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Obstetrics: The Science and the Art - Part III. The Therapeutics and Surgery of Midwifery; Chapter XIV. Preternatural Labor from Deformed Pelvis

CHAPTER XIV.

PRETERNATURAL LABOR FROM DEFORMED PELVIS.

In former pages of this work, to wit, in Chapter I., I treated of the pelvis as normally constituted. The Student, from reading that chapter, has become acquainted with the dimensions of the planes of the two straits, and with the excavation.

He knows that the osseous frame consists of a soft gelatinous material which hath become rigid and extremely solid and compact by the deposit within it of phosphate of lime. He knows that to macerate a bone in a strong acid solution is to dissolve out from it the whole of its calcareous solid matter, leaving to the bone its pristine form and dimensions, but leaving it, at the same time, compressible and flexible in every direction; for all that is left of the bone after the maceration is a gelatinous mixed with a fibrous and cellular material.

Now the child that is born may become, in one of the early years of its existence, the subject of a disease, one of whose most prominent characteristics is to prevent a deposition of the calcareous phosphate in the substance of the gelatinous framework of the bone; not wholly, indeed, but to such a degree as to leave the bone softish and compressible, or flexible. Again, a child may grow up in apparent health, having conformably developed all the parts of its constitution—its phosphatic deposits having been completely made up to a certain term, and giving to its bones a due degree of solidity and firmness; whereupon it may be attacked with disease, whose effect shall be to remove from the gelatinous framework of its bones a large proportion of the calcareous portion already deposited.

These two cases present examples, the one of a suspension of the process of deposition, and the other of a removal of the phosphates already deposited. The former is Rachitis, or Rickets. The latter is Mollities ossium, or softening of the bones. The effect is the same in either case. In rachitis, the child continues to grow without removal of the ancient phosphate, and the bone bends or is crushed. In the

latter the ancient phosphate is removed and the bone bends, or is crushed. It bends, or is crushed under superincumbent weight. If the child laboring under rachitis should recover from that malady, it would regain its power to solidify its bone by depositing calcareous matter within its intimate structure. But, should the solid matter be replaced while the bone in its plastic condition is pressed or bent out of its due shape, it might acquire the most consummate health, and remain ever after affected with the deformity.

If the humerus, the radius, the femur, or the tibia should regain its solid phosphate, those several bones would be found arcuated—bent like a bow—and remain ever so. If the ossa innominata, which consist of the ilia, ischia, and pubes, should be the seat of the softening processes, and if during a long-protracted illness, the child should lie chiefly upon her right side, or upon her left buttock, the sacro-pubal diameter of the pelvis would allow its pubic extremity to be turned towards the right side of the child, and *vice versâ*. This would produce what is called the obliquely deformed pelvis—dass schraage verengte beckens—of Professor Nægèle of Heidelberg, for the wing of the sacrum of the lower side would not grow as rapidly as the opposite one. It is, however, to be understood that where the wing of the sacrum is faulty, there is reason to believe it may have been so in an early embryonal stage.

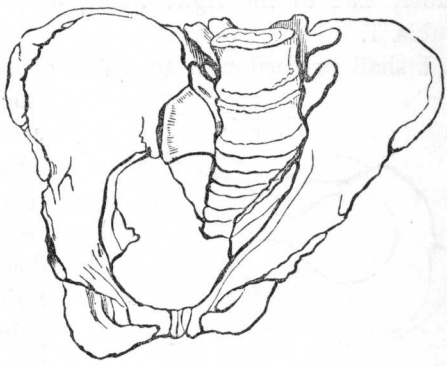
The Student will perceive that such a pelvis as this must lose a portion of that diameter which extends from the left acetabulum to the right sacro-iliac symphysis, provided the pubis be deflected to the right side, and so, *mutatis mutandis*.

In case the Student should be charged with the conduct of labor for a woman affected with right oblique deformed pelvis, he will perceive the necessity there is to direct, if possible, the vertex of the child to the right rather than to the left acetabulum of the mother; for, as the occipito-frontal diameter of the fœtus exceeds its bi-parietal diameter, he would sedulously endeavor to make the greatest diameter of the head coincide with the greatest diameter of the pelvis, in order to render easier a delivery, which would be difficult, laborious, and even impracticable, were he to persist in attempts to force the long diameter of the head through the contracted diagonal of the pelvis. This is one of the cases in which turning and delivery by the feet are allowable in deformed pelvis.

