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ORIGINAL ARTICLES.

STATISTICS OF PLACENTA PREVIA.*

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In compliance with a request that the main points embodied in my paper, "Statistics of Placenta Previa, Collected from the Practice of the Physicians in the State of Indiana," be furnished for the columns of THE PHYSICIAN AND SURGEON, I will endeavor to compile the results of my study and analysis of those cases in as brief space as may be consistent with clearness.

The cases I reported were gathered from the physicians in the State by addressing them circular letters through the several county societies, also those published in medical journals and State transactions. In this way I collected reports of one hundred and twelve cases. These I analyzed in various forms and gave my conclusions, which I will endeavor to present in this paper, without giving the tables, as they would occupy considerable space.

The age of the patient was given in eighty-three cases, 23 + per cent. of which occurred between the ages of thirty-six and forty, inclusive, substantially agreeing with the statistics of Trask published in the Transactions of the American Medical Association in 1855, who found more cases occurring at the age of forty, and 26 + per cent. occurring between the ages of thirty-six and forty inclusive.

In ninety-one cases the pregnancy at which the placenta was

*A condensed report of paper read before the Indiana State Medical Society, May 20, 1879, and published in the Transactions of that year.

previa was reported. More occurred in the second pregnancy than in any other, agreeing with Trask's collections, but Simpson's table reports a larger number of cases occurring in the third pregnancy. Playfair makes the statement* that placenta previa occurs "more generally in women who have borne several children," but my statistics and others show this not to be the case, and this fact may to some extent invalidate his theory as to the cause of placenta previa, which, however, was not investigated in my report.

The time of pregnancy when hemorrhage first occurred was reported in eighty-four cases, of which ten commenced before or during the sixth month, twenty-seven during the seventh month, thirteen during the eighth month, nineteen during the ninth month, and fifteen for the first time at full term. No author to whose writings I have had access has considered this question statistically, but most all agree that hemorrhage will occur in a majority of cases before full term. There have been many theories given to explain the cause of the hemorrhage in placenta previa. It is true the hemorrhage is a result of a separation of the placenta from its attachment to the walls of the uterus, but what causes the separation? Jacquemier maintains that during the first six months of utero-gestation the superior portion of the uterus is more especially developed, and during the last three months the lower segment develops more rapidly, while the placenta remains stationary, an inevitable result being a detatchment of the latter. Barnes takes quite a different theory, that it is due to an excess in rate of growth of the placenta over that of the cervix, hence loss of relation. These are but theories, while facts gathered from clinical experience and observations of the normal development of the uterus during gestation, do not substantiate them. Braxton Hicks says that uterine contractions, though painless, are constantly occurring during the continuance of pregnancy. "There is no reason," says Playfair, "to suppose that these contractions do not affect the cervical as well as the fundal portions of the uterus, and it is easy to understand how in cases in which the placenta is situated partially or entirely over the os, one or more stronger contractions than usual may at any moment produce laceration of the placental attachments in that neighborhood." Whichever theory may be nearer the truth, that of Playfair is more consistent with the cases reported in my collection, and I think we are justified in presuming that the uterine contractions are the primitive cause of the separation of the placental attachments when near or over the cervix, and the accompanying hemorrhage, occurring so nearly equally during the last three months of pregnancy; and also explains the cause of abortion in placenta previa, which is almost universally admitted to be a frequent result, by writers on the subject, and several cases of which were reported to me, but not included in my paper for obvious reasons.

*System of Midwifery, First Edition, Page 359.

The amount of hemorrhage was spoken of by reporters in ninety-seven cases, sixty-two of which were noted as profuse or severe.

In ninety-two cases it is specified whether or not hemorrhage recurred, which it did in fifty-six cases, agreeing with the generally accepted belief that one or more hemorrhages precede delivery in a majority of cases.

Placental presentation was reported as partial in twenty-eight and complete in seventy-eight cases, giving seventy-three per cent. as complete, while Trask's collection, in which the placental presentation was specified, was sixty-six per cent. It is not always easy to determine whether a case should be classed as one of partial presentation or one of complete, for it is a question of degree in which there is no line of demarkation over which it is the one, or short of which it is the other. If the os uteri internum remains comparatively closed until opened by contractions, and the placenta is attached over the lower segment of the uterus, it is almost impossible for it to be other than complete, for in that stage of pregnancy the placenta is entirely covering the os uteri internum; but when dilatation of the os has separated the attachments, and one margin of the placenta can be recognized within the os, then we have a partial presentation. In other words, in relation to the os uteri internum before dilatation, it is complete, but after the os is dilated, as it is in labor, it *may* be only partial. Barnes and others before him have called attention to the fact that the presentation of the placenta may be ascertained with remarkable precision by an examination of the placenta after its delivery, but it is not often referred to by writers on obstetrics. It is readily ascertained by observing the distance from the rent in the membranes, through which the fœtus has passed, to the margin of the placenta, and you will have indicated by this the distance of the placental attachments to the uterine walls, from the os uteri. If the attachments of the placenta were over the os, the point at which the membranes were ruptured through the placenta, where that practice was followed, would indicate how near central the implantation had been. Where the rupture of the membranes had been near the margin of the placenta, that portion "which had been detached during labor is found infiltrated with extravasated blood making a thick, firm and black flap, quite distinct in appearance from the rest of the placenta."

