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With a Report of Cases.

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CESAREAN SECTION AND SYMPHYSIOTOMY FOR THE RELATIVE INDICATIONS.[1]

With a Report of Cases.

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THE problem of successful delivery to mother and child in complicated labor derives new interest from the results of modern obstetric surgery. At the present time obstetricians have better grounds than formerly for the hope that such cases may be terminated with but little mortality and comparatively little suffering. Symphysiotomy under antiseptic precautions is as yet sufficiently new to render of interest a report of its results, especially as affording a basis of judgment in determining its scope. It is the purpose of this paper to report two symphysiotomies for the relative indication, and a third case in which symphysiotomy was declined, and the Cesarean section chosen in its stead. These contrasted cases will lead to the discussion of the reasons for choosing the operative procedures mentioned.

[1] Read before the College of Physicians of Philadelphia, April 4, 1894.

By the phrase "symphysiotomy for the relative indication" is meant the performance of the operation in cases in which it would have been possible to extract a dead child by craniotomy without dividing the mother's symphysis, and in which some might claim that a difficult and tedious application of the forceps might possibly have resulted in the birth of a child capable of surviving without the operation of symphysiotomy. It is my belief, however, that it is the duty of the obstetrician, whenever possible, to avoid difficult extraction with the forceps, not only on account of the fetal mortality that sometimes results, but also because of the fetal morbidity, especially after injuries to the skull and brain, that not infrequently follows such delivery. To my mind cases in which there is a strong probability that the fetus will sustain serious injury in delivery, as evidenced by failure of the fetal head to engage after sufficient uterine contractions have persisted for a reasonable time, call for surgical interference in the interests of both mother and child. The cases of symphysiotomy are briefly as follows:

Case I.—J. McN., aged twenty-five years, an Englishwoman, entered the Jefferson Maternity during last autumn. Her previous history was not obtainable at the time, because of the patient's reticence and intentional misstatements. It has been learned, however, that she is married; that five years ago she bore a small, ill-developed fetus, after a spontaneous labor lasting five days; she has also had an abortion at four months.

On admission she was found to be in the eighth month of pregnancy, her fetus occupying the first

position, the head at the brim of the pelvis, and capable of being brought just within the brim by pressure; it could not, however, be made to engage. Her pelvic measurements were as follows:

	CM.
Anterior superior spines	24
Crests	25
Trochanters	24.5
External conjugate	16
Internal by measurement	7.25

The fact that the head of the fetus could not be made to engage led me to omit the induction of labor, and to allow the patient to go to term, with the expectation of delivering her, by suitable operative interference, should the head then not engage. She engaged in housework with the other patients, and was carefully examined at intervals of ten days or two weeks, when it was found on each occasion that the head could be brought to the brim of the pelvis, but could not be made to enter the pelvic cavity. The fact that the head presented at the pelvic cavity led me to believe that but little enlargement of the pelvis would be needed to accomplish its delivery. On December 22d labor began, the uterine contractions being regular and of considerable force; labor progressed with increasing pains, the membranes ruptured, but complete dilatation was tardy, and the pains were ineffectual in causing engagement. The os was accordingly dilated with Barnes' bags and the patient anesthetized with ether, and a careful effort made by suprapubic pressure and uterine massage to cause the head to engage. As these efforts failed, and the heart-sounds of the fetus indicated that the child was in excellent condition, symphysiotomy was performed. It was necessary to dissect away the recti muscles to gain free access to the joint, and also to com-

pletely sever the subpubic ligament; the method employed was by an incision above the pubes, terminating three quarters of an inch above the joint, thus leaving an unbroken cutaneous surface directly over the symphysis. The joint was severed with the Galbiati knife, inserted from below, traction being made from below upward and from in front posteriorly. The pubes separated three-quarters of an inch after section, the head engaged in the left oblique diameter, the occiput behind, and was readily delivered by Tarnier's axis-traction forceps; the pelvic floor and perineum were uninjured. A strand of iodoform-gauze was carried behind the symphysis, to prevent the bladder and adjoining tissues from being pinched between the parts of the symphysis as the pelvis was brought together. The wound was closed in the usual manner, an open stitch being left at the lower end, which was tied when the gauze was removed twenty-four hours after operation.

