

FROM THE OBSTETRICAL CLINIC, CHICAGO LYING-IN HOSPITAL

## THE PRINCIPLES OF THE TECHNIQUE OF THE SECOND STAGE OF LABOR

By J. B. DeLEE, M.D., F.A.C.S., CHICAGO

**D**URING the few hours comprising the second stage of labor, many babies and not a few mothers die, and many invalids, mostly permanent, are made. It is imperative, therefore, that the accoucheur be in personal attendance on the parturient or be represented by a competent assistant as soon as the cervix is completely dilated, that is, the second stage is begun; and that he remain by the patient's side until the labor is completed.

The duties of the obstetrician during this critical period may be classed under 5 headings: (1) protecting the parturient from infection; (2) preventing injury; (3) relieving her of excessive pain; (4) preserving the life and health of the child; (5) preventing complications. While the average practitioner will obtain a certain meed of success in the routine treatment of the labor case, he will require more than the usual amount of brains and of skill to perform all these duties well and pilot the mother and baby safely through the perils which menace both from all sides. The accoucheur will therefore need to devote all his time and all his talents to the mother and baby during this period of labor.

*Protecting the parturient from infection* consists not alone in carrying out in the minutest detail the principles of asepsis and antisepsis but in so fortifying the woman's system that she can and will throw off any invading army of bacteria.

It should be and probably would be insulting to the reader if I were to say that he must conduct a labor with the same painstaking regard for asepsis and antisepsis as that practiced by the surgeon in the surgical operating room. Vital statistics show that over 5,000 women die of puerperal infection every year in the United States. It is, therefore, needful to say that the parturient woman requires and deserves an even more perfect aseptic technique. Each labor should be conducted with the same care as that used in a vaginal hysterectomy. Obstetrical cases in general hospitals are especially apt to become infected and therefore need particular isolation, and isolation is permanently effectual only with architectural separation of the maternity from the general medical and surgical wards.

Fortifying the system against bacterial invasion involves the proper preparation of the gravida for her ordeal and the conduct of the long first stage of labor so as to avoid dehydration, starvation, acidosis, and nervous and physical exhaustion. It also means proper conduct of the delivery itself so as to prevent, first and most important, loss of blood, even minimal amounts; second, exhaustion from prolonged natural effort; third, shock, mental and physical; fourth, undue traumatism, natural and artificial.

I cannot discuss all these important things in detail. By preparing the gravida I mean that throughout pregnancy the woman should be made to exercise and to eat properly, she should be watched for focal and general infections, heart, kidney diseases, etc., and all such conditions corrected as far as possible—in short, adequate prenatal care should be given her. During labor, food, water, rest, and mental encouragement are to be provided. The second stage should not be allowed to drag on indefinitely but the watchful accoucheur should determine, "not what nature can endure but what she can accomplish."

Long before the first labor pain has occurred the attendant must have made up his mind whether or not the case is a normal one as far as mechanical disproportion is concerned. Prolonged pounding of the head against the inlet or the pelvic floor results in traumatism which invites infection, but improperly performed delivery by the accoucheur will cause more damage and give rise to more infection than natural delivery. Besides, an obstetrician who does not know how to operate usually also does not know how to be clean, that is, does not carry out a perfect aseptic technique. Unless, therefore, the attendant really can improve on nature he had better leave her alone, and interfere only in the presence of immediate danger to mother or child. In all necessary operations, traumatism of the tissues should be reduced to an insignificant minimum. Healthy tissues resist infection. Traumatized structures invite its entrance. The Latin motto which the old accoucheurs engraved on their forceps should be respected:

*Non Vi—Sed Arte*

There is a curious superstition that a patient can and should lose blood during labor, and that a bloodless labor, while not harmful, is abnormal. I would prefer all labors to be bloodless, being certain that the women would have less post-partum infections, nurse their babies better, and recover their strength much quicker. It is wise, therefore, during the second stage to preserve the woman's blood reserve intact—she will always lose more than is good for her in the third stage.

*Prevention of injury*, in addition to its guarantee against infection, safeguards the woman's future health. The connective tissue and fascial supports of the cervix, bladder, vagina, rectum, and pelvic floor must be preserved or else the woman will suffer in later years from greater or less degrees of prolapse of the pelvic organs. A certain amount of damage is inevitable during the passage of the child, especially in women of the enteroptotic type, those with a congenital weakness of all mesoblastic structures. In these women all we can save is the perineum, and not always that. Cervical tears, while common in operative deliveries, occur frequently in spontaneous labors, and the same applies with greater force in respect to the pelvic floor.

Reduction of such damage is effected by allowing the natural powers to bring the head down to and between the levator ani pillars. The bearing down efforts of the woman, instead of being spurred on by the attendant as is generally done, are to be restrained and moderated by instructing the parturient how best to use her powers, or by the judicious employment of anaesthetics. Urging the parturient to "bear down" incontinently is too often an evidence of the attendant's desire to hurry the labor and curtail his expenditure of time, rather than an evidence of the exigencies of the case. A slower dilatation of the parturient passage would be better for the soft parts and the baby's brain.