Having made a perfect diagnosis of the deformity, he will find himself able, in performing the act of version, to adjust the smallest diameters of the fœtal cranium in such a way as to make them coincide with the smallest diameters of the pelvic passages.

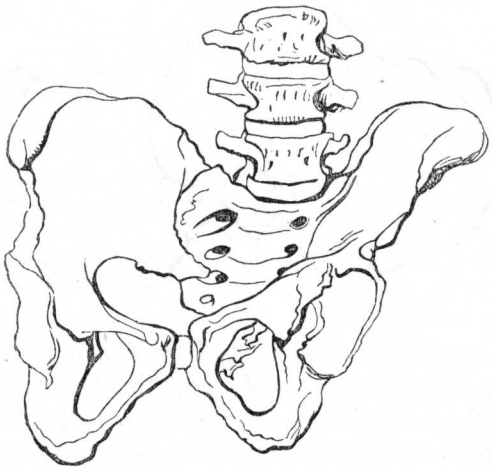
The annexed figure (109), taken from Professor Nægèle's work on the oblique-deformed pelvis, shows that, if the vertex should be directed towards the left acetabulum, the dimensions of the strait are so much altered there by the fall of the pubis towards the right, that little expectation could be indulged of the descent of the cranium below the plane; for the antero-posterior diameter of the cranium exceeds four inches and a half, while the bi-parietal diameter is 3.88.

Fig. 109.



I subjoin the figure of a pelvis preserved in my collection (Fig. 110). It will be seen that it is right oblique deformed, like that described by Professor Nægèle. Its dimensions, which I now carefully measure, are from the promontory of the sacrum to the top of the symphysis

Fig. 110.



pubis, 3.6; from the promontory of the sacrum to the point of the coccyx, 3.5; from the right acetabulum to the left sacro-iliac junction, 4.1; from the left acetabulum to the right sacro-iliac junction, 2.7; from the top of the right ischium to the top of the left ischium, 3.7;

from the inner lip of the right tuber ischii to that of the left tuber ischii, 3.5; from the point of the coccyx to the crown of the pubal arch, 4.2; from the point of the coccyx to the inner lip of the left tuber, 1.9; to the right tuber, 3.5; the length of the symphysis pubis, 1.

I shall proceed now to speak of other deformities of the pelvis. Rachitis or Mollities does not necessarily affect the whole of a bone. The figure 111, which I subjoin, represents the plane of a superior strait like the figure 8. It is evident upon inspection that the posterior semi-circumference of the pelvis has not suffered at all in its form, as the Student may perceive by comparing it with Fig. 112, which I have taken from the pelvis of an Egyptian lady of rank from the tombs of Thebes, which specimen was presented to me by my friend, the late Samuel George Morton, the distinguished author of the *Crania Americana*. This pelvis, which

Fig. 111.

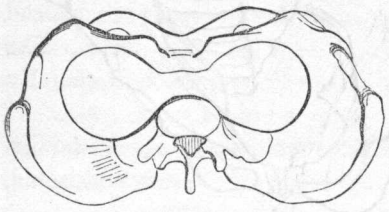
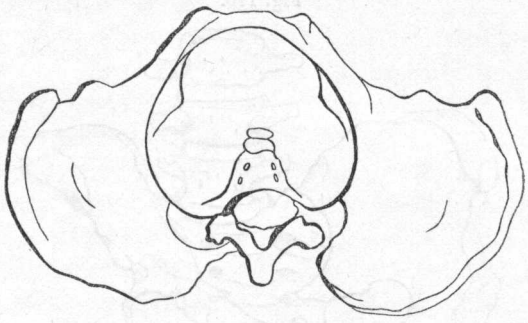


Fig. 112.