Presentation of child was reported in eighty-five cases, of which seventy-six were head or face, three breech and six shoulder, arm or other cross presentation.

I found it a very difficult task to analyze the treatment followed in the cases reported, but to do so and facilitate their study, I classified them under the head of what I looked upon as being the principal remedy or method followed in the treatment of each case, and also considered the circumstances which would have the greatest influence upon the result, and the measures used which might be considered as auxillary treatment.

In seven cases there was virtually no treatment, four mothers recovering and three dying, two children living, four dead, and one the result not stated. The fatality in those cases to the mothers was undoubtedly due in every case to the hemorrhage attending the position of the placenta over or in close proximity to the os uteri. The mortality to the child in two cases may have been due to the interruption of the circulation by prolapsus of the cord. In three cases we can discover no other cause for death than the placental presentation. Only one child is reported as surviving beyond a few hours. This mortality to both mother and child indicates quite clearly the dangerous results in cases of placenta previa when unaided.

Ergot entered as the principal remedy relied upon in nine cases resulting in a mortality to mothers four and children eight. In these reports we can find nothing to explain the mortality except the hemorrhage from the placenta being previa. In two cases, dying undelivered, the reporters speak of such rigidity of the os and other unfavorable conditions that made it impossible, either by version or any other method, to affect rapid delivery. It seems that the object in giving ergot in the cases reported was to secure more efficient contraction of the uterus and thus restrain the hemorrhage and hasten delivery, and it has been highly recommended by Ramsbotham, Trask and others for that purpose, but the experience as given in this collection does not encourage us to expect much from ergot except in those cases where everything indicates a favorable termination, yet in which there is deficient uterine action.

In seven cases the principal treatment was rupture of the membranes, in which all the mothers recovered and the children born alive. The object to be accomplished by rupture of the membranes in cases of placenta previa does not seem to be fully understood by practitioners and even not by authors at all times. Barnes recommends that "the puncture of the membranes is the *first* thing to be done in all cases of flooding sufficient to cause anxiety before labor,"* and Playfair recommends it and to depend upon *subsequent* dilatation of os. Such does not appear to have been the method followed by the reporters in my collection, but more in accord with the method of Puzos as given by Miller,† which consists in the introduction of "one or two fingers within the os uteri, which is to be gradually opened by the employment of force proportioned to its resistance. By this means the uterus is roused to action, labor pains come on and the membranes are rendered tense. The next object is to rupture the membranes." Still the gratifying results in these seven cases cannot be considered as entirely due to the method of treatment pursued, for they probably were of that class of cases characterized by a tonicity of the womb and vigor of uterine

*Obstetric Operations, Page 376.
†Miller's Obstetrics, Page 260.

contraction which we do not find in ordinary cases of the accident.

In eleven cases the entire detachment of the placenta was relied upon as the principal treatment; nine mothers recovered and two died undelivered; two children living and nine dead, presenting results not so encouraging as the cases collected by Simpson, who was the first one to emphatically call attention to this method of treatment.

In three cases forceps seem to have been the principal reliance to hasten delivery, with the death of two mothers and two children. The only successful case was a very favorable one, one in which at the time of interference was not losing much blood. The result in the small experience given in this collection agrees with the generally taught doctrines that in labor, retarded because of placenta previa, the forceps is not one of our main reliances.

In fifteen cases the tampon was used as the principal treatment, with a loss of two mothers—one dying undelivered—and six children. It is evident that the intention of the reporters in those cases was not simply to form coagula, as was the idea of Seroux, but that it should act mechanically by completely plugging and packing the cervix and vagina, and thus restraining the hemorrhage until the os dilated or was dilatable, or delivery completed by natural efforts. In nine cases it is specified that dilatation of the os had not taken place, nor were the membranes ruptured when the tampon was applied. In six the hemorrhage is reported as checked or extremely small after the application of the tampon. The mortality in those cases are much lighter than the average of the collection, but may not the success be due, to some extent at least, to the fact that in eleven cases in which the placental presentation is reported, eight of them are reported as only partial presentations; less than half of them were reported as having profuse hemorrhage; and in only two cases was previous hemorrhage reported as having occurred more than one month prior to delivery, presenting in these respects conditions favorable to a successful termination; also, I think, we may safely apply to those cases the remark in regard to the cases treated by rupture of the membranes.

The failure of the tampon in some cases in which it was reported as having been used—cases classed in other tables—might be ascribed to the imperfect method of application. To be truly effective in cases suitable for such a method of treatment, the plan advocated by the late Dr. Mears, of Indianapolis, in a paper read before the State Society in 1878, is worthy of imitation.

Version was the principal treatment in fifty-eight cases, resulting in a mortality of seventeen mothers and thirty-one children. A large number of the reporters in this collection appear to agree with recent authorities that the operation of turning is that in which the majority of practitioners still place their greatest confidence.

