section, followed by hysterectomy, is the proper procedure.

Cervical myomata grow rapidly during gestation and, usually, prove a decided barrier to delivery. Vaginal enucleation or amputation of the tumor should be done at the earliest date possible. The operation is often followed by severe hemorrhage and difficult of control. Many surgeons militate against this risk by resorting to more radical measures.

Should a cervical myoma prove too great a risk for removal, on

account of the size it has attained, it would be advisable to follow the same rule as in the other varieties of uterine myomata, namely, to wait for the viability of the child, and then perform Cesarean section followed by hysterectomy. This would be the elected procedure. It may happen, however, that a cervical myoma, or an intraligamentous tumor, causes serious pressure symptoms before the period of viability has been reached. Then hysterectomy, irrespective of pregnancy, should be performed.

Cases of myomata complicating pregnancy coming under my care were: nine subperitoneal tumors, all sessile. Four cases were subjected to myomectomy on account of rapid growth and incarceration between the third and fifth months; no abortion. Of the other five cases, three went to full term, and two miscarried at the fifth and seventh months respectively. All recovered. In the three cases, where myomectomy was successfully performed, the uterine balance was quite disturbed, as was evidenced by pain that presaged an impending abortion. With the aid of opiates, the organs regained their normal equipoise within a few days. The other case of myomectomy progressed most favorably and gave no evidence of the surgical infliction.

In one case of interstitial tumor operation was refused. Patient miscarried in the seventh month and perished from sepsis two months later.

In two cases of intraligamentous tumors, operation was refused. One case aborted in the third month, and the other in the fourth month. Both patients recovered. They were operated successfully later.

One cervical myoma, the size of a hen's egg was removed during the second month. No abortion.

I wish to add two cases of myoma where hysterectomy had been performed and the discovery of pregnancy was made after operation. The respective ages of these patients were forty-three years and fifty-two years. Positive assurance had been given that pregnancy was out of the question. This assertion was accepted in full, as there were no signs that could disprove it.

While dwelling upon tumor conditions, I wish to refer to one case where a woman, thirty-two years of age and pregnant in the fifth month, noticed a growth the size of a hen's egg in the lower and outer quadrant of her left breast. This tumor gave evidence of rapid growth. Radical operation was proposed and accepted two months later. The tumor proved malignant. Pregnancy went to full term. This is the first instance that has come under my observation

where a tumor in the breast had been excited to rapid growth during the pregnant state.

A case of interest is one of a woman, twenty-eight years of age, who had been suffering from a sarcoma of the left breast for eighteen months. During these eighteen months, she became pregnant twice and aborted during the second and third months respectively. She was not willing to have the breast removed until ulcerative conditions began to show themselves some months later. Five months after the operation, the woman became pregnant and is now overtime. In this case, was it the breast malignancy, or was it a psychic potency that was influential in bringing about these abortions?

Ovarian Cyst.—An ovarian complication, in the character of a cyst, greatly jeopardizes a pregnant woman's well-being. Statistics show that 30 per cent. of cases abort if not operated upon, while the percentage of abortions after operation is about 18 per cent. The maternal operative mortality is about 2 per cent.

An ovarian cyst may be unsuspected before conception and its clinical existence may date from the occurrence of pregnancy. The growth of nearly all ovarian cysts is usually rapid. They are liable to the danger of torsion, which occurs three times as frequently as in the nonpregnant woman and often cause distress by pressure. Rupture of an ovarian cyst is always a possibility during pregnancy.

As soon as the diagnosis of ovarian cyst is made, operation is indicated. In two cases operated on during the fourth and sixth months of pregnancy, gestation was not interrupted.

Hofmeier has given us a rule for which the profoundest regard should be entertained. He says: "Operate on practically all ovarian tumors and defer operation in practically all myomata as long as possible."

Cancer.—Cancer of the cervix of the uterus in pregnancy is not uncommon. This is one of the most discouraging conditions a surgeon can meet. His word, offered in the strongest convincing sense that can be reflected in the light of our present knowledge of cancer, can only be accepted by the woman so afflicted in a relative manner. Her word, too, in this matter must be respected and the given case must be conducted to a certain extent on principles that accrue not only from the state of the pregnant woman, but also from her expressed wish.

