THE INDICATIONS FOR THE EMPLOYMENT OF CESARIAN SECTION, SYMPHYSEOTOMY AND CRANIOTOMY IN CONTRACTED PELVIS.*

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Cesarian section has recently been placed upon much firmer ground than it previously occupied, by showing that its mortality is comparatively slight, and that it is followed by better results than is symphyseotomy.

MATERNAL MORTALITY.

Thus: Leopold reports 100 consecutive Cesarian sections with only ten maternal deaths, a gross mortality of 10 per cent; and even a number of these cases were so profoundly infected at the time of their admission to the hospital that their deaths cannot be attributed to the operation itself. When corrected from this point of view, his results show a maternal mortality of only 5 per cent. Again, Zweifel has recently reported 50 successive Cesarian sections without a single maternal death, while Gustav Braun reports 74 Cesarian sections with six deaths, a gross mortality of 8.1 per cent, which (when corrected by deducting the cases which were decidedly infected at the time of operation) is properly reduced to 4.22 per cent. Thus we find that three German operators have performed 222 Cesarian operations with only sixteen deaths, a gross mortality of 7.2 and a corrected mortality of considerably less than 4 per cent. Finally, Gustav Braun then tabulates his own cases, and adds to them the operations performed by Chrobak, Leopold, Olshausen, Schauta and Zweifel, obtaining a total of 278 conservative Cesarian sections with a gross mortality of 7.5 and a corrected mortality of 4.8 per cent, and 87 Porro Cesarian sections with a gross mortality of 10.3 per cent and a corrected mortality of 2.5 per cent.

Very favorable results have likewise been reported from France during the past year, Bar recording ten cases with one death, and Charles (of Liege) ten consecutive cases with no deaths.

In America it is worthy of note that Reynolds, of Boston, has recently reported fourteen consecutive Cesarian sections without a death.

It is thus apparent that the mortality of Cesarian section, when performed upon uninfected patients by competent operators, is less than 5 per cent; and it should not be greater than the mortality following operations for uncomplicated ovarian cystomata. On the other hand, when performed upon infected cases, even by competent operators, the results are extremely disastrous, as is demonstrated by the earlier American statistics and by the recent work of Doktor, of Budapest, who has collected twenty-two cases of Cesarian section performed upon infected women with a mortality of 23.5 per cent.

Turning from the results following Cesarian section to those following symphyseotomy, we find that Pinard has lately reported 100 consecutive cases of symphyseotomy with twelve maternal deaths. He very justly, however, points out that a considerable number of the cases were profoundly infected when operated upon, and that their deaths should not be attributed to the operation, and he consequently reports a corrected mortality of 5 per cent. Last year Bar collected 149 symphyseotomies which had been performed by himself, Pinard, Zweifel and Kustner, with 6.7 per cent maternal and 9.39 per cent fetal mortality.

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On comparing the results of the two operations it is seen that none of the operators who have performed a large number of Cesarian sections report so great a gross maternal mortality as Pinard's with the rival operation; and, it must be remembered, he is the father of symphyseotomy in France, and its most enthusiastic advocate. Moreover, when we compare Bar's statistics (which comprise 149 cases upon whom symphyseotomy was performed by four men) we find that they do not begin to compare with the results following Cesarian section in the hands of equally competent operators. We may, therefore, conclude that the maternal mortality following Cesarian section, when performed upon uninfected cases by good operators, is at least no greater, and is probably considerably less, than that following symphyseotomy.

Within the last few months the contrast between the two operations has been still more forcibly emphasized by Abel, of Zweifel's clinic, who based his article upon all the cases of Cesarian section and symphyseotomy performed in the clinic between the years 1887 and 1894, each of whom he re-examined, if possible, before writing the article. During this period Zweifel or his assistants performed fifty Cesarian sections and twenty-five symphyseotomies without a single maternal death, and Abel therefore concluded that there was little, if any, difference in the mortality of the two operations. He then compared the convalescence after the two operations, and found that the patients recovered far more rapidly and comfortably after Cesarian section than after symphyseotomy, being able to walk, on the average, within three weeks after the former, and not until thirteen weeks after the latter operation. Upon comparing their ability to work, which is a most important matter in women of the lower classes, he found that the Cesarian section cases were able to do hard work four or five weeks after the operation, but not until four and a half months after symphyseotomy. At the same time he showed that the ability to walk after symphyseotomy was directly proportionate to the degree of pelvic contraction, the women having the least pelvic deformity being able to walk and work the soonest. This apparently indicates that the sacro-iliac synchondroses are considerably damaged when symphyseotomy is performed upon women presenting markt degrees of pelvic deformity.