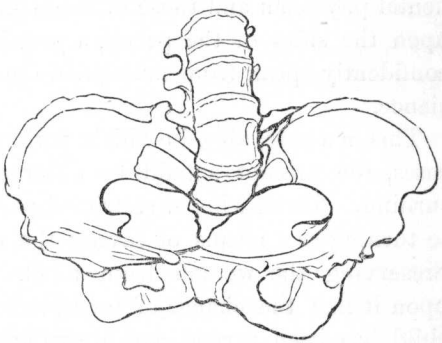


is one of the most perfect specimens of the female pelvis that I have ever seen, may serve as a means of comparing the posterior semi-circumference of the badly deformed pelvis, Fig. 111, with the posterior semi-circumference of this most perfect Egyptian form. It shows that the deformity in Fig. 111 has arisen from rachitis or mollities affecting chiefly the pubal and ischial portions of its ossa innominata, which, having fallen inwards upon the promontorium of the sacrum, have so reduced the antero-posterior diameter of the superior strait as to render the passage wholly impracticable for the full grown fœtus.

In such a pelvis as this, the pregnant woman ought to be advised to submit to an early abortion, whereby she might be preserved from an ultimate direful necessity to undergo a Cæsarean operation; for when the antero-posterior diameter of the pelvis is only an inch and a half in length, it is impossible to extract a nine months fœtus, except that fœtus be either of an under size, or else in a state of absolute decomposition, circumstances not to be expected, and, therefore, not to be relied upon, nor scarcely to be hoped for. Dr. Simpson's late case, published in an English journal, might serve rather to mislead the practitioner with vain hopes of an unparalleled good fortune like that which his patient enjoyed, than as a precept to be generally followed.

I annex the figure of another pelvis (Fig. 113), in which the distortion has attacked the sacrum itself, as well as the pubes and ischia, and partially the left ilium.

Fig. 113.



In such a pelvis as this, provided the antero-posterior diameter should not be reduced below three inches, good hope might be entertained of extracting a living child by means of dexterous and patient use of the forceps, especially should the child be rather under size, and one in which the progress of ossification had not gone so far as to render the bones of the cranium very firm and resisting. But as a child's head, in its bi-parietal diameter, according to my measurements, will average 3.88, and as, in a series of three hundred heads, I found but one under 3.50, there will be in general but faint prospect here of extracting a full-grown child alive. The records, however, contain abundant examples of cases in which the fœtus at term was spontaneously expelled in pelves reduced as low as 2.50. In the treatment of such a case as the one now under consideration, the least reflecting Student must perceive that, in adjusting the position of the head, it would be desirable for him to bring the bi-parietal diameter, which is the smallest diameter of the head, into coincidence with the antero-posterior, which is the smallest diameter of such a pelvis; and further, that in any attempt to assist the natural powers by means of the forceps, it would

be preposterous to think of adjusting the blades upon the sides of the head in that direction. The pelvis is already perhaps fatally small. To apply the blades of the forceps, then, would be considerably to increase the necessity for some reduction in the transverse diameter of the head. Common sense, therefore, would teach him that if he must apply the additional force, it must be applied to the face and occiput of the child. The blades of Davis's forceps, even when the handles are perfectly shut, are 3.9 asunder. It would be impossible, therefore, to extract the forceps in that direction, much less the head contained within them.

I believe the practitioners of midwifery in England are less familiar with the use of the forceps than those of the continent or of the United States. I think them quite too prone to refer to the aid of the crotchet and perforator, and cannot but indulge a disposition to dissent from their almost invariable practice of adjusting the blades upon the sides of the head, much preferring the practice of the continental physician and those of the United States, who seize the head upon the sides of the pelvis, a practice as to the safety of which I confidently speak from multiplied opportunities in my clinical experience.

This is a case, also, in which, perhaps, more properly than in other cases, the precept should be observed of attempting to deliver by turning. Those who, in restricted pelvic diameters, propose the resort to turning as a means of saving the child, and at the same time of preserving the woman from much pain and great danger, insist upon it that the chance of preservation is greater because when the child has been turned and drawn away, so as to allow the head to come to the narrowest part of the pelvis, the cranium yields, allows its diameters to be reduced, and may be disengaged from within a narrow strait, through which it could not be driven if the head were the presenting part. The idea is this: when the head is d r a w n through by means of traction exerted upon its neck, it undergoes a process which, as I take it, is not wholly unlike that called *wire-drawing;* whereas, when the head presents, such a process of wire-drawing cannot be supposed readily to take effect. A portion of metal can readily be d r a w n through the apertures of a wire-plate, which no art could d r i v e through it from the other side.

