

we find very few reports of uterine rupture and death of child. If we analyze these cases, as I have tried to do, we will find one of three things. First, the case was one in which the drug should never have been used; secondly, the dosage was too large or repeated too often, or given when the patient was deeply anesthetized; thirdly, the patient was in an exhausted or septic state.

Puerperal complications and delayed convalescence, usually, have a starting point—shock, incident to mental and physical suffering. What obstetrician has not had it brought home to him that an exhausted woman is a good subject for septic infection? What a different picture, and what a different history, is the physically well woman who rallies immediately after labor, to that of the worn-out and exhausted patient, who may run the typical febrile course. A long drawn out labor, accompanied by a hot, dry, swollen vagina, offers a fertile field for infection, and it only requires a study of governmental and health board statistics to verify the statement that exhausting labor is the prime factor of high and unnecessary mortality.

This method is not presented with the idea of supplanting well known means of delivery, as demanded when dealing with malpositions, operative conditions, or with any form of placenta previa; but it is applicable to that type, classified under the head of normal presentations, when the delivery is conducted in a hospital or in the better class of homes. I present this method to you for your earnest consideration, suggestions, criticism, or approval.

19 WEST SEVENTH STREET.

(For discussion, see p. 89.)

THE CHOICE OF METHODS FOR MAKING LABOR EASY*

By ARTHUR H. BILL, M.D., F.A.C.S., CLEVELAND, OHIO

IT IS very gratifying to note the efforts put forth by those interested in obstetric progress, which aim at the elimination, as far as possible, of the terrors of childbirth. The contrast between present-day methods of conducting labor and those of ten years ago is most striking. The old plan of allowing nature to take its course, even in the face of abnormalities, with the hope that eventually the abnormality might correct itself, has given way to a far more scientific and humane method of correcting abnormal conditions, and thus assisting natural forces which act best when conditions are normal. We find also a tremendous difference of opinion as regards the relief of pain. Even those who most strongly opposed the use of anesthetics and analgesics have taken their stand with those who are exerting every effort to make the labor as comfortable as possible for the patient.

*Read at the Thirty-Fourth Annual Meeting of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons, St. Louis, Mo., September 20-22, 1921.

All these efforts are worthy of commendation, and yet we must acknowledge the danger of overstepping the limits of safety when these efforts are misdirected or when unsafe methods are used. The object of this paper is to attempt to discriminate between the safer and more conservative, and the radical methods, and to select ways of relieving the pain and the exhaustion resulting from labor to the last degree, and at the same time, keep within the limits of safety.

Emphasis should be laid upon the fact that fads and hobbies have no place in obstetric practice. Let us remember that both for the relief of pain and for the termination of labor, there are several methods; that there are, perhaps, points in favor of most of these methods in individual cases; and, on the other hand, there are contraindications to them in others. Bearing this in mind, it would seem that the obstetrician, who would do the best for his patient, will familiarize himself with all of the better methods and select them according to the case in hand, and not allow himself to apply one method to all cases, regardless of the varying conditions which surround them. My efforts have been directed toward such a selection of methods and, naturally, what is to be said in this paper is based on the results of these efforts.

The problem of making labor easy divides itself naturally into two distinct parts: (a) The relief of pain, and (b) the shortening of the second stage, or the working stage, of labor.

(a) There are two general groups of methods of relieving labor pains: analgesia and anesthesia. Analgesia adapts itself only to the first stage of labor; anesthesia to the second stage. The latter is also useful in the first stage in multiparae, and as a supplement to analgesia in the first stage in primiparae. After trying various methods of analgesia, the writer has found the morphine and scopolamine method the most satisfactory, and uses it according to the usual prescribed method of small and frequently repeated doses. The one rule, which is strictly adhered to, is that no scopolamine be given in the second stage of labor, and not within a period of three or preferably four hours of the expected birth. This rule practically eliminates its use in multiparae, and in those occasional primiparae who have very short labors, with the latter exception, the method is used as a routine in primiparae. It has been found to be perfectly safe when the above mentioned time limit is carefully observed. In multiparae and the small proportion of primiparae mentioned, the general anesthetic is used instead. The time for beginning the anesthetic or analgesic is determined by one fact, namely, the suffering of the patient. In other words, something is given for the relief of pain just as soon as the patient seems to be feeling uncomfortable, no matter how early in labor. If the scopolamine and morphine method does not appear to give sufficient relief, a general anesthetic is also given with each pain.