The patient made a good recovery, retarded only by gastric irritability arising from her previous excessive indulgence in tea. She was kept recumbent for four weeks, and was dressed with an antiseptic dressing over the wound, antiseptic absorbent pads over the vulva, with a single strip of adhesive plaster, eight inches wide, drawn tightly around the pelvis, the center of the strip being over the trochanters of the femora. She was lifted out of bed daily, and care taken to prevent irritation of the skin, and to maintain cleanliness. Her child was a well-developed male, 46 cm. long, weighing 7 pounds, 11 ounces; the measurements of his head were as follows:

	CM.
Occipito-frontal	11.5
Occipito-mental	14
Maximum	13
Biparietal	11
Bifrontal	9

	CM.
Trachelo-bregmatic	9.75
Suboccipito-bregmatic	10
Bisacromial	11
Circumference	36

Since her convalescence the patient has been kept in the Maternity, and employed in domestic service, in order to accurately observe the condition of her pelvis. She has been examined by Dr. Robt. P. Harris and Dr. H. Augustus Wilson. She has firm and complete union at the symphysis, whether osseous or fibroid cannot be stated. She experienced, when first allowed to get up, some lameness in the right sacro-iliac joint, which has since disappeared. She is able to carry coal up and down stairs, to scrub and lift, as well as other women in the Maternity who have not been subjected to symphysiotomy, and who are not in a pregnant condition. She has nursed her child, and is in good general health. The measurements of her pelvis at the present time show a slight increase, possibly as the result of the symphysiotomy; thus, very careful measurement shows that in the distance between the crests of the ilia and between the trochanters there is an increase of 0.5 cm. Her external conjugate is 1 cm. greater than before the symphysiotomy. Her internal conjugate is 0.75 cm. greater. According to her own calculation, and from the appearance of her fetus, she had, when delivered, gone several weeks over the period of normal gestation.

Case II is that of M. F., a young married woman, aged twenty years, whose previous history was negative. She did not know the date of her last menstruation, and had never recognized fetal movements. Her general development was poor; she was poorly nourished when admitted, and manifested an unstable condition of the nervous system.

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An examination of her pelvis gave the following measurements:

	CM.
Anterior superior spines	22.5
Crests	25
Trochanters	27
External conjugate	19
Internal conjugate	9.5

Her fetus occupied the first position, the head presenting. The period of her pregnancy was the end of the seventh or the beginning of the eighth month. An examination of the urine revealed a deficiency in excretion. The percentage of urea remained below the average, the specific gravity being less than usual, although albumin and casts were absent. The woman remained in fair health until the 7th or 8th of March, 1894, when she manifested symptoms of toxemia; she complained of headache, disordered vision, great restlessness, and had exaggerated melancholia, and nausea. An examination of her urine for several consecutive days revealed a rapid diminution in the percentage of urea, although albumin was present in a mere trace, and casts were absent. The amount of urine diminished progressively. The percentage of urea, which should have been from 1.4 to 1.8, fell as low as 0.01. Instructions were immediately given that the induction of labor should begin; this was accomplished by the introduction of bougies, which was followed by uterine contractions characterized by excessive pain. The patient was given calomel in small and repeated doses, a hot bath and pack, fed upon skimmed milk, and made to drink freely of water, when the percentage of urea rose to 1.4. After forty-eight hours of very gradual labor by the stimulus of bougies in the uterus, the patient came into active labor on the 16th; her pains were vigorous, and caused great suffering; dila-

