

## THE INDUCTION OF LABOR AT TERM

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I ATTEMPTED to prepare a statistical paper, and present some results of pathologic examinations in these cases. However, an enormous press of work in the last four months has absolutely prevented that, and therefore I am going to present to you the opinions and deductions which I have drawn from this experience, and these pathologic findings, for your consideration.

There are many established and approved indications for the induction of labor before term. Such are: contracted pelvis, eclampsia, placenta previa, habitual death of the fetus after viability but before term, etc. The induction of labor at full term, or a few weeks before it, is also a recognized procedure in cases where the patient gives a history of abnormally large children, and one might have to induce labor at term for any indication that threatens either mother or child.

This paper will deal with an indication for inducing labor at term that is not so generally accepted, but, in the opinion of the writer, is a real one and if more broadly recognized would save many lives and much suffering. The writer would recommend that pregnancy be not allowed to proceed much longer than the usually allotted period of 280 days, but that, when gestation is completed, and the patient goes overtime, labor should be brought on. The patient should not be allowed to go too far overtime.

Is there such a condition as carrying overtime? A few authors deny it. The majority believes that cases of prolonged pregnancy occur. Various statistics give the period of pregnancy as extending from 259 to 330 days. Cases are recorded where pregnancy is said to have lasted 341, and 409 days, but, aside from the reasonable doubt as to their authenticity such anomalies do not concern us here. The vast majority of pregnancies terminates at about the end of ten lunar months, or 280 days, from the first day of the last menstruation. It may then be assumed that the period of human gestation requires 265 to 275 days, and that,

given such a length of time, the fetus is fully developed and viable. If a woman continues in her pregnancy beyond the time stated, she may be said to be carrying overtime, though this, unless very long, may not always be pathologic.

That accoucheur who watches his cases of pregnancy thoughtfully, and who individualizes his patients scientifically, will find that there are many disadvantages, not a few pathologic conditions, and occasional deaths as the result of allowing pregnancy to go beyond its usual length. Not infrequently labor starts, as evidenced by uterine action and the show, or even the rupture, of the membranes, and some dilatation of the cervix; and, for some reason, the pains cease, and the woman continues in pregnancy for one, two, or even four weeks. Sometimes the pains recur at intervals and they may prevent sleep. This prolonged labor may make inroads on the mother's health. I have seen such cases of prolonged labor, with more or less regularly recurring painful uterine contractions, and two or even four fingers dilation.

Recently a woman was admitted to the Mercy Hospital from South Dakota, who had been in labor (premature) for six weeks. The uterus was contracted. Regularly, at intervals of from three to five minutes, the uterus, as a uterus in labor, would contract. The contractions were painful. The mouth of the uterus had dilated to the size of a ten-cent piece, and easily admitted the index finger. The loss of sleep during these six weeks, and the constant pains, had made such inroads on the woman's health that she was admitted to the hospital in almost a typhoid condition. She was subicteric, with thin facies and extreme emaciation. Her condition was critical. She had sordes on the teeth, a dry, red tongue, and looked for all the world like a typhoid patient. There was no fever.

The dangers in such cases are not all theoretical. The patulous os invites infection, especially in those patients who practice coitus

throughout pregnancy. It has been definitely proven that bacteria may wander through the intact membranes. It is more than possible that certain cases of infection, intra- and post-partum, and certain infections of the newborn, are contracted through the open cervix of late pregnancy. The uterus and vagina, in some cases, form one continuous passage. If the bag of waters should rupture this danger of infection becomes a reality.

The writer has had one case of a child having been born from an apparently healthy mother who developed, within a few hours after birth, a temperature of  $101^{\circ}$ , and died within four or five days with acute streptococcus infection, while the mother remained free.

One child delivered by the author had a nasal discharge as soon as it was born which, on examination, showed the diplococcus pneumoniae.

In women of nervous temperament, this prolongation of the gestation is very disturbing. The loss of sleep and anxiety have a bad effect on their *morale*, so that when labor finally does set in, half their courage is gone, and weakness of the powers of labor is frequently noted. Forceps delivery and post-partum hemorrhage are common for this reason and from another cause soon to be mentioned. In a recent paper, Reynolds (SURGERY, GYNECOLOGY AND OBSTETRICS, March, 1907) describes cases of neurasthenic women in which he believed the elective Cæsarean section at term offered better chances for mother and babe than natural or operative delivery from below.

