THE RÔLE OF ABDOMINAL CESAREAN SECTION, ESPECIALLY THE LOW OPERATION, IN THE TREATMENT OF PLACENTA PREVIA

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THE several collective surveys of the status of cesarean section in various large cities of the United States (of which ours from New Orleans was the first)[8] have brought out several points rather clearly. One especially to be noted is the fact that the operation is performed at times when it hardly appears to be indicated, and it is also to be noted that the conditions under which it can be carried out with safety to the mother are frequently disregarded. Our survey was presented to the local profession with the hope that it would bring these points home to our obstetricians and surgeons, and would stimulate them to a more careful selection of cases, and to a scrupulous observance of the contra-indications. In those surveys in which comparisons were made between the classical and the low section, it has been clearly set forth that the latter has many advantages over the former, the chief one being the lower maternal mortality rate.

These studies, together with others that have been made, notably those presented to the White House Conference, have emphasized the fact that cesarean section is performed too frequently, and it is hence our duty, by teaching and practice, to restrict the indications for the operation as much as possible. On the other hand we are all familiar with the numerous articles that have appeared in the past few years, advocating the more frequent resort to cesarean section in the treatment of placenta previa. The questions arise, is this policy a sound one, and will the better results obtained by the expert obstetric surgeons in carefully selected cases be offset by injudicious operations performed by those with insufficient obstetric experience? I do not feel that categorical answers can be forthcoming at present. It has seemed to me, however, that a review of some of these articles, together with a survey of my personal experience, might aid in determining the present status of the problem.

Gordon,[4] in the Brooklyn cesarean section series, reported ninety-eight operations for placenta previa, with seven maternal deaths, or seven plus per cent, and a stillbirth and neonatal mortality of 18 per cent, in which prematurity played a considerable part. In the cases of the central type there were two deaths out of forty-seven cases, or a mortality of 4.2 per cent; in thirty-eight unclassified cases, two deaths (5.3 per cent). This

favorable rate for the central cases is not explained, nor is there a discussion of the relative mortality figures of the ninety classical sections and the eight low operations.

Johnston and Smith,[6] reviewing the cesarean sections in Houston over a period of six years, found thirty-one operations for placenta previa with three deaths, all due to infection, a mortality rate of 10 per cent; the fetal rate was the same. They question whether section is often indicated in placenta previa, but think it is probably the best method when the case is handled by a general surgeon; the well trained obstetric surgeon can individualize his patients.

Thompson,[12] in the Los Angeles series, reported sixty-eight cases of placenta previa treated by cesarean section with a maternal mortality of 4 or 6 minus per cent, all due to infection. There is no note as to the fetal death rate, nor as to the type of previa or kind of operation employed.

Welz,[14] who compiled the Detroit figures, found fourteen operations for placenta previa with no maternal deaths, and one fetal death. All were classical sections. He feels that the bag is preferable, as a rule, but that cesarean section has certain indications, chief of which is the condition of the cervix.

Greenhill[5] feels that the treatment should vary with the conditions encountered, chiefly the state of the cervix. He contends that abdominal cesarean section gives better results than any other method, especially when combined with transfusion. In 118 cases treated at Chicago Lying-In Hospital by various methods there were three maternal deaths (2.6 per cent), one after spontaneous delivery, and two after version and extraction. In the forty-two sections in this series (eight classical and thirty-four low) there was no maternal death, giving a 4 per cent mortality for the other methods combined. The fetal mortality is much lower in the cesarean section cases, and Greenhill feels that the operation should save every baby which is not premature nor a monstrosity. He quotes Frey of Zurich, who reported eighty-eight consecutive sections for placenta previa with one maternal death, Von Mikulicz, with a 3.3 per cent maternal mortality rate for cesarean section, and Kosthauer, with a 6.9 per cent maternal death rate for placenta previa thus treated. In case infection is present or is strongly suspected, Greenhill prefers the Porro operation, especially if the woman already has several children.

Kellogg[7] states that at the Boston Lying-In Hospital, immediate version and extraction was the rule in the early years (1895-1915) with a maternal mortality of 19 per cent. Then more conservative methods were adopted, chiefly Braxton-Hicks version and slow extraction, with a maternal mortality of 6 per cent. But there was little improvement in the rate in the central variety, which was 36 per cent in the early series and 25 per cent in the period from 1919 to 1926. He feels that—

1. All cases of central or partial placenta previa are best treated by

abdominal cesarean section, whether the baby be viable or not, living or dead.

2. Marginal cases are best treated by the Voorhees bag.

3. Moribund or very ill patients should be given morphia, should be tightly packed, fundal pressure should be applied, patients should be transfused, and the appropriate operation (frequently hysterectomy) should be performed after reaction has been secured, followed by a second transfusion if indicated. He feels that hysterectomy after section should be more frequently practiced, especially if there is risk of sepsis, or bleeding persists, and more especially if there are several children.