tation being tardy, Barnes' dilators and McLean's dilators were employed, and dilatation being complete, the patient was anesthetized with ether, the membranes were ruptured, and an endeavor was made to bring the head to engage; this could not be effected; the head presented, the occiput posteriorly and upon the right side. After a fair trial had been given to secure engagement, symphysiotomy was performed, as previously described. In this case, as the disproportion between the head and the pelvis was much less than in the previous case, the subpubic ligament was but partly severed; the head at once engaged, although the parietal bone presented at the brim of the pelvis. An effort was made to apply Tarnier's forceps to the sides of the head, but it could not be readily locked. Simpson's forceps was then applied with the axis-traction tapes, and the head gradually brought to the floor of the pelvis, where incomplete rotation occurred. The occiput was delivered posteriorly, the pelvic floor being uninjured. The child was asphyxiated, but was revived without great difficulty. The head at birth measured:

	CM.
Maximum diameter	12.5
Suboccipito-bregmatic	10
Occipito-mental	12.5
Occipito-frontal	11
Fronto-mental	9
Biparietal	9
Bitemporal	9
Bisacromial	11
Total length	46

Sex, male.
Weight, 5 pounds 11 ounces.

The child was placed in an incubator, and fed with breast-milk pumped from the mother's breasts and dropped into the mouth with a medicine-dropper.

Eighteen hours after delivery the mother was

seized with eclamptic convulsions; as she had received $\frac{8}{30}$ of a grain of strychnin hypodermatically in divided doses, and as her convulsions were not typical, there was doubt as to their precise nature. Dr. Hare saw her in consultation, and found no evidence of strychnin-poisoning. Under the use of the hot pack her convulsions ceased, and did not return. Her percentage of urea remained nearly normal, and has risen to normal, and her convalescence has been uninterrupted. She is able to nurse her child, which is developing normally. Her wound has healed, although she has not yet been permitted to assume the erect posture.

In contrast with the foregoing is the next case:

Case III.—In this case the Sänger-Cesarean section was chosen instead of symphysiotomy. Mrs. E. H., aged twenty-seven years, of excellent general health and good physique, married at eighteen, had been pregnant five times previously. Her first, third, fourth, and fifth labors were terminated by the use of forceps, each labor resulting in the birth of a dead child. All of the children were large; the first was twenty-three inches long, and weighed thirteen and one-half pounds; the others weighed more than twelve pounds. Her second labor terminated spontaneously, a small male child being born, although her medical attendant at the time despaired of a successful termination of the labor, and had sent for assistance, when under strong pains the head emerged with defective mechanism of labor. The exact manner of delivery neither the patient nor her husband can describe. The child, however, was small, but is living and in good health. The patient corresponded with me during the winter, stating that she was resident in the mining regions of the State; that she had endured repeated unsuc-

cessful labor, and was desirous of obtaining at the termination of her present pregnancy a living child. She gladly came to the city, and presented herself at my office for examination. In general appearance, physique, and width of her hips she seemed an exceptionally robust woman; it was evident from the size of the abdominal tumor that her uterus contained an unusually large child. An examination of her pelvis gave the following measurements:

	CM.
Anterior superior spines	28
Crests	30
Trochanters	29.5
External conjugate	19.5

Vaginal examination showed the rami of the pubis approximating each other much more closely than normal. Palpation of the inner surface of the pelvis revealed a funnel-shaped pelvis, the cavity narrowing very appreciably toward the outlet. In comparison with the breadth of the patient's shoulders and the width of the iliac bones, it was seen that she had a flattened and converging pelvis. The fetal heart-sounds were heard upon the right side of the abdomen, four inches above the umbilicus, indistinctly over a wide area. The os uteri was patulous, but no presenting part could be detected. The symphysis pubis was two and one-half inches in height.

