THE AMERICAN

JOURNAL OF OBSTETRICS

AND

DISEASES OF WOMEN AND CHILDREN.

VOL. XXXVII. JUNE, 1898. No. 6.

ORIGINAL COMMUNICATIONS.

THE CESAREAN VERSUS FETAL MORTALITY.[1]

BY

EDWARD REYNOLDS, M.D.,

Boston.

THE proposition which I wish to advocate to-night is that the maternal mortality of the Cesarean section has now become so low that its performance is justified in all cases in which a mechanical obstacle renders the delivery of an otherwise healthy woman by the usual obstetrical operations more than ordinarily difficult and dangerous; or, to put it more specifically, I assume that there is no longer any question about the relative positions of the Cesarean section and craniotomy to the living child, in healthy women not exhausted by long labor, but I hold that the question which still remains open to argument is the position of the Cesarean section as contrasted with unusually difficult high forceps or version.

It is common to consider such questions from the standpoint of pelvic measurements, and to speak of them as though they

[1] Read before the Section on Gynecology, College of Physicians of Philadelphia, April 22, 1898

were questions to be settled by mere matters of inches or centimetres. My own experience, and that of the men with whose work I am familiar, has, however, convinced me that our means of estimating the variations in the size and consistency of the fetal head are so extremely inaccurate as to reduce the measurement of the pelvis to a matter of scientific interest and study, and a measure useful in the teaching of students rather than an infallible guide to the practitioner. The utmost use I can personally permit myself to make of pelvic measurements is to say that I consider the external measurements of considerable value in determining the kind of deformity which is present, and that I believe that pelves which measure in the neighborhood of 3½ inches in the conjugate offer an obstacle whose results will vary in individual cases in accordance with the characteristics of the head and the kind of deformity present, from a mere prolongation of labor to an impossibility of delivering the living child through the natural passages. The estimation beforehand of the amount of difficulty to be expected in a given case with such a measurement, I believe to be the most difficult problem which is ever presented to the obstetrician, and one the discussion of which is foreign to the purpose of my paper.

My theorem may then be reduced to the following terms:

1. *Much-contracted Pelves.*—With a pelvic measurement of not more than 3 inches in the conjugate, I believe the Cesarean section to be the only operation which should be considered in healthy women not exhausted by long labor and at full term.

2. *Primiparæ with Slightly Contracted Pelves.*—When a healthy primipara is found to have a conjugate of between 3 and 4 inches, I believe that the amount of difficulty which will occur should be estimated by observation of the progress of labor; but that the possibility that an indication for the Cesarean section may arise should always be borne in mind in such a case, and that all the preparations for it should be made beforehand, or at least during the first stage of labor.

3. *Multiparæ with Moderate Contraction.*—When any definite contraction is associated with a history of repeated stillbirths during previous operative labors, I think that the Cesarean section should be chosen *ab initio*.

As an advocate of what will appear, to many, so radical a position, you might perhaps expect that I should come before you fortified with statistical conclusions drawn from long lists

of cases extracted from the literature of the subject; but the ease with which statistics can be made to prove anything which is desired is well known to every one, and I am personally so firm a disbeliever in this method of argument in matters medical that I have preferred to quote only the cases with which I have been personally connected, supported to some extent by others which have occurred in the hands of men whose judgment and operative methods are personally familiar to me and which have been communicated to me personally by their authors. In short, I propose simply to offer you my own opinions gained from experience, and for comparison with those of other speakers; but, as a stranger, it is perhaps fitting that I should first say a few words as to what that experience has been. I have formed the opinions which I now express as the result of an experience which, from the standpoint of the ordinary operations, is derived from twelve years of service in a clinic which now delivers 2,500 women each year, as well as from my private and consulting practice seen during the same time; and as regards the Cesarean operation, from a personal experience of seven upon which I have operated myself, with three others in which I have advised and witnessed the operation as a consultant. To these I may add twelve other Cesarean operations which have either been performed by my colleagues in the Boston Lying-in Hospital or been privately communicated to me by professional friends with whose personal equation I am sufficiently familiar to render their experience of value to me. Many of these cases also were seen by me either before or after operation. Of my own cases there were two in which the indication was absolute—*i.e.*, in which the women were at term and the size of the pelvis was too small for the delivery of even a mutilated child per vias naturales. Four were done for pelves of about 3½ inches in the conjugate in women in whom good operators had previously lost from one to three children by forceps or version; one in a pelvis of the same size in which I myself had previously delivered a living but badly marked child after the most difficult forceps operation which I have ever done, the second child being a half-pound larger and with a very fully ossified head, which had made no attempt to engage during nearly two hours of forcible second stage labor; four more cases in which, as a consultant, I have recommended the Cesarean were all multiparæ of this class, whose previous labors had resulted in the delivery of intact but still children by the ordinary operations.