This is mentioned simply as an index of the trend of modern obstetrics, and is the opposite of the supine expectancy that most practitioners have with regard to their obstetric cases. It behooves every practitioner to make a careful study of each individual case with a view of preventing all possible accidents and complications at the full term of pregnancy. Death of the child is not infrequent from carrying it too long in the uterus. The writer is aware that this is a bold statement, and also that he cannot prove it scientifically, as there are so many other conditions that have to be taken into consideration in determining the cause of death. Several women have presented themselves with the voluntary statement that their babies

die at or near term, or when they are overterm. One woman lost two children without apparent cause, except carrying overtime, and came to the writer with a direct request for the induction of labor before the end of gestation. The operation was performed and a living child procured. The older writers used to speak of habitual death of the child after viability but before term, and allowed it as an indication for the induction of labor. Syphilis, endometritis, and Bright's disease cause most of these cases of death, and in the presence of such conditions the treatment is plain.

A certain proportion of the deaths, without doubt, in the mind of the writer, is due to over-ripening of the ovum. In one such case that occurred in the writer's practice, Professor Zeit, from a careful macroscopic and microscopic postmortem, could find nothing to explain the death, save signs of epithelial degeneration in the kidneys. The chief nurse at the Chicago Lying-in Hospital, a woman of much experience and good judgment, very recently called my attention to the coincidence of stillbirths, and asphyxiated children, in the waiting women who led lazy lives about the hospital. She had noted that in them labor was delayed and often prolonged, and that an unusual proportion of their babies were still-born, or came asphyxiated, or covered with meconium, or even with the placenta detached at the moment of delivery. These children were not of unusual weight, but had hard heads. In some rare cases labor is "missed" entirely, the fetus dies, and is expelled months later, or removed by the accoucheur. The death of the child is similar to that of the child in extra-uterine pregnancy at term. The cases above referred to are similar in some respects, then, to "missed labor." Perhaps the thrombosis that occurs at the placental site becomes too extensive to permit fetal metabolism.

A slight pelvic contraction, especially in a case of funnel-shaped pelvis, will give an indication for the induction of labor at term. As to the induction of labor for contracted pelvis, while perhaps it should not be considered in this paper, still when we consider the frequency of slight degrees of pelvic contraction, I wish to emphasize the funnel-shaped pelvis. I think more attention should be paid to it.

In these cases, where the bony outlet is found to be narrower than normal, the necessity of inducing labor at full term should be considered. I have noticed a slight degree of funnel pelvis in women who have suffered from dysmenorrhea and who have evidences of infantile cervix. An authentic history of several over-grown children, of course, would indicate interference.

In many, but not all, cases of prolonged pregnancy, the child is over-grown. Statistics prove what individual experience has long noticed, the children, if not actually larger, are of different consistence. The head is harder and the biparietal diameter is greater. The broadness of the head, the prominence of the parietal bosses, and the greater ossification of the bones, are striking. They increase the difficulty of labor and complicate the mechanism more than simple increase in size of the child. The body is longer, also, and the spinal column is less flexible. In some cases there is an increase of weight, due to the hardening of the tissues, and sometimes the child has over-grown in every way, both in size and weight. As a result of these conditions, I have noted the following anomalies in labor to be more frequent:

1. Lack of cephalic moulding, high arrest of head, prolonged and fruitless labor, forceps, hard extraction, extensive injuries.
2. Occipito-posterior positions, absent rotation, forceps, etc.
3. Deflexion attitudes, military attitude, forehead, brow, and even face presentations and their sequellæ.
4. More or less disproportion between the size of the passage and the passenger, prolonged labor, and operative interference.

Many irregularities in the labor, apart from those of mechanical disproportion, and anomalies of mechanism have been observed. Some of these are indirectly caused by, or indirectly influence, the mechanical factors in labor. The pains are apt to be irregular, intermittent, and ineffectual. On the other hand, occasionally, they are tumultuous and quickly deliver the child, perhaps precipitately, injuring it or the mother. The writer had one case of complete rupture of the uterus, where the pregnancy was prolonged by a prolonged labor. This is

the exception. Weak pains are the rule. It is possible that a fatty degeneration of the uterine muscle occurs in these weeks of prolonged pregnancy (Bossi). This invites traumatic rupture or produces inertia. This muscular weakness often necessitates the use of forceps. The lack of strong uterine contractions leaves the cervix and vagina without the softening and succulence necessary for safe dilatation, wherefore lacerations of the parts are frequent, and all operative intervention rendered laborious. The same inertia is carried over into the third stage, and postpartum hemorrhage caps the climax to a succession of complications.