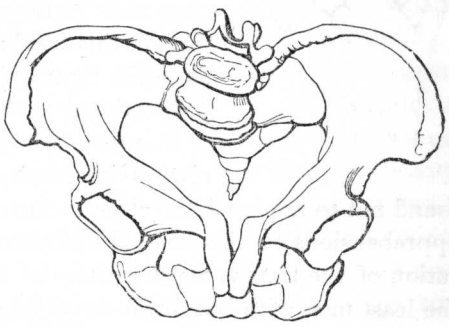
I am not prepared in this place to go so far as Professor Simpson, of Edinburgh, in recommending a resort to version in bad pelves; and my hesitation arises from this, that the mensuration of the pelvis being an inaccurate operation, there is reason to fear that the

inexperienced accoucheur might be led to institute this method in cases where excerebration is indispensable for the delivery of the head. I admit it is possible to effect excerebration in the footling case; but in a case of badly deformed pelvis, the operation implies a great risk of detruncation, an accident the most to be deprecated, for what occasion can arise for embarrassment and vexation greater than that which he experiences who is condemned to the task of extracting a detruncated head through a very much reduced superior strait of the pelvis!

In Dr. Lee's 3d Report, *Clinical Midwifery*, p. 74, 3d ed., he gives accounts of several cases of footling labors occurring in deformed pelves, in which he was obliged to diminish the head by opening the cranium through the occipital bone. In conducting those cases, that able practitioner frequently found himself greatly embarrassed in effecting the operation. To read his accounts of the cases, would be sufficient to put the Student upon his guard against the risk of encountering such embarrassments from version.

Here is another pelvis, Fig. 114, in which the rachitis has attacked the whole organ; the last lumbar vertebra, as well as the ilia, ischia, and pubes, being changed in shape. The horizontal portions of the pubes have become almost parallel, narrowing, of course, the antero-posterior diameter, and approximating the extremities of the transverse as well as the oblique diameters, so as to render hopeless any attempts to extract the child through it alive.

Fig. 114.



It appears to me needless to follow the example of writers who have reduced the deformities of the pelvis into a sort of classification. It is evident that softening of the bones, which may attack the whole or any part of the osseous structure of the basin, may yield any conceivable irregularity of form; and those that I have already spoken of in this article being sufficient to show the Student what is the nature of these deformities; and as he is already acquainted with the mean dimensions of the fœtus, he may be considered qualified to give judgment on questions of obstetrical operations arising under pelvic deviations.

It is necessary that he should be aware of the methods which are adopted for ascertaining the dimensions of the pelvis. As a general rule, the indicator finger of the accoucheur will scarcely be found capable of extending further than three and a quarter inches or three and a half inches beyond the crown of the pubal arch. It is true that, by the introduction of half the hand, the palp of the indicator finger can be made to explore a region four and a half inches distant from the crown of the arch; but, as the introduction of half the hand in the woman not in labor or affected only with the earliest stages of labor, is so painful as to excite repugnance and resistance on the part of the patient, the vaginal taxis alone is generally preferred.

Suppose there should be some suspicion of a deviation of the pelvis —one in which the pubis has retreated towards the sacrum, or one in which the promontorium has descended towards the symphysis. If he should carry his indicator finger as in the annexed figure, directing it towards the promontory of the sacrum, and in vain endeavor to touch the sacro-vertebral angle, his exploration will teach him at once and clearly that his patient has nothing to fear on this head; but if he can readily touch it, as in the figure, then she has a deformed pelvis, proportional to the facility of the touch.

Fig. 115.