Of the general anesthetics commonly used, we have ether, nitrous oxide, and chloroform. All will relieve pain with equal satisfaction, although there is a difference in their safety and practicability. In our practice, chloroform is not used, not that chloroform will not give the necessary relief, which of course, it will, but because it is a far more dangerous anesthetic than the others, and gives no better results. Ether is the usual anesthetic used because of its entire practicability and safety, and the fact that it gives better relaxation, which is an important factor at the time of delivery. Nitrous oxide is used in selected cases. Aside from the fact that many patients find it more agreeable, it has one advantage in the earlier part of labor, when the pains are not very forcible, in not inhibiting the pain quite as much as ether. The latter advantage is only seen in an occasional case, however, and is best illustrated in induction of labor, in which it is our custom to use gas. This, however, is a disadvantage at the end of labor. Ether is not given by the drop method, for in the relief of a labor pain the best results come from giving a large amount in a short time. The closed cone is used as a routine. The second stage is one of general anesthesia. Morphine, scopolamine, ether and nitrous oxide are all used in our practice, the choice being made in each individual case at the time of labor and, except for following the general principles laid down, no definite choice is made in advance. Each method has its advantages and disadvantages in certain cases. In some cases, all are used.

(b) Shortening of labor. I am in hearty sympathy with the principle of shortening labor instead of allowing the patient to carry it on to completion by her own efforts. However, in following this plan, great caution must be urged. First of all let me emphasize the fact that efforts toward the shortening of labor should, as a rule, be limited to the second stage of labor. The first stage should not be interrupted unless there is a definite indication resulting from the condition of the mother, or, more often, the failure of the fetal heart. By a combination of analgesia and anesthesia, it is possible to allow the patient to complete the dilatation of the cervix with little suffering in a very large percentage of cases. It has been my practice for a number of years to shorten the second stage of labor by delivering the patient under complete anesthesia, and of correcting abnormalities of position when the patient has reached the second stage. The method used has depended upon the individual case being a forceps delivery or a version, according to the circumstances surrounding it. No decision as to the method of delivery is ever made in advance; for by doing so, the interests of the patient are not served as well as by going to the delivery with an open mind and deciding each case on its merits.

To give an idea of the results of this selection of methods of anes-

thesia and of delivery, I present the last 500 cases which I have personally delivered previous to September 1st, 1921, as follows:

Ether alone in.....	228 cases
Morphine and scopolamine, plus ether, in.....	192 “
Morphine and scopolamine, plus nitrous oxide in.....	19 “
Nitrous oxide and ether in.....	56 “
Nitrous oxide alone in.....	5 “

The methods of delivery were as follows:

High forceps	41, inc. posterior positions conv. by forceps	32
Medium forceps	81 “ “ “ “ “ “	40
Low forceps	236 “ “ “ “ “ “	6
Podalic versions	71 “ posterior positions	52
Breech extractions	19	
Abdominal cesarean sections	26	130
Vaginal cesarean sections	3	
Pubiotomies	3	
Craniotomy	1	
Spontaneous Births	19	
	<hr/> 500	

The fetal mortality in cases delivered after the sixth month of pregnancy was:

1. *Stillborn*. Nine or 1.8 per cent. Two macerated, on one of which craniotomy was performed. Three after high forceps, 1 toxemia case in which labor had been induced. One after version. Three after low forceps, after prolonged and difficult labor. Of those living and viable at onset of labor—seven, or 1.4 per cent were stillborn.