At the last meeting of the Obstetrical Society of France, Bar likewise compared the two operations, basing his statements upon his own work and the statistics of others. He had personally performed ten Cesarian sections with one fatality and twenty-two symphyseotomies with no maternal deaths, and, in spite of his relatively favorable results after symphyseotomy, stated that the latter operation is inferior to Cesarian section, and predicted that it would soon cease to be performed. At the same meeting Charles, of Liege, reported ten cases of Cesarian section with no maternal deaths, and fifteen symphyseotomies with three maternal deaths, and took essentially the same stand as Bar. And in the discussion which followed, Budin, Fochier and Maygrier took similar views and agreed with Bar that as the results of Cesarian section became better, symphyseotomy would gradually cease being performed.

FETAL MORTALITY.

Turning from the consideration of the maternal to the fetal mortality following the two operations, we find that Pinard reported that 13 per cent of the children died after symphyseotomy, and Bar's statistics showed a fetal mortality of 9.39 per cent. When we compare these results with the practical absence of fetal mortality following Cesarian section, it would seem that the advocates of symphyseotomy are hardly justified in claiming that it is the better operation.

At the Johns Hopkins Hospital we have done two symphyseotomies with one death, and three Cesarian sections without a death. This, of course, is too small a number of cases upon which to base a conclusion, but from what I have seen of the work of others, and from the statistics which I have just adduced, it appears to me that there can be no comparison between the two operations, and that Cesarian section is the operation of the future, while symphyseotomy will be done less and less frequently.

ADVANTAGES OF CESARIAN SECTION.

Summing up the advantages of Cesarian section as compared with those of symphyseotomy, we find that the maternal mortality is the same or less; that the fetal mortality is practically nil, and that the operation is more satisfactory from a surgical standpoint, for with it we obtain a clearer view of the field of operation, and are not obliged to do a second operation by the vagina, which is frequently accompanied by markt injuries to the soft parts, and what is still more important, it enables one to complete the operation, no matter how great the disproportion between the size of the child and the pelvis; whereas, in symphyseotomy an incorrect estimate of the disproportion may necessitate the performance of craniotomy, even

after the pubis has been cut thru. At the same time there is no comparison between the after-treatment of the two operations. In Cesarian section there is a clean abdominal incision, instead of a wound at the pubes, which requires drainage, not to speak of the injuries to the soft parts. There is no necessity for prolonged catheterization, and the patient is spared the long convalescence which symphyseotomy entails.

INDICATIONS FOR CESARIAN SECTION.

Turning from the consideration of the results of Cesarian section to the indications for the performance of the operation, we find that they are no longer limited as they were a few years ago. With increast proficiency in pelvimetry we are able to obtain an accurate idea of the size and shape of the pelvis before labor, and with improved technic we are able to safely perform Cesarian section where perforation was previously the operation of choice.

In view of the improved results following the operation, I believe that the old absolute indication for Cesarian section should disappear, and instead of being placed at a conjugata vera of 5 to 5½ cm. (2 to 2.2 inches), should be extended to 6½ cm. (2.6 inches), provided the child is alive. When the pelvis is somewhat larger the indication for the operation is not so clearly markt, and we may state that in pelves having a conjugata vera of 7 cm. (2.8 inches) or more the course of labor will depend upon the size of the child, the consistency of its head and the character of the labor pains, so that one woman with a pelvis of a certain size may have a spontaneous and easy labor, while another woman with a pelvis of the same size may require Cesarian section. In such cases it is advisable to allow the patient to go into labor and see what nature can do before determining upon the operation.

In a certain number of these cases the head becomes rapidly molded, and, as soon as the cervix is dilated, begins to descend, and spontaneous labor occurs. If, on the other hand, the head shows no signs of descending, we should make no attempt at delivery, but perform Cesarian section, provided the child is alive and the woman is in good condition. Of course, under such circumstances it is necessary to remember that every vaginal examination adds to the danger of infection, so that the patient should be examined internally as rarely as possible, and the descent of the head followed by palpation.