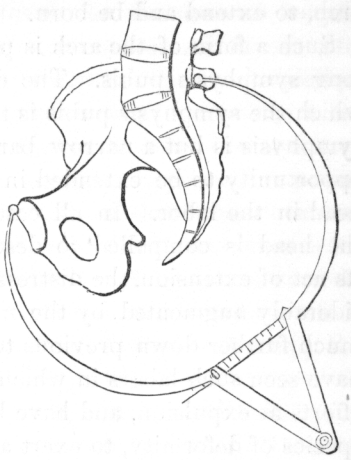
If, again, the point of the coccyx, which can always be touched with the indicator finger, is found not to approach too close to the crown of the pubal arch, uneasy apprehensions on this head are at once set aside. As for the mensuration of the transverse diameters of the inferior strait of the pelvis, the least tact, with but little experience, would show that that strait is or is not normal, and to what degree deviated, if at all.

If, however, upon introducing the index finger, it should at once encounter the sacro-vertebral angle, by pressing the point of the finger against the protuberance, and lifting its radial edge up to the crown of the arch, he can mark the point of contact with the top of the arch, and then, measuring the distance to the point of the finger, he will have an accurate report of the antero-posterior diameter.

It appears to me that there is no necessity to trouble one's self to make a provision of callipers to measure the pelvis externally, to get a report of the internal diameters of it; nor need one procure an intro-pelvimeter, which is more apt to mislead him than the hand, and which, moreover, is both inconvenient and painful in its application.

Nevertheless, if he should be inclined to avail himself of the use of the callipers, he may learn in the annexed figure the mode of its application. Applying one of the buttons of the calliper to the symphysis pubis, and the other to the spinous process of the fifth lumbar vertebra, the scale will mark the space by which the buttons are divided. Let him subtract from that space half an inch for the thickness of the symphysis pubis, and two and a half inches for the space between the sacro-vertebral angle and the spinous process on which the button rests, and he will have three inches to deduct from the whole sum; the remainder is to be taken as the antero-posterior diameter of the plane of the superior strait. If he will refer to Fig. 114, in which the pubis projects in consequence of the parallelism of its horizontal rami, he will at once perceive the futility of an attempt to deduce the internal capacity of that pelvis from an external measurement.

Fig. 116.



The great matter for him is to determine the indication of treatment in the case, and that must clearly arise from a consideration of the actual state and wants of the patient, and not from any rules or precepts that can be set down in any book whatever. A gentleman might, for example, be impressed with the propriety of trusting to the unassisted powers of nature a patient whose antero-posterior diameter at the superior strait is three or even less than three inches, and he would be led to do so from an opinion he should form of the ability of the woman to support for a long time the efforts and the irritation of a most laborious labor; whereas, in another patient, having a pelvis of precisely the same dimensions, he might find the most urgent necessity to deliver immediately, to preserve her from otherwise inevitable death.

Besides deformities of the pelvis from mollities ossium and rachitis, there are other affections of the capacity of the basin, which are produced by bad arrangement of the form of the pubic arch—cases in which the arch is Saracenic, and not Roman; the descending rami of the pubes, instead of divaricating so considerably as to allow the rounded occiput to rise quite up into contact with the triangular liga-

ment of the pubis, compel it to descend far below the crown of the arch, to extend and be born.

Such a form of the arch is precisely equivalent to a preternaturally long symphysis pubis. The easiest labor, *cæteris paribus*, is that in which the symphysis pubis is the shortest—that in fact, in which the symphysis is but a narrow bar under which the head has an early opportunity to be extended in the third act of the mechanism of the head in the labor. In all cases where the arch is very narrow, and the head is compelled to descend very low previous to commencing its act of extension, the distress of the patient and her hazard are considerably augmented by the necessity of thrusting the perineum so much further down previous to commencing its act of extension. I have seen such labors in which the woman made the most desperate efforts at expulsion, and have been compelled, in consequence of this species of deformity, to exert all my strength and dexterity to extract the fœtal head with the forceps.

The obstetrical properties of the pelvis depend mainly upon the conformation of the anterior aspect of the sacrum: where its curve is too great, the point of the coccyx interferes with the antero-posterior diameter of the inferior strait, and where the curve is too small, that most important act in the mechanism, the rotation of the head, is rendered difficult, if not indeed impossible. I speak, from painful experience, of the difficulties I have encountered from this cause, in cases in which, having found the spontaneous rotation not possible, I have been compelled to effect it by locking the child's head in the blades of the forceps, and then, with a difficulty, and cautiousness, and slowness, and doubt, calculated to impress my mind with a sentiment not very different from one of horror, and after protracted efforts, finally crowned by success as to the mother at least—and sometimes, both for the mother and child—have thanked God for their escape.