The patient was convalescent from influenza, and had an obstinate cough; she was told that an operation would be necessary for her safe delivery, to which she assented. She was instructed to go immediately to the Polyclinic, where it was intended to prepare her for delivery by surgical means; she neglected, however, to report at the hospital for twenty-four hours, when she came in at midnight on January 14th, in labor. In the early morning of

January 15th her pains became frequent and severe; the membranes ruptured, and a breech-presentation could be detected; the child remained high in the mother's abdomen, the breech failing to engage. Dr. Robert P. Harris met me in consultation over the patient about six hours after the beginning of labor; his first advice was to perform symphysiotomy, but when palpation and auscultation confirmed the diagnosis of breech-presentation, and the large size of the child was apparent, together with the fact that version could not be performed on account of the loss of amniotic liquid, Dr. Harris and my colleague at the Polyclinic, Dr. Baer, agreed with me in choosing Cesarean section.

On account of the patient's condition of bronchial irritation, chloroform was administered by my assistant, Dr. Wm. H. Wells. In listening for the heart-sounds it was found that the placenta was attached to the anterior wall of the uterus, and would probably be encountered in the incision. The abdomen being opened, the uterus presented, large in size, and rotated from right to left upon its axis. While Dr. Baer skilfully controlled hemorrhage by taking the broad ligaments between his fingers, I incised the uterus, finding the placenta directly beneath the incision. The placenta was immediately severed, stripped from the wall of the uterus, and the child, placenta, and membranes delivered in a few seconds. The child was delivered by the feet, was asphyxiated, but speedily revived. The uterus was turned out of the abdomen, and closed by four buried sutures of heavy silk, six stitches through the muscle and peritoneum, and seven fine silk stitches in the peritoneum only. There was but little hemorrhage, although bleeding from one of the sinuses required two additional stitches. The size of the uterus required an abdominal incision extending above the umbilicus, which was closed by continuous

suture through the aponeurosis, and fourteen interrupted stitches. The patient showed little shock, the uterus contracted well, and there was no secondary hemorrhage or relaxation. The child was a female, weighing 11.75 pounds, and 52 cm. long. The measurements of its head were as follows:

	CM.
Occipito-frontal	13
Suboccipito-bregmatic	11.25
Biparietal	10.25
Bitemporal	9.25
Occipito-mental	14
Maximum	15
Bisacromial	12.5

The mother's convalescence was jeopardized by two complications: her cough continued obstinate for several days, and catarrhal pneumonia seemed threatened for a short time. These conditions gradually subsided. Her failure to report promptly at the hospital had given insufficient time to disinfect the surface of the abdomen, and a single stitch-hole abscess required attention for a few days. With these exceptions, her convalescence was uneventful; she nurses her child and is living in good health in the city. Because of the length of the abdominal incision, the stitches were retained as long as possible in her case, as it was feared that violent cough might reopen the incision.

This case is of interest in connection with the preceding, because symphysiotomy was declined for two reasons: first, the funnel shape of the pelvis promised less in gain of space after symphysiotomy than in pelves shaped as in the preceding cases; second, Dr. Harris informed me that breech-presentation is less favorable for delivery after symphysiotomy than head-presentation, and as the

membranes had ruptured, it was impossible to turn the child before operating. Dr. Harris was positive, on seeing the child, that it could not have been safely delivered by breech-presentation after symphysiotomy. Five weeks after delivery, examination of the patient revealed the following condition: The cervix uteri pointed downward and slightly backward; the uterus was adherent to the abdominal wall, reaching a hand's breadth above the pubes. Involution of the uterus had proceeded fairly well; a slight amount of mucous secretion from the cervix was present.

The report of these cases is offered as an illustration of what I believe to be a fair deduction from the results of modern obstetric surgery, namely, that in cases in which the fetus is disproportionate in size to the mother's pelvis, and in which after spontaneous efforts have failed to secure engagement of the presenting part in a reasonable time, and these efforts have been supplemented by thorough examination under anesthesia and a fair trial to secure engagement by manipulation and suprapubic pressure, that if the fetus be living and in good condition, it is the duty of the obstetrician to refrain from application of the forceps, and to deliver the patient by some form of abdominal section, either by symphysiotomy or by the Cesarean operation.