When the pelvis is a little larger—say with a conjugata of 8 cm. (3.2 inches) or more—we consider in some cases, unless the child is very large, that a tentative attempt at forceps may be made before deciding upon Cesarian section. Under such circumstances all preparations for Cesarian section should be made, the patient brought to the edge of the table and forceps applied, preferably over the jugo-parietal diameter of the head, and three or four moderately strong tractions made. If the head follows, they should be continued, and the child delivered in the usual way. If, on the other hand, the head does not follow a few tractions, the forceps should be removed at once, the patient placed in proper position, the hands once more sterilized, and Cesarian section performed. If such a mode of procedure is adopted, version will disappear from the treatment of contracted pelves, because if any obstacle is encountered after its performance the child will die before a symphyseotomy can be done, and perforation will become necessary.

There are two classes of cases, concerning whose treatment considerable perplexity may arise, namely, women having normal pelves with very large children, and neglected transverse presentations with a living child. Under some circumstances Cesarian section is doubtless the ideal method of delivery in such cases, but in many others the question is very difficult to answer, especially when one has to deal with neglected transverse presentations; but in view of the probability of previous infection, I believe that the majority of such cases are best treated by decapitation.

METHOD OF OPERATING.

Passing from the consideration of the indications for the operation to the method of operating, I believe that the operation which should usually be performed is the typical conservative Cesarian section, while the supravaginal amputation of the uterus or its total removal should be reserved for those cases which are infected at the time of operation, or in which the probability of infection is extremely great, and for the rare cases of osteomalacia.

The question also arises as to whether it is advisable to sterilize the patient at the same time, so as to prevent the possibility of a similar operation in the future. Sterilization may be effected by several methods—supravaginal amputation of the uterus, removal of the ovaries or excision of the tubes; but I believe that the ovaries should not be removed, for the reason that the retracting uterus may readily exert sufficient traction upon the broad ligaments to cause the ligatures about the pedicle to slip, with resulting hemorrhage and death, not to speak of the discomforts following a premature menopause. It has been usually taught that sterility may be produced by tying a ligature around each tube in one or two places, but recent experimental work has shown that this is not a sufficient safeguard, as the work of Reis and Frenkel has demonstrated that the ligatures often disappear, and the lumen of the tube becomes patent once more. It was then suggested to excise a portion of the tube between the two ligatures, but Zweifel has recently reported a case in which pregnancy followed this operation, and the experimental work of Frenkel upon rabbits has demonstrated in a certain number of cases that the cut ends of the tube may unite, the ligatures disappear, the lumen be re-establisht and the possibility of future pregnancy establisht. I therefore believe that the only rational method of preventing the occurrence of pregnancy in the cases under consideration, if one does not wish to do a supravaginal amputation, is to excise the tubes and uterine cornua by wedge-shaped incisions, and close the wounds, just as we do in certain tubal diseases. This can be most readily accomplisht by making the uterine incision across the fundus, as recommended by Fritsch, and extending it to the cornua of the uterus, when the tubes may readily be excised. There must be considerable doubt concerning the propriety of rendering a patient sterile, and it is a responsibility which the average operator may well hesitate to incur. If the patient and her husband are intelligent, the condition of affairs should be explained to them, and the decision left entirely in their hands. But if the patient be ignorant and unable to understand the condition of affairs, the decision must be made by the physician himself, who then has the responsibility thrust upon him of deciding whether he should render his patient sterile, or whether he should leave her in such a condition as to permit the possibility of a subsequent pregnancy. For my part, I feel that the responsibility is a heavy one, and the only condition under which I should feel justified in rendering a woman sterile after her first pregnancy would be in case of idiots, unless her physical condition demanded a supravaginal amputation. If, however, the patient returned for a second Cesarean section, and it appeared likely that she would require repeated operations during her life, then I think that the propriety of rendering her sterile should be considered, and I should be inclined to accept the responsibility and excise her tubes.

CRANIOTOMY.

In view of the markt improvement in the mortality following Cesarian section, what position shall we take concerning craniotomy upon the living child? Every one agrees that craniotomy is indicated whenever we have a dead child in a woman with a contracted pelvis, unless the contraction be so great as to render it a more difficult operation than Cesarian section. On the other hand, craniotomy upon the living child is being done less and less.