Case.—On the 5th of January, 1849, I delivered a lady of her seventh child. It was the fifth forceps operation required in her case. The child's head measured, in its occipito-mental diameter, six inches; its occipito-frontal was $5\frac{9}{10}$ths, and its bi-parietal $4\frac{9}{10}$ths. There was no rotation. The left-hand blade of my forceps was applied upon the occipital region, and the right-hand blade upon the frontal region. After the most exhausting efforts on my part, and unspeakable suffering on hers, the child was delivered with its vertex to the left tuber ischii, and its forehead to the right. To-day, January 9, the mother and child appear to be in perfect health.

Notwithstanding I have already spoken of cases of labor rendered preternatural by prolapsion of the bladder, more properly to be called vaginal vesicocele, to which I refer the Student, I annex a drawing (Fig. 117), to show the mode in which the over-distended bladder may get beneath the head so as to prevent its descent. Fatal consequences might ensue from a mistake in the diagnosis of this case, of which the remedy is to be found in the use of the catheter.

Fig. 117.

In a former part of this book, is an account of a case that occurred to me in consultation with Dr. Bicknell—that of a woman in whom a large mass of intestinal convolutions had fallen down below the uterus and filled the cavity of the pelvis, occupying the recto-vaginal cul-de-sac, and distending it to an enormous size. This cause converted an otherwise perfectly healthy labor into a preternatural one. I think it probable that the woman would ultimately have fallen into a state of exhaustion, or that she would have developed inflammation in the mass of half strangulated intestinal convolutions, had not the cause of difficulty been ascertained, and the labor brought to a rapid conclusion by the return of the prolapsed bowel into the cavity of the abdomen. It is proper to cite the example in this connection, were it merely to indicate the possibility of such an occurrence, and the necessity of interference.

Many cases are mentioned of labors rendered preternatural by the engagement of a firm tumor, consisting of altered ovary occupying a considerable part of the excavation of the pelvis, and so preventing the descent and passage of the head. The rule of action, under such circumstances should be to endeavor by all the means in one's power to return the tumor above the strait; and, as such a tumor must necessarily be behind the uterus, attempts to push it out of the way would be far more likely to succeed, were the patient placed on the knees, the top of the breast being pressed upon the same plane on which the knees rest: the pelvis being thus elevated, the uterus would by gravitation be drawn far upwards out of the pelvis, leaving a more ample space for the reposition of the tumor; and the patient placed in this position is completely deprived of the tenesmic, or bearing-down power, a slight exertion of which would be sufficient, in almost any case, to contravene the efforts of the practitioner. In all such cases, then, I advise the Student to cause his patient to be placed in the position

above indicated, and with the hand in the vagina or one or two fingers in the rectum, endeavor to displace the tumor upwards.

It has been recommended, where displacement of the tumor upwards proves to be impossible, to endeavor to reduce its magnitude by puncturing it with a trocar, or incising it with a bistoury through the posterior wall of the vagina. I do not feel at liberty to recommend such an operation—one which could only be legitimately performed, upon mature consultation with the most acute and able practitioners of the vicinity. They alone should feel themselves vested with the authority to act under such terrible circumstances. Dr. Lever recites a case in which he punctured such a tumor through the vagina. The woman recovered happily, and at a subsequent period was delivered of a child by a Mr. Newth, surgeon.

I saw, in consultation with Dr. Beesley, of this city, a lady in whom a large heterologue mass seemed to spring from the left semi-circumference of the brim of the pelvis and iliac fossa, overhanging apparently nearly one-half of the plane of the superior strait. When labor came on, and the bag of waters was formed, the vaginal cervix became farciminal or cylindrical, so that, having got beneath the overhanging mass, it lifted it upwards and turned it over to the left side, permitting the head to fall into the excavation, whence it was soon happily expelled. After the birth of the child, the tumor resumed its former position, and the woman recovered.

An interesting account of tumors obstructing labor, by Dr. S. C. W. Lever, may be found in *Guy's Hospital Reports*, 1843, vol. i. p. 26.