Cancer predisposes to abortion and its growth during pregnancy is usually very rapid. If the cancerous condition appears to be

incipient, the affected portion of the cervix can be removed with a fairly good chance of not disturbing gestation. The greatest encouragement can be entertained when the operation is performed before the fifth month.

In the more advanced stage of the disease, if consent can be obtained, a hysterectomy should be performed without reference to the life of the child. It is most likely, however, that such consent will not be given, and that the patient is willing to take a chance. A serious question, based upon statistics, forces itself here upon the surgeon. Can he conscientiously take an imperative stand against the patient under such conditions and insist upon a radical operation? Can he, in the face of the patient's objections, demand that the child be sacrificed and the mother given her chance? Judging from the end results of carcinoma of the uterus as they are known to us to-day, I doubt very much if the surgeon has a right to assume this imperative attitude. An exception is the case seen near the period of viability; here a few weeks of waiting will not materially increase the existing dangers.

The treatment of cancer complicating pregnancy should be radical. If the patient has gone to almost full term and the child is still alive, the preferable delivery is by Cesarean section followed either by a total extirpation of the uterus, or, if the patient's condition does not permit of the total ablation, a rapidly performed Porro operation should be substituted. Delivery in the more favorable cases can be accomplished by the vaginal Cesarean section of Dührssen, followed by vaginal total extirpation. In the still more favorable cases, when the cancerous condition seems only obstructive, delivery may be satisfactorily accomplished with forceps or version after the mass has been extensively incised. Hysterectomy should be done at once.

The treatment of cancer complicating pregnancy depends entirely upon the progress the disease has made in the given case. It requires an experienced operator to judge such a condition correctly. My experience with this condition (private patients) comprises six cases. All were well advanced when first seen. Radical operation was refused in every case. One of the six cases was subjected to cauterization during the fifth month of pregnancy. She miscarried in the seventh month and died four months later. The rest of the cases dropped into other hands. Two of these died before term, presumably from hemorrhage. The fate of the other three I have not been able to learn.

Other cases coming under my care with lesions that were coex-

istent with pregnancy and in which operation could not be deferred were three cases of gall-bladder disease, one case of renal calculus, and two cases of ventrofixation that so anchored the enlarging uterus that release became imperative. Operative measures exercised no untoward influence upon the patient and pregnancy went to term. All patients were operated not later than the sixth month.

For the relief of hemorrhoids that demanded a surgical measure on account of the severe suffering the condition caused the patient, I operated on eight pregnant women, two of whom promptly aborted. The operation in each case was performed before the fourth month. An operation of this character in a pregnant woman should be the least radical, as the reflex excitability is unusually pronounced when these structures are subjected to trauma. One has only to recall the long time it requires for a patient (not pregnant) to urinate unassisted after an operation for hemorrhoids to become convinced of the profound reflex excitability that is engendered by the surgical invasion of these parts.

A vaginal fistula in a woman four months pregnant, which I attempted to close in order that the risk of infection during the puerperium might be eliminated from this source, resulted so promptly in an abortion that my surprise was beyond expression. In looking up the statistics, I found that 44 per cent. of abortions followed operations for vaginal fistula.

My conclusions gleaned from the studies of a limited experience with surgical lesions complicating or coexisting with pregnancy can be expressed briefly:

1. A woman expecting to become pregnant should be thoroughly examined for any physical defect.

2. Such a defect should be corrected, if possible, before pregnancy takes place.

3. No operation that can be deferred should be performed upon a pregnant woman.

4. Any operation that will contribute to the safety of a pregnant woman should be performed without hesitancy.

DISCUSSION.