The writer wishes it understood that these are not constant accompaniments of labor after prolonged pregnancy, but that they are more frequent than in normal cases, and that they justify interference in many cases. It is his practice, therefore, to watch the pregnant women carefully, as they near the computed time for delivery, and when this has arrived, and is passing, to consider the advisability of inducing labor.

If one practices among intelligent women it is always possible to obtain the dates of menstruation, of quickening, and lightening. Nearly always it is possible to learn the date of the fruitful coitus. By computing in the usual manner, one decides on the probable date of labor. When the day arrives, unless labor has begun sooner, the patient is very carefully examined. The parts are prepared as aseptically as for labor, because the finger is to be inserted into the uterus. Shaving and antiseptic washing of the genitals are practical, and the lower vagina is washed out with lysol solution. The child is measured by hand and Perret's cephalometer, and its probable viability and size determined. The fetal heart is auscultated. The fetus is minutely palpated from all sides, its position determined, and its weight estimated.

With practice one learns to guess within a half pound of the infant's weight. An error of a pound is not common, and when it occurs it is usually in favor of the child; that is, one guesses below its actual weight. The use of cephalometry is not as general as it should be. Practically useful information may nearly

always be obtained with the Perret instrument. Next an internal examination is made. Sterile gloves are always used, and the parts are prepared as if for operation. One determines first if the head has entered the pelvis; that is, if lightening has occurred. The symptoms of lightening are sometimes simulated by a relaxation of the abdominal walls in the later weeks of pregnancy. The softening and patulousness of the cervix are next investigated. If the cervix is very soft, the os open for one or even two fingers, especially if some effacement has taken place, one may feel sure that labor is near at hand. Often the os is so soft and open that one feels as if a few pains would deliver the child. This is found in *multiparæ*.

These cases, then, are considered at term and ready for delivery. I usually instruct the patient, if labor does not come on within a week, that I will set a date and induce labor. The diagnosis of the viability of the child is made, first, on the data which the patient furnishes, which gives the time at which to make the internal examination; second, upon the evidences of labor being inaugurated very shortly; and, third, upon the abdominal and internal findings as far as the child is concerned. The nearness of labor may also be determined by the sensitiveness of the uterus. If with slight manipulation the uterus contracts readily, labor is not far distant. The history of false or true pains will also aid in determining that labor is not far distant. If a woman says that every night she has false pains, it is a good sign that labor is about to begin, and it requires very little stimulation to bring it on. Cases are on record where labor pains had been present for six or eight weeks; an internal examination will guard against error in such patients.

The methods required at term are simple, because the uterus is already at the point of contracting, and it requires very little stimulation to set it in actual work. I have a method which is not original with me, but which is

very efficient and safe. I use an old-fashioned tubular packer that is on the market; I have had it curved instead of straight, to correspond with the perineal curve, and thus to relieve the woman of pain. I have prepared a special gauze which is made up in smooth strips five yards long; it is a woven bandage. It is an ideal gauze for the purpose and is kept in sterile jars. I use the ordinary tubular packer, which is put in the cervix, and by gently rotating the instrument one can pack all around the lower uterine segment. The presence of the gauze stimulates the uterus to contract. The operation is so simple that it can be done without an anesthetic, when the woman is at term, and it may be used instead of, or along with, other recognized methods of inducing labor.

I appreciate the danger of recommending a procedure of this kind to the general practitioner. The field of error is not small. Arguments can be advanced to show that the length of pregnancy varies a good many days, and that a mistake of three or four weeks can be made, and the child delivered before it is really capable of carrying on an effective fight against the elements after its delivery. However, in the vast majority of cases, pregnancy lasts from 275 to 280 days, and we can come within two weeks either way. A mistake of two weeks would not make much difference if the baby came too soon, and if the woman should carry her baby two weeks longer, it would be safe anyway.

The nearer the woman is to spontaneous labor the easier it is to induce labor pains, but it must be admitted that occasionally the simple means fail, and one has to resort to powerful measures to set the uterus in operation. In a properly equipped maternity one may use these measures safely, and if the uterus reacts poorly to stimulation, it is not unreasonable to conclude that in such a case pregnancy would probably have been prolonged far beyond the safe period for mother and child.