2. *Died in First Two Weeks*, Seven or 1.4 per cent. One delivered by medium forceps in case of toxemia, died during first 24 hours. No autopsy. One 6½ months' premature, lived one day. Two died suddenly on first and second days. Autopsy revealed nothing but greatly enlarged thymus in each case. One 7½ months premature with double harelip and cleft palate, lived 3 days. One anencephalic monster, lived but a few hours. One hemorrhagic baby. Autopsy showed intestines and peritoneal cavity filled with blood.

In the combined list, there were eight babies, or 1.6 per cent that died during or after the labor, and as a result of the labor. Three of these, namely, the high forceps cases, very likely, should have been delivered by cesarean section. In the case of the other five, it is not clear how the labor should have been conducted differently.

It will be noted that in 336, or 67.2 per cent of the cases presented, the head passed spontaneously through the external os while the patient was under the influence of analgesia or anesthesia. This large percentage emphasizes the success of the policy of relieving the pain, and allowing the case to take its own course to the point when the head is well within the pelvis; and, if possible, entirely through the cervical canal, unless there are indications to the contrary. To analyze

the cases further, it is well to divide them into groups: (1) Those cases in which the head was at the pelvic outlet, or well within the pelvis and in a normal anterior position. (2) Those cases in which the head lay in a vertex occipitoposterior position. (3) Cases in which the head was either in the pelvic brim or above the brim at the time of delivery, and the pelvic measurements were ample. (4) The cases of breech presentation. (5) The second child in case of twin birth.

(1) There were 271 cases in this class. Many of these would in time have resulted in spontaneous births. However, the policy followed was that of delivering them with forceps under complete anesthesia, a procedure sometimes called the prophylactic forceps operation. Experience has shown that there are several advantages in this procedure: (a) The strength of the mother is saved, and her suffering diminished. (b) The danger to the child from prolonged pressure upon its head is decreased. (c) The number and extent of lacerations of the perineum are diminished. (d) Asepsis is better maintained than when the patient is thrashing about. Preliminary manual dilatation of the birth canal, which is always performed, very materially lessens the pressure to which the child's head is subjected at the end of labor, while the complete relaxation of the patient allows the obstetrician to control the birth of the head far better than when the patient is bearing down, and it is necessary to use considerable strength to hold the head back. The delivery in such cases is simple, and very little traction force is necessary. The degree of success depends upon the care and accuracy with which the forceps are used. In their use, especial stress is laid upon the following simple rules: (a) Always make an accurate cephalic application. (b) Use axis traction so that the head will follow the course which corresponds to that of the normal mechanism of labor. In this connection I would urge the more common use of axis traction forceps, even when the head is low, for with their use, there is greater accuracy than when the ordinary forceps are used with Pajot's maneuver. (c) Take far more time than is usually allowed for the delivery, that there may be an extremely gradual birth. (d) Try to see how little force may be expended in traction. (e) Promote flexion of the head. (f) Take the forceps off and shell the head out manually as soon as the chin may be felt posterior to the perineum. While it has been my practice for some years to routinely lift the head over the perineum with forceps, I have hesitated to advocate this procedure for fear of its abuse. However, the satisfactory results would seem to indicate that greater stress be laid upon the proper use of forceps, and less upon their disuse because of damage not uncommonly resulting from careless forceps work.

(2) The occipitoposterior position. This is by far the most frequent complication of obstetric practice, and causes a large percentage of

the prolonged, painful and difficult labors. In the list of cases presented, there were 130 occipitoposterior positions, or 26 per cent. In many cases the head will rotate to an anterior position spontaneously, if the labor is allowed to go on, but only after an unnecessary prolongation, amounting to many hours in some cases. Under such conditions, the patient is working under a very severe handicap, in that the head does not tend to follow the path of the normal mechanism of labor. Much suffering and exhaustion therefore results. It is the writer's policy not to wait for the spontaneous rotation, but to correct the abnormality, when there is complete dilatation of the cervix. If the head is in the pelvic cavity, this is accomplished by rotating it with forceps, using the modified Scanzoni procedure, which I have previously described before this Society. Traction is never made upon a head in an abnormal position, such as the occipitoposterior position. After the head is rotated, we have no more of a serious problem than in the cases in Group 1.