The operation is generally believed to be harmless as far as the mother is concerned, tho it is necessarily fatal to the child, but Pinard recently stated that the maternal mortality is greater than is usually believed, as he lost 11.5 per cent of the mothers in the eighty-one destructive operations which he performed. This appears to me to be an excessively high mortality, and is probably due to the fact that a large number of his cases were seriously infected at the time of the operation. My experience is that craniotomy, if properly done in an uninfected woman, is almost devoid of danger. But, nevertheless, I do not believe that it should ever be done upon living children if the patient is uninfected and in suitable surroundings, and if the obstetrician is a competent operator, or is able to call a competent person to his aid. On the other hand, if the woman be infected, or lives in a district where skilled operative aid cannot be obtained, it appears to me that craniotomy is still indicated, even tho the child is alive, because, it must be remembered, that the favorable results attending Cesarian section were obtained by competent operators, and not by the average practitioner. Of course, this subject is still further complicated by the ethical question as to whether one has the right to kill an unborn child, and if one is a devout Catholic it can only be answered in one way, and the woman must be subjected to a Cesarian section, no matter what her surroundings or what the ability of her medical attendant.

Certain authorities, notably Pinard, consider that we have no right to sacrifice a living child, no matter what our religious convictions may be, and in a recent article entitled "Du soi-distant feticide therapeutique," he concludes that "the accoucheur has not the right, either morally, legally or scientifically, to practice embryotomy upon the living child. To sacrifice the infant in order to save the mother is a legend which should disappear. The control of the life and death of an infant belongs to no one—neither to the father, nor the mother, nor the physician, nor director of a hospital. The right of the infant to live is sacred, and cannot be taken away by any power. The right of choosing the operation to be performed belongs solely to the physician."

Pinard believes that symphyseotomy should be done in these cases, but I consider that he has taken an extreme view, and

believe that craniotomy upon the living child has a place still among obstetrical operations, but that its performance should be restricted to the greatest possible extent, and that it should only be performed when the dangers to the mother from other operative procedures are so great as to make them practically unjustifiable. The question resolves itself into one of conscience, and can best be solved by the physician asking himself, how would he want his wife treated under the same circumstances? Would he prefer craniotomy upon the living child, or the performance of Cesarian section by an unskilled operator amid unsatisfactory surroundings?

PEMATURE DELIVERY.

What position shall we assume toward the induction of premature labor upon women with contracted pelves? This operation was extensively employed in times past, and still is by a considerable number of obstetricians. Every one agrees that the maternal mortality following it is almost insignificant if done under proper aseptic precautions. Thus, Pinard reports 100 cases with a single maternal death, and Charles 100 cases without a death.

To be efficacious the operation should be performed six or eight weeks before the expected date of confinement, at a period when the child is considerably smaller than at full term, with the result that an imperfectly developt, premature infant is born, whose chances of life are not particularly bright, in spite of all modern appliances for preserving it. Pinard and Charles report a fetal mortality of 33 and 36 per cent. respectively, and if we are operating in the interests of the child it appears to me that this is a very poor showing. And I can only see a difference in degree between performing an operation which we know will result in the death of one-third of the children, and in doing craniotomy, by which all the children perish. If we are operating solely in the interests of the mother, induction of labor appears to be a very excellent operation, but, under these circumstances, why not do an abortion at a much earlier period, and save the woman all the weary months of her pregnancy? This was the practice in England 100 years ago, but we have progrest beyond it, and with the present mortality attending Cesarian section I believe that the induction of premature labor is justifiable only in a very small proportion of the cases of markt pelvic deformity.

There is one class of cases, however, which appears to me to offer a distinct field for the operation—that is in multiparous women with normal pelves who have repeatedly given birth to large children which have died during labor—children of eleven and twelve pounds or more. In such cases I believe that the induction of labor six weeks before the expected date of confinement would enable us to save the mother and child, and give us more satisfactory results than Cesarian section, as far as the mother is concerned, and probably nearly as satisfactory results on the part of the child.

What I have said concerning Cesarian section and symphyseotomy applies only to those who feel themselves competent to do major surgical operations, for neither of these operations is one which should not be attempted by one who has no surgical experience. The average Cesarian section is comparatively simple, but in a small number of cases the uterus may fail to contract and retract, and the woman may be threatened with death from hemorrhage. Under such circustances the only method of saving her life is to remove the uterus, and unless the physician feels himself competent to attempt this operation he should not do a Cesarean section, save under the most exceptional circumstances.

The same holds good for symphyseotomy, which is an operation which I should surely not recommend to any one who is not fairly conversant with surgical procedures.