Simpson speaks of the following classes of cases in which

turning is the most proper and legitimate plan of treatment: (1) When the child is alive and at or near full term of utero gestation when labor supervenes. (2) In multiparæ, and in those in which the os uteri is either so dilated or dilatable as to allow the introduction of the hand and extraction of the fœtus without any fear of injury or laceration. (3) In malpresentations of the child.

We will examine our cases in the light of these rules. The time of pregnancy when delivery was accomplished by version is specified in forty-one cases and results shown. In twenty-eight cases delivery occurred at full term, resulting in the death of eight mothers and fourteen children. In thirteen cases delivered before full term we have a loss of three mothers and six children, showing a heavier mortality to both mother and child when delivered at full term by version than in those cases delivered prematurely by the same methods. It is true this heavier mortality may not have been due to the method of delivery so much as to the prostration from recurring hemorrhages. In only one of the three fatal cases delivered prematurely is it at all probable that death resulted from laceration or other injury to the cervix or parts of the mother from the method of delivery.

Simpson's second precaution that turning should be resorted to only in multiparæ was not altogether heeded in my collection. Three cases of version are reported in primiparæ with the loss of one mother and all three of the children.

Another precaution of Simpson's, and earnestly insisted upon by all writers is, that the os uteri should be dilated or dilatable before turning is resorted to. This point was noted by thirty-two reporters. In twenty-seven the os was spoken of as being dilated or dilatable, of which eight mothers and fifteen children died. In five cases the os was open but rigid; two mothers and two children died, confirming the importance of a strict observance of that rule.

In six cases version was necessitated because of the malpresentation of the child.

In the version cases there were seven marked as partial presentation of the placenta with the loss of one mother and two children, and fifty-one noted as complete presentation of placenta with sixteen deaths of mothers and twenty-nine children.

Ergot was used in many of the version cases apparently with no other object than to excite contractions of the uterus. The tampon was used in seventeen cases, but it appears with a view only to restrain hemorrhage until dilatation of the os uteri was accomplished and version could be effected.

It has been advised by some authors that the hand be passed through the placenta when introduced with the intention to turn and deliver. To be judged by the experience in my collection it is extremely hazardous. In seven cases the hand was passed through the placenta, three mothers and three children dying. In

twelve cases the hand was passed at the side of the placenta, resulting in death to two mothers and five children.

The great danger in version under any circumstances is undoubtedly laceration of the cervix, and this danger is increased to an extreme degree when the placenta is implanted over the cervix, and that part so freely supplied with blood-vessels as the uterine sinuses always are immediately under the placenta. If but a slight laceration occurs the body of the uterus may contract well, but the cervical sinuses are not closed by the contraction, and a slight hemorrhage may continue and soon terminate fatally. That such was the cause of death in any of the version cases was not verified by postmortem examination, but in twelve fatal cases they are reported as never rallying, but dying in a few moments, or within a short time from "exhaustion, asthenia or slight post partum hemorrhage," and that laceration of the cervix may have been the cause of death in those cases is extremely probable.

Taking the mortality in the version cases and comparing it with the mortality of the whole collection, we find it some above the average to both mother and child. This increased mortality to the mother cannot be ascribed altogether to the operation itself, for they were, as a class, under circumstances and conditions making them extremely dangerous before the operation, which was often a dernier resort.

As for the child, it is very probable the turning was not so great a factor in increasing the mortality as asphyxia from the separation of the placenta and the delay necessary before version could be performed.

In three cases in my collection, premature delivery was purposely induced because of the placenta previa, and in hope of averting the dangers attending it. In one of them both mother and child died, the mother in "two or three hours from uterine hemorrhage" after delivery by version. The other cases both were saved.

This was too small a number from which to draw conclusions, but as there were twenty-nine cases reported in which the labor was premature, I classified them and ascertained the mortality at different stages of uterine gestation, but in this paper give the mortality of the whole number collectively, which was mothers six, and children eighteen, presenting a much lighter mortality to the mother and but little heavier to the child than the average of the collection. While these cases cannot be accepted as either corroborating or denying the correctness of the plan of induction of premature labor, as is so strongly urged by Greentralgh, Thomas and Parvin, yet I believe we are justified in concluding that were a similar collection of cases treated in this way under the personal management of the physician, the mortality to both mother and child would be less than is here shown.

I closed my report with a table showing the mortality to both mother and child in all statistical collections to which I had

access. In my collection there was one hundred and twelve cases reported in which the result to the child was stated in one hundred and nine cases. Thirty of the mothers died, being twenty-six and seventy-eight hundredths per cent. There were sixty-one of the children dead, being fifty-five and ninety-six hundredths per cent. This result compared with the aggregate of all collections was very favorable.

Being satisfied that my investigations last year were not exhaustive, I was requested by the State Society to continue my collection of cases of placenta previa and report at its meeting in May, 1880. In compliance with that request I have sent to all members of the State Society a circular letter, a copy of which was published in the March number of this journal, and I feel very much gratified with the responses I am receiving, and hope to present to the Society a good collection of cases and an analysis of them more complete in every respect than that of last year.

February 18, 1880.