Since 1926, twenty-six sections have been performed in the Boston Lying-In Hospital (80 per cent in multiparæ), twenty-one of the classical type, two Porro, one classical with tubal ligation, and two of the low cervical type. In these two much bleeding was encountered, so he prefers the classical section. There was one maternal death in one of the low sections in a woman with free bleeding before and after admission, who died of exsanguination (autopsy finding) in spite of repeated transfusions. Of the children, eighteen of a possible twenty-three (one case of twins) were saved; two of those lost were hopelessly premature, weighing less than 4 pounds. Thus there was a fetal mortality of viable children of 10 per cent, as against 40 per cent in patients delivered vaginally in the earlier series. By contrast, his colleague, Irving, prefers Braxton-Hicks version, and has a very low maternal mortality rate, but his fetal mortality is high and his percentage of postpartal infection is considerable.

Skeel and Jordan,[11] in a survey of 1,047 sections in Cleveland, found 137 for placenta previa, with a maternal mortality of seven, or 5 per cent, and a fetal mortality of thirty-one, or 22.5 per cent. In the larger hospitals (reporting 100 or more sections each) the maternal mortality in placenta previa cases was 3.3 per cent (three out of ninety), while in the smaller institutions it was 8.9 per cent (four out of forty-seven). They feel that section is the best treatment unless the cervix is well dilated.

Countiss and Fisher,[2] in reviewing 1,000 cases of cesarean section, reported 43 per cent for placenta previa, with three deaths, or 6.9 per cent mortality. All these occurred in the thirty-one classical operations, while the twelve women who had low sections all survived. No deaths in the series of classical operations occurred in patients admitted without previous attempts at delivery. Two of the low section patients were frankly infected, but survived. The fetal mortality was 20.5 per cent; deducting the nonviable and premature feti, we have a corrected mortality of 6.8 per cent, all in the classical group. They feel that the low operation is the one of choice in placenta previa.

Bill,[1] as is well known, inclines to section for placenta previa, preferring the classical operation. He reports eighty-two cases, with two

maternal deaths, or 1.9 per cent. The gross fetal mortality was 30.76 per cent, partly due to prematurity. He feels that most maternal deaths in vaginal deliveries are due to hemorrhage and consequent uterine atony with more hemorrhage as a result, hence a vicious circle is established. He advocates the free use of blood transfusion, before or during the delivery. If the previa is of the marginal type and the os is considerably dilated, he prefers delivery by version or forceps; in all other cases he employs cesarean section irrespective of the condition of the baby. In the paper under discussion, 104 cases were reported, of which eighty-two were treated by cesarean section.

Peckham[9] reports on the results in 146 cases of placenta previa treated at Johns Hopkins Hospital. There were sixteen maternal deaths, or 10.96 per cent. The rate was 19.23 per cent in the first fourteen years, 10.26 per cent in the next period of ten years, and 8.64 per cent in the last ten years. The higher rate in the first period was due to use of accouchement forcé and to the lack of transfusion. In the marginal cases the mortality was 1.7 per cent (one in fifty-seven), in the central 21.43 per cent, and in the partial 14.2 per cent. The mortality before the last month of pregnancy was 4.55 per cent, while at or near term it was 15.58 per cent. It was 4.6 per cent in primiparæ, 11.45 per cent in multiparæ, and 28.08 per cent in multiparæ with ten or more children, increasing with the age, being 31.26 per cent in patients of forty or over; thirteen of the sixteen deaths were due to hemorrhage. The gross fetal mortality was 67.81 per cent, but was much smaller in babies at or near term. Peckham feels that cesarean section is rarely indicated in placenta previa, and is preferably restricted to cases of the central type, with the cervix closed, or almost so, the child viable and in good condition. It might also be used in case the mother is to be sterilized, or is very desirous of a live child. He feels the operation is contra-indicated if the patient is in poor condition, has bled freely, or is potentially infected. In this series, the operation was performed five times, all being of the classical type. We must note, however, his high mortality (25 per cent) in the central type, and also in cases at or near term (15.58 per cent), as well as in patients over forty (31.26 per cent). In this series the fetal mortality was high, being over twice that of Bill's and six times that of Kellogg's cesarean section cases.

Davidson[3] feels that section is especially indicated in placenta previa at or near term with "central or definitely marginal placenta previa," if the patient has bled only moderately. He prefers the classical operation. He states that in the Queen Charlotte's Hospital forty-five cases of central placenta previa were treated by vaginal delivery, with a maternal mortality of 18 per cent, and thirty-four cases (presumably central) were delivered by cesarean section, with a mortality of 6 per cent.

Von Ammon,[13] in an exhaustive review of the literature, collected over

30,000 cases treated by various methods. The maternal mortality varied between 5 and 10 per cent, except in vaginal tamponade, where it was 20 per cent, and in version and extraction in the hands of men not employing section (13 per cent). The abdominal cesarean section mortality in 2,320 cases was 7.3 per cent. However, the fetal mortality in cases so treated was much lower (18.4 per cent) than in the other methods (28 to 74 per cent).