In all the twenty-two Cesarean cases which I quote the recovery of the mothers was uneventful, and twenty-one of the twenty-two children are alive to-day, the other being the child of an idiotic dwarf, which was born alive but died afterward from inherent weakness.

Before starting upon the argument by which I hope to sustain my position, I wish once again to urge upon you that I restrict myself entirely to the question of the Cesarean as opposed to more than usually difficult, but not necessarily hopeless, high forceps or version in healthy women not exhausted by long labor and under the care of experienced men; it is essential to a fair consideration of my position that you should remember these limitations.

The first essential to a comparison of the several operations from this point of view is the establishment of a fair conception of the intrinsic mortality, maternal and fetal, of the intrapelvic obstetrical operations under similarly favorable circumstances, taking care on each side to consider only the intrinsic risks of the operation. The advance of asepsis has made the more difficult operations so familiar, has robbed them so completely of their early terrors, that most experienced operators have grown to feel that the maternal mortality of high forceps and version under favorable circumstances and in experienced hands is practically *nil*. With this view I am myself inclined to agree, but I should be inclined to suspect either the judgment or the experience of any operator who contended that these operations were absolutely free from any intrinsic maternal risk. As it is always well to check the general opinion which one has reached by looking over the actual records of his cases, I have reviewed the books of the Boston Lying-in Hospital for the last ten years with regard to both the maternal and the fetal mortality of the operative cases. I find that during that time high forceps or version was performed by members of the permanent staff for high delay of the head, uncomplicated by any pathological occurrences on the part of mother or child, 75 times. Out of this list, which comprises all the difficult intrapelvic operative deliveries, there was one maternal death, but this was due to pneumonia during the puerperium, and was certainly not the result of the individual operation employed. These cases are of course too few to justify any conclusion upon what is probably at most always a fractional percentage of maternal mortality. But I think that most experienced operators will agree that, as an advocate of the Cesarean section for the sake of the fetus, I am

presenting the obverse side of my proposition not unfairly when I say that, under the favorable circumstances of healthy women not exhausted by long labor and in the hands of experienced men, the intrinsic mortality of the ordinary obstetrical operations, though existent, is probably to be found at less than one per cent. In estimating the maternal mortality of the Cesarean section under the same favorable circumstances, I believe that we are met at the outset by a similar difficulty—namely, that the number of cases even yet recorded, and more especially the experience of any one man or of any ordinary collection of operators, is too small to enable us to compute the mortality exactly. Those who are familiar with the large maternal mortality which appears upon the face of the statistics of the operation as ordinarily published may be surprised at this statement, but a personal statistical study which I made a few years ago of all the cases which I could find reported up to that date showed that no death had occurred in the class of cases under consideration—*i.e.*, healthy women not exhausted by long labor and under the care of experienced obstetricians. My distrust of statistical studies of cases not personally familiar is, however, so pronounced that I prefer to disregard these statistics and rest upon my belief that most men who have performed this operation repeatedly under such circumstances and have so come to be familiar with its ease and safety will agree with me that the intrinsic mortality which can be attributed to it, as distinguished from the performance of the alternative operations, is probably not larger than one per cent. This statement, however, must be accepted only with the reservation that it excludes from consideration unfavorable cases, inferior operating, and the small percentage of casualties which will necessarily attend upon the performance of any operation, such as death from anesthesia *per se*, and other similar causes.

