ABDOMINAL CAESAREAN SECTION AS PERFORMED AT THE SOCIETY OF THE LYING-IN HOSPITAL OF THE CITY OF NEW YORK, WITH AN ANALYSIS OF 186 CASES.*

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In presenting this paper for consideration, it is my intention to take up, so far as the time allowed me will permit, the question of abdominal Cesarean section, with regard to the indications for its employment,, the choice of time for its use, the technic of the operation, and the results obtained. In a general paper of this description it would be trying to the patience, as well as unsuitable, to give more than a passing consideration to the details of the subject, the main object being to show the results obtained from a large number of sections, together with certain especial points in the technic of the operation.

The series of cases reported comprise the total number done in the Lying-in Hospital during the eighteen years of its existence, and are, therefore, in no sense of the word selected cases. It will be my endeavor to show some of the dangers, as well as the advantages of this method of delivery.

Indications for Operation.

Broadly speaking, Cesarean section by the abdominal route is indicated in all cases where there is a degree of obstruction to delivery, either on the part of the mother or the child, sufficient to render such delivery impossible with best results to both, it being understood that the child is viable and that the condition of the mother is such that she will survive the operation. Such indications may be classified as follows:

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*Read in the Section on Obstetrics and Diseases of Women of the American Medical Association, at the Fifty-ninth Annual Session, held at Chicago, June, 1908, and published in the Journal of the A. M. A.

1. Deformed pelvis.
2. Placenta prævia.
3. Eclampsia with a firm, undilated cervix, and complicated or not with the two previous causes mentioned.
4. Neoplasms of the uterus, such as fibroids, carcinoma, etc.
5. Vaginal deformities, such as marked contraction from scars, tumors, etc.
6. An excessively large child.

Taking these up in order, by the term "deformed pelvis" I mean any pelvis which is so contracted as to render impossible the passage of a normal living child. This may express itself in the form of a flat, justo-minor, rachitic, Naegele, Roberts or osteomalacic pelvis, the important feature for the obstetrician to realize being that in the individual pelvis the particular fetus will not come through alive, or without extreme damage to the mother or child or both. The day is past when we do Cesarean section simply because the true conjugate is shorter than normal, for we have learned that in some cases, notably in the type known as the Roberts pelvis, the true conjugate is not only diminished, but may be even longer than normal, and yet delivery by the natural route be impossible on account of the amount of the contraction at the sides. In short, then, the surgeon must train his hand by frequent examinations to judge, first, the size of the pelvis, and, second, the size of the fetus, and, lastly, he must be able to form an opinion as to the relations which the two bear to each other, if he expects to have a favorable outcome to his cases. These considerations, taken in conjunction with the apparent physical force of the mother and such supplementary information as the history of previous difficult labors, will form the means for his decision for or against Cesarean section in an individual case.

Regarding the utility of this operation in placenta prævia, it is my belief, as expressed in print[1] some months ago, that in certain cases of placenta prævia, with a central implantation, in the presence of a firm, undilated os, where the soft parts are firm and unyielding, less damage will be done to the mother, and we shall be more certain of securing a living child by a timely Cesarean than by resorting to the other usual methods of delivery. The mortality in this condition, as shown in the article just mentioned, is, under the best circumstances in hospital practice, almost 18 per cent. for the mother and over 40 per cent. for the child, while the morbidity (maternal) on account of hemorrhage, laceration and possible subsequent infection is very great. It would seem as if any methods of delivery which offered as a result 40 per cent. of deaths were open to a good deal of criticism.

With regard to eclampsia, under similar circumstances, a better result may be expected than in many cases of forced delivery.

Concerning the other causes mentioned, time will not permit of more than a passing mention, but it certainly must be obvious that when neoplasms fill the lower segment of the uterus or vagina, when scars have contracted the vagina to a point where the passage of a child cannot but cause

[1] Bulletin of Lying-In Hospital, December, 1907.

grave destruction to the soft parts, or where the size of the child is out of all proportion to the size of the pelvis, especially if the head be one of the type not infrequently encountered, in which the ossification seems to be premature, and the head is firm and unlikely to mold; in these cases, too, it would surely seem as if an elective Cesarean section, done by a competent operator, was the operation of choice.