If the head is in the pelvic brim, or above it, and in a posterior position, the choice of procedure lies between the high forceps and podalic version. In the list presented, there were 84 such cases; in 52 of them version was performed, and in 32 the forceps were used to rotate and to deliver. In my experience, both procedures have their advantage in suitable cases, and the choice between them is made at the time of delivery. To illustrate: If the membranes are intact, and the patient is a multipara, the podalic version is invariably used. If the membranes have ruptured, the uterus dry and somewhat tonically contracted, I prefer to rotate and deliver with forceps. Further, if the patient is a primipara with unusually rigid soft parts, the forceps delivery has the advantage that far more time may be allowed for the delivery than is possible in the case of a breech extraction. This must materially lessen the dangers to the child and the extent of laceration to the mother. This group comprises those cases in which the head is held up at the pelvic brim solely on account of the posterior position, cases in which the head would have readily descended into the pelvis had the position been normal.

(3) Exclusive of cases in which there is an occipitoposterior position, the head may remain at the pelvic brim even though measurements are good, for example, face presentation, brow presentation, presentation of one parietal bone, and cases in which there are insufficient or misdirected pains. For the delivery of such cases, podalic version is to be preferred. In the cases of the malpositions mentioned, forceps are contraindicated; they should never be used unless an accurate application is possible, and the head can be made to descend in the manner in which it descends in conformity to the normal mechanism of labor. This is not possible in the case of the abnormal positions mentioned.

(4) Breech presentation, especially the frank breech. Too often the patient is allowed to continue for a long period in the second stage of labor in the hope that the breech will descend spontaneously. The patient may be entirely relieved of this unnecessary prolongation of labor, and nothing is to be gained by waiting for spontaneous descent. The preferable plan is to bring down the feet and extract without further delay when dilatation is complete.

(5) In twin births, the second child is immediately delivered by version. There is no excuse for the long interval sometimes occurring between the births of twins. The conditions are never more ideal for version than in the case of the second twin.

It will be noted that in the list of cases presented, there were only nine high forceps cases if we exclude the occipitoposterior positions. These were cases in which there was a moderate dystocia and indications for delivery were present. Every effort is made to reduce the use of high forceps in such cases to a minimum.

Any plan of shortening labor may be abused. The abuse lies chiefly in too early attempts at delivery. From my own experience, and from observation of the work of others, I believe that the one great cause of failure may be attributed to the cervix; that is, attempts at delivery are made when the cervix is not completely obliterated. Its resistance may be the cause of disastrous results, whether version is performed or whether forceps are used. Manual dilatation of an undilated cervix is often insufficient. Hence, the stress which I have laid upon the importance of waiting whenever possible for the head to pass through the cervical canal, or at least for the complete obliteration of the cervix.

It is possible to so simplify labor that women will not look forward to it with dread. The part which the patient takes in labor is largely a passive one, consisting chiefly of breathing the anesthetic as directed. She is seldom urged to strain or pull. Pulling straps are never used. The results of our efforts as described, as shown by the relatively low fetal mortality, furnish ample justification of these methods. The conservation of strength is a great benefit to the patient during the puerperium, while the apparent lack of fear with which they anticipate labor, materially lessens the common nervous symptoms of pregnancy including nausea and vomiting.

In conclusion, let us remember that all obstetric cases are not alike, that neither the same method of anesthesia nor the same method of delivery offers the best solution for every case. We have various methods and most of them have their peculiar advantages for individual patients. Let us become proficient in each, and be ready to use the one which best applies to the case in hand.