Laceration of the Womb and Vagina.—It appears to me probable that most lacerations, or ruptures, as they are called, commence in the posterior wall of the vagina, nigh to the cervix uteri, where the vaginal wall consists merely of the mucous body and vaginal cellular tela, resting on a basement of peritoneum: the tube is so thin at this place that it is surprising to witness its power to resist, in certain labors where women, to the expulsive powers of the uterus, add all the force they are capable of exerting by means of their adjutory muscles. When the tissue becomes still thinner, as in being distended by a very large head, one would think that a fissure a line in length might prove the beginning of a laceration in which the rest of the vagina and the whole vaginal cervix would give way like a bit of torn linen. In any such case, if the head or presenting part should escape beyond the tube of the vagina or wall of the uterus, the pain will be greatly exaggerated and the uterus make haste to expel its burden into the peritoneal sac.

Upon the expulsion of the child and the contents of the uterus into the belly, the labor-throes cease, and a great calm immediately follows the accident, which is suspected to take place merely upon such a sudden and extraordinary cessation of the process, but which is known to have taken place, on discovering that the presenting part can no longer be detected, in consequence of its having escaped from the cavity which contained it.

Upon discovering even the smallest commencement of a laceration of the vagina or cervix uteri, the earliest precautions should be taken to insure delivery *per vias naturales*, and the prevention of the escape of the child into the peritoneal sac. This should be done, where it is practicable and convenient, by seizing the head, if it be the head, in the forceps; by bringing down the feet, if it be a breech; by turning and delivering, if it be a shoulder case; or a case of face presentation, or a departure of the chin, or any condition, indeed, in which the operation of version would be most likely to rescue the woman from the dangers by which she is surrounded.

Should the laceration have permitted the child to escape into the peritoneal sac, let the attendant lose no time, but bare his arm, and resolutely, with his hand passed through the rent, explore the abdomen in search of the feet, which he should immediately withdraw through the opening of the laceration. But if this be not done at once; if some hours should have elapsed subsequent to the occurrence of the accident; if the woman be already much exhausted by hemorrhage, by constitutional shock and irritation, the question will arise as to the properest manner of fulfilling the indication, which must ever be to extract the child. The hemorrhage will now have been stayed: were it not so, the woman would be already dead. To pass the hand through the rent, should it be in the vagina, would be to set the hemorrhage on foot again. It will be impossible afterwards to pass the hand through the rent in the uterus, because the uterus, being now contracted, will have reduced the size of the rent in proportion to the condensation of the organ. The child having passed through while the uterus was yet undiminished in size, can never be returned through a contracted rent, and the question arises as to the mode in which the indication is to be carried out.

I am convinced that, should I be called to the conduct of such a case, I should feel bound by my conscience to recommend delivery by gastrotomy. I cannot think that a clean incised wound along the linea alba, sufficient in length to permit the extraction of the child from the peritoneal sac, however exceptionable in itself merely considered, can be held in the least degree objectionable when compared

with the delay, the fatigue, the contusion, and the renewal of the suspended hemorrhage, that would inevitably attend an attempt to extract *per vias naturales.* I express this opinion here, upon a most vivid recollection of the distress which I occasioned to an unfortunate woman, who in consequence of a laceration affecting the posterior wall of the vagina and the vaginal cervix, drove her child into the cavity of the belly. As the head could be Touched, and as the child was dead—nearly twenty hours having elapsed since its escape from the uterus—I made use of the perforator, and then, seizing the head through the opening, with my embryotomy forceps, I used all the force which it was possible for me to employ in drawing it away through the natural passages. The unfortunate woman, who bore the rude operation with the greatest constancy and courage, lingered many hours after its close. The events of this case, which, peradventure, might have had a happier conclusion by means of the gastrotomy operation, have impressed me, more than a thousand arguments could do, with a deep conviction of the cruelty of such a mode of delivery; and I repeat here, in the most distinct terms, my decided preference for a delivery by means of an incision through the linea alba. The brilliant success of my fellow-townsman, Professor John Neill, in curing such a case by gastrotomy, only causes me the more to lament that I did not insist, in my case, on the same method of treatment.