If the above argument be accepted—*i.e.*, if the dangers to the mother are not essentially enhanced by the substitution of the Cesarean section for unusually difficult forceps or version—we are then brought to the question of whether the risks to the fetus are essentially changed. This question is much more easily settled by reference to the small list of cases which any one of us may personally know, since the difference in fetal risks is sufficiently marked to become apparent at once. Repeating once more the caution that I am considering only favorable cases, favorably situated, and in the hands of expe-

rienced men, and referring once more to the 75 difficult operative deliveries which I have quoted above as occurring in the Boston Lying-in Hospital during the last ten years, among this list I find 23 still-births, a mortality of about 30 per cent. When it is remembered that I have excluded from this list cases which were admitted to the hospital for neglected labor; that all the cases were operated upon by members of the permanent staff, all of whom had been connected with the hospital for a number of years at this date; that no pathological conditions other than mere mechanical delay were admitted to the list; and that the mothers were all healthy at the beginning of labor, it will, I think, be conceded that I have treated the minor operations fairly in investigating their fetal death rate.[1] Yet we have in these 75 cases 23 still-births, as compared with no still-births in the 15 Cesarean sections performed in the same institution, or in the 22 cases which I am able to quote from personal knowledge and which I know to be a complete list of all the cases done by the operators whom I quote, so that I am able to report 22 cases recently done in Boston with neither maternal nor fetal mortality.

This is certainly a marked difference, but I believe that before accepting it we must guard against giving the Cesarean section too favorable a showing as regards the prognosis for the fetus. My own experience, and that of all the other operators with whom I have spoken upon the question, has been that, in spite of the great rapidity with which the child is delivered, it usually requires a certain amount of stimulation and care before it begins to breathe, and in one of my own cases a large and healthy child with a strong heart beat resisted

[1] This record of 23 still-births in 75 cases after difficult operative labor seems at first sight an extreme one, but in deference to the institution I think it ought to be said that those 23 still-births constitute all the still-births from mere mechanical causes to be found among 15,000 deliveries during the period investigated. I regret to be obliged to add that a careful study of the list of cases which were selected for me by my house officer shows that the greater number of the deaths occurred in the outdoor department, and that the cause of the still-birth in the greater number of cases was probably due to the delay in obtaining the services of the member of the staff who was on duty, after the house physician had found himself confronted by an unusually difficult case. This is another proof of the inaccuracy of the statistical method, even when applied to one's own clinic. That the still-birth rate of difficult intrapelvic deliveries is greater than that of the Cesarean section is, however, a point which I think will be generally conceded.

attempts at artificial respiration, etc., for so long a period as to alarm a very experienced obstetrician who was in charge of it. This happened in a case in which the operation was rapid, in which the extraction of the child from the uterus was unattended by any delay, and in which the condition of the child was apparently first-rate at the beginning of the operation. Although I have known of no fetal death from this cause, I am still disposed to concede, then, that in any large collection of cases of Cesarean section, even though done under the most favorable circumstances, we shall find that there is some fetal mortality, although I believe that it will be an extremely small one, probably not more than a fraction of a per cent.

To obtain a complete view of the situation we must consider for a moment a third expedient, that of the induction of premature labor at a period which corresponds to the size of the given pelvis. With regard to this it is common to say that in these days of asepsis the induction of labor has no maternal mortality and that it saves the vast majority of the children. I am ready to concede that the maternal mortality of the induction of labor is as small as that of any of the other operations, but hold, as before, that in the hands of experts all the maternal mortalities are so trifling that their differences are not fully understood and are at most unimportant; while I believe, upon the other hand, that the induction of premature labor is by all odds the most dangerous method for the child, being made so by the comparative uncertainty of our results in measuring the pelvis and the necessarily great uncertainty of the size to which the individual child will have attained at a given point in pregnancy. With regard to the fetal mortality, I believe that the common statement that the induction of labor is capable of saving the vast majority of children may be fairly interpreted to mean, if we consider the ultimate survival, the saving of from 80 to 90 per cent of the children; and in looking over my own experience, both in hospital and in private practice, and adding to it the opinions of the men with whose work I am most familiar, I find that the fetal mortality, when taken *in toto*, is by no means small, probably from all causes 20 per cent. I find, too, that the greater part of this fetal mortality was due to one of two mistakes: either to the induction of labor at too early a period for the mechanical difficulties involved, thus sometimes sacrificing the child to unnecessary prematurity, or else, and not uncommonly, to the induction at a period when it was necessary to complete the labor by forceps, thus

complicating the fetal dangers by the addition of the very high mortality which always attends the operative delivery of premature children.