The obstetrician should understand the natural mechanism of labor and should closely observe its development by abdominal and rectal examination in each particular case. He should know how to direct the powers of labor to the best advantage by external measures, for instance, how to favor anterior rotation of the occiput, how to deliver the head and shoulders with their smallest diameters presented to the girdle of resistance. In short he must be an obstetrician, not a midwife "watching a hole."

One of the greatest crimes against the integrity of the pelvic connective tissues and the baby's brain and life, is the routine use of pituitrin to hasten the second stage of labor. I am not sure

that a parent could not recover damages at law if it were proved that a baby was lost, or the mother injured by her attendant administering pituitrin in an apparently normal labor.

A timely episiotomy will often save the perineum from more extensive damage and at the same time relieve the baby's head from injurious pressure, while in the hands of an expert obstetrician, protected by the ponderous aseptic technique of the special maternity, the forceps may occasionally be used to effect delivery with a minimum of danger to both mother and child. It will bear repetition, however, that those hands into which the majority of labors fall will do less damage to mothers and babies if they are kept off until nature shows some signs of being unable to bring the case to a happy conclusion.

*The relief of pain during the second stage* is one of the prime duties of the accoucheur. It is true that all anaesthetics carry some degree of danger to both mother and baby, but on the whole the advantages outweigh this. The prevention of psychic shock is one of them, and the restraining of too powerful expulsive efforts is another. It was stated above that too rapid delivery is undesirable.

There are several claimants for favor in the field. Chloroform still has many advocates but obstetricians are giving it up one by one as cases of late poisoning develop in their practice. Nitrous oxide and oxygen are preferred by many who have not yet tried ethylene. Of the two gases the latter seems to be the more successful since it does not cause cyanosis, is more relaxing, leaves less headache, and does not cause any more bleeding. Its great inflammability is a drawback but this can be reduced to safety—almost—by using a water machine, zeppelin-painted, and by grounding the machine, patient, operator, and all who enter the room, to get rid of "static." For short deliveries in multipara—for short operations not involving much cutting and suturing, ethylene may be used. My own preference is for ether, throughout the second stage and for perineal repair. Rarely one can use local anaesthesia with  $\frac{1}{2}$  per cent novocain.

*The preservation of the life and health of the child*, needless to say, is of importance secondary only to that of the mother. But it is needful to say that in the practice of most obstetricians both the life and the health of the child are not considered as requiring any special attention on their part. At least one must so decide upon observing the neglect the child suffers before he is born and the rough handling he gets while being brought into the world. Some men never listen

to the baby's heart in the second stage and are astounded when it comes into the world dead. Others listen so infrequently that a child could die ten times between two auscultations. It is necessary, in order to detect the earliest signs of fetal distress, to listen to the heart every 2 to 5 minutes and in questionable cases, continuously. For this purpose the accoucheur will find the head stethoscope most convenient, indeed indispensable. When the fetal heart beats as low as 100 or less the child is in danger and needs to be removed, and this should be done if the conditions are right.

I have seen men yank a child out of the womb with the gentleness of a coal-heaver, and expect the baby to live through the experience. A baby is a tender organism, particularly its brain, and it should be handled with great delicacy. We may, by ungentle manipulation, injure the brain and, while life is not affected, the child later may develop paralysis, paresis, mental disorder, or deficiency. Prolonged compression of the brain by the natural forces of labor will cause as great damage as imperfect operative delivery. This must be avoided by the help of art, appropriately timed. During the child's birth, its eyes, lungs, navel, intestinal canal must be securely protected against infection—not an easy task.

*Preventing complications.* How few men conducting the second stage actually think of the most common possible complications! They cannot even be said to be "waiting for something to turn up" except the exit of the baby. Abruptio placentæ, rupture of the uterus, eclampsia, cardiac collapse, all occur occasionally during this period of labor and their remoteness or imminence should be promptly recognized. If the signs and symptoms of abruptio placentæ suddenly appear, prompt extraction will save the child—and the mother too. Obstruction to delivery leading to rupture of the uterus is easily discovered but tumultuous pains can burst a uterus even when there is no mechanical obstruction. Then deep anæsthesia will save the woman's life. Cardiac disease may show itself for the first time during the second stage of labor. Many cases of "obstetric shock" are really cardiopathies. A close watch of the parturient's heart, which is rendered so easy by the head stethoscope, would have warned the obstetrician in time.

I will conclude by quoting two very trite sayings, truer nowhere than in obstetrical practice and truest and most applicable to the second stage of labor: "It is always the unexpected that happens." "Eternal vigilance is the price of success."