Time of Operation.

It has been our custom at the Lying-in Hospital to allow the patient to go into labor sufficiently to secure some dilation of the os, thereby facilitating drainage, and to determine whether or not the head will make an attempt to engage. This also has the advantage of allowing us to be certain that the woman is at or about term, which in occasional cases, notwithstanding opinions to the contrary, is not an easy matter to determine. Recent articles have condemned the operation after the onset of labor, but, as I shall hope to show later, this form of procedure is not unsatisfactory in its results. It is freely admitted that where we can have our choice the time of election is just before or at the beginning of labor. In a service such as we have at the New York Lying-in Hospital, however, this choice is not always possible, as the patient is often not seen until she is well advanced in labor. Then, with a viable fetus, we have only the operations of hebotomy, symphyseotomy, craniatomy on the living child, or Cesarean section, from which to choose. Symphyseotomy has been universally given up, and the published results of hebotomy are not, to our minds, very encouraging, containing, as they do, reports of tardy and severe convalescences, often with protracted recoveries and considerable damage to the mother. While at our institution we have as yet done no hebotomies, we do not yet feel that we are justified in performing the operation. This leaves us then with nothing but a craniotomy on the living child, or Cesarean section, and up to the present we prefer in most cases to take the chance of the section. It is true that we may possibly have a fatal result, but that is not a reason for relegating the operation to the background, for we shall always have to take a certain number of chances in surgery. No well-grounded surgeon would think of refusing to operate on a severe case of appendicitis simply because statistics showed that he got better results in the interval cases. Why, then, should we refuse to do an operation to save the life of the child when we do not know that the mother will not recover and are practically certain that the child will be born alive? Here, as in other cases, the discriminating judgment of the operator, based on knowledge obtainable only by experience, must determine which cases are and which are not suitable for operation.

Operative Technic.

With regard to the operative technic, I can do no better than to quote from an article[2] by Dr. Asa Barnes Davis, of our attending staff. He says, after describing the usual preparation for laparotomy:

[2] Lying-In Hospital Bulletin, December, 1905.

The abdominal cavity is opened by a median incision 12 cm. in length, extending from above downward to the umbilicus. The fundus of the uterus is found directly under this wound. If dextro torsion, which is frequently present, occurs, the uterus is manually adjusted so that the anterior uterine wall faces forward. The abdominal cavity is then walled off by means of three or four moist gauze pads, wet in salt solution. This leaves only a small area of the uterus exposed to view. [It is understood that the uterus is not delivered from the abdominal cavity.—R. M.] An assistant now places a hand at either side of the abdominal wall, near the wound and well backward, so regulating his pressure that the uterus remains in place during the process of being emptied, and afterward until the deep sutures are tied. A median incision, which begins well up at the fundus and extends downward so that it is a little longer than the abdominal incision, is made. This incision should be made carefully so that the amniotic cavity is not opened. Should the placenta be found situated directly under the wound, it is better to cut or tear directly through it. If, however, the membranes present, it has been found advisable to sweep the hand quickly between them and the inner surface of the uterus, in order to prevent adhering of the membranes. The lower extremity of the child, which is most readily found, is grasped and practically a breech extraction is done, the after-coming head being delivered by the Smellie-Veit maneuver. The cord is clamped and cut by an assistant, and the child is carried from the room, in order to avoid confusion while establishing respiration. A double tenaculum is now placed on either edge of the uterine wound at its upper angle to prevent the uterus from slipping down into the wound, the uterus is emptied of any clots which may have formed, also of the placenta, and with as little delay as possible the deep interrupted sutures of heavy chromic catgut are placed; each suture is inserted about one centimeter distant from the edge of the uterine wound, carried down to the endometrium, and passed through the opposite side in reverse order. After these sutures are placed, being tied as they are put in, a continuous suture of fine catgut is used to bury the first row of sutures, and brings the peritoneum into apposition. The sponges are now removed, and the abdomen closed in layers in the usual manner.