The operation of symphyseotomy should certainly be considered in such a paper as this, but upon this point I can only say that it is my own belief that this operation should properly be restricted to the class of cases from which I myself exclude the performance of the Cesarean section—that of moderately contracted pelves in women not previously healthy or in women exhausted by long labor.

To sum up the whole situation, my view of the case is that the maternal mortality of the Cesarean section, when restricted to the favorable cases, which alone I am considering, is as low, and the fetal mortality greatly lower than those of any other method of dealing with more than ordinarily difficult operative deliveries. The practical conclusions which I draw, then, from my experience in the conduct of labor as a whole are:

1. That in women who are the subjects of visceral disease or other previous ill health, and in women who are exhausted by long labor, the maternal mortality of the Cesarean section is too great to allow of its performance in the interests of the child alone.

2. That in primiparæ with moderate contraction the decision whether or not the Cesarean section should be performed as an alternative operation at the beginning of labor in preference to an attempt at an intrapelvic delivery, is a decision which is intrinsically so difficult that it should be attempted by none but the most experienced obstetricians.

3. That in most such cases of moderate contraction in primiparæ it is best to wait until the progress of labor teaches us which is to be the safer operation in the given case.

4. That when any healthy woman has lost one child by a difficult operative labor in the hands of an expert she should in the next labor be prepared for Cesarean section and delivered by it, unless the course of labor shows that from some changed condition—*e.g.*, a small child or a more favorable position—a forceps delivery is likely to be easy.

5. That when any case occurs in the practice of the comparatively few men who are really experienced in both obstetrical and abdominal surgery, in which an attempted forceps operation proves to be exceptionally difficult and version promises no better results, the forceps operation should be suspended, and,

if the fetal heart is undisturbed, should be abandoned in favor of the Cesarean delivery.

6. That in very small pelves—*e.g.*, those under 3¼ inches in the conjugate—the Cesarean section in favorable circumstances is the operation of preference.

Further, in what I have so far said I have restricted myself to the practice of specially experienced men, but at the conclusion I would recommend to the general practitioner the following rules for his guidance:

1. No man should recommend or undertake the Cesarean section unless he is able to make preparations adequate for the performance of any abdominal operation and to secure proper assistance.

2. In unfavorable cases the maternal mortality of the section is too high to justify its performance for the sake of the child alone.

3. In the present state of obstetrical knowledge there must be many cases of high delay in primiparous labor in which no difficulty is anticipated until the delays which would be incident to the procuring of a consultation and the subsequent preparations for the Cesarean section would necessarily be fatal to the child. In such cases, the maternal mortality being about equal, the child's best chances lie in the application of one of the only operations which can be done immediately—*i.e.*, the forceps or version—but in the subsequent pregnancies of the same woman the pelvis should be measured during pregnancy, and, even if no contraction is found, preparations for a Cesarean section should be made before the woman is allowed to go into labor.

4. When any practitioner is consulted by a patient in whom a previous labor has resulted in the delivery of a still-born child by high forceps or version performed for simple delay—*i.e.*, in the absence of obstetrical emergencies—the pelvis should be measured and the question of the performance of the Cesarean section should be settled in advance of labor upon the rules already laid down.

5. The decision as to the choice of operation is the only point in the matter which demands exceptional experience, and, a decision that the Cesarean section is indicated having once been reached, the operation itself may be performed by any man who has had a fair experience in abdominal surgery.

In short, I believe the gist of the whole matter to be this:

that the progress of the Cesarean section, in spite of its safety in favorable cases, has been delayed by our inheritance of a long-established prejudice. There is probably not a man here who was not taught at the beginning of his medical education that the Cesarean section was an operation which from the necessities of the case could never be wholly eliminated from practice, but which for long ages had been so almost necessarily fatal that it must be reserved for a last and desperate resort, so that when the operation was revived in its modern form the collective mind of the profession was already made up against it. Is it not time for us to disregard this time-worn superstition and look the facts in the face, as we should do with any other operation?

130 Marlborough street.