St. Mary's Hospitals, Manchester,[10] in 1928 reported fifty-three cases of placenta previa in which three were treated by cesarean section, and fifty by various types of vaginal delivery. There were seven maternal deaths, all in the latter group, giving a mortality of 13.2 per cent for the entire series, or 14 per cent of the cases delivered vaginally. The details of these deaths as given in the report cause one to feel that possibly some of these women might have been saved by cesarean section. It is interesting to note that none of these fatal cases were transfused, although in several of them hemorrhage seems to have been partly responsible for this fatal outcome. In this series the fetal mortality was 41.5 per cent, and in children past the thirty-sixth week of gestation it was 39 per cent. One might comment that this rate might have been improved by more frequent resort to cesarean section in selected cases without jeopardizing the mother's risk.

Of course, the above quotations do not by any means cover the recent literature on placenta previa, but they have been selected as being the most representative reports written by those especially well qualified, and expressing the experience of large and well conducted institutions. The individualization of cases is stressed in most of the discussions, and the indications for cesarean section seem to be justified in those patients so treated. It is observed that in the central type, especially at or near term, with a cervix not at all or only slightly dilated, section is the treatment of choice. It would appear to be preferable in multiparæ past forty, especially if the mother has had ten or more children (Peckham). In partial cases, there is great diversity of opinion, while in the marginal type vaginal methods are generally preferred. More frequent resort to blood transfusion, no matter what the method of treatment, appears to be indicated.

My experience with placenta previa covers seventy-five cases, treated by myself and other members of my staff, of which forty-three were treated by various methods of vaginal delivery, with ten maternal deaths, or 23.3 per cent, and thirty-two were delivered by abdominal cesarean section, with no maternal mortality. Thus 43 per cent of the patients were sectioned. The fetal mortality (uncorrected) was thirty-eight, or 50.66 per cent. Of these, seven were lost in the section group, a rate of 21.9 per cent, and thirty-one fetal deaths occurred in the forty-three cases delivered by the vaginal route, or a rate of 72 per cent. It is only fair

to state, of course, that in the group of cases delivered vaginally the percentage of premature babies is much higher, as well as the proportion of babies dead on admission. Under these conditions vaginal delivery would naturally be preferred. Correcting the fetal mortality rate so as to exclude the premature babies and those dead on admission, we find a loss of four viable babies in the section cases (one dying of a cardiac malformation), or 12.5 per cent, and thirteen viable babies born dead in the cases delivered vaginally, or 30 per cent. Of the various methods of vaginal delivery, the use of the bag was most popular, being resorted to twenty times with one maternal death. In this last series there were fifteen fetal deaths, all but four of these babies being premature or dead on admission. I might state that I have never encountered a fetal monstrosity in a case of placenta previa, in contrast to Greenhill's experience.

Of the thirty-two cesarean sections, eighteen were of the classical type, one was a Porro, and thirteen were of the low type. While I have for years preferred the low section, I was formerly hesitant about employing it in placenta previa, fearing hemorrhage from the placental site. The experience of others, especially of the workers at Chicago Lying-In Hospital, encouraged me to try the low operation in these cases, and I have found that my fears were not well grounded, so that of late we have used the low section in placenta previa as well as in other conditions.

In our clinic, we have therefore arrived at the following working basis: In case the baby is premature, we would prefer vaginal delivery, unless we were dealing with a case of central placenta previa, with a cervix only slightly dilated. If the fetus is dead, vaginal delivery is chosen, unless, again, the previa is of the central type with little or no dilatation. In central placenta previa, so fearful are we of profuse hemorrhage, that we would generally perform cesarean section, unless the cervix was well dilated and softened. In all cases the nearer the patient is to term, the more we would prefer abdominal cesarean section, except in the marginal variety, when rupture of the membranes, with or without the use of the bag, will suffice. This applies to multiparæ as well as to primiparæ. In partial cases near term if the cervix is partially dilated, so that a bag can be inserted easily, this method is employed, otherwise a section is done. Where there is little or no dilatation, with doubt as to the type of previa, the patient at or near term and not infected, and the baby in good condition, section is preferred. Thus it will be seen that the stage of the pregnancy, the condition of the baby, the state of the cervix, the presence or absence of infection, and the general condition of the mother are the determining factors. Transfusion is freely employed, and we feel has saved several lives. The Porro operation might be used in infected cases. Reviewing our cases delivered vaginally in the light of these conclusions, I feel that four of the mothers lost could in all probability have been saved by cesarean section, and that in some of the

other patients at or near term, section might have saved the babies without increasing the maternal risk.

Finally, it must be stressed that cesarean section in placenta previa should be done only by those fully qualified in the field of obstetric surgery, and in properly equipped hospitals. In general practice, vaginal methods are preferable, because of the limitations of equipment and experience, and these methods should be carefully taught in detail to our students. The specialist, by careful individualization and selection of his cases, can, we feel, lower both maternal and fetal mortality rates by the employment of cesarean section under conditions as outlined above.

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