A dry dressing is applied, which is not disturbed until the eighth day, when the sutures are removed. The patients are allowed to sit up at any time after the tenth day, and always before the fourteenth day, depending on the involution of the uterus and the condition of the wound.

Results.

With the foregoing observation on indications, and description of the technic, the results obtained in this series of 186 cases may be reviewed.

Out of the total number, thirty mothers died, showing an apparent mortality of 16.15 per cent. When, however, we come to analyze the actual cause of death we shall see that the percentage which can actually be attributed to the Cesarean section is in reality very much lower. Of these women, three died of postpartum eclampsia, six of pneumonia, one each of suppression of urine, shock following a low rupture of the uterus before admission, nephritis, pulmonary embolism, carcinoma, intestinal obstruction, acute dilatation of the stomach, asphyxia from the anesthetic and paraplegia. One was unaccounted for, two died of shock following the operation. The remaining nine died of septic peritonitis. These had all been subjected to more or less manipulation before entering the hospital, and in all cases cultures taken from the vagina and cervix showed streptococci.

These patients were operated on with the hope of saving the life of the child, with the result that out of the whole series of thirty deaths of mothers there were but four still-births.

It seems fair to exclude from the mortality statistics cases in which death was not directly due to Cesarean section, and while the argument may

be used that if the patient had not undergone the operation she might not have died, still it hardly seems fair to include deaths from anesthesia, nephritis, Pott's disease with paraplegia, postpartum eclampsia and other causes already mentioned, since these might have caused the death under any circumstances. Indeed, some of the patients cited would surely have died in a short time, and the operation was done only in the hope of saving the child. Accordingly, then, on account of the operation of Cesarean section *per se*, the real mortality figures would seem to be those of the patients that died of sepsis. Of these we have nine, which gives us a mortality for the operation of only 4.08 per cent., not an unsatisfactory showing.

The total number of still-births in the whole series was thirteen, or 6.9 per cent. It is interesting to note that eleven of these still-births occurred in the first seventy-eight cases, and that in the last 108 operations we have had only two still-births.

The indication for operation in 162 cases was a deformed pelvis, and the remaining twenty-four operations were for malignant growth, atresia of the vagina, impacted face presentations, eclampsia, central placenta prævia, of which latter there were two cases, with a living mother and child resulting in each instance, disproportionately large head and impacted shoulder. The membranes were ruptured before operation, and the os uteri was more than two fingers dilated in 124 cases.

In all the instances but one of death from sepsis the membranes were ruptured, the patient had had outside manipulation, and had been a long time in labor.

Summary.

With these necessarily brief observations I will conclude with what seem to be the main points brought out by a study of this series of cases:

1. Cesarean section is the operation of choice when the obstruction to delivery is such that a viable fetus cannot be delivered by the normal passages and the mother offers a fair chance of recovery.

2. This obstruction need not of necessity be a deformity of the bony pelvis, but may be caused in several other ways, as indicated above.

3. While elective Cesarean section just before labor or at the very beginning is desirable, the fact that the patient has been for some time in labor, does not in itself preclude the possibility of doing the operation.

4. The operation requires a particular technic, with skilled assistants, to get the best results, which makes it undesirable to undertake it unless the conditions are satisfactory.

5. These special points in technic are
   a. The high incision.
   b. The non-delivery of the uterus from the abdominal cavity.
   c. The absence of any method of constriction to prevent bleeding, this not being necessary.
   d. The method of suture described.

6. Where the conditions here described exist, and excluding patients who would die whether they had a Cesarean section or not, the results

should show a maternal mortality of not much more than 4 per cent. of the cases and a still-birth percentage of almost nothing.