Dr. Henry Schwarz, St. Louis, Missouri.—I am not willing that Dr. Reder's paper should go undiscussed, although I have not much to add to what he has said. The complication of fibroids with pregnancy requires a great deal of discrimination, and Dr. Reder most likely would have brought out the possibilities of the complications of fibroids with pregnancy had he been given time to have finished his paper. In a long experience most of us have seen cases

of fibroids of the myomatous type in which the muscle tissue predominated undergo involution almost the same as the musculature of the uterus. I have seen fibroids the size of a child's head disappear. On the other hand, there are fibroids met with during pregnancy which do not give any complications at the time of delivery, and these can be delivered or taken away later as the case may require. If, however, the fibroid is found in the culdesac of Douglas, and most likely will obstruct the birth canal, it should be taken out, and the sooner it is done the better. I have removed fibroids the size of a cocoanut from the lower end of the uterus without opening the uterine canal and without interrupting pregnancy. Then again, a good many women will not go to full term and we are expected to remove the fibromatous uterus when we do a Cesarean section. In one exceptional case I did not remove the uterus. A woman came to the hospital in a sapremic condition, with a dead fetus, it being her first pregnancy, and the fibroid was located in the broad ligament. It was the size of a child's head. I did a Cesarean section, and at first wanted to remove the uterus, but when I could remove the fibroid I did so. The woman is now pregnant and she will be delivered through the natural passages.

What Dr. Reder said about women being examined before they became pregnant and of getting all the information one can in regard to the cases is interesting, but most of the babies do not come into the world so well planned. (Laughter.)

Dr. J. Henry Carstens, Detroit, Michigan.—I can agree with what the doctor has said in regard to these tumors complicating pregnancy. I have had cases of strangulated hernia and gall-stones complicating pregnancy, and particularly ovarian tumors. Ovarian tumors are sometimes very rapid in their growth, they distend the abdomen to such an extent that we have to do something to relieve the woman. But I think the general principle the essayist has enunciated is correct, that where it is possible we should not operate. On the other hand, if the case is acute, and there is danger of suppuration, we had better operate early because we know that in the presence of any septic condition the woman is liable to abort. That is a great principle that should guide us.

Dr. O. H. Elbrecht, St. Louis, Missouri.—I recall a series of twenty-eight pregnant women who had fibroid tumors or other conditions complicating pregnancy, and at the time I looked up the literature very thoroughly, and found it tallied with my own experience. The women who are most apt to miscarry or abort are those who are toxic or in whom suppuration has taken place. You can operate on an obstructing gall-stone or a kidney stone, and if you have not very much pus or toxemia to deal with, and will use prophylactic measures to prevent abortion or miscarriage, you are apt to be successful.

Just what was said in regard to peritonitis and in giving large doses of opium applies more particularly to this class of work. I should say, do not wait until you get contractions, but give the patient plenty of morphin before operation; do not wait until the

patient is wide awake and dozing but give her morphin as soon after the anesthetic as possible and keep her under the influence of it. If you inhibit the impulse to abort you have a chance to save the fetus, whereas if you wait and let it go on, abortion is inevitable. I believe that the cardinal principle to avoid miscarriage or abortion in this class of cases is to keep them loaded with morphin from the start and you will be successful. The cases you do not save are those in which you put in drains and those in which you find pus and toxemia. I believe if you will bear in mind what I have said and carry out the principles I have enunciated, you will save more babies than you would if you waited a while before giving morphia.

Dr. Hugo O. Pantzer, Indianapolis, Indiana.—I am in hearty accord with what has been said by the essayist in regard to tumors or other pathological conditions complicating pregnancy. I wish to report a case of extreme interest which pertained to a woman who was about five months pregnant with twins and had a dermoid cyst when she came to my hospital. She gave the history of having had in the preceding three or four weeks repeated attacks of pelvic pain, sharp and lancing and lasting each through several days. Examination revealed a large immovable tumor to the right and back of the uterus, filling practically all that part of the pelvis. There was no choice in this case but to operate. I found a dermoid cyst, which under the stimulus of the pregnancy, I assumed attained increased growth until it had repeatedly burst its confining sac, with the result that nature threw out plastic material to cover-in the protruded material and adhesions would form, which for the while were a barrier against further extrusion of contents. Then in another three or four days or a week a further similar attack would follow. The firm adhesions at operation were freed with greatest difficulty, and not unexpectedly the uterus discharged its contents within a short time.

Dr. Reder (closing the discussion).—In presenting my paper I was anxious to get to the portion dealing with cancer during the pregnant state which is an exceedingly interesting chapter. What Dr. Pantzer said about ovarian cysts recalls the dictum of Hofmeier, namely: operate in practically all ovarian tumors, and defer operation in practically